

University of Oldenburg-University of Groningen

Water and Coastal Management Double Degree Master Programme

Master Thesis

**Coastal Management in Costa Rica, Germany and South Africa: are
international treaties put into local practice?**

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Abstract

The coastal zones have come to a level of degradation like never before. Human activities such as massive tourism, unsustainable fishing; and unplanned development have been impacted the coastal zone and generated devastation of its terrestrial and maritime ecosystems. Concerned by the situation, the scientific community has developed the integrated coastal zone management approach in order to bring a possible solution to all these problems. The international legal framework has been incorporated this integrated coastal management approach and has been promoted worldwide guidelines in order to implement it. However, its implementation by the countries hasn't been effective due to several reasons. Therefore, the aim of this Master Thesis is to explain what is the integrated coastal management approach, to what extent this approach has been incorporated first in the international legal framework, and then in national laws and policies; and finally to find out if there has been an effective implementation of it. The main results of the study are: on one hand, that the development of laws and policies on integrated coastal management in Costa Rica, Germany and South Africa have been influenced by the international treaties; and on the other hand, that there is an implementation of the integrated coastal management approach as customary practices; nevertheless, there is still a lot of work to do in order to improve that implementation.

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Chapter I. Introduction

I.1. Justification

Marine ecosystems are a part of the largest aquatic system on the planet, covering over 70% of the Earth's surface. The habitats that make up this vast system range from the productive nearshore regions to the barren ocean floor. Some examples of marine ecosystems are: Oceans, Estuaries, Salt Marshes, Coral Reefs and Mangrove Forests. Marine ecosystems are home to a host of different species ranging from tiny planktonic organisms that comprise the base of the marine food web (i.e., phytoplankton and zooplankton) to large marine mammals like whales, manatees, and seals. In addition, many fish species reside in marine ecosystems including flounder, scup, sea bass, monkfish, squid, mackerel, butterfish, and spiny dogfish. Birds are also plentiful including shorebirds, gulls, wading birds, and terns. In general, many animal species rely on marine ecosystems animals from both food and shelter from predators (EPA, 2011).

Marine ecosystems are essential to the overall health of both marine and terrestrial environments. According to the World Resources Center, coastal habitats alone account for approximately 1/3 of all marine biological productivity, and estuarine ecosystems (i.e salt marshes, seagrasses, mangrove forests) are among the most productive regions on the planet. In addition, other marine ecosystems such as coral reefs, provide food and shelter to the highest levels of marine diversity in the world. Despite the importance of marine ecosystems, increased human activities such as overfishing, coastal development, pollution, and the introduction of exotic species have caused significant damage and pose a serious threat to marine biodiversity.

The world's marine ecosystems continue to be degraded by unsustainable fishing practices, habitat degradation, eutrophication, toxic pollution, aerosol contamination, and emerging diseases. Against this background is a growing recognition among world leaders that positive actions are required on the part of governments and civil society to redress global environmental and resource degradation with actions to recover depleted fish populations, restore degraded habitats and reduce coastal pollution (UNEP, 2011).

In order to get closer to coastal zones, it is important to mention their main characteristics. Firstly, they are the interface between the land and oceans (FAO, 2006). Therefore, these areas have terrestrial but also marine ecosystems. It is due to this reason that it was important to start mentioning the enormous importance of the marine ecosystems. Secondly, the majority of the world's population inhabits in coastal zones (Nelson, 2011); that is leading to a rapid development, degradation and exploitation of these sites. Besides, it is generating a tragedy of commons and spread interest conflicts; and thirdly, coastal zones are continually changing because of the dynamic interaction between the oceans and the land (Barange et al, 2010). Waves and winds along the coast are both eroding rock and depositing sediment on a continuous basis, and rates of erosion and deposition vary considerably from day to day along such zones. The energy reaching the coast can become high during storms, and such high energies make coastal zones areas of high vulnerability to natural hazards (Nelson, 2011).

Overall, there are several problems affecting the coastal zones. More specifically, massive tourism, unsustainable fishing; and unplanned development have had a very negative impact in these areas. Water shortages, deforestation, lack of planning, degradation of the terrestrial and marine ecosystems, pollution, extinction of several marine species; and social inequalities are some examples of the problem that these areas are facing (UNEP, 2006).

These problems are a consequence, among others, of the rapid population growth, in which some coastal cities double their population in as little as a decade, as well, in the inadequate infrastructure to serve the current population, the increasing concentration of wealth among the richest 20% of the population; and the inability of existing institutions and governance tools and procedures to deal with these issues effectively (Olsen S., C. Christie, 2010).

Therefore, it could be stated that there is the need to re-address all these problems and try to find possible solutions. In order to achieve this aim a new way of management has been developed. This new approach

is the integrated coastal zone management. Therefore, in this research it is done first an analysis to know what is the extent of this approach, as well as its characteristics and principles, then what has been developed in the international framework to implement this approach; and finally to what extent this international framework has been implemented by the countries first as national laws and policies and then as customary practices.

In order to do that it has been necessary to delimit the study to a set of countries. Costa Rica, Germany and South Africa were selected as the focus of this research, firstly, because they have significant coastal zones, but also face significant problems. The second reason for choosing these countries is that they operate through democratic systems that seek to respect and implement international treaties. The third and final reason for selecting these countries is that comparing between a developed country such as Germany and developing countries like Costa Rica and South Africa will illustrate differences in their response to regulating coastal zones and the challenges of implementing the integrated coastal zone management in different contexts, and thus allow for shared learning.

I.2. Hypothesis

The environmental compromises acquired by the States when signing and ratifying international treaties focus on coastal management; and the protection of the sea, have been implemented by Costa Rica, Germany and South Africa in the sense of, first the adoption via the development of new national laws and policies; and second via the implementation of customary practices.

I.3. Research questions

1. What is the most relevant international legal framework that contains regulations on coastal management and sea protection?
2. To what extent this international framework has been implemented by the development of laws and policies in Costa Rica, Germany and South Africa?
3. What has been done by Costa Rica, Germany and South Africa in order to implement integrated coastal management practices and how these practices have been supported or hindered by the international legal framework?

I.4. Research objectives

The objectives of this Master Thesis are:

General: Study the national legal frameworks and specific customary practices developed in Costa Rica, Germany and South Africa in order to implement the integrated coastal management approach.

Specifics:

- Investigate the most relevant international legal framework that contains regulations on coastal management and sea protection.
- Scrutinize if these international regulations are been incorporated by Costa Rica, Germany and South Africa in national laws and policies.
- Analyze if the national laws and policies in Costa Rica, Germany and South Africa about integrated coastal management are been implemented as customary practices.

I.5. Methodology

In the first stage, a compilation of scientific documents such as books and journals was completed in order to elaborate the theoretical framework of the coasts, its problems and the integrated coastal management approach. This was done, by researching on the Internet and in library the most influential scientific data about coasts and the integrated coastal management approach. The analysis of these instruments was focus in what is the integrated coastal management approach, its characteristics, its scope and its challenges.

Then, in a second stage, a compilation of the international treaties was completed. The focus of this analysis was made on the measures that the governments should be taken in order to implement integrated coastal management practices. This was completed, by researching on the Internet and at the Library what are the most influential international treaties that are mentioning coastal management and sea protection.

In a third stage another legal analysis was done. This time the analysis was focus on to what extend these international treaties have been incorporated in the national laws and policies in Costa Rica, Germany and South Africa. In order to complete this task a review and an analysis of the laws and policies of Costa Rica, Germany and South Africa was done.

After finishing these parts, in a fourth stage interviews with key policy-makers, governmental stakeholders and non government stakeholders in coastal management in Costa Rica, Germany and South Africa were completed. The interviews were made in order to understand how coastal management works in practice in these countries; and which examples could be used as remarkable examples of the implementation of the integrated coastal management approach; and the extent to which they respond to national and international legal frameworks. In order to do this, two different semi-structured questionnaires were composed and applied which can be seen in the Appendix. A general questionnaire was applied first in order to obtain general information; and a more specific one was applied to the people who are directly working with the chosen cases.

In the last stage a comparative analysis was completed. This was done in order to compare the different measures taken by Costa Rica, Germany and South Africa in order to implement the integrated coastal management approach. As well, it was written some conclusions and recommendations.

I.6. Outline

The thesis Coastal Management in Costa Rica, Germany and South Africa: are international treaties put into local practice?, is complementary studying three different ways of dealing with coastal management in order to determine what is the most relevant international legal framework that contains regulations on coastal management and sea protection?, to what extent this international framework has been implemented by the development of laws and policies in Costa Rica, Germany and South Africa and, what has been done by Costa Rica, Germany and South Africa in order to implement integrated coastal management practices; and how these practices have been supported or hindered by the international legal framework .

First, it is elaborated the theoretical framework of the coasts, its problems and the integrated coastal management approach. Second a highlighting of the international legal framework in coastal management and the protection of the sea; and the need of these instruments is done. Then, an analysis on how these instruments influence national laws and policies is completed.

Afterward, an analysis of the legal frameworks of Costa Rica, Germany and South Africa is fulfilled. Next, different experiences in coastal management in Costa Rica, Germany and South Africa are completed. The experiences are Marino Ballena National Park in the case of Costa Rica, Langeoog Island in the case of Germany; and Sundays Estuary in the case of South Africa. The main objective of this analysis is to make an overview of the context of the three cases and decide whether they are following and to which extent an integrated coastal management approach.

Then, a comparison between the three cases is done. This comparison is mentioning which processes have been more successful implementing an integrated coastal management approach, which ones less and what can they learn from each other. Finally, some conclusions and recommendations are presented.

I.7 Research literature conducted to date

There is a scientific consensus of the value of incorporating integrated approaches to coastal management in order to address the mentioned problems which have been widely acknowledged globally. Therefore, generally the definitions about coastal management are including the *integrated* approach.

This research is looking forward to determine the implementation of the integrated approach in the international legal framework related to coastal issues. One of the most relevant international instruments of this kind are Agenda 21 and its Chapter 17, which establishes the protection of the oceans, seas and coastal areas, and the rational use and development of their living resources. As well, the United Nations Framework Convention on Climate Change (UNFCCC) which requires the States to prepare integrated coastal management plans.

Besides, there are several international treaties, dealing specifically with marine issues being the most important of these, the United Nations Convention on the Law of the Sea (UNCLOS). All these international instruments are been analyzed to determine the extent of the inclusion of the integrated approach in the international legal framework. Nevertheless, this international framework has also been criticized for failing in achieving its mandates. It is know that the countries when signing and ratifying the international treaties are becoming responsible for adopting internal legislation in order to foster its implementation; but this statement is not always becoming a fact.

Therefore, in this research an analysis is done to determine what has been developed in the international framework and to what extent the international framework has been incorporated in the development of laws and policies in Costa Rica, Germany and South Africa. In addition, the research is studying customary practices in these countries in order to determine if there is an implementation of the international framework and the national laws and policies about integrated coastal management.

So far, there has been minimal analysis to date to identify what works and what doesn't of the international framework related to coastal management. Therefore, this Master Thesis will provide an analysis of what are the most relevant international treaties which are addressing coastal management issues and if they are incorporating the integrated approach; what are they mandating; how these international treaties are been implemented at national levels by the development of laws and policies; and finally if there is an implementation of all these legal instruments in customary practices.

II Chapter. Theoretical framework

When thinking about the fast development and devastation of coastal zones in the world, appears the necessity to do something. New paths of dealing, using, conserving and protecting the coastal zones are fundamental (Cicin-Sain, B., and Knecht, R., 1998). Due to this fact a new management approach becomes a necessity (Christie, P. 2005). The increase of awareness on implementing a new and a better coastal management is a consensus. It is also a consensus that this new manner has to be an integrated manner. Unfortunately, not of all the countries have the same possibilities due to economic, political and social issues to implement the integrated coastal management approach. Therefore, implementation is a key concept.

The focus of this research is to determine the extent of the implementation of the integrated coastal management approach in a developed country like Germany and two developing countries like South Africa and Costa Rica. In order to determine this implementation, first a legal analysis at the national level is been done; and then a study of customary practices is been fulfilled to find out if there is an effective implementation of the integrated coastal management approach.

This chapter is defining and explaining in a detailed matter the frame of theory that is been used in this research. It elaborates the extend of the problems faced by the coastal zones, the development of the coastal management approach, the concept and principles of integrated coastal management, the characteristics of the international legal framework, the concept of national laws and policies; and finally, the fundamental characteristics of the sustainable development.

II.1. Problems faced by Coastal Zones

Coastal zones are facing many environmental problems mainly because of human activities. The human influence on climate change is thought to be a contributing factor of an accelerated trend in sea level rise which threatens coastal habitats (IPCC, 2007). Besides, another key problem is pollution which can occur from a number of sources: domestic garbage, industrial pollutants, oil spills, waste waters and so forth (World Bank, 1996).

As well, fishing has diminished due to habitat degradation, overfishing, and climate change. Since the growth of global fishing enterprises after the 1950's, intensive fishing has gone from a few concentrated areas to encompass nearly all fisheries (Christie, P. 2005).

In addition, Olsen and Christie (2000) have pointed out as major problems faced by coastal zones as follows:

- the degradation or destruction of important coastal habitats (wetlands, coral reefs, sea grasses, estuaries) and the resulting loss of biological diversity;
- the decline of estuarine-dependent fish and shellfish populations and their associated fisheries;
- declining nearshore water quality and changes to the volume, quality, and pulsing of freshwater inflows to estuaries;
- the inappropriate sitting of shorefront infrastructure and their subsequent high vulnerability to the impacts of floods, storms, and erosion/accretion processes and;
- reduced access for traditional users and the public to the shore, wetlands, and fishing grounds.

Furthermore, the World Bank (1996) has been mentioned other kind of problems affecting the coastal zones, which are: (1) desire to increase the economic benefits flowing from the use of coastal zone resources, (2) serious resource depletion problems, (3) increasing pollution of the coastal and ocean environment, (4) loss of or damage to productive coastal ecosystem, (5) increasing losses of life and

property from natural coastal hazards and disasters, (6) perceived economic opportunities associated with new forms of development in the coastal zone, and (7) conflicts of interest among user groups.

Therefore, there is the need to take actions in order to reverse this desolate panorama. These actions have to be taken by everybody, governments, civil society, scientists, NGOs, companies, and so forth; and must be put into practice immediately.

II.2 Development of coastal management approach

O’Riordan and Vellinga (1993) identify four key phases in the development of coastal management. First, the period from 1950 to 1970 was characterized by a sectoral approach which was largely reactive to coastal problems, had very little public participation, and lacked an ecological focus. It was towards the end of this period when the term *coastal zone management* was created as part of the United States Coastal Zone Management Act. Second, there was a period from 1970 to 1990 when there was a growing environmental awareness and development of environmental impact assessment increased public participation, greater integration between sectors, heightened ecological awareness, and a dominance of engineering solutions, but at times a forward-looking rather than reactive approach.

O’Riordan and Vellinga’s third phase is from 1990 to the time of their writing (1993) when the emphasis had shifted to sustainable development, integrated management, environmental restoration and public participation. For them the final phase looks to the future, with a focus on ecological empathy, precautionary management and shared governance.

Cicin-Sain (1993) suggests a five stage continuum of coastal management from fragmented through communication, coordination and harmonization to integration. The five stages along this continuum have been described as follows:

- Fragmented stage: many small organizations are operating independently with little communication between them;
- Communication stage: there is regular but occasional communication between different organizations;
- Coordination stage: different organizations are in close communication and synchronize their work;
- Harmonization stage: different groups synchronize their work along universally agreed policy guidelines;
- Integration stage: complete synchronization and formal mechanisms along which work must be carried out, therefore independence of individual organizations is lost and fully integrated coastal management is achieved.

As there is a move towards integration it could be stated that there is the need of higher degree of formal mechanisms like international treaties and national laws and policies.

Besides these phases and stages, there is another approach proposed by Christie et al (1997), which argues that there are four main approaches to tropical coastal management which are: pre-colonial management, centralized management, community-based coastal management; and integrating approaches, in these last approaches are mentioning the co-management and the integrated coastal management. The four main approaches are as follows:

- Pre-colonial management: What little is understood of pre-colonial systems of resource management is largely based on historical government reports and observations of those systems that have survived. There is also evidence that, in some areas, pre-colonial management simply

was management by default. Although, some coastal societies, such as the island management regimes of Oceania, had sophisticated traditions which encouraged conservation.

- Centralized management: After colonialism the coastal communities suffered transference of governance of coastal areas from communities to local and national government bodies. That was the beginning of the decline of the coastal resources and overexploitation.
- Community-based coastal management: The environmental degradation and social strife that were the legacy of first colonialism and later centralized approaches were the impetus for community based approaches to coastal management. Equally important, was their potential for remarkable environmental recovery and communal empowerment.
- Integrating approaches: After community-based coastal management there was the need to have more participative management which integrated not just local fishers and community, but complemented by the ability of the state to provide enabling legislation, enforcement and other assistance; as well as scientific community, universities, NGOs and so forth.

This last statement is demonstrating the importance for the integrated approaches to have participative processes when dealing with coastal management.

II.3. The concept and principles of the integrated coastal zone management approach

The integrated coastal management is a dynamic process by which actions are taken for the use, development and protection of coastal resources and areas to achieve national goals established in cooperation with user groups and regional and local authorities (FAO, 2006). It is also an approach which combines various aspects like economic, social, cultural and environmental to solve the problems in the coastal areas.

The concept has been developed throughout the past decades. Before that, coastal management ignored by not taken into account sustainable approach, regulation policy was sectoral and uncoordinated (Calado et al 2007). Therefore, it was necessarily to consider with balanced comprehensive connections among public, economics and environmental resources aspects (Christie, P. 2005).

The core idea of integrated coastal zone management is to develop a holistic approach in order to manage the resources in a sustainable and responsible way (Schernewski, 2002). Coastal areas consist of various types of ecosystems which are connected to each other, interrelated and not mutually exclusive. Changes or damages that afflict an ecosystem will overwrite all other ecosystems. In a transdisciplinary context, one should consider the coastal system as a multidimensional entity that consists on the physical reality, institutions, knowledge, perceptions, and paradigms, economic and cultural values (Job et al, 1999).

The integrated coastal management approach is attempting to balance the benefits from the economic development and human uses of the coastal area. Furthermore, this concept is rapidly been adopted by countries that have long coastal line as well as archipelagic countries; such as South Africa and Indonesia, respectively. Indonesia has developed in the past years several initiatives in order to implement the integrated coastal management approach, such as, improving the administrative capacities of local governments in the coastal zones (Yusran Siry, 2006) and involving more communities and stakeholders in the management of the coastal zones and in local public services (Dirhamsyah, 2005).

That is the main reason to develop coastal areas as integration, so that interdisciplinary coastal research is strongly needed to improve our understanding of the dynamics of the coastal system. Integrated coastal management as a broad system of management starts from collecting the information, planning, decision-making, implementation, monitoring and ends with the evaluation. But once an integrated coastal management strategy is designed, it should starts to somehow minimize the local influences impacts (Calado et al 2007).

Integrated coastal zone management utilizes a range of core management principles (Allmendinger, et al 2002). These include the following:

- Within, and across sectors, so that sectoral activities are sustainably managed;
- Within, and between, units and levels of government, including between nations in the international community;
- Over varying temporal scales;
- Between areas of science and between science and management;
- Through natural systems and across the land– sea divide;
- Of the needs of all stakeholder groups (Taussik, 2000 cited on Allmendinger, 2002).

In addition, there is compilation of the basic principles of the integrated coastal management approach done by Sorenson (1997) which is the following:

- There needs to be “horizontal integration”. This refers to the need, at any particular level of coastal management (local, sub-national, and national), for integration of the activities of all agencies and stakeholders.
- There needs to be “vertical integration” between various levels of government (and agencies) involved in coastal planning and management for example: between national, sub-national and local government.
- Planning and management of the coastal zone requires the linkage of catchment-based approaches with coastal and seabed approaches. The catchment, coast and sea should be seen, planned and managed as an inter-linked and inter-dependant system.
- There needs to be integration of the disciplines that study specific sections of the coastal area (science, social science, economics and politics).
- An educational (capacity building) and research program must be integrated into the coastal program.

In addition, the word integrated also refers to four types of integration: spatial, temporal, vertical and horizontal (Calado et al 2007). Spatial integration includes the cross-cutting problems related to boundaries, how far inland and how far out to sea is considered by the project, marine and terrestrial issues should be given equal weighting, natural processes do not respect administrative boundaries. On the other hand, temporal integration considers issues of lag-times, therefore decisions made now must consider the impacts well into the future to ensure sustainability, precautionary decision making (McGlashan, 2000).

Then, there is the vertical integration all levels inter-link, cooperate and integrate: site plans compliment local plans, which fit with coastal cell plans and national and international strategies, each may have a different role, but they must also compliment; and finally, horizontal integration is bringing together of different topics in the context of coastal decision making (e.g. coastal defence, economic development, nature conservation etc.) different departments and organizations working with each other rather than in isolation (McGlashan, 2000).

Although, the development of the concept of the integrated coastal management approaches, and the several types of integration, there are still some shortcomings. One of its limitations may lie in the primacy placed on the role of governments, rather than local communities (Christie & White 1997). Nevertheless, it is known that there is the need of participative processes when dealing with coastal management in order to achieve better results. This process may be interpreted as reinforcing the sovereign control of government agencies over the governance of coastal resources. This is, nonetheless, a perspective that is widely accepted by government members, local coastal inhabitants, and many coastal managers. Given the

scale of forces affecting coastal communities today, national and local governments may be the only stakeholders presently able to act as legal guardians (Christie & White 1997).

So far, the implementation on this approach represents a hard task for the countries. Still continues the degradation and destruction of important coastal zones, wetlands, coral reefs, seagrasses, and estuaries, resulting in the loss of biological diversity; as well, the decline of estuarine-dependent fish and shellfish populations and their associated fisheries; and the declining nearshore water quality and changes to the volume and quality; and finally, the inappropriate siting of shorefront infrastructure and their subsequent high vulnerability to the impacts of floods, storms, and erosion.

The challenges are similar in developing and developed nations (Christie & White 1997). The differences lie in the prevalence of poverty and the pace of social and ecosystem change. In the developing countries the decline in ecosystem qualities is much more rapid than in most developed nations, and in developing countries a large proportion of the coastal population are depending upon their immediate environment for their survival and have few options for alternative ways to support themselves when such local resources fail.

Therefore, after the analysis of the integrated coastal management approach, its development, characteristics, principles and different approaches from different authors, it could be stated that for this research the next list of criteria is the most relevant one. Preserving ecological, social and cultural richness; create a sustainable development, having participative processes, and develop management tools as laws and policies which are actually been implemented in customary practices. The importance of pointing out these criteria is to make clear the most relevant characteristics of the integrated coastal management approach for this research.

It is central to mention that the coastal zones are not just important for its ecological richness but also because of their social and cultural values. Therefore, it is relevant to stress the importance to implement mechanisms to preserve the marine and terrestrial ecosystems, but also to create a better quality of life for the people currently living in these areas and for future generations. In addition, it is relevant to stress the importance of having coastal laws and policies in order to have a better management and even more important is to guarantee their implementation. Finally, it is fundamental to include participative processes when developing these management tools.

Criteria
Sustainable development (O’Riordan and Vellinga, 1993) (Schernewski, 2002)
Preserving ecological, social and cultural values (Job et al, 1999)
Developing management tools as laws and policies (Olsen S., C. Christie, 2010)
Implementation of management tools (Calado et al 2007)
Public participation (O’Riordan and Vellinga, 1993)

Figure 1 Criteria taken from the theoretical framework that will be used for the comparative analysis

II.4. International Legal Framework

Apart, from defining the problems faced by the coastal zones and the integrated coastal management approach, it is important to define what is an international treaty and to what extent these instruments are forcing the governments to obey its mandates.

An international treaty is an official written agreement that the States use to compromise themselves to do specific actions (FAO, 2006). Therefore, is an instrument that require governments certain obligations. This means that international treaties are agreements made by governments in order to achieve specific objectives. There are binding and non-binding international treaties.

International treaties may require the countries to take certain measures by virtue of it being party to a legally binding treaty such as the Convention on Biological Diversity, or the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Designers or reformers of legal frameworks for integrated coastal management must be conscious of these requirements at all times.

In addition, the principles, standards and recommendations contained in non-binding international declarations, such as Agenda 21 or the FAO Code of Conduct for Responsible Fisheries, can provide extremely valuable guidance because many of the international coastal issues which they deal with are equally relevant to national coastal management.

Furthermore, the standards and approaches recommended in these documents often reflect a wide consensus on what constitutes best practice, and can therefore serve as a valuable means of measuring and evaluating national frameworks for integrated coastal management.

II.5. National Laws and Policies

Another part of the frame of theory that has to be described is the one related to laws and policies. Law is understood as all the written regulations passed by a legislative body, minister or other organ of State to whom or which legislative power has been delegated (FAO, Guidelines 2006). It is important to make the difference between law and other forms of legislation like: decrees, acts, plans, ordinances and so forth. Even though this research is focus on the analysis of national laws in Costa Rica, Germany and South Africa in some cases there are references made about decrees, plans, programs and so forth.

For the purposes of this research national law is distinct from international law. On one hand, the national laws are the ones that are just been applied in a specific country where they were issued; on the other hand, the international law is been applied by several countries. As well, it is relevant to mention that for the purposes of this study, law emanating from sub-national authorities such as the governments of Federal States constitutes national law, which is the case of Germany.

The most familiar role played by law is when a legislative authority (e.g. parliament, municipal council, a minister to whom rule-making powers have been delegated) passes a law (e.g. an act or regulation) which prescribes certain standards of behavior and imposes penalties for failure to comply. This type of governance is sometimes called "command and control" because it commands people to do, or refrain from doing, something and then puts in place control measures to ensure that they comply (FAO Guidelines, 2006). Laws are also used to define political entities, such as States, to constitute entities within them, such as companies or public institutions; and to define the relationships among them.

For example, in most countries the constitution defines the way in which power is exercised within that society, and the fundamental nature of the relationships between people and entities within that society and between them and aspects of their environment. This is often achieved by allocating rights and obligations among different groups in society. The rights and obligations (or lack of them) of the members of the public which the law recognizes can also be an important factor in determining how effectively an integrated coastal management law can be implemented into practice.

Related to law there are the public policies which in this research are been understood as the course of action selected by the government to guide decisions about a need or a situation of public interest (FAO, 2006). The need or situation that is going to be mentioned through the entire research is the implementation of the integrated coastal management approach. Another relevant aspect to mention about public policies is the fact that individuals and groups often attempt to shape public policy through education, advocacy, or mobilization of interest groups. A major aspect of public policy for this research is that is a different concept from law.

II.6. Sustainable Development

This concept was adopted on December 9th 1987 by the General Assembly of the United Nations. This step in the global consciousness was achieved thanks to the Brundtland-report (1987) where the concept of sustainable development was popularized, defining it as: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987)

Later on, at the Rio Conference on the Environment and Development in 1992, this concept was implemented into the Agenda 21. Also it was mentioned that the sustainable development should become a central guiding principle of the United Nations (UN), governments and private institutions, organizations and enterprises. The concept of sustainable development is not a legal principle in the strict sense. Its precise meaning is still contested, there is no agreement as to how to determine whether or not any particular development is sustainable, and it is perhaps better understood as a policy goal.

Nevertheless, from the perspective of integrated coastal management law it is worthy of attention because it is now almost universally endorsed by the States and is mentioned in many international legal instruments and policy documents; requires the application of other principles as inter and intra generational equity; and has been recognized by the International Court of Justice as relevant to the interpretation of international law (FAO Guidelines, 2006).

In the next chapter it is been developed the analysis of the most relevant international legal framework that contains regulations on coastal management. An important part of the analysis it is been focused on which is the approach of coastal management that the international treaties are using.

Chapter III. Analysis of the international legal framework that contains regulations on coastal management.

In this chapter is been analyzed which are the main international treaties that have been developed in order to implement the integrated coastal management approach. This analysis is focus on the approach of coastal management used in the international treaties and what are the main characteristics and principles that have been developed around coastal management issues. As well, are been analyzed some treaties which nevertheless are not directly related with the integrated coastal management approach, there are indirectly connected with this topic, such as treaties about climate change, wetlands, biodiversity, endangered species and so on.

After analyzing the international legal framework another legal study is done at the national level for Costa Rica, Germany and South Africa. In the case of Germany due to the importance of the European Union Directives the legal analysis is including also these instruments.



Figure 2 The six levels of the legal framework that are been analyzed in this research

II.1. Agenda 21 (Rio de Janeiro, 1992)

Agenda 21 is the only document signed at the United Nations Conference on Environment and Development (UNCED), which attempts to embrace the entire environment and development agenda. UNCED was held in Rio de Janeiro in 1992, twenty years after the initial United Nations Conference on the Human Environment, which took place in Stockholm, in order to provide further guidance to nations related to environmental concerns. Agenda 21 is also the largest product of UNCED, comprising 40 chapters and 800 pages and states goals and priorities regarding a dozen major resource, environmental, social, legal, financial, and institutional issues. Each chapter contains a description of a program and its estimated cost.

Agenda 21 is not a legally binding document but a set of principles for what can be called “a new path of action” for the countries of the world, with a political commitment to pursue a set of aims. It is a soft law; nevertheless, the contentious negotiation of many parts of Agenda 21 underscores its importance to the signatories. Costa Rica, Germany and South Africa are signatories of this Declaration.

Agenda 21, it is intended to serve as a kind of road map pointing the direction toward sustainable development. It represents an ambitious effort to provide recommendations across the entire spectrum of environment, development and social issues confronting humankind today. In terms of social and economic issues, it addresses poverty, overconsumption and production, population and human development problems.

The forty chapters of Agenda 21 are divided into four major headings which are: social and economic dimension; conservation and management of resources for development; strengthening the role of major groups and means of implementation; plus a preamble. Within the section conservation and management of resources for development, chapter 17 is been discussed in this research. This chapter contains the regulation about protection of the oceans and all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources.

This chapter of Agenda 21 sets forth rights and obligations of States and provides the international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources. The introduction of the chapter stresses both the importance of oceans and coasts in the global life support system and the positive opportunity for sustainable development that ocean and coastal areas represents. As well, the introduction establishes a key point that underlines the entire chapter “new approaches to marine and coastal area management are needed”, approaches that are integrated in content; and precautionary and anticipatory in ambit of action.

Besides, the introduction of this chapter also underscore that the United Nations Convention on the Law of the Sea “provides the international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources”. Once completed the analysis of Agenda 21, it is discussed the United Nations Convention on the Law of the Sea.

It is relevant to mention that in all this kind of treaties about environmental rights there is a clause which is stating that for developing countries the implementation of the proposed actions should be “progressive”. That means that the compliance of the international treaty will be subjected to the economic development of the country. This is the case that has been faced by the integrated coastal management approach international framework.

The fact that has been just pointed out is the main difference between developed and developing countries on the implementation of this kind of treaties. For developing countries like Costa Rica and South Africa the clause of progressive implementation on environmental rights applies; nonetheless, there isn't the same prerogative for a developed country like Germany. In the case of Germany applies a must situation, due to the fact that there are economic conditions to implement the proposed actions immediately.

Getting back to the subject under discussion, the new approaches provided by Agenda 21 and its chapter 17 to marine and coastal area management and development are divided at national, sub-regional, regional and global levels, and are reflected in seven different programme areas, which are the following:

- (a) Integrated management and sustainable development of coastal areas, including exclusive economic zones;
- (b) Marine environmental protection;
- (c) Sustainable use and conservation of marine living resources of the high seas;
- (d) Sustainable use and conservation of marine living resources under national jurisdiction;
- (e) Addressing critical uncertainties for the management of the marine environment and climate change;
- (f) Strengthening international, including regional, cooperation and coordination and;
- (g) Sustainable development of small islands.

Within this research it is been analyzed in detail the integrated management and sustainable development of the coastal areas, including exclusive economic zones programme due to this programme contains the actions that the coastal States have to commit themselves to implement under their national jurisdiction. The first important aspect that it is been analyzed, are the key concepts that have been used within this international instrument. Agenda 21 uses the concept of integrated management of the coasts but not just that; it is also added the term of sustainable development of the coasts.

Since the end of the decade of the 80's, specifically after Brundtland-report (1987), the international political agenda has been mentioned the necessity to achieve a sustainable development. Agenda 21 brings up the need to reach this sustainable development through integration, application of preventive and precautionary approaches and public participation. As well, the instrument calls for integrated policy and decision making processes and institutions, for integrated management and sustainable development of coastal and marine zones, at both local and national levels. It also provides suggested actions such as coordinating institutions should consider undertaking, such as preparation of coastal and marine use plans, environmental impact assessment and monitoring, contingency planning for both human-induced and natural disasters improvement of coastal human settlements, conservation and restoration of critical habitats and integration of sectoral programs into integrated frameworks.

In addition, Agenda 21 calls for cooperation among States in the preparation of national guidelines for integrated coastal management and the undertaking of measures to maintain biodiversity and productivity of marine species and habitats under national jurisdictions. Moreover, highlights the need for information on coastal and marine physical systems and uses, information on both natural science and social science variables, education and training in integrated coastal and marine management, and capacity building, including building of human resource capacity, support of pilot demonstration programs and projects in integrated coastal and marine management.

Finally, Agenda 21 states a strong affirmation of the need to include traditional ecological knowledge and socio-cultural values as an input to management and of the importance of coastal areas for local people. This is important because as it was mentioned above, for this Master Thesis the socio-cultural value of the coastal zones has to be preserved. Coastal zones should be managed in an ecologically sustainable and socially equitable way, which means using the natural resources in a rational way but also taking into consideration the needs of the people who inhabit these areas and their social and cultural values; consequently, all what is done in the coasts has to improve the quality of life of local people and help to preserve their social and cultural practices.

Overall, it can be stated that even though Agenda 21 is a not legally binding instrument, it is a master piece in creating a new path to lead the countries towards a more sustainable development through more participative processes. Agenda 21 is calling for a change of paradigm, for a change of action; it is strongly recommending starting thinking in a different way, in a more sustainable one.

Nevertheless, some people have criticized the recommendations made in chapter 17 of Agenda 21 as being too soft, as setting forth vague and general goals; and advocating strategies that in some cases are not well defined or completely articulated. Indeed, many people have said that several of the recommended approaches will have to be more fully fleshed out at future United Nations Conferences at the type explicitly called in the chapter 17.

II.2. The United Nations Convention on the Law of the Sea (Montego Bay, 1982)

This instrument represents not only the rights of nations relative to the ocean and its resources carefully spelled out, but also, the duties and obligations of nations are made clear. It could be stated that the main principles of this convention are: common heritage and integrated management, which are enshrined in the preamble to the convention. Once more, it is clear that the management approach used in international instruments when dealing with coasts is the integrated management.

The Convention on the Law of the Sea came into force in 1994. It provides a basic constitution for the oceans, delimiting how nations may establish national control in the oceans areas of 200 nautical miles offshore from their coasts and establishing the rights and duties of nations in those zones and on the high seas.

This convention delimits ocean zones under national jurisdiction and specifies the rights and responsibilities of nations in these zones and although it emphasizes the concept of ocean "wholeness" it generally provides little guidance to nations on how to govern ocean resources in a integrated manner, how to deal with the

effects of one use on other uses, and how to bring ocean and management together. The convention does establish the outer boundaries of national jurisdiction, set forth general principles for governing specific ocean uses (e.g., fishing operations and oil and gas development), and set standards for marine environmental protection; nevertheless, it does not address conflicts among uses or deal with alternative institutional mechanism for ocean and integrated coastal management. Conflict resolution provisions are just related to international disputes; however, there aren't dispositions for disputes among users within the countries.

The overall purpose of this Convention is to establish a comprehensive set of rules governing the oceans because the previous treaties that were addressing this topic were insufficient. These treaties were the United Nations Convention on the Law of the Sea from 1958; and the United Nations Convention on the Law of the Sea from 1960. That is why it was decided to have a new and inclusive United Nations Convention on the Law of the Sea back in 1982. This Convention was ratified by Costa Rica in 1992, by Germany in 1994 and by South Africa in 1997.

This convention introduced several new provisions. The most significant issues covered are: setting limits, navigation, archipelagic status and transit regimes, exclusive economic zones, continental shelf jurisdiction, deep seabed mining, the exploitation regime, protection of the marine environment, scientific research, and settlement of disputes. In addition, it calls for technology and wealth transfers from developed to developing nations. This is another relevant aspect of the international treaties, the repetitive principle about cooperation between developed and developing countries. It also requires the contracting party to adopt regulations and laws to control pollution of the marine environment. Further to the economic provisions, this treaty also establishes specific jurisdictional limits on the ocean area that countries may claim, including the 12-mile territorial sea limit and the 200-mile exclusive economic zone limit.

In this convention it is mentioned the management of the living resources of the high sea but it is not addressed to accomplish it in an integrated manner, nor either it is mentioned an integrated coastal management. It is about the right to fish and the measure for its conservation, and about measures to prevent, reduce and control pollution of the marine environment.

Consequently, it can be stated that even though, this Convention is having as a main principle the integrated management approach, is not directly providing specific guidelines for the states to improve the management done within the coastal areas.

II.3. Convention of Wetlands of International Importance Especially as Waterfowl Habitats (Ramsar, 1971)

The Convention of Wetlands of International Importance establishes that each contracting party shall designate suitable wetlands within its territory for inclusion in the list of Wetlands of International Importance, which is maintained by the bureau established under Article 8 of the convention. This convention is known as Ramsar Convention.

Ramsar Convention is obliging all the contradicting parties by its Article 2.4 to designate at least one wetland site for inclusion in the mentioned list. Sites are selected by the contracting parties for designation under the convention by reference to the criteria for the identification of wetlands of international importance. The parties' designations are communicated to the Ramsar Convention Secretariat by means of a Ramsar Information Sheet which provides legal and scientific data on each site and is meant to be updated every six years. Currently, there over than 1900 Ramsar Sites from 160 countries. South Africa ratified the convention in 1975, Germany in 1976 and Costa Rica in 1992 (http://www.ramsar.org/cda/es/ramsar-about-parties-parties/main/ramsar/1-36-123%5E23808_4000_2_).

In addition, the convention says that the boundaries of each wetland shall be precisely described and also delimited on a map and they may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands, especially

where these have importance as waterfowl habitat. Wetlands should be selected for the list on account of their international significance in terms of ecology, botany, zoology, limnology or hydrology. Each contracting party shall designate at least one wetland to be included in the List when signing the convention.

Ramsar Convention it's not making any reference to the integrated coastal management on the wetlands, neither in the coastal zones, but it should include this approach when dealing with wetlands because the coastal areas are entire units, so everything that happens around the wetlands will affect them.

It is clear from the analysis of this international instrument that a special kind of management and regulations based more on protection and conservation wants to be implemented in the case of wetlands, which is a positive aspect to guarantee the existence of these wonderful sites. Besides, the positive effects that the protection and conservation of these places have had in coastal areas such as the preservation of ecological equilibrium. Nevertheless, it should be considered as well that, these ecosystems are part of the coastal area; therefore, it is important to include as well recommendations as the implementation of the integrated management approach in their respective coastal area.

II.4. International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London, 1972)

This convention is generally known as the London Convention. The London Convention, represents one of the first international conventions for the protection of the marine environment from human activities. It came into force in 1975.

The London Convention contributes to the international control and prevention of marine pollution by prohibiting the dumping of certain hazardous materials. In addition, a special permit is required prior to dumping of a number of other identified materials and a general permit for other wastes or matter.

"Dumping" has been defined as the deliberate disposal at sea of wastes or other matter from vessels, aircraft, platforms or other man-made structures, as well as the deliberate disposal of these vessels or platforms themselves. Annexes list wastes which cannot be dumped and others for which a special dumping permit is required (<http://www.imo.org/>).

Amendments adopted in the oncoming years banned the dumping into sea of low-level radioactive wastes. Besides, the amendments phased out the dumping of industrial wastes and banned the incineration at sea of industrial wastes. Later on, the signatories' countries adopted a Protocol to this Convention.

The Protocol, which is meant to eventually replace the convention, represents a major change of approach to the question of how to regulate the use of the sea as a depository for waste materials. Rather than stating which materials may not be dumped, it prohibits all dumping, except for possibly acceptable wastes on the so-called "reverse list", contained in an annex to the protocol. Costa Rica, Germany and South Africa have signed and ratified this convention and its protocol.

In addition, this convention mentions that contracting party shall individually and collectively promote the effective control of all sources of pollution of the marine environment, and pledge themselves especially to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

This convention also establishes that signatories states have to take effective measures individually, according to their scientific, technical and economic capabilities, and collectively, to prevent marine pollution caused by dumping and shall harmonize their policies in this regard. In order to accomplish the objectives of this convention, the signatories countries with common interests to protect the marine environment in a given geographical area shall endeavour, taking into account characteristic regional features, to enter into regional agreements consistent with this convention.

The signatory countries shall promote, through collaboration within the organizations and other international bodies, support for those countries which request for: the training of scientific and technical personnel; the supply of necessary equipment and facilities for research and monitoring; and the disposal and treatment of waste and other measures to prevent or mitigate pollution caused by dumping; preferably within the countries concerned, so furthering the aims and purposes of this treaty.

In accordance with the principles of international law regarding countries responsibility for damage to the environment of the other states or to any other area of the environment, caused by dumping of wastes and other matter of all kinds, the contracting parties undertake to develop procedures for the assessment of liability and the settlement of disputes regarding dumping.

The signatory countries pledge themselves to promote, within the competent specialized agencies and other international bodies, measures to protect the marine environment against pollution caused by: hydrocarbons, including oil, and their wastes; other noxious or hazardous matter transported by vessels for purposes other than dumping; wastes generated in the course of operation of vessels, aircraft, platforms and other structures at sea; radio-active pollutants from all sources, including vessels; agents of chemical and biological warfare; and wastes or other matter directly arising from, or related to the exploration, exploitation and associated off-shore processing of sea-bed mineral resources. In addition, according to this convention the signatory countries will promote, within the appropriate international organization, the codification of signals to be used by vessels engaged in dumping.

Consequently, it can be stated that even though this convention is specifically dealing with the prohibition of all dumping and the prevention of marine pollution due dumping; it is not directly providing specific guidelines for the countries to implement the integrated coastal management approach. Nevertheless, the implementation of the provisions stated in this Convention provides an important tool to improve the quality of oceans and are part of the integrated management that is needed to be implemented in the oceans and in the coastal zones.

II.5. Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973)

This convention is known as CITES. It aims to protect endangered plant and animal species from illegal trade and over-exploitation. It was first drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union of Conservation of Nature (IUCN) General Assembly; however, it was concluded until 1973.

The trade with wild animals and plants crosses borders between countries; therefore, the effort to regulate this issue requires international cooperation to safeguard certain species from over-exploitation. CITES was conceived in the spirit of such cooperation. Currently, it accords varying degrees of protection to more than 30,000 species of animals and plants, whether they are traded as live specimens, fur coats or dried herbs (<http://www.cites.org/eng/disc/what.php>, 2012). The convention was opened for signature in 1973, and entered into force in 1975. It has been ratified by well over 100 countries worldwide, including Costa Rica and South Africa, which ratified the convention in 1975; and Germany that ratified it in 1976.

The aim of this convention is to regulate the trade of wild species. The convention has three Appendixes, in which includes, the regulations that the contracting party should follow for trading in order to protect wild fauna and flora. The contracting party shall not allow trade in specimens of species included in any of the three appendixes except in accordance with the provisions stated in this convention.

Appendix I include all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival; and must only be authorized in exceptional circumstances. Appendix II includes all species, which although not necessarily now threatened with extinction, but may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their

survival. Finally, Appendix III includes all species which any country identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the co-operation of other parties in the control of trade.

This convention also establishes that the signatory countries shall take appropriate measures to enforce the provisions of the three annexes and to prohibit trade in specimens in violation thereof. These measures include: to penalize trade in, or possession of, such specimens, or both; and to provide for the confiscation or return to the State of export of such specimens.

The importance of this convention is that when dealing with integrated coastal management, it has to mention the wild species that inhabit the marine and terrestrial ecosystems of the coastal zones. While these species continue being exploited in the coasts, an integrated management and a sustainable development cannot be achieved. Therefore, the enforcement of this convention is a key issue in order to foster the aspiration of integrated management and sustainable development. Even though, this convention is not providing specific guidelines for the countries to implement integrated management and it is just dealing with protection, conservation and sustainable development.

III.6. Convention of Climate Change (Rio de Janeiro, 1992)

This convention was agreed under the UNCED just like Agenda 21. Quoting from the IPCC report (2007), “climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It may be due to natural internal processes or external forcing or to persistent anthropogenic changes in the composition of the atmosphere or in land use”.

The ultimate objective of this convention is to achieve the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

In its preamble the convention states that because of the awareness of the countries on the role and importance in terrestrial and marine ecosystems of sinks and reservoirs of greenhouse gases it is important to establish this convention and all its recommendations. In order to achieve the objective of the convention all the signatory countries are committed to following:

1. To protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. In this statement it is clearly present the sustainable development approach.
2. To take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective, so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested parties.
3. As well, the countries have the right to, and should promote sustainable development. Policies and measures to protect the climate system against human-induced change should be appropriate for the specific conditions of each party and should be integrated with national development programmes, taking into account that economic development is essential for adopting measures to address climate change.

The importance of the climate change convention is that when dealing with integrated coastal management and sustainable development it has to mention climate change and its mitigation and adaptation

measures. While the causes that are contributing to climate change like the greenhouse gas concentrations are not been controlled, sustainable development and integrated coastal management cannot be achieved. Due to its vulnerability coastal zones are been especially affected by sea level rise, as a consequence of climate change; besides, these areas are threaten by erosion and associated habitat loss owing to increasing of storm surges. Intrusion of salt water to fresh water aquifers and coastal flooding are also influenced by the climate change.

Therefore, the enforcement of this convention is a fundamental matter in order to achieve the integrated coastal management approach; and allow to improve the environmental conditions of the coastal zone and to continue pursuing a more sustainable development.

In addition, in its commitments part this Convention is establishing that the parties shall cooperate in preparing for adaptation to the impacts of climate change, which one of its main adaptation measures is to elaborate appropriate and integrated plans for coastal zone management. Therefore, this convention is providing specific guidelines for the countries to implement the integrated coastal management through the figure of the integrated plans for coastal zones.

III.7. Convention of Biological Diversity (Rio de Janeiro, 1992)

This convention was also settled under the UCED just like Agenda 21 and the Convention of Climate Change. In this Convention once more, there is a reaffirmation about the important role of the States in environmental issues. Again it is said that the States have to be responsible for conserving their biological diversity and have to manage their biological resources in a sustainable manner. That is why these international treaties are relevant for environmental issues because they represent an effective mechanism to obligate the States to take actions to protect environmental resources.

The main objectives of this convention are: the conservation of biological diversity; the sustainable use of its components; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding. Consequently, it can be stated that this convention is looking forward to develop national strategies within the signatories countries for the conservation and sustainable management of biological diversity. This convention was also signed and ratified by Costa Rica, Germany and South Africa.

The convention also establishes that the contracting parties have the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control don't cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Besides, the convention stresses that each signatory country shall, in accordance with its particular conditions and capabilities: develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, the measures set out in this convention relevant to the signatory country; and to integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies.

In addition, it recognizes that the conservation of biological diversity is "a common concern of humankind" and is an integral part of the development process and that ecosystems, species and genes must be used for the benefit of humans; however, this should be done in a way and at a rate that does not lead to the long-term decline of biological diversity. Finally, the convention also suggest decision-makers guidance based on the precautionary principle that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

Once more it is clear that this convention, another outcome from UCED 1992, stresses the concept of sustainable development and integration, and the importance of its implementation by all the countries of the world. Therefore, the enforcement of this convention represents a fundamental need in order to achieve integrated coastal management and sustainable development in the coastal zones. Nevertheless, this convention is not providing specific guidelines related to the integrated coastal management approach.

International Instrument	Approach	Characteristics	Principles
Agenda 21	Integrated coastal zone management and sustainable development	New path of action	Participation and integration
Law of the Sea Convention	Management of living resources	Specific jurisdictional limits (12 mile territorial sea and the 200 mile exclusive economic zone)	Prevention, reduction and control
Ramsar Convention	Creation of wetlands	Preservation of ecological equilibrium	Conservation and protection
London Convention	Protection of the marine environment	Prohibition of dumping of certain hazardous materials at the sea	Control and prevention
CITES Convention	Protect endangered species of plants and animals	Regulate the trade of species and prohibition of trade of endangered species	Cooperation and protection
Climate Change Convention	Stabilization of greenhouse gas concentrations in the atmosphere and adaptation measures	Prevent dangerous anthropogenic interference with the climate system	Conservation and adaptation
Biological Diversity Convention	Sustainable development	The sustainable use of the biological resources and the fair and equitable sharing of the benefits	Conservation and protection

Figure 3 Summary of the International Legal Framework

Chapter III. Analysis of national laws, public policies and customary practices that have been implemented the integrated coastal management approach in Costa Rica, Germany and South Africa

In this chapter is explained if Costa Rica, Germany and South Africa have been implemented the international treaties analyzed in the previous chapter and the integrated coastal management approach, first as national laws and public policies; and then as customary practices on integrated coastal management.

III.1. Experience of Costa Rica

III.2. Costa Rican Coasts

Costa Rica is located between Nicaragua and Panamá, covering a total landmass of 51.100 Km². However, the marine area including Territorial Seas and Exclusive Economic Zones, is more than ten times larger, 589, 683 km². This is due to 200 mile-zone on the Pacific coast and the 200 miles around Coco's Island, which enlarges the Exclusive Economic Zones of Costa Rica (Wehrtmann and Cortés 2008).

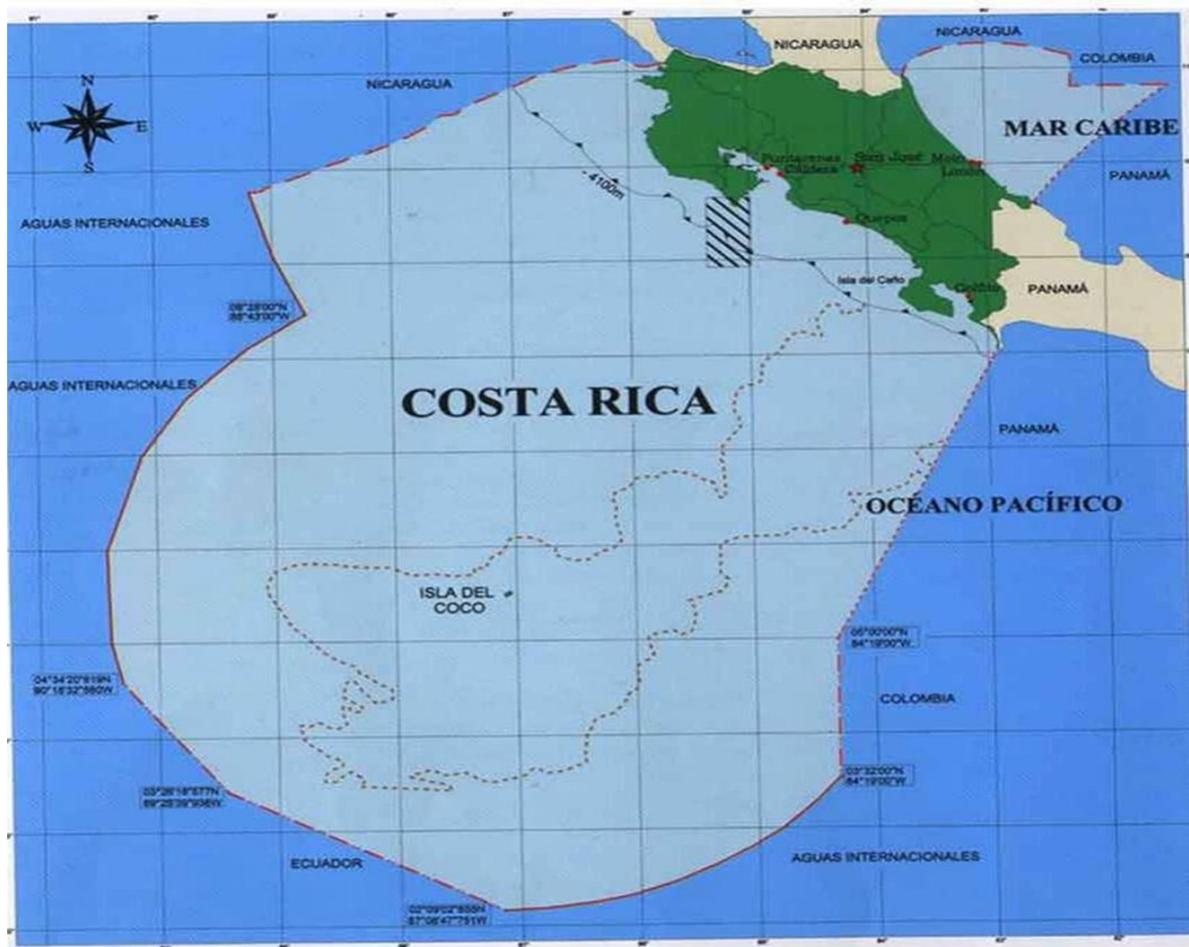


Figure 4 Total Maritime Territory of Costa Rica. Source: Marviva Foundation (2010).

Costa Rica is located in a tropical zone (8 ° - 11 ° latitude) with the Caribbean Sea to the east and west Pacific Ocean, which gives it great marine richness. The Pacific coast has a length of 1254 km and the continental shelf covers an area of 232 km. The Caribbean coast is smaller in size and complexity it has 212 line km and 42.4 km. (Jimenez, 2008).

Costa Rica has approximately 6700 marine species (3.5% of reported marine species globally), of which 90 are endemic (mostly in Coco's Island). The Pacific coast contains the largest number of species (4700),

while the Caribbean has about 2300 species (Wehrtmann and Cortés 2008). It poses a very huge fish resources also a large population of sea turtles and many coral species. In addition, in the coastal zones of Costa Rica there are six mangrove forests (Quesada and Cortés, 2006). Overall, Costa Rican coast is characterized by being heterogeneous and includes significant range of marine ecosystems among them: estuaries, salt marshes, coral reefs, mangrove forests, coastal islands, sandy and rocky beaches, an oceanic island, a tropic fjord, many inlets that serve as refuges and breeding grounds for marine birds; and rocky outcrops that protect many of the commercial fish species.

Nevertheless, in Costa Rica as in the rest of the world there are several problems regarding coastal management and their marine and terrestrial ecosystems.

III.3. Situation of Costa Rica Coasts

Costa Rica is subject to natural and anthropogenic impacts, being the main natural event affecting these systems the El Niño-Southern Oscillation. Nevertheless, human activities are the principal cause of the negative impacts. The Golfo de Nicoya which is the most productive coastal zone and the most important fishery ground in Costa Rica is also one of the most polluted coastal zones along the Pacific Coast. The principal polluters are: agrochemical and solid waste. Besides these, there are some polluters which play as well a role regarding pollution such as: fecal pollution, petroleum and heavy metals (Wehrtmann and Cortés 2008). In addition, several studies along both the Caribbean and Pacific coast have revealed that sedimentation is the principal source of coral reef degradation. Other source of human activities which is generating environmental impacts in Costa Rica is tourism. Direct impacts of this activity are generating, among other: changes in the morphology of coastal zones, poor waste management and sewage systems, extraction of marine resources, water and air pollution (Wehrtmann and Cortés 2008).

Therefore, in order to protect the coastal zones and the marine ecosystems existing in Costa Rica the government has been taking diverse initiative, being one of them, the signing and ratification of several international conventions related to coastal management and sea protection. With the adoption of these treaties Costa Rica has been developed an important amount of obligations in order to regulate human activities in the coastal zones and also different ways to protect the marine and terrestrial ecosystems which are part of these sites. The most relevant international treaties that Costa Rica has signed and ratified are the ones which were analyzed and discussed in the previous chapter.

Besides, one of the mayor achievements that Costa Rica has reached to protect their coastal zones is the creation of National Parks. With the establishment of this mechanism of conservation Costa Rica has been able to create many sanctuaries to conserve and protect their coastal zones.

III.4. Costa Rican laws and policies on coastal management

In Costa Rica the protection of the coast and its terrestrial and marine ecosystems is coming from different legal instrument. Firstly, there is the Maritime Terrestrial Zone Law; secondly there are several environmental Laws; and finally there are some Executive Degrees.

III.4.1. Maritime Terrestrial Zone Law

Costa Rica is having its Maritime Terrestrial Law since 1977, which means it was created before the UNCSD; therefore, some of the most relevant principles of integrated coastal management are not present in this instrument. Besides, I could not be stated that this law represents a compromise out of international treaties signed and ratified by Costa Rica. Nevertheless, it could be stressed that it represents the rich history of traditional controls over the allocation and use of coastal space and coastal resources that Costa Rica has had.

This Law establishes that the maritime terrestrial zone of Costa Rica is part of its national heritage, belongs to the State; and is inalienable and imprescriptible. Besides, it says that the protection of the maritime terrestrial zone, as well as that of its natural resources, is an obligation of the State, its institutions and all

the inhabitants of Costa Rica. In addition, it mentions that the use of this zone is subject to the provisions established in this law.

Moreover, this law is establishing that the Costa Rican Institute of Tourism is the institution in charge of the superior and general vigilance of the maritime terrestrial zone. This fact shows the clear vision that has been always prevailed in Costa Rica that coastal areas should be exploited for tourism, which now represents one of the major threats in these areas.

Besides, the law establishes that it is the competence of the municipalities to directly ensure the observance of this law referent to dominion, development, and use of the maritime terrestrial zone, especially of the tourist areas. Regarding the management of the maritime terrestrial zone, this law says that correspond to the municipalities of the respective jurisdiction.

The Costa Rican Institute of Tourism has the obligation to draft the National Tourism Development Plan. As well, with the collaboration of the Planning Office and other competent agencies has the responsibility to draft according to this plan, the General Land Use Plan in the maritime terrestrial zone, taking into account national development priorities and the national interest to preserve the maritime and terrestrial zone as national heritage.

The maritime terrestrial zone is defined in this law as the two-hundred meter wide strip of land along the Atlantic and Pacific littorals, of the Republic, whatever its nature, measured horizontally beginning from the ordinary high tide and lands and rocks that the sea leaves uncovered in low tide. For all legal effects, the maritime zone includes islands, keys and maritime cliffs, as well as all the land or natural formation standing out over the ocean level within the territorial sea of the Republic; with the exception of Coco's Island and other islands whose dominion or management are determined in the present law or special laws.

The maritime terrestrial zone is composed of two sections: the public zone, which is the fifty-meter wide strip of land, counting from the ordinary high tide and the area left uncovered in low tide; and the restricted zone, constituted by the remaining one hundred-fifty meters strip of land, or the other land, in case of islands. Keys, cliffs and other small areas and natural formations that stand out from the sea correspond to the public zone.

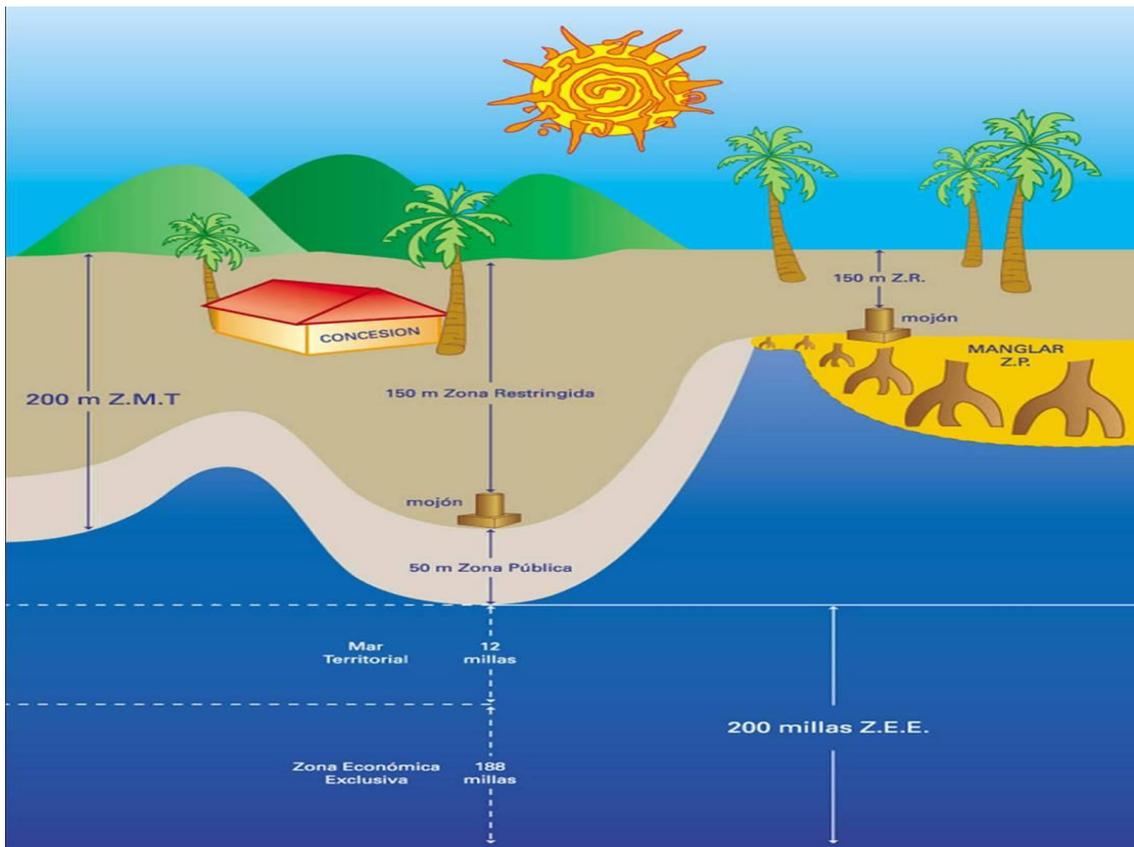


Figure 5 Maritime Terrestrial Zone. Source: Marviva Foundation (2010).

The public area may not be an object of occupation under any title or case. No one may claim any right over it. It will be dedicated to public use and especially to free transit of persons. The State or municipalities shall build the roads to guarantee access to the public areas. All existing accesses or the ones originated in the development project's planning of the public zone are declared of public interest, and their expropriation will proceed.

Concessions in the maritime terrestrial zone may only be granted on the restricted area, which means that any construction or development in the maritime terrestrial zone should be done in the one hundred-fifty meters after the first fifty meter of the public zone. This stipulation is having the objective to always leave the first fifty meters next to sea for public use and free transit, which represents the legal way to avoid the privatization of the beach and guarantee that everybody has the right to enjoy the natural beauty of these places.

It is also relevant to mention that the forest areas located in the maritime terrestrial zone are under the management and control of the Ministry of Environment, Energy and Telecommunications (MINAET).

After analyzing this law it could be stated that back in 1977 it was an important issue to guarantee the protection, the public use, the free access and the free transit in the coastal zone. In addition, it could be stated that having the Costa Rican Institute of Tourism as the institution in charge of the superior and general vigilance of the maritime terrestrial zone reflects the vision of Costa Rica to exploit the coastal zones as tourists places; nevertheless, there isn't specification about the integrated coastal management approach and its characteristics of preserving social and cultural richness, creating a sustainable development and having participative processes in decision making.

Coastal management in Costa Rica has been obeyed more to a lack of planning, with a lot of tourism and recently with a lot of real-estate development. However, it is different from region to region. Depending on the region has been more sustainable or less sustainable, but there is always the same characteristics, all coastal zones in Costa Rica are been used for tourism development. For example in the South the tourism

development has been more sustainable than in the North Pacific (based on personal communication with Gerardo Palacio, MINAET).

Besides this law, there are some others environmental laws which in one way or another are complementing the coastal management done in Costa Rica. Next, the most relevant ones are explained.

III.4.2. Forestry Law

The Forestry Law stipulates that the State has the role to ensure the conservation, protection and management of natural forests as well as for the production, harvesting, industrialization and development of the country's forestry. In doing so, the State should implement the principle of appropriate and sustainable use of renewable resources.

Under the public interest it is prohibited the cutting or harvesting of forests in national parks, biological reserves, mangroves, protected zones, wildlife sanctuaries and forest reserves.

This law is relevant for coastal management because all the forests areas located in the coastal zones are under the management of the MINAET; and this Ministry has to implement all the provisions stated in this law, in the coastal zones. Therefore, the State under the MINAET has to manage these sites applying the principle of appropriate and sustainable use of renewable resources.

III.4.3. Conservation of Wildlife Law

The Conservation of Wildlife Law regulates everything concerning wildlife that means continental and insular flora and fauna which lives in natural conditions in Costa Rica.

On the one hand, the National Conservation Areas System (SINAC), which is an organ of the MINAET, through the General Direction of Wildlife (DGVS) is the institution responsible for planning, development and control of wildlife. On the other hand, the Costa Rican Institute of Fisheries and Aquiculture (INCOPECA) regulates all matters relating to marine waters, especially those relating to fisheries.

Within the prohibitions established in this law are: hunting, fishing; and continental or insular wildlife extraction of endangered species.

In addition, this law sets a chapter for the import, export and transit of wildlife, in accordance with the CITES convention, where SINAC is the responsible organ for granting the export and import permits. It is a duty of Costa Rica to obey all the regulations stated in the three Appendixes of CITES, which were discussed in the previous chapter.

Consequently, it could be stated that this law is establishing protection, conservation and prohibitions measures for marine and terrestrial wildlife of the coastal zones; therefore, it has to be implemented when dealing with integrated coastal management approach.

III.4.4. National Parks Law

The National Parks Law states that the objective of the national parks is to preserve the natural heritage of Costa Rica. Besides, the law establishes that the responsible for the development and management of the national parks is the SINAC. This institution is in charge of study Costa Rican areas suitable for the preservation of flora and fauna; besides, it is responsible for the establishment of new national parks and to ensure the conservation of national parks; and finally, to establish programs for the dissemination of the achievements done in the national parks.

Among the prohibitions established in this law regarding visitors within the National Parks are:

- Cutting down trees and removes any plants or other forest products;
- Hunting or capturing wild animals;

- Hunting any species of sea turtles;
- Hatching, marking, staining or cause any injury or damage to plants;
- Sport fishing, industrial fishing or rudimentary fishing.

This law is significantly important because national parks are unique sites which are specially protected, which mean that in these places it is found the richest variety of natural ecosystem. The coastal zones located in National Parks are fundamental due to these characteristics. That is why the case study of Costa Rica is a National Park.

III.4.5. Fishing and Aquaculture Law

The Fishing and Aquaculture Law has the key objective to encourage and regulate fisheries and aquaculture at different stages, corresponding to the capture, extraction, processing, transportation, marketing and sustainable use of aquatic species. At the same time ensuring the conservation, protection and sustainable development of aquatic resources through appropriate and suitable methods to ensure their permanence to the use of current and future generations and for relations between the various persons or agents involved in the activity.

Besides, this Law establishes that the INCOPESCA is the Executive Unit of the Law and all its mandates; however, it is been made the exception regarding inland waters and protected areas in which case, as it has been already explained, the responsible institution is the MINAET.

In addition, this law declares the exclusive dominion and jurisdiction over marine resources and natural wealth in inland waters, territorial sea, exclusive economic zone and adjacent areas to the government of Costa Rica. Therefore, it could be stated that this law is establishing the responsible Units of the protection, conservation and management of marine resources in the sea.

Consequently, this law has also to be implemented when dealing with coastal management. However, once more it is possible to perceive that the development of these initiatives hasn't been followed an integrated coastal management approach. There are several governmental institutions involved in coastal management, but each of them has their own responsibilities which sometimes are not clear in the laws; and there isn't any reference to a coordination measures or integrated processes.

In Costa Rica one of the main challenges regarding environmental issues is the lack of comprehensive planning in the coastal zone. This is due to there isn't integration among all the responsible stakeholders such as Municipalities, MINAET, and its institution and so forth. There is also the need to clarify the legal provisions stated in different laws. There is an overlapping of the responsibilities of the different governmental institutions, mainly in the areas outside the protected areas. There is a need of a more clear definition in the Wildlife Law about what is wildlife, and its management in the marine ecosystems (based on personal communication with Wendy Barrantes Ramírez, ex director of Marino Ballena National Park).

Besides the above environmental laws, it is also important to mention the National Strategy for Integrated Management of Marine and Coastal Resources.

III.4.6. National Strategy for Integrated Management of Marine and Coastal Resources

This is an instrument which was created with the mission to promote sustainability of marine resources and coastal zones in Costa Rica, in a balanced context of environmental and social responsibility to ensure their conservation and promotes the healthy socioeconomic development, through integrated management which has to be led by the Government but having civil society participation. Nevertheless, it hasn't been implemented in a complete manner.

Besides, this policy was looking forward to have Costa Rica as a leader and model of the development of integrated marine and coastal management worldwide. It is established in this policy that the integrated marine and coastal management has to follow the principles of: ecosystem approach as a model for

achieving conservation of the coastal zones and marine resources; sustainable development as a vision of development that satisfies the present needs without compromising the right of future generations to meet their own needs; participation, as the integration of all the inhabitants of the Republic, in a framework of respect to work on the decision-making process, monitoring, control and execution of actions; and finally respect for culture as deference of the values, customs and traditions of coastal communities in the promotion of the integrated management of marine and coastal resources.

It can be seen that all the principles included in this policy are the ones that were mentioned in the definition of integrated coastal management presented in the theoretical framework; however, there is not yet an effective implementation of this policy. Unfortunately this policy hasn't been implemented due to several factors such as lack of economic resources for its implementation and above all a lack of institutional will. Besides, it represents basically a conservation policy not a management policy. In addition, when it was drafted there was no participation of all relevant stakeholders and competent institutions on coastal marine issues (based on personal communication with Wendy Barrantes Ramírez, ex director of Marino Ballena National Park).

In addition, in Costa Rica there are two new legal figures, which were created by the Executive Degree N° 34433-MINAE in 2008, in order to achieve marine conservation. These initiatives are the following: the Marine Reserve and the Marine Area Management. In both categories of management there are objectives of conservation and sustainable use of marine resources, coastal zones and oceans.

III.4.7. Marine Reserve

The Marine Reserves are marine areas created to ensure maintenance, integrity and viability of natural ecosystems, to benefit human communities through sustainable use of resources. In this areas are permitted various activities related to fishing and tourism; nevertheless, some fishing practices are prohibited, like the ones which are not sustainable. To date, Costa Rica hasn't created any marine reserve. However, it is expected to implement and to achieve the objectives of conservation and sustainable development of this initiative in the near future (Rodríguez, 20011).

III.4.8. Marine Management Area

The second category of management established for the management of marine ecosystems and coastal marine areas is the Marine Management Area, which is defined as a marine area that seeks to ensure the protection and maintenance of marine biodiversity in the long term, and to generate a sustainable flow of natural products and environmental community services. This category allows more uses than the marine reserve. Recently, it was created the Montes Submarinos Marine Management Area, as the first of its kind in Costa Rica (Rodríguez, 20011). This marine area management is located around Coco's Island National Park.

It could be stated that these two categories of management are initiatives of the government and several stakeholders in order to protect and conserve the marine ecosystems in Costa Rica; nevertheless, it is clear that all the initiatives are fragmented and that there is no integrated coastal management approach. It is visible that in Costa Rica there are several strategies to achieve sustainable development; however, there aren't in an integrative manner.

Besides all the laws discussed above, there is another important legal instrument related to the coastal management which is the coastal management plan. There is a new guide for the elaboration of the coastal management plan in the maritime terrestrial zone. This new guide is from April 2012, which means it is quite new and its implementation has been very little.

III.4.9. Coastal Management Plans

This general legal instrument establishes as its main purpose to achieve the objectives of planning policies in pursuit of a balanced economic, social and environmental development in the maritime terrestrial zone and its surrounding areas.

In order to create this coastal management plan it is needed to include a set of graphic material (maps, charts, diagrams), which define the land use and road systems, complemented by a set of written documents (diagnosis, ordinances and regulations) that serve as basis for establishing the criteria and standards development, buildings, community facilities, uses, among others, and to establish strategies for implementing programs, projects and activities, both the private and public investment for the sake of sustainable development in the coastal zone.

On one hand, the purpose of the coastal plan is to create a planning tool to achieve the following: (i) implementation of the development policies of the Tourism Development National Plan, (ii) promotion of the objectives and goals of the General Land Use Plan and Tourism Development and (iii) addressing tourist attraction. Once more, it is visible that the main and repeatedly purpose that matters for Costa Rica when dealing with coastal zones is to exploit tourism.

On the other hand, the functions of the coastal plan are:

- To apply the strategies of the General Land Use Plan as regulated by the Maritime Terrestrial Law;
- To promote a sustainable economic and social development in the maritime terrestrial zone;
- To define a program of investment for the needs of the maritime terrestrial zone;
- To ensure a proper care for the local inhabitants;
- To contribute to the investment of the maritime terrestrial zone, the conservation of natural resources, the development of economic activities; and the increase of tourism;
- To provide legal and technical guidelines to the authorities and institutions, in order to guarantee the proper compliance of the Maritime Terrestrial Zone Law.

The scope and conditions for the coastal management plans are also defined. Regarding this issue it is established that this instrument is the third level of planning, derived from the General Land Use Plan which represents the second level for the maritime terrestrial zone, which is a derivation of the National Tourism Development Plan which is the first level. These instruments were already mentioned above when the Maritime Terrestrial Zone Law was analyzed.

Besides, it is established that coastal management plans can be developed for all those sectors affected by the Maritime Terrestrial Zone Law. In addition, it is excluded from the application of these plans all the forest areas which are under the responsibility of the MINAET, according to the Forestry Law.

It is relevant to mention in this analysis of coastal zone management that coastal management is part of the general planning done by the government. In the case of Costa Rica is a duty accomplished by the municipalities and its institution which means that planning in the coastal areas is done at local level. The municipality of each canton is the responsible of elaborating and implementing the coastal management plan. However, there is always for the Costa Rican case the prerogative that the Costa Rican Institute of Tourism is the institution in charge of the superior and general vigilance of the maritime terrestrial zone.

It was asked to all the stakeholders that were interviewed about the influence of the international treaties in the development of the Costa Rica laws related to coastal management and it could be stated that Costa Rica has been influenced by the goals and compromises declared in the international treaties discussed in the previous chapter; mostly on conservation and protection issues. Nevertheless, all the efforts have been

fragmented; there is no integration on coastal management (based on a personal communication with Jenny Asch, SINAC, MINAET)

Besides, these international instruments have influenced the interest of certain powerful sectors of society to work more in environmental topics, as well as putting this matter in the public and political agenda (based on a personal communication with Gerardo Palacio, SINAC, MINAET).

As well, Costa Rica has been influenced by Regional Treaties such as the Convention for the Conservation of Biodiversity and Protection of Wildlife Areas in Central America and the Regional Convention for the Management and Conservation of Natural Forest Ecosystems and the Development of Forest Plantations (based on a personal interview with Mariamalia Rodriguez, Foundation Marviva).

Overall, international and regional treaties have been essential to both guide the legislative processes and to increase the importance of conservation in the coast and its terrestrial and marine ecosystems in Costa Rica. Nevertheless, it is little what has been done related to integrated coastal zone management.

Therefore after analyzing the legal instruments and conducting the interviews and questionnaires it could be stated that there is no compliance of the obligations assumed by Costa Rica with the ratification of Agenda 21 about integrated coastal zone management. There is not a proper law which is looking forward to fulfill the implementation of an integrated coastal zone management. Nevertheless, there are important efforts made by Costa Rica in order to protect marine and terrestrial ecosystems, wildlife and forest located in the coastal zones.

The previous statement means that there are still several challenges in the development of laws and policies in Costa Rica; these included the promulgation of an integrated coastal zone management law and the implementation of the drafted National Strategy for Integrated Management of Marine and Coastal Resources. Besides, there is still a lot to do in the integration and coordination of all the responsible authorities dealing with coastal management.

In addition, in Costa Rica there is a challenge due to lack of implementation of the current laws and lack of a leadership by the government. The most relevant challenge relates to a lack of a real integrated coastal zone management approach. The creation of legislation regarding protection in the marine and terrestrial ecosystems has been steadily improving and consolidating (like creation of national parks, marine reserve and so forth) but there is still scope for more comprehensive alignment and integration of coastal management. At a management and operational level, coastal management remains fragmented, unsustainable and less prioritized.

There is also a strong problem on the implementation of an integrated management in the coastal zone of Costa Rica due to strong sectors of the society which are having commercial interests in this zone, as well as the massive tourism development, the semi-industrial fisheries, the interests of corrupt politicians, disorder, bad practices of some the agro-industries, and the uncontrolled urbanism (based on personal communication with Gerardo Palacio, SINAC).

Besides, there is a tremendous problem faced by the coastal zones in Costa Rica due to tourism and real-estate and the only responsible for this is the government, which has always been prioritized the exploitation of tourism before taking into considerations the need of the communities located in the coastal zones. The social and cultural values of the coastal communities are disappearing because of a lack of policies encouraging the preservation of the activities that have been existed in these areas (such as local fisheries, cattle and farming) and just promoting tourism and recently real-estate.

Next it is explained a case study of the integrated coastal management as a customary practice in Costa Rica.

III.5. Implementation of the integrated coastal zone management: Case Study of Marino Ballena National Park

Even though Costa Rica hasn't achieved an integrated coastal management approach, one of the best customary practices that can be mentioned in this sense, is the coastal management done in national parks and surrounding areas (based on a personal interview with Mariamalia Rodriguez, Foundation Marviva). This case study was chosen after doing a research on integrated coastal management practices and asking relevant stakeholders which could be a good example of the implementation of the integrated coastal management in Costa Rica.

In Costa Rica about 25% of the territory has been designated as a protected area. Among this protected areas, there are biological reserves, national parks, national refuges of wildlife, protective zones, forestry reserves, national monument and wetlands. Due to the case study of Costa Rica will be focus on the figure of the Marino Ballena National Park, next, it is been explained briefly, the history of the national parks and then a focus is done in the Marino Ballena National Park. It is been explained their major achievements, challenges and shortcomings.

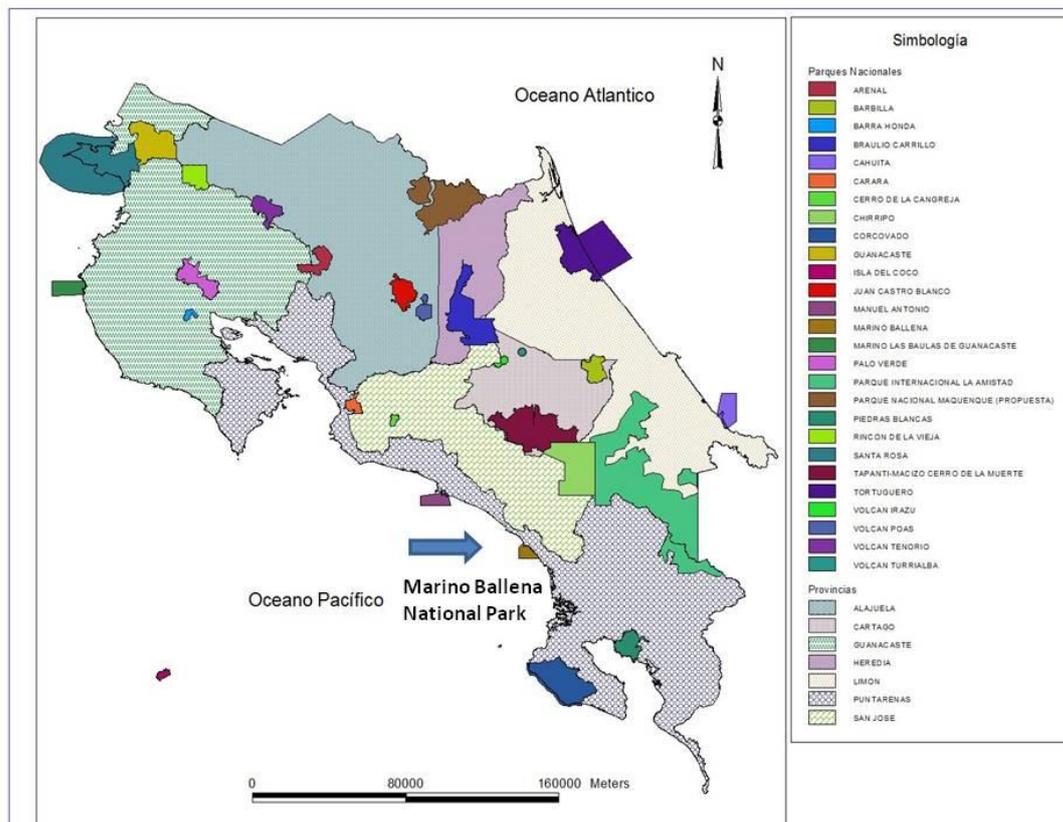


Figure 6 Map of the National Parks in Costa Rica (edited by the author) Source: MINAET, (2011).

Over the past 100 years or more, a number of laws aimed at preserving land or wild life have been enacted in Costa Rica, although they didn't derive from an organized conservation movement or effort. However, until the 1970's most of the laws weren't enforced. A small forested area at the top of the Nicoya Peninsula, on the Pacific Ocean, was the first site to receive real protection. It was designated in 1963 by an Executive Decree of Costa Rica's president as the Cabo Blanco Nature Preserve (based on personal interview with Alvaro Ugalde, ex- National Park System).

Costa Rica had all the necessary ingredients for a national park movement back on the 70's. Costa Rica had a politically stable society and a true democracy in which all citizens were deeply involved in the political

process. By doing without an army, navy, or air force, it was possible to allocate more resources to education, health services, housing and conservation. Nowadays, the national parks have become the backbone of the conservation movement in the country (based on an interview with Alvaro Ugalde, ex-National Park System).

The success of the national parks of Costa Rica until now has been due to the personal committed of many persons who had devoted part of their life to achieve the consolidation of the national parks and the wiliness of some politicians who supported this effort (based on an interview with Edgar Fernández, Prof. University of Costa Rica).

However, the national parks have a lot of future challenges for example the lack of political wiliness of the actual politicians; some of them don't care about conservation efforts. There is also not reinvestment of the money earned through the national parks system in the protection of the national parks. That money is used to pay administrative expenses. There is also a staff shortage, poor equipment and lack of control. Besides, there is the problem of implementation of the policies and pressure on the natural resources of the national parks, especially water (based on an interview with Edgar Fernández, Prof. University of Costa Rica)

Next it is been explained in detail the Marino Ballena National Park and the integrated coastal zone management done in the park and in its surrounding areas.

III.5.1. Marino Ballena National Park

The Marino Ballena National Park is located in the south pacific coast at the footsteps of the community's of Uvita and Bahia Ballena, in the province of Puntarenas. The park belongs to the Conservation Area of Osa and was officially declared as a Marine National Park on February 6 in 1989 and became the first marine reserve in Latin America whose sole purpose was to protect important natural marine habitats.

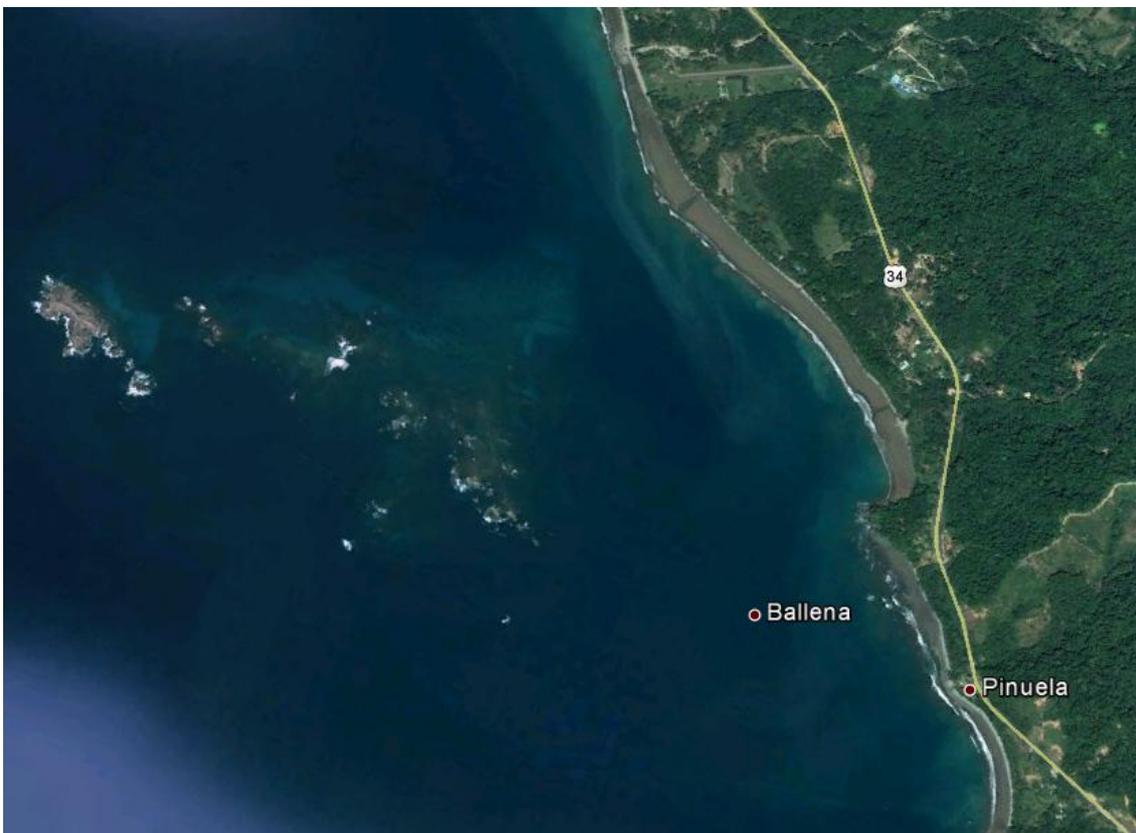


Figure 7 Map of Marino Ballena National Park in Costa Rica (edited by the author)

The development of national parks as Marino Ballena must be seen in a wider overview of the territory and not fall into the trap of only seen marine ecosystems. It is necessary to take into consideration the terrestrial ecosystems and the agriculture landscape in the development of national parks like this one. This is the only way to achieve an integrated coastal zone management and an effective protection of the coastal zones which include the marine areas but also the terrestrial sites (based on personal communication with Wendy Barrantes Ramírez, ex director of Marino Ballena National Park).

The park covers an extension of 110 land hectares and 5,375 sea hectares and is named after the humpback whales that migrate from mid July and October, and again in December through March from feeding and mating grounds in the north and south hemispheres to the warm tropical waters of Costa Rica. The Marino Ballena National Park forms part of the 1% of Costa Rica's protected marine territory.

The Marino Ballena National Park is comprised of golden sandy beaches (playa uvita, playa arco, playa ballena, and playa pinuela), rocky shorelines, cliffs, islands, mangrove ecosystems, rock and coral reefs. The parks' northern boundary starts from river Morete and extends south to Pinuela Point, covering approximately 15 km. The most prominent land formation found within the park is the Punta Uvita Whale Tail, a sand bar that extends 1 kilometer into the Pacific Ocean. The park also contains a large stretch of coral reef, the most common species being the Stony Coral, and forms a crescent necklace with the small rock island of the Widow, one large island called Whale Island and three small rocky islands known as Three Sisters. South of the Marino Ballena Park borders, but forming part of the stretch of different land formations, are the famous sea caves of Ventana Beach (SINAC, 2012).

This National Park is home to one of the most biologically diverse marine habitats in Costa Rica. Marine birds such as pelicans, brown booby and frigates are located on the islands and rocky formations. Approximately 70 species of fish (bi-color parrot, bump-head, puffer, butterfly, marlin, tuna, wahoo, and so forth), humpback whales, brydes, orca, false orca, pilot, spotted dolphins, spinner dolphins, bottle-nose dolphins, sharks, crabs, starfish, worms, sea snakes, lobsters, sponges and mollusks, all form part of the diverse marine life found in Marino Ballena National Park. The park also serves as a refuge for olive, hawksbill, leatherback and green turtles as well as reptiles like the green iguana (SINAC, 2012).

Marino Ballena National Park also contains the largest coral reef on the Pacific side of Central America. There are eight coral communities and two coral reefs with the majority of three different species of corals; Stony Coral, Star Column Coral and Cauliflower Coral. It is extremely important to protect the coral reefs because in Costa Rica lately these ecosystems have been extremely deteriorated and destroyed (SINAC, 2010).

III.5.2. Getting in touch with the coastal management of the Marino Ballena National Park

As it was already mentioned the park was created in order to protect the natural marine habitats; besides it was developed to achieve the following objectives:

- To protect the marine environment of the Pacific of Costa Rica, which has a great biological diversity, especially in areas such as the coral reef of Punta Uvita and the southern part of it
- To conserve many species of commercial value associated with coral reef.
- To protect the temporary refuge for the humpback whales which visit the area during the months of December through May.
- To establish measures to prevent the deterioration of this fragile ecosystem of great biological importance.

Even though his park was created since 1989 its management plan was gazzeted just until 2011. The whole process of formulating the Management Plans of the Marino Ballena National Park and the rest of the national parks in Costa Rica is a duty which is developed by the SINAC and its conservation area, which in

this case is the Conservation Area of Osa. That means that the process of formulating the plan is not including real participation. That represents the first problem in achieving the mentioned objectives.

The only way to achieve success in this kind of instruments is to involve surrounding communities in the planning and creation of the protected areas since its creation; to implement different categories of management in a mosaic that allows management holistically with communities and safeguarding core areas; to have systemic monitoring programs of biodiversity and social factors; to have communities programs and generation of productive experiences with the surrounding communities and to take into account the connectivity of terrestrial and marine protected areas (based on personal communication with Wendy Barrantes Ramírez, ex director of Marino Ballena National Park).

The management plan of the Marino Ballena National Park has been developed in order to provide a structure for management of the wide range of activities that occur within park; being the most important ones the regulations regarding: conservation and tourism.

The management plan has the following objectives:

- To promote the institutional strength of the Management Unit of the park in order to obtain the human, technical and logistical resources which are necessary for the conservation of the biodiversity and to benefit the surrounding communities.
- To enforce existing legislation and good practices of the Marino Ballena National Park, both in the marine coastal, and in the terrestrial areas; and surrounding areas in order to protect and conserve natural and cultural resources and prevent environmental damages.
- To develop processes of education and local management which integrate the experience of the local knowledge and technical knowledge in order to protect the natural resources and to improve the welfare of surrounding communities.
- To improve the natural and cultural experience of the visitors of the national park. In addition, achieving the support of the tourism sector in the management of the park and in the generation of economic and social welfare for the local communities.
- To have a better knowledge of the natural and cultural coastal marine and terrestrial resources of the Marino Ballena National Park in order to promote a more sustainable management of the human activities that are been developed in the park.

Even though there is a clear intention to protect the biodiversity of the park in both the coastal marine area and the terrestrial area, there is still a fragmented vision, there not a single intention of including “integrated” in the objectives of this management plan. There is a clear lack of the inclusion of the integrated coastal management approach in this management plan. Besides, there is the need to unify different actors in a governmental institution in order to work just on marine coastal management (based on personal communication with Gerardo Palacio, SINAC).

This management plan has a zonification of the marine and the terrestrial zone. Different activities need to be taken in different sites of the marine and terrestrial zone. This management plan regulates these activities and the different uses of the park. It also reduces conflicts between users and the environment by protecting sensitive habitats and by ensuring sustainable use of the national park.

Nevertheless, and despite of the conservation efforts, the creation of Marino Ballena National Park and the developed of its management plan Costa Rica hasn't achieved an integrated coastal management approach. There is still a fragmented management. It lacks of an integrated planning. The responsible institutions are working separately without a joint vision of sustainable development. However, this view has been changed over time and it is becoming more integrated.

Currently, there are more efforts made in order to achieve an integrated management. For example in ACOSA there is the Marine Coastal Commission that integrates a number of stakeholders, (such as INCOPECA, Communities; and NGOs like Marviva) in the decision making process. However, there is still a lack of government policies that integrate the entire coast or the pacific coast (based on personal communication with Wendy Barrantes Ramírez, ex director of Marino Ballena National Park).

Therefore it could be stated that in Costa Rica there is still a lot to do in order to establish an integrated coastal zone management with the characteristics stated in the theoretical framework of this research. There is a need to change the fragmented way in which the coastal management have been developed in Costa Rica where each institution has been worked alone without integrating other governmental institution and also without involving the surrounding communities in the decision making process. This would imply a change of mentality in the Municipalities, MINAET, SINAC and so forth. However, it is known that a change of mentality is always hard to achieve.

Therefore, after the analysis of the coastal management done in the Marino Ballena National Park it could be stated that more participative process in its creation and in the development of its management plan was required. This is important to be considered for the future actions to be taken in the park regarding coastal management.

Until now, the coastal management in Costa Rica has been fragmented but there are ongoing efforts to develop a more integrated management. Traditionally the coastal management in Costa Rica has been part of a single vision done by the State but currently there is a process of change where in some areas the public participation is growing (based on personal communication with Gerardo Palacio, SINAC).

To summarize, a lot of work still needs to be done, it is necessary to pressure the government to implement a more integrated management approach, with more participative processes. Nevertheless, it can be mentioned a positive effort made in Marino Ballena National Park. One example of this is the work done by the Interinstitutional Coastal Marine Commission of ACOSA, which has been worked for more than 8 years and has been addressed and influenced the development of several projects in the coastal marines zones in this area. This work has been the result of the coordination of actions and agendas of the different governmental institutions, NGOs and community associations interested in coastal marine zones (based on personal communication with Gerardo Palacio, SINAC). It is important to mention that the Interinstitutional Coastal Marine Commission is facing a problem which is the need to make legally defensible the decisions taken within the committees.

Besides, there has been implemented a monitoring system of the Marine Protected Areas in ACOSA through different strategies such as the creation of marine rangers who have been worked for more than five years by controlling illegal activities of tourism and illegal fishing which as well has been a participative and integrated process. Costa Rica (based on personal communication with Gerardo Palacio, SINAC)

Country	Development of integrated coastal zone management law according to international treaties	Development of integrated coastal zone management law and policy according to international treaties	Development of protection and Conservation Laws according to international treaties	Implementation of the laws and policies as customary practices	Main achievements	Major challenges
Costa Rica	No	Yes	Yes	Poorly	- Protection and conservation through protected areas - Awareness	- Implementation of the laws and policies - Integration

Figure 8 Development and implementation of laws and policies in Costa Rica as customary practices

III.2. Experience of Germany

III.2.1. German Coasts

The German coastline has a length of 3379 km., approximately 2000 km belongs to the Baltic Sea and the rest to the North Sea. The North Sea coast is characterized by tides, which are more or less lacking in the brackish Baltic Sea. The coast shows a large variety of forms and a complex coastline with cliffs, lagoons, estuaries, bays, mudflats, peninsulas, flat coast and islands (EUCC, 2001).



Figure 9 Map of Germany. Edited by the author. Source: googlemaps (2012)

The intensive utilization of the coastal zone in Germany is well known. This holds not only for the terrestrial parts but for coastal waters, too. For example, ship traffic, harbors, roadsteads, gravel and sand dredging, petroleum and natural gas exploration, pipes, off-shore wind energy, cables, maritime tourism, military, fisheries, aquaculture, coastal protection, ocean dumping; and last not least nature protection cause a complex and overlapping pattern of uses in coastal waters (Schernewski, G., 2002).

III.2.3. Situation of German Coasts

As it was already mentioned in the first chapter, coastal zones around the world are highly threatened as a result of direct and indirect human impacts and Europe and Germany specifically is not an exception of this reality. Coastal areas in Europe are subject to an increasing diversity of demands. As heavy industrial and "fisheries sectors are in decline, coastal areas are being looked to for new opportunities to diversify local and national economies, from aquaculture and wind farms to tourism and leisure (Humphrey S., Burbridge P., Blatch C., 2010).

It has been estimated that between 3 and 5% of Europe's Gross Domestic Product (GDP) is likely to be generated by marine based industries and services, without including the value of raw materials, such as oil, gas or fish; besides, the maritime regions account for over 40% of GDP, almost 90 % of the EU's

external trade and over 40 % of its internal trade are transported by sea, 3.5 billion tonnes of cargo per year and 350 million passengers pass through the 1200 European seaports, and Europe's leadership in shipping is beyond with 40 % of the world fleet (Green Paper, 2006).

Therefore, in order to achieve the compromises assumed in the international treaties like promoting a sustainable development and achieving an integrated management in the coastal zones, but also because of the fact that coastal zones represent a major economic activity, Germany is taking actions in order to improve the management done in coastal areas. These actions include the development and implementation of different approaches, mechanisms and tools; among which are been discussed the European directives, German laws, plans, policies and customary practices.

III.2.4. German policy and laws on coastal management

Germany hasn't defined a national law for coastal management. Nevertheless, there is an integrated coastal zone management (ICZM) national strategy which is the main instrument implemented in Germany to deal with coastal management. In addition to this policy, there are several numbers of legal regulations that in one way or another complement it. First, there are European Directives, then the national laws and finally the State laws and plans. Another relevant fact for the German coastal management is that altogether 5 Federal States (Länder) share the coastal zones: Niedersachsen, Schleswig-Holstein, Mecklenburg-Vorpommern as well as the city-states Hamburg and Bremen. The Länder bear the main responsibility for coastal management. Basis is the well developed, hierarchically designed spatial planning system, which can be regarded as integrative in several aspects. Most important in this respect are the legal binding Regional Planning Programmes prepared by Regional Planning Authorities in accordance with the State Planning Programmes being an act in every Federal State or region (Schernewski, G., 2002).

III.2.4.1. Integrated Coastal Zone Management Strategy

The ICZM policy followed in Germany has been understood as an informal approach to supporting sustainable development of coastal zones through good integration, coordination, communication and participation. On the one hand, ICZM is a process that should permeate all planning and decision-making levels as a guiding principle and, on the other hand, is a tool applied for the purpose of integrated identification of potential development and conflict as well as for resolving conflicts in an unbureaucratic manner (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2006).

In Germany the ICZM approach deals with the interactions between the exclusive economic zone, the coastal sea (12 sm zone), the transitional waters, the areas adjoining estuaries and influenced by the tides as well as the adjoining rural districts and respective administrative units on shore (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2006).

In the developed of the ICZM approach Germany has been followed the next four basic principles:

- Sustainable development: the ICZM is looking forward to promote sustainable development of coastal zones with their specific ecological, economic and social features and support the sustainability strategy of the Federal German Government.
- Integration: the ICZM represents a guiding principle for political and social action at all levels in coastal zones and is aimed at coordinating the development of coastal zones through a comprehensive approach and integration of all concerns.
- Participation: the ICZM incorporates all relevant policy areas, economic and scientific actors, social groups and levels of administration into the process (participation) in order to identify development potential at an early stage find solutions for which there is a consensus and improve conflict management and;
- Experience transfer: the ICZM is viewed as a continuous process that combines the phases of planning, implementation and evaluation of changes in coastal zones so as to make the best possible use of

experience for the future (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, 2006).

It can be stated that these principles are interrelated with the ones that were explained in the theoretical framework; like integration at coordinating the development of coastal zones, incorporation of all relevant stakeholders like scientific actors, social groups and different public institutions, in order to have at the end the achievement of a more sustainable development.

Germany has had a wide-ranging planning system with comprehensive spatial planning and land-level planning for a long time. The ICZM principles are also a permanent component of the various coastal-relevant programmes and plans put in place by the Länder. It has been possible for ICZM ideas and approaches to be incorporated into the “formal” German planning system, with its participation processes. The coastal Länder are charged with integrating their parts of Germany’s coastal waters into their own spatial planning activities. Over the last few years, they have sought to do this above all by putting forward spatial planning and land-level planning programmes, plans and concepts that have been supplemented with aspects of ICZM (Report on the Implementation of Integrated Coastal Zone Management in Germany, 2011).

In Germany, ICZM is implemented in various areas and at various levels of activity. It touches upon important fields of policy, as well as technical tasks with a coastal dimension that are performed by ministries and other public authorities. At the federal level, the following federal ministries are primarily concerned with the topic of ICZM:

- the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), which has the lead role in this field,
- the Federal Ministry of Transport, Building and Urban Development (BMVBS),
- the Federal Ministry of Education and Research (BMBF),
- the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV),
- the Federal Ministry of Economics and Technology (BMWi) and
- the Federal Ministry of Finance (BMF).

The Federal Ministries are receiving technical support from higher federal authorities such as the Federal Environment Agency (UBA), the Federal Agency for Nature Conservation (BfN), the Federal Maritime and Hydrographic Agency (BSH) and the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) within the Federal Office for Building and Regional Planning (BBR).

At the level of the German coastal Länder, Mecklenburg-Western Pomerania, Lower Saxony, Schleswig-Holstein, Bremen and Hamburg, various ministries and a large number of institutions and research institutes based in the areas along the North Sea and Baltic Sea deal intensively with coastal-relevant issues within each Länder.

In this research a focus on the coastal management done in Lower Saxony is elaborated due to the fact that next it will be explained a customary practice on integrated coastal management done on Langeoog an island located in Lower Saxony. Even though in the formal documents, as the Report on the Implementation of Integrated Coastal Zone Management, the German government is presenting different projects or initiatives as a good experiences of the application of the ICZM principles and goals, these examples are not been analyzed or discussed in this research. According to Holger Freund Prof. at the University of Oldenburg, the problem with these projects is that they are working properly while there are funds for its implementation but once that the funds are lacking, there is no continuity. In addition, after reading and analyzing some of these projects it was evident that they are not having all the characteristics that this research is looking for; therefore it was decided to find a better example.

In many cases, the formal spatial planning procedures in Germany already contain ICZM relevant elements (Report on the Implementation of Integrated Coastal Zone Management in Germany, 2011). Although various positive experiences of these elements have already been gained, they are not always labeled as ICZM that is exactly the case of Langeoog. It follows from this that it is still necessary to raise awareness even further about the substance of ICZM.

In addition to spatially based planning, ICZM-related elements are also to be incorporated into other legally anchored instruments and procedures, such as contract-based nature conservation activities, plans for spatially demanding infrastructure projects, environmental sectoral planning, economic management instruments, the promotion of economic development, regional structural policy, etc. Besides, structural and organizational issues, different technical and substantive perspectives and approaches to conflict resolution can cause difficulties for the implementation of ICZM in Germany. For instance, ICZM involves many actors from various disciplines with their own instruments and procedures, and it is not always easy to integrate them smoothly into decision-making processes.

According to the German Report on the Implementation of Integrated Coastal Zone Management from 2011 there are still a series of future challenges for sustainable coastal development that have to be taken into consideration in any follow-up activities. The aim of the further management of the ICZM process should be to make increased use of the existing organizational structures and instruments at the national, regional and local levels, and include more effectively the business sector. As well, the results achieved to date and examples of successful implementation in Germany should be communicated to the public with greater clarity. Moreover, it is mentioned that apart from measures to convey the added value and benefits gained from the application of ICZM principles, this will involve the funding of training courses on ICZM. Finally, the report is recommending that the European Commission should seek to ensure that ICZM and other relevant marine and coastal-related initiatives are networked more strongly with one another.

Next, is explained the most relevant European Directives, German National Laws and Federal States Laws of Lower Saxony which are accompanying the ICZM policy in its implementation.

III.2.4.2. European Directives

III.2.4.2.1. Recommendation of the European Parliament and of the Council of 30 May 2002 concerning the implementation of Integrated Coastal Zone Management in Europe

This Recommendation establishes that the States have to take a strategic approach to the management of their coastal zones, based on the following thoughts: protection of the coastal environment, recognition of the threat to coastal zones, appropriate and ecologically responsible coastal protection measures, sustainable economic opportunities and employment options, a functioning social and cultural system in local communities, adequate accessible land for the public, in the case of remote coastal communities, maintenance or promotion of their cohesion; and improved coordination of the actions taken by all the authorities concerned both at sea and on land.

According to this Recommendation, the States should pursue in particular, the followings:

- A broad overall perspective which will take into account the interdependence and disparity of natural systems and human activities with an impact on coastal areas,
- A long-term perspective which will take into account the precautionary principle and the needs of present and future generations,
- Adaptive management during a gradual process which will facilitate adjustment as problems and knowledge develop,
- Local specificity and the great diversity of European coastal zones, working with natural processes and respecting the carrying capacity of ecosystems,

- Involving all the parties concerned,
- Support and involvement of relevant administrative bodies at all levels and;
- Use of a combination of instruments designed to facilitate coherence between sectorial policy objectives and coherence between planning and management.

According with chapter III of this Recommendation, States shall conduct or update an overall stocktaking to analyze which major actors, laws and institutions influence the management of their coastal zone. This stocktaking should consider at least the following sectors and areas:

- Fisheries and aquaculture, transport, energy, resource management, species and habitat protection, cultural heritage, employment, regional development in both rural and urban areas, tourism and recreation, industry and mining, waste management, agriculture and education;
- Cover all administrative levels;
- Analyze the interests, role and concerns of citizens, non-governmental organizations, and the business sector;
- Identify relevant inter-regional organizations and cooperation structures and;
- Take stock of the applicable policy and legislative measures.

Based on the result of the stocktaking, each State should develop a national strategy or several strategies in order to implement the principles for the ICZM. These strategies might be specific to the coastal zone and should identify the roles of the different administrative actors within the country or region whose competence includes activities or resources related to the coastal zone, as well as mechanisms for their coordination; and identify the appropriate mix of instruments for the implementation of the principles outlined in this Recommendation.

In addition, these strategies should develop national legislation or policies and programmes which address both the marine and terrestrial areas of coastal zones together, identify measures to promote bottom-up initiatives and public participation in integrated management of the coastal zone and its resources, identify sources of durable financing for integrated coastal zone management initiatives where needed, identify mechanisms to ensure full and coordinated implementation and application of Community legislation and policies that have an impact on coastal areas; include adequate systems for monitoring and disseminating information to the public about their coastal zone and; determine how appropriate national training and education programmes can support implementation of integrated management principles in the coastal zone. This is exactly what Germany did. Germany developed a national strategy and implemented the principles, identified the roles of the different actors; and defined the mechanisms of coordination of the integrated coastal zone management approach.

It could be affirmed that Germany has been influenced by the Recommendation of the European Parliament and of the Council of 30 May 2002 (2002/413/EC). This could be stated due to it is evident the relationship between the vision, principles, programmes and scope between the ICZM policy developed by Germany and this Directive. In addition, in the official documents analyzed above related to coastal management, there is always an explicit reference to this Directive and how important it is for Germany to implement it. Another important aspect is that this Recommendation is from 2002 and Germany developed its ICZM policy in 2006, just a few years afterwards which represents the importance of complying with all the guidelines set forth in this recommendation.

III.2.4.2.2. Water Framework Directive

The Water Framework Directive establishes a legal framework to protect and restore water across Europe and ensure its long-term and sustainable use. By placing ecosystem stability at the center of water management strategies, the Directive represents a radical shift in water management traditions. It

establishes an innovative approach for water management based on river basins, the natural geographical and hydrological units and sets specific deadlines for Member States to protect aquatic ecosystems. As well, addresses inland surface waters, transitional waters, coastal waters and groundwater and establishes several innovative principles for water management, including public participation in planning and the integration of economic approaches, including the recovery of the cost of water services and in accordance in particular with the polluter pays principle.

This Directive is also trying to prevent further deterioration and to protect and enhance the status of aquatic ecosystems and, with regard to their water needs, terrestrial ecosystems and wetlands directly depending on the aquatic ecosystems. This Directive also promotes sustainable water use based on a long-term protection of available water resources and aims at enhanced protection and improvement of the aquatic environment, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances. In addition, it ensures the progressive reduction of pollution of groundwater and prevents its further pollution, and contributes to mitigate the effects of floods and droughts.

That is why this Directive is so important for the implementation of the integrated coastal management approach. There are known the water problems faced by coastal zones such as overexploitation, saline intrusion, conflict between different uses, and so on; consequently, the implementation of this Directive and its principles is urgent. Only through the implementation of sustainable water use and the enhanced of the protection and the improvement of the aquatic environment it would be achieved an integrated coastal management.

III.2.4.2.3. Flood Risk Management Directive

The European Directive 2007/60/EC on the assessment and management of flood risks defines flood risk as the combination of the probability of a flood event and of the potential adverse consequences for human health, the environment, cultural heritage and economic activity associated with a flood event. There are other definitions of flood risk such as the probability of adverse consequences due to inundation (Von B. Merz, H. Kreibich, and H. Apel, 2008). One of the intentions of this Directive is to enhance the Water Framework Directive with the aspect of flood risk at flooding by coastal and rivers stretches.

This Directive adds to the river basin management the aspect of risk of flooding. The Flood Risk Management Directive should apply for both coastal areas and rivers. Therefore, this Directive and its three pillars which are; flood risk assessment, flood risk maps and flood risk management plans, are crucial for the implementation of the integrated coastal management.

The Directive deals with the preliminary assessment of flood risk. It has a detailed description of the contents of flood risk assessment and defines the categories to which coastal zone or the river basins, and sub-basins should be assigned to. Additionally, indicates how the preparation of maps of flood risks has to be done and detailed information is given about the categories which should be covered by flood risk maps. Finally, it comprises how the flood risk management plans are to be done and implemented.

It is important for flood risk management taking into account the role of communities and people, ideas of accommodation and living with floods and placing an emphasis on building resilience among stakeholders as a coping strategy within the management of flood risks. Decisions on flood mitigation and risk management are usually based on flood risk assessments. Such assessments may be associated with significant uncertainty. Uncertainty analysis has received increased attention in hydrology and risk analysis during the last years; however, it is still not standard practice (Von B. Merz, H. Kreibich, and H. Apel, 2008).

Flood risk analyses should be accompanied by an estimate of the uncertainty of the risk statement. It's important to examine the value of uncertainty analysis for improving and validating risk estimates, and for decision-making. Uncertainty analysis improves flood risk analysis since it forces the risk analyst to scrutinize assumptions, models and data underlying the risk analysis. It helps to identify the weak points of

a risk analysis, and maybe most importantly, it helps to prioritize further information in order to constrain the uncertainty (R. Lamb, 2010). The main strategy used to prevent flood risk in coastal areas, at least in Germany, is building dykes (J. Oost and A.Y. Hoekstra, 2009).

The European Directive on the assessment and management of flood risks is another key legal instrument which has to be implemented when dealing with coastal management. Due to Climate Change the risk of floods has increase considerably in all the countries around the world, and especially in coastal areas. Flood management has until recently emphasized investment and trust in constructed solutions that rely mainly on structural robustness. However, there has been a shift in the attitudes and policies towards flood risk management that emphasizes a systems approach in which robustness and resilience now have an equal part to play (A.C. Cashman, 2011).

III.2.4.3. National Laws

III.2.4.3.1. Federal Regional Planning Act

The Federal Regional Planning Act, as it was already mentioned above, establishes that the entire territory of the Federal Republic of Germany and the regions of which it is made up shall be developed, organized and protected by integrative general regional plans and the harmonizing of regionally significant plans and measures.

The overall concept of the Federal Regional Planning Act is to promote a sustainable regional development which will bring the social and economic demands made on an area into line with its ecological functions and result in a stable order which will be well-balanced on a large scale. As well, it is defined that the development, organization and protection of the individual regions shall match the conditions and requirements of the territory as a whole; the development, organization and protection of the territory as a whole shall allow for the conditions and requirements of its individual regions (principle of countervailing influence). The relevance to mention this act is that coastal management is part of the planning done by the governments and in the German case because of federalism is done by the Länder.

Nevertheless, the principles of territorial planning, as they are legally stipulated in the Federal Regional Planning Act, are consciously worded in general and do not include direct spatial references. The reason for this gap is the political system of federalism, where the implementation of territorial planning principles is not in the competence of the national government, but in the responsibility of the Länder.

Therefore, the Länder is the responsible to create their own legal frameworks, including internal organizational instructions on the regional planning system. The main instrument for territorial planning on the level of the Länder is the so called “Landesentwicklungsplan” (Regional Development Plan). It contains one or several maps as well as supplementary explanations within an accompanying text to recess the general guidelines. Such a plan is adopted for the whole territory of a Länder, comprising the main topics “development”, “organization of area to be left clear” and “safeguard of the territory”. Thus, next it is explained the implementation of the regional development done by Lower Saxony on its coasts due to the case study that it will be explained and discussed as a example of the implementation of the ICZM approach is located in this Länder.

III.2.4.4. Lower Saxony States Laws

III.2.4.4.1. Spatial Planning Concept for the Coast of Lower Saxony

This concept is a mixture of available information about all relevant stakeholders’ perspective in the coastal zone of Lower Saxony. Maps provide an overview of the status quo, the objectives and the purpose of utilization. Within the Spatial Planning Concept for the Coast of Lower Saxony spatial planning solution approaches are suggested to support and to meet the aims of sustainable coastal development (Ahlhorn, 2009). The special characteristic of the Spatial Planning Concept for the Coast of Lower Saxony is that it encompasses the land and the sea side of the coast.

Interlinkages and relationships to other user perspectives are given. It is proposed in order to resolve possible conflicts that the demand for future coastal protection works be assessed in the context of climate change and an accelerated sea level rise. Some of the most important aims mentioned in Spatial Planning Concept for the Coast of Lower Saxony are: no further development in inundation areas, better contingency plans for evacuation of the people via evacuation routes on dams. The vision is that the future effects of climate change have to be considered in coastal protection and the future strategies need to account for clay excavation and further threats through a sea level rise by placing restrictions on settlements in the flood-prone area.

III.2.4.4.2. State Law on Dikes for Lower Saxony

The State Law on Dikes for Lower Saxony is a unique legislation in the northern part of Germany. The other Länder, like Schleswig-Holstein or Hamburg, regulate coastal protection via their laws on water management. This law defines dikes, high water dikes, protection dikes, barriers and dunes, also fore land and safety butter. Additionally, dike defence, emergency dikes and second dike line.

Coastal protection elements are defined in article 2 as follows: Main dikes are dikes which protect a certain area against storm surges. High water dikes are dikes which protect a certain area against high water (from rivers). Protection dikes are dikes situated behind a barrier to protect a certain area against inundation as long as the water cannot be discharged due to the closure of the barrier.

It is important to mention the State Law on Dikes because in Langeoog there is a dike in order to help to prevent the risk of floods. The actual dike of the island was built in 2005 (before, it used to be another one) and it has worked as a coastal construction to avoid flooding. The construction of the dike has helped to keep the water out of the island when a hazard has occurred.

III.2.4.4.3. Law on the Wadden Sea National Park in Lower Saxony

The Law on the Wadden Sea National Park came into force in 2001. The aim of this law is: "...within the National Park the particularity of the nature and the landscape of the Wadden Sea region should be preserved and protected against interference..." The natural processes of these habitats should be maintained. The diversity of animals and plants in the area of the National Park should be preserved. The installation of the National Park should secure the implementation of the European Union Bird and the Habitat Directive (based on personal interview with Jörn Bunje from National Park of Niedersachsen).

This law covers the whole National Park, the differentiation in diverse protection areas and the forms of utilization permitted within these areas. The area of the National Park is divided into three zones: restricted zone (highest protection level), intermediate zone and the recreation zone (lowest protection level). Some uses are possible in the restricted zone e.g. grazing and agricultural use, fishery and hunting with defined limitations. The National Park is a wetland of international importance (Wadden Sea) and a declared Ramsar site; as well, it has been reported as important bird area according to the European Union Bird Directive. The importance of this law is because Langeoog is part of the Wadden Sea National Park.

III.2.4.4.4. Law on Water Management of Lower Saxony

The purposes of the Law on Water Management of Lower Saxony are surface water, coastal waters and ground water. Coastal waters are defined as: "...sea between the coastline during mean high water or the seaward border of surface water and the seaward border of the territorial sea. The coast line during mean high water is the coast of Lower Saxony defined as water level of mean high tide water...".

This law indicates the general principles of the treatment of water bodies and the water management approach is formulated. Also describes the water bodies as part of the natural environment and habitat for plants and animals which have to be adequately protected. Additionally, formulates specific requirements such as the prevention of high water and the wash away of soil or that the water bodies are relevant for plants and animals and that the relevance for landscape should take into account. All these elements represent key issues at the moment of the implementation of the ICZM approach.

After describing and discussing the legal framework it could be stated that Germany has adopted an integrated coastal zone management (ICZM) policy in order to implement the goals and compromises declared in the international treaties discussed in the previous chapter. This fact is reflected because there is an explicit mention about the international treaties but also because the same principles are repeatedly stated. Another fact that can be mentioned is that Germany has been more influenced by the European Union Directives especially by the Recommendation of the European Parliament and of the Council of 30 May 2002 (2002/413/EC) than the international treaties because it was evident the similitude between what is requested by this Directive and the extend of the German ICZM policy. This is due to the closeness of Germany to the European Union but also due to the control and monitoring mechanisms established in the European Directives, e.g. the National Reports on the Implementation of Integrated Coastal Zone Management.

Next, it is explained a case study of the implementation of the ICZM as a customary practice.

III.2.5. Implementation of the integrated coastal zone management: Case Study of Langeoog

This case study was chosen after doing a research on integrated coastal management customary practices and asking relevant stakeholders which could be a good example of the implementation of the integrated coastal management in Germany.

Langeoog is one of seven East Frisian Islands in Germany, located on the North Sea waters. This island belongs to Lower Saxony State and under local government of Wittmund, situated between Baltrum Island on the West and Spiekeroog on the East. This island, like another East Frisian Islands, is strongly influenced by the dynamics of wind and wave of the North Sea (Comrisk-Subproject 9, 2005).



Figure 10 Map of Langeoog. Edited by the author. Source: googlemaps (2011)

The first record about Langeoog was on 1398 with the name “Langeoch”. Community started to grow and decided to stay on the island on 1625 with 7 households recorded. In the next 55 years, on 1680 there were 12 houses built with 62 people living there. The “Christmas Flood” on 1717 was an extreme flood which divided the island into two parts. The church and housing settlement in the island village were also damaged. In 1718, many people were exodus to mainland due to security reason (www.langeoog.de).

Langeoog started to be a famous place for tourists in 1851 when hundreds swimmers were reported. Ten years after that, the Maritime Search and Rescue Station was established in order to help and protect the tourists from any accident on the coastal area. The tourism activity was significantly developed when the first regular ferry service started to operate once a week between the mainland and Langeoog on 1867 (www.langeoog.de). Afterwards tourism has been steadily increased.

Nowadays, the number of inhabitants in Langeoog is 2039. The main economy activity on the island is tourism. In the year 2009 there were approximately 1.569.366 tourists visiting the island and staying overnight; and about 203.468 guest visiting the island just for the day. Because the island has as its major activity tourism, most of the people are having hotels and bed and breakfast making the island having an accommodation capacity for more than 5.735 people and at the same time generating the people an economic activity (based on personal interview with Hans Janssen ex- Major of Langeoog).

The infrastructure on the island is very limited. It is not allowed for people who were not born on the island to build a house there. People who are allowed to build houses have to construct them in the same way of the existing ones. It is permitted just to build houses of 2 floors. Due to these strict regulations it has been possible to implement a more sustainable development on the island. Nevertheless, because tourism is the main economic activity on the island there are some special regulations made for tourism in order to increase the investment. One of these exceptions is that the investors can build hotels with more than two floors (based on personal interview with Hans Janssen, ex- Major of Langeoog).

Even though agriculture is not an important economic activity, it exists on the island. In the south of the village, pasture areas are used for grazing of riding and working horses as well as grazing to achieve conservation goals. Langeoog is part of a Wadden Sea National Park of Lower Saxony, due to this fact it has another specific regulations in order to protect the ecosystems founded on the island. This represents another stakeholder involves in the coastal management done on the island.

The National Park helped to reduce the amount of cattle on Langeoog due to conservation reasons. Some years ago there were about 200 pieces of cattle, but nowadays there are just 70. Now, the cattle are being used like grazing in a way to help for conservation purposes (based on personal interview with Jörn Bunje from National Park of Niedersachsen).

People from the National Park argue that using cattle for grazing doesn't represents a significant disturbance factor, especially when compared with the damage caused by deer, possum and the natural river building/ erosion cycle (Rosoman, 1990). They suggest that most damage from stock would have been occurred over 30 years ago and that continued use by stock will not cause further degradation. There are many spots of bird breeding around the island which belong to restricted zone of the National Park. In addition, there is one crucial spot on the most eastern part which seals exist. In all these areas of Langeoog tourists may enter but they are not permitted to disturb the environment, for example they shouldn't disturb the animals by taking pictures, besides it is forbidden to fly kites (based on personal interview with Jörn Bunje from National Park of Niedersachsen).

The island is connected with mainland by ferry. The ferry operates 4 times a day in each direction. A small air field south-east offers an additional connection towards mainland. The main way of transportation on Langeoog is the bicycle; however, there are also horses which are used as a way of transportation. Getting permits to have a car is very difficult, so there are just few of them on the island. This is because the stakeholders of Langeoog don't want pollution generating by cars on the island, which represents an excellent policy to achieve a more sustainable development.

The drinking water for the island is obtained directly on the island. It is extracted from the fresh water lens existing mainly in the dunes areas. The main extraction area is located directly eastward the village of Langeoog in the southern part of the Pirola Valley and the Heerenhus-Dunes. The water work is located in the Heerenhus dune area. The natural dune system is contributing to protect freshwater lens from intrusion with its natural filtering system that is the reason why the water's quality is good. So far, there haven't been problems with water's quantity to satisfy human needs (based on personal interview with Hans Janssen, ex- Major, Langeoog). Even though, there are some people who are arguing that they will be having water's problems in a near future due to overexploitation; and that is why they should build water pipes and bring water from mainland (based on personal interview with Prof. Holger Freund, Professor at University of Oldenburg).

The island has 14 km long of coastline with the bank of sand extended from the western part of island up to eastern part. Sand is the main element of Langeoog. The main part of the island is on the northwestern part, where is located the housing settlement and infrastructures, whereas the eastern part of the island is simply unused. Another important element for coastal protection in Langeoog is the so called "Lahnungssystem" (Groynes System). The idea of this system is to protect the coastal zone by delaying the huge waves, so that the dike or dunes are harmless. It usually contains double rows of wooden or hay with approximately 60-80 cm high and enclose fields of about 100 x 200 m each size. Groynes System is often build along the banks of the Wadden Sea in order to work as a barrier that can reduce the strong waves significantly. From an environmental point of view it is even better because Groynes collect sediments which make the coastal area richer in nutrients (based on personal interview with Dr. Frank Ahlhorn who has a PhD in Coastal Protection in Lower Saxony). The settlement area has layered defense system, start from Lahnungssystem and combination of dune system and sea dike. The responsible authorities took into account detailed regulations when building the dike used for coastal protection on Langeoog (location, size and height). In addition, the responsible authorities are protecting and conserving the dunes system (too less intervention) which as well it has been used for coastal protection (based on personal interview with Hans Janssen, ex- Major, Langeoog).

Dunes are important in terms of coastal management, especially for coastal protection on Langeoog. They are formed by the moving of sand banks that are influenced by wind direction. Among other type of ecosystems existing on the coastal zone, dunes have been irretrievably damaged by inadequate management (Carter, R.W.G., 1988). Langeoog is no exception, as leading tourist destination Langeoog has to deal with overloaded of tourist that can threaten the dune systems.

Another important characteristic of this island is that is located on the Wadden Sea Region which is Europe's largest and most important marine wetland. The Wadden Sea Region is shared by Germany, Denmark, and The Netherlands. It contains a complex of tidal flats, gullies salt marshes, dunes and islands. It is now subject to a comprehensive nature protection scheme on the national and regional level as well as to extensive protection and management arrangements between the countries in the framework of the Trilateral Wadden Sea Cooperation. The central elements of the trilateral arrangements are the guiding principles, common management principles and the common targets upon which common policies and management have been agreed on. Another relevant fact is that the Wadden Sea Region is having conservation and management schemes based on an ecosystem approach which aims at preserving the integrity and functioning of the system and allows for a sustainable use. It is perceived mainly as an environmental issue, whereas the social and economic developments in the coastal zone are equally a part of the sustainable development.

So far, according with the theoretical framework presented in this research it could be stated that Langeoog is implementing an integrated coastal management because they are dealing with marine ecosystems (salt marshes, wetlands) and also terrestrial ecosystem (national parks, urban areas, tourism development). Besides, it is implementing specific "local" policies and regulations in order to achieve a more sustainable development (buildings with just two floors and not allowing cars on the island). In addition, the social and economic factors are been contemplated (most of the people on the island are having accommodations like bed and breakfast and that's improving the welfare on the island) and they are doing this activity in a sustainable manner.

A further fact of Langeoog is that because its location on the Wadden Sea Region, it has a unique, highly dynamic tidal ecosystem of the world importance. Its exceptionality relates to its extensiveness, complexity and interrelationship of habitants and species and its high biomass productivity, which provides the foundation for an abundance of species. The Wadden Sea Region embraces basically three nautical miles offshore and the seawalls on the mainland including the estuaries up to the brackish-water limit and the islands. The Wadden Sea Region covers almost 15.000 km² of which nearly 12.00 km² constitute the trilateral Conservation Area of the national Wadden Sea nature reserves and national parks (<http://www.waddensea-secretariat.org/>). The collaborating between the three countries on the protection of the Wadden Sea is based on a Joint Declaration. In this declaration the governments declared their intention to consult each other in order to coordinate the activities and measures to implement

relevant European Union directives and other international legal instruments such as the Ramsar Convention.

In the case of the ICZM in Langeoog there are many stakeholders involved such as the Lower Saxony State Agency for Water Management, Coastal Defense and Nature Conservation (NLWKN) (responsible for the coastal protection), National Park of Niedersachsen (responsible for the nature protection) and the Major of Langeoog (responsible for the community and economic activities). In order to manage the island in an integrated and sustainable way, all stakeholders have to apply their laws and policies but also taken into account the others stakeholders regulations; and trying to implement them in a holistic approach.

Thus, conflicts between diverse perspectives are founded in this case study. For example there are some differences between how the NLWKN and the National Park wanted to implement the ICZM on the island. On one hand, the NLWKN wants to put more focus on coastal protection for example investing more in dykes and dunes maintenance; and on the other hand the National Park would like to focus the coastal management in nature conservation and invest more on protecting the sites and animals. Consequently, there are some problems implementing ICZM.

Based on the interviews with (Hans Janssen, ex- Major, Langeoog, Prof. Holger Freund, Professor at University of Oldenburg, Jörn Bunje from National Park of Niedersachsen and some representatives from the NLWKN); and also on a field trip around the whole island where it is visible how the implementation of the laws, policies and plans are working, it could be concluded that ICZM did not apply entirely into practice. There is the need of more coordination among the stakeholders, more inclusion from behalf the community is still needed; and more interrelationships between the different institutions are also needed.

Nevertheless, it is possible to argue as well that the implementation of the ICZM is complex because of the involvement of a lot of stakeholders from different sectors, and numerous regulations from different levels. That makes hard its implementation. The diverse institutions in charge of different issues, such as, coastal protection, nature conservation, social and economic issues and; flood risk management, need from each other to work properly, and sometimes it is difficult to achieve a real integrated management. However, the different stakeholders on Langeoog are working hard in order to achieve this integration.

Finally, it could be concluded that this island has been implemented the mentioned international treaties, European directives and national and states laws; as well, the principles of protection of marine ecosystem and terrestrial ecosystem and also the needs of the people who live there, including the coastal protection due to flooding. In addition, the island has been implementing an integrated coastal management which includes the participation of different stakeholders in the decision making process and has been developing specific plans, policies and practices. It has to be remembered that the previous characteristics are the ones that were included in the theoretical framework.

Laws and policy	Development of integrated coastal zone management law according to international treaties and European directives	Development of integrated coastal zone management law and policy according to international treaties and European directives	Development of protection and Conservation Laws according to international treaties and European directives	Implementation of the laws and policies as customary practices	Main achievements	Major challenges
Germany	No	Yes	Yes	Effective	-Effective implementation -Awareness	Coordination and integration

Figure 11 Development and implementation of laws and policies in Germany as customary practices

III.3. Experience of South Africa

III.3.1. South Africa Coasts

Located at the southernmost tip of Africa, South Africa's coast extends for about 3 000 km from the border with Namibia to Mozambique. It links the east and west coasts of Africa and connects the Indian, Atlantic and Southern oceans. The coast is very diverse, in terms of its biophysical setting, natural resources, social setting, human settlement patterns, and economic, institutional and legal setting. Because of this diverse character, it is clear that varied management responses are required at a provincial, regional and local level (White Paper, 2000).



Figure 12 Map of the South Africa (edited by the author) Source: googlemaps (2012)

The west coast has high biological productivity, with relatively few species but a great abundance of fish, seabirds, and seals. Cool temperate conditions prevail landward along the west coast, with sandy, nutrient-poor soils and sparse vegetation, becoming desert in the northwest. The south coast is a transitional region between the cool, dry west coast and the warm, moist east coast and combines characteristics of both regions. The climate is warm and temperate. The coastal waters have moderate productivity and high biodiversity. The east coast is warm, humid, and tropical northward and is characterized in both the marine and terrestrial environments by increasing species diversity but smaller populations compared to the other regions. The coastal waters are warm and have relatively low productivity (Glavovic, 2000). In general, the South African coast is very diverse, complex and gives rise to a range of ecosystem types: sandy beaches, rocky shores, estuaries and coastal wetlands, and islands.

III.3.2. Situation of South African Coasts

As it was already mentioned, coastal zones around the world are highly endangered. In South African the greatest driving force for environmental change in the coastal zone is population growth and associated development. South Africa's economy is evolving from one based on natural resource extraction and sale to one of manufacturing and services, and is increasingly dependent on port facilities for the export of processed goods (National State of the Environmental Report South Africa, 1999).

Coast provides food and sustenance for many people living in both rural and urban coastal areas, and the ports represent the gateway to international trade. The coast is also an area of tremendous importance for recreation and tourism, whilst supporting a range of coastally dependent businesses and commercial ventures. Furthermore, the cultural, educational, religious, scientific and spiritual importance of the coast and its resources, are invaluable. Fishing is a primary economic activity in South Africa. However, some fish stocks have been over-harvested, and several species face local extinction. Destruction of these resources through unsustainable exploitation has and will have severe negative consequences for the economy and the communities dependent on them (Environmental Evaluation Unit, 2007).

Urban development along the coastal zone creates various environmental pressures on the landscape through habitat transformation. For example, building houses around estuaries cuts the estuaries off from surrounding habitats, and agriculture and urban activities upstream result in greater sediment deposition in the estuaries, interfering with natural processes. Human use of fresh water from rivers and estuaries places further pressure on estuaries. Coastal ecosystems are also damaged by sewage and storm water discharge. Deterioration in coastal water quality threatens human and ecosystem health. Pressures associated with shipping include oil spills and the discharge of ballast water and waste from vessels (Glavovic, 2000). Overall, South Africa's coastal and marine living resources are suffering declines from over-fishing, the accumulation of toxic pollutants, degradation of estuaries, loss of biodiversity, water quality, coastal erosion, loss of natural habitat and flooding of low lying areas.

Profound physical, biological, political, social, cultural and economic diversity is a defining characteristic of the South African coast. The dismal history of colonialism and apartheid in South Africa is well known. All “non white” South Africans were deliberately and systematically denied access to political power, subjected to mass forced relocation, actively dispossessed of their land and restricted access to, among other things, capital, employment, markets, infrastructure, information, education, justice and law enforcement mechanisms, and health and social services. Political emancipation was achieved with democratic elections in 1994, but despite an array of measures to confront this legacy, the majority of South Africans continue to live in poverty (Glavovic and Boonzaier, 2006).

The value of the direct benefits obtained from coastal “goods and services” was estimated to be about R168 billion annually (approximately €16, 8 billion), which was equivalent to about 35% of the annual gross domestic product in South Africa (GDP), (Environmental Evaluation Unit, 2007). Much of the wealth locked up in the coast continues to be wasted due to environmentally insensitive development and poor decision making. Economic and social opportunities for wealth creation and equity are being missed, coastal ecosystems are being degraded and people’s property and lives are being put at risk (White Paper, 2000).

III.3.3. South African laws and policies on coastal management

In South Africa for most of the 20th century, colonial and then apartheid policies excluded the majority of South Africans from the benefits of the coast. Apartheid systematically and explicitly denied “non-white” people, including Black Africans, Coloreds, Indian, Malay, and Chinese people, -that means everybody that wasn’t a direct European descent- access to the political process and economic resources of the country –including coastal zones and its resources-.

It forced the vast majority of South Africans to live in only 13% of the country, reserving the rest for “white” people. Under apartheid, the government effectively ensured that coastal resources and developmental opportunities were reserved only for “whites” (Glavovic, 2000). Luckily this situation of injustice and inequality changed. Since 1994 South Africa, under the government of President Nelson Mandela, finished with the apartheid regime, as well as with the discriminatory policies.

The process to implement a new policy about making the coast a national asset started in the year 1998 with the Coastal Policy Green Paper: towards Sustainable Coastal Development in South Africa. Then, in the year 2000 based in the Green Paper, it was developed the White Paper: for Sustainable Coastal Development in South Africa.

For purposes of public administration, the coast of South Africa is now divided into four provinces: Northern Cape, Western Cape, Eastern Cape, and KwaZulu-Natal. About 30% of South Africa's 40 million people live within 60 km of the coast. The lingering effects of colonialism and apartheid are reflected in sharp regional differences in the culture, ethnicity, and social fabric of coastal communities. Coastal resources are increasingly playing a crucial part in the local, regional, and national economies (Glavovic and Boonzaier, 2006).

III.3.3.1. South Africa Integrated Coastal Management Policy: *The White Paper*

The White Paper is founded on a shared national vision for the coast that deliberately confronts the legacy of apartheid and provides a value framework for reconciling short term development needs with the longer-term sustainability imperative (Glavovic and Boonzaier, 2006). The White Paper set out a vision for the coast, principles, goals and objectives for coastal management, together with a plan of action for implementation, consequently it is looking forward to translate its vision into practical reality. The White Paper is distinctive in outlining a plan of action for implementing the policy.

This Policy represents a major shift in thinking about coastal management. This Policy is driven by the challenges of transforming the society and economy in South Africa today. It also positions South Africa amongst a growing number of countries internationally that are conducting dedicated coastal management programmes, enabling to fulfill the global responsibilities in terms of Agenda 21, and the international charter for sustainable development that emerged from the Rio Summit of 1992 (Glavovic and Boonzaier, 2006).

It could be stated after analyzing the White Paper and having the opportunity to interviewed relevant stakeholder that some of the main principles that what to be achieved with the creation of this Policy are the following:

1. Integrated management. This policy introduces the concept of integrated management, mentioned in the international treaties - discussed in the previous chapter-. It is stating that an integrated approach is essential to promoting a holist view of the coast as a system.
2. Participation. The White Paper introduces the importance of public participation of coastal stakeholders from all sectors of society including government agencies, local organizations, NGO's, scientists, academics, among others.
3. Implementation. This policy is distinctive in its inclusion of a plan of action. It recognizes that policy implementation is a process that occurs progressively over time. That is why; it incorporates a plan of action.
4. Sustainable development: The White Paper promotes proactive intervention in pursuit of a more sustainable coastal development in coastal areas (Based on a personal interview with Dr. Niel Malan, Department of Environmental Affairs).

Overall, it can be stressed that the White Paper points out coastal zones as terrestrial and aquatic ecosystems which have to be conserved and preserved. Besides, it could be stated that it is people-centred, stressing the importance of the people who live in these areas. In addition, it advocates for the integrated coastal management approach by promoting a new way of management that involves cooperation, participation and shared responsibility with all relevant stakeholders; and last but not least, that all these efforts should be focused in accomplish a more sustainable development.

It is important to make clear that for South Africa the White Paper represents the first national effort to fulfill the requirements stated in international treaties about integrated management approach in coastal zones. But definitely it hasn't been the last one, after the promulgation of the White Paper South Africa has had an important development of laws with the aim of achieving a real implementation of an integrated management in the coast.

Next, it is been explained the most relevant South African Laws that are related with the implementation of the integrated coastal management approach.

III.3.3.2. Integrated Coastal Management Act

The Integrated Coastal Management Act (ICMA) came into effect on December 2009. It establishes a framework to give effect to the White Paper on Environmental Management Policy for South Africa. The ICMA is the first legal instrument of its kind, in South Africa, dedicated to managing the coastline in an integrated approach and ensuring the sustainable development of the coasts and natural resources sited in these areas.

The act stresses the integrated approach defined in the White Paper and establishes a new approach to understand the coast and to managing the activities of people in these zones. The objectives of the ICMA are to:

- Determine the coastal zone of the Republic
- Provide, within the framework of the National Environmental Management Act –which it is discussed below-, for the co-ordinated and integrated management of the coastal zone by all spheres of government in accordance with the principles of co-operative governance
- Preserve, protect, extend and enhance the status of coastal public property as being held in trust by the State on behalf of all South Africans, including future generations.
- Secure equitable access to the opportunities and benefits of coastal public property; and
- Give effect to South Africa's obligations in terms of international law regarding coastal management and the marine environment (ICMA, 2009)

The act has been implemented in a phased approach. The reason for this is that when the Integrated Coastal Management Act was been discussed in the political atmosphere, there were a lot of people against it. Therefore, in order to gain the political consensus needed to have it gazzeted, the advocates of the law decided to structure the implementation in this way (Based on a personal interview with Dr. Niel Malan, Department of Environmental Affairs).

The ICMA requires Coastal Management Programmes at the national, provincial and local spheres of government and it is a requirement that it must include the integrated coastal management approach, including the sustainable use of coastal resources. Besides, the ICMA does specifically refer to the need to protect biodiversity in several areas, for example in section 23 dealing with special management areas “An area may be declared as a special management area only if environmental, cultural or socio-economic conditions in that area require the introduction of measures which are necessary in order to more effectively—conserve, protect or enhance coastal ecosystems and biodiversity in the area.” Therefore, in this law it is clear the inclusion of the characteristics of the integrated coastal management mentioned in this research of preserving the ecological, social and cultural values and to foster a more sustainable development.

It is relevant to mentioned that an important progress has been made on coastal management in South Africa in the past years thanks to the implementation of this law. A few of these achievements are listed below:

- The premiers of the coastal provinces have designated provincial lead agencies for integrated coastal management;
- Some provincial coastal committee has been established and the others are in an advanced stage of formalization;
- Some municipal coastal committees have been established;

- An audit of coastal public property was done;
- The coastal protection zone is being mapped and refined;
- A coastal access strategy is being developed and a case study is underway to improve access for a local community;
- A National Estuarine Management Protocol has been published; and currently some comments are being made to it;
- More than twenty estuarine management plans have been developed;
- A few provincial and local coastal management programmes are being developed; (Based on a personal interview with Dr. Niel Malan, Department of Environmental Affairs).

The above list is not exhaustive and is mainly outputs and cannot be seen as achieving the outcomes of the ICMA. Nevertheless, considerable progress has been made in a relatively short time-frame –less than 3 years-.

III.3.3.3. National Environmental Management Act (NEMA)

The NEMA has to be understood as the framework which gives effect to the White Paper on Environmental Management Policy. The act requires the Department of Environmental Affairs, as the lead agent, to ensure effective custodianship of the environment.

One of the most relevant principles of this act is to serve as the general framework within which environmental management and implementation plans must be formulated. Therefore, the Integrated Coastal Management Act has to be understood under the “umbrella” of this general framework. The most important objectives of the integrated environmental management are: to promote the integration of the principles of environmental management set; to identify, predict and evaluate the actual and potential impact on the environment; to ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them; to ensure adequate opportunity for public participation in decisions that may affect the environment; to ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment; and finally to identify and employ the modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with these principles (NEMA, 1998).

A number of pertinent mechanisms have been proposed to implement this act: a set of principles that are to apply throughout South Africa; a National Environmental Advisory Forum to inform the Minister about the views of stakeholders regarding the application of the act; a committee for environmental co-ordination to promote the integration and co-ordination of government environmental functions; the preparation of environmental implementation and management plans by organs of the State; environmental management co-operation agreements to allow for co-management involving different stakeholders; and the preparation of model by-laws aimed at establishing environmental management systems within the jurisdiction of a municipality.

This act is from 1998 and it was created to provide environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of site; and finally to provide for matters connected therewith. Also, this act establishes that where South Africa is a party to an international environmental instrument the Minister may publish the provisions of the international environmental instrument in the Gazette. In addition, the Minister may introduce legislation in the Parliament or make such regulations as may be necessary for giving effect to an international environmental instrument. With this affirmation it is manifest the importance that international treaties represent to South Africa and also it could be seen the intention to fulfill the compromises acquired in the international instruments.

III.3.3.4. Sea-Shore Act

The Sea-Shore Act, although dated –from 1935- , is fundamental to coastal management. The act is built on the Roman Dutch Law premise that ownership of the sea and sea shore is vested in the President for the use and benefit of the public. While protecting the public interest in the sea and sea shore, the act allows for specific uses of the area but does not provide for any form of access rights to the sea shore from above the high water mark. Notwithstanding, the ICMA stipulates that the ownership of coastal public property vests in the citizens of South Africa.

The Sea-Shore Act also indicates that coastal public property is inalienable and cannot be sold, attached or acquired by prescription and rights over it cannot be acquired by prescription. The National Ports Authority felt that this could negatively affect their infrastructure assets and compromise their long-term loans. This resulted in a need for further negotiations with this organization and their parent department to find wording to section 11 of the ICMA that would make it clear that their assets are not being “expropriated” and given to the general public.

It is for this reason that section 11 has not yet entered into force. Negotiations are on-going to resolve this issue and it is anticipated that proposed amended text, that clarifies this issue without undermining the principle of ownership by the citizens, will be submitted to Cabinet in November 2012 (based on a personal interview with Dr. Niel Malan, Department of Environmental Affairs).

To sum up, the Sea-Shore Act needs to be updated in order to be consistent with the rest of the legal framework related to coastal management.

III.3.3.5. Marine Living Resources Act

This act seeks to ensure the sustainable utilization of marine living resources, through scientifically based and publicly acceptable operational management procedures. There is an emphasis on the broadening of fair and equitable access to resources, the gradual transformation of fishing methods, the development of fees for utilization and a favorable business environment in fisheries.

One of the main objectives and principles of this law are: the need to achieve optimum utilisation and ecologically sustainable development of marine living resources; the need to conserve marine living resources for both present and future generations; and the need to utilize marine living resources to achieve economic growth, human resource development, capacity building within fisheries and mariculture branches, employment creation and a sound ecological balance consistent with the development objectives of South Africa. Within these principles it is notorious the inclusion of the mentioned characteristics of the integrated coastal management of achieving a sustainable development and satisfied the needs for present and future generations living in the coasts.

In addition, the act provides for a principle of national control and co-ordination and places responsibility for resource-allocation decisions with the Minister of Environmental Affairs. It establishes a body called the Consultative Advisory Forum for Marine Living Resources; this forum should advise the Minister on any matter, especially in marine living resources management; and in the management and development of the fishing industry.

III.3.3.6. National Water Act

The main principle of this act is the need to promote social and economic development through the use of water and the need to establish suitable institutions. Therefore the purpose of this act is to ensure that the South Africa water resources are protected, used, developed, conserved, managed and controlled in ways which take into account the following factors:

- (a) Meeting the basic human needs of present and future generations;
- (b) Promoting equitable access to water;

- (c) Redressing the results of past racial and gender discrimination;
- (d) Promoting the efficient, sustainable and beneficial use of water in the public interest;
- (e) Facilitating social and economic development;
- (f) Providing for growing demand for water use;
- (g) Protecting aquatic and associated ecosystems and their biological diversity;
- (h) Reducing and preventing pollution and degradation of water resources;
- (i) Meeting international obligations;
- (j) Promoting dam safety;
- (k) Managing floods and droughts, and for achieving this purpose, to establish suitable institutions and to ensure that they have appropriate community, racial and gender representation.

Once more it is clear the legacy of the apartheid in the developing of legal instruments. It stresses the need to redress the results of past racial discrimination; trying to avoid situations like the one occurred during the apartheid regime and guarantees the same rights, conditions and opportunity for everyone.

It also stress that the public trustee of the South African water resources is the National Government, acting through the Minister of Water Affair and Forestry. The Minister must ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate. Besides, the Minister has to ensure that water is allocated equitably and used beneficially in the public interest, while promoting environmental values. In addition, the Government, acting through the Minister, has the power to regulate the use, flow and control of all water in the South Africa.

Another key aspect of this act is the monitoring, recording, assessing and disseminating information systems on water resources. These instruments are important for achieving the objects of this act. In addition, this act and the establishment of the South African monitoring systems have been the core of the development of the Estuarine Management Plans, which will be discussed in detail later on.

III.3.3.7. Development Facilitation Act and Provincial Planning Legislation

The national Development Facilitation Act sets out to facilitate and fast-track implementation of development programmes and projects in relation to land. It lays down general principles governing land development in South Africa. The Constitution of South Africa determines that planning is a provincial responsibility, and most coastal provinces are currently preparing new development planning legislation in terms of the principles of the Development Facilitation Act.

The final chapter of Section A provides a brief summary of the provincial and regional characteristics of the South African coast, highlighting the great socio-economic and biophysical variations between regions. As it was already mentioned in the analysis of Costa Rica and Germany, the relevance to point out this act is that coastal management is part of the planning done by the countries. In this case it is establishes that the planning prepared in coastal areas is a provincial duty.

It is relevant to mention that it was asked to all the stakeholders that were interviewed about the influence of the regional treaties like the Programmes of the New Partnership for Africa's Development (NEPAD), or the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean, or any other regional Convention on the development of the integrated coastal management policies and laws in South African; and most of them said that there is no influence at all or that there is just a minimum influence e.g. the Nairobi Convention (based on personal interview with Dr. Niel Malan, Department of Environmental Affairs).

After mentioning and analyzing the legal framework it could be stated that South Africa has been influenced by the goals and compromises declared in the international treaties discussed in the previous chapter. Some similarities were clear, especially when discussion about sustainable development and integrated management. Generally, international treaties have been essential to both guide the legislative processes and to heighten the importance of managing the coast in South Africa. Agenda 21 and RAMSAR Convention for example, served as pressure measurements (based on personal interview with Dr. Prof Gavi Snow, Nelson Mandela Metropolitan University).

Even though, there are still some challenges in the development of laws and policies, these included the definition and lack of involvement of new users (e.g. local subsistence and small-scale fishermen) system of rights allocation, selection of species and the quota of species to be harvested, and lack of conflict management mechanisms. The responsible authorities are not adaptive enough to respond to challenges and shifting of responsibilities within departments worsened this condition (based on personal interview with Ané Oosthuizen, South African National Parks).

In addition, in South Africa like in Costa Rica there is a challenge due to lack of implementation of the current laws and lack of a leadership by the government. The most relevant challenges relate to a lack of a clear strategy or coordination to embrace the livelihoods of the users in a fair manner and protecting marine living resources both at government and managing authority levels.

Nevertheless, in South Africa coastal management legislation has been steadily improving and consolidating, but there is still scope for more comprehensive alignment and integration of coastal management. At a management and operational level, coastal management remains more fragmented, unsustainable and less prioritized. The coastal management continues to lack resources (human, financial and technical) meant to develop, support and manage the coastal system in sustainable manner (based on personal interview with Ané Oosthuizen, South African National Parks).

Next it is explained a case study of the implementation of the integrated coastal management as a customary practice in South Africa.

III.3.4. Implementation of the integrated coastal zone management: Case Study of Sundays Estuary

This case study was chosen after doing a research on integrated coastal management practices and asking relevant stakeholders which could be a good example of the implementation of the integrated coastal management in South Africa. Even though South Africa hasn't achieved an integrated coastal management, it is moving on the right track; and one of the best customary practices that can be mentioned in this sense, is the coastal management done in the estuaries due to the implementation of the estuarines management plans (based on a personal interview with Dr. Niel Malan, Department of Environmental Affairs).

This whole process of formulating the Generic Estuarine Management Plans (EMP) started in 2005 as part of the Global Environmental Facility (GEF) project that specifically focused on the Cape Floristic which is one of South Africa's eight World Heritage sites, comprises eight protected areas stretching from the Cape Peninsula to the Eastern Cape, cutting across spectacular mountain and ocean scenery and containing some of the richest plant biodiversity in the world.

The Council of Scientific and Industrial Research (CSIR), is a science council, which was commissioned to draft the first version of the generic management plan. During this stage, which was released in 2007, there was no real participation or consultation. Then, this first version was reviewed at a stakeholder workshop, held in June 2009, which was attended by estuarine scientists and managers from across South Africa. Their recommendations were then incorporated into the second and final version of the document which was released in November, 2009. This overlaps with the promulgation of the ICMA (base on a personal interview with Dra. Lara Van Niekerk, CSIR).

Initially, the coordinator of the process was the GEF project through CAPENature, the provincial conservation body of the Western Cape province. However, following the promulgation of the ICM Act in

2009 the DEA became the legal lead agent that needs to coordinate the process of developing and implementing the National Estuarine Management Protocol and make sure that also the individual EMPs are rolled out nationally.

III.3.3.1. Getting in touch with the development of the Estuarines Management Plans

The estuarines management plans have been developed in order to provide a structure for management of the wide range of activities and actions that occur within estuaries and their environs. It is known the importance to have written plans to guide environmental management processes. In addition to the written plans it is essential to have a participative process when formulating them and count with all relevant stakeholders' involvement (based on a personal interview with Dra. Lara Van Niekerk and Dra. Susan Taljaard, Council of Scientific and Industrial Research).

The Department of Environmental Affairs must legally put together the National Estuary Protocol. The draft has now been gazetted for comment. It is expected that further, it will be legally required that individual estuary management plan be developed and implemented for specific estuary. There is still a debate about what sections of individual EMPs should become legally binding and what not. It has been argued that it is not feasible to legalize a whole detailed plan (based on a personal interview with Dra. Lara Van Niekerk and Dra. Susan Taljaard, Council of Scientific and Industrial Research).

III.3.3.2. Process of the development of the Estuarine Management Plans

The process started with an initial stakeholder consultation meeting in order to establish the Local Estuary Forum (LEF), representing all relevant government authorities and interest groups within the area. A chairperson needs to be elected by the forum to lead the process, as well as members for the Technical Working Groups (TWGs). The TWGs are typically aligned with the Management Strategy sectors or categories, e.g.: conservation; social and cultural issues; land-use and infrastructure development; water quantity and quality; exploitation of living resources; financial sourcing; institutional coordination; and education and awareness.

The Chair person and the TWG's are forming the Executive Team which will be responsible for the development and implementation of the local EMP in the long-term.

After having formed these groups, the next step is to make agreements on key components of the EMP which are the following:

- Situation assessment and evaluation;
- The setting of a vision and strategic objectives;
- The evaluation of management strategies to achieve the vision and objectives;
- The preparation of an estuary zoning plan (EZP) and the establishment of operational specifications;
- The identification of management action plans (MAPs);
- The implementation of the MAPs; and
- Monitoring.

These components were selected by the CSIR, when they were commissioned to draft the first version. The selection of those components is based on international best practice, as well as in the more than 20 years of experience that the CSIR has in estuary management research. Besides, the components were reviewed at a consultation workshop conducted in order to improve the first draft. The participants who attended the workshop agreed the components but stated that few modifications were needed; therefore,

these modifications were incorporated in the second version (based on a personal interview with Dra. Lara Van Niekerk and Dra. Susan Taljaard, Council of Scientific and Industrial Research).

It is relevant to discuss the fact that even though these Estuarine Management Plans are not legal instruments yet; there is an implementation of these plans due to awareness of environmental impacts and more concern about improving the value of coastal zones in order to achieve a better quality of life for human beings (based on a personal interview with Dra. Lara Van Niekerk and Dra. Susan Taljaard, Council of Scientific and Industrial Research).

Next, it will be analyzed in detail the development of the Sundays Estuarine Management Plan. This experience was chosen due to Sundays Estuary is a healthy estuary. Its terrestrial and aquatic ecosystems are in good a condition which is providing better quality of life to the surrounding people. Besides, the process of the development of the plan has been very participative. A lot of stakeholders have been involved and several issues have been driven the importance of protecting this unique place for example maintain estuary health, promote a sustainable development, support the sustainable livelihoods, and create a powerful institutional governance structures (based on a personal interview with Prof. Janine Adams, Nelson Mandela Metropolitan University)

III.3.5. Sundays Estuary Management Plan

The development of the Sundays Estuary Management Plan (EMP) was preceded by an Ecological Water Requirements (EWR) study of the Sundays Estuary. This study defined the Present Ecological State (PES) of the Sundays Estuary as being moderately modified. Although the present health status of the Sundays Estuary is fair, the system is fragile and management intervention is required to prevent further degradation. The EWR study identified two major environmental impacts, firstly fishing pressure and secondly poor water quality due to nutrient input from agricultural return flow. Therefore, in order to improve the health of the Sundays Estuary, management efforts should be focus on improving these two key environmental impacts (Unit for Integrated Environmental and Coastal Management, 2011).

The Sundays Estuary discharges into Algoa Bay, approximately 30 km north-east of the city of Port Elizabeth, in the Eastern Cape, South Africa. SANParks have identified the need to protect the marine and estuarine biodiversity of Algoa Bay, and it is because this reason that they are working towards to declare a new marine protected area that would form part of Addo Elephant National Park. The proposed new marine protected area would cover an area of approximately 120 000 ha, reaching from the Coega River in the south-west to Cannon Rocks in the north-east, and would include the Sundays Estuary, up to the Barkly Bridge and high water mark (Unit for Integrated Environmental and Coastal Management, 2011).

SANParks contracted the Unit for Integrated Environmental and Coastal Management (IECM) to coordinate the development of an EMP for the Sundays Estuary. The project is co-funded by SANParks, CapeNature Estuaries Programme, and the Nelson Mandela Bay Municipality (NMBM).

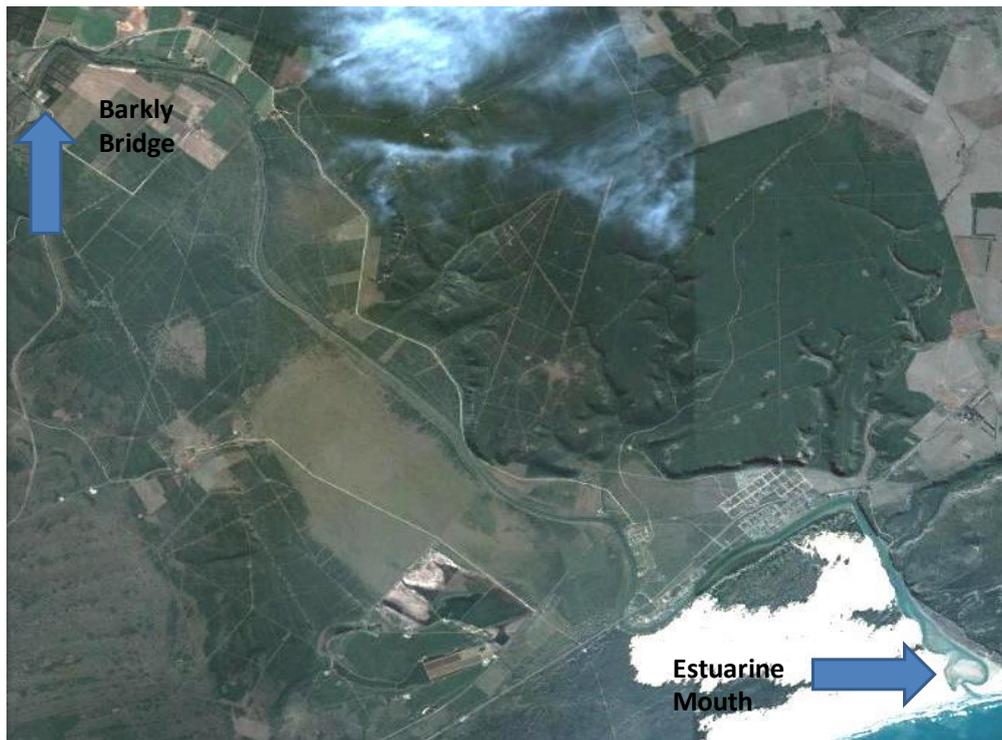


Figure No 13: The Sundays Estuary. Source: (Unit for Integrated Environmental and Coastal Management, 2011).

The Sundays Estuary is important on both a regional and local scale. The National Spatial Biodiversity Assessment, in 2004, classified permanently open estuaries along the warm temperate region, including Algoa Bay, as endangered. The 2010 report identified the Sundays Estuary as one of the core sites for conservation of estuary biodiversity. Therefore, it was recommended that the estuary receive protection where 50% of the margin remains undeveloped. As one of only 18% permanently open systems in South Africa, the Sundays Estuary is an important nursery habitat for line fish, including overexploited species such as white steenbras and dusky kob (fish species). The estuary also plays an important role as a roosting and feeding area for coastal birds, and is an important source of nutrients and sediment to the nearshore marine environment (Unit for Integrated Environmental and Coastal Management, 2011). Overall, the Sundays Estuary is a large and biologically diverse estuary, which even though is facing environmental problems, is having a good condition and represents an important site of South Africa conservation efforts.

Besides to its importance as an aquatic ecosystem, sections of the Sundays Estuary and adjacent terrestrial habitat were identified as important conservation corridors in the Subtropical Thicket Ecosystem Planning (STEP) project. These corridors are areas that could be used by plants and animals as migration pathways. In addition, this estuary is popular among tourists, in particular recreational fishermen (Unit for Integrated Environmental and Coastal Management, 2011).

A number of boundaries were defined for the purposes of the Sundays Estuary Management Plan. The core boundary is essentially the estuarine boundary, or the core planning area of the plan. The downstream boundary of the Sundays Estuary is the mouth, while the upstream boundary is defined by the upper limit of tidal influence, which in the Sundays Estuary is at the Barkly Bridge. The secondary boundary delineates the area in close vicinity to the estuary where activities take place which could impact on the estuary or, alternatively, be impacted on by the estuary. This boundary will also serve as the development set-back line of the estuary. The Sundays River catchment area defines the third boundary, i.e. the catchment boundary. Finally, a fourth boundary could be applicable to the Sundays Estuary if the new marine

protected area of Addo Elephant National Park is declared (Unit for Integrated Environmental and Coastal Management, 2011).

As it was explained the ICMA stipulates not only that estuaries must be protected by means of Estuary Management Plans, but that these plans need to be guided by the National Estuary Management Protocol (Protocol). As it was mentioned this Protocol hasn't been gazzeted but it has been drafted and sent it to public review. Nevertheless, the Generic framework for estuarine management plans -which was also analyzed previously- serves as the best practice guide for the development of EMPs. However, EMPs can only be gazzeted and legally defensible under the Protocol. That is why the Sundays Estuary Management Plan is having problems with its implementation. The plan is not yet a legal instrument.

Nevertheless, because this plan was developed under a participative process, several of its guide principles have been implemented. During the elaboration of the Sundays Estuary Management Plan a total of 12 meetings were held with relevant and diverse stakeholder and user groups. In addition, a number of telephonic interviews were conducted, while feedback from stakeholders was also received as e-mail communications. So, it was a whole process of developing environmental awareness among the participants (based on a personal interview with Dra. Lara Van Niekerk and Dra. Susan Taljaard, Council of Scientific and Industrial Research).

As major achievement of these meetings with diverse stakeholders are the discussions on one hand, of the main concerns and in the other hand the major threats (Sundays Estuary Management Plan, 2011).

Among the major concerns were mentioned the followings:

- The necessity for effective estuary law enforcement;
- Distrust in SANParks as a potential managing authority;
- Right to access and utilisation of the Sundays Estuary;
- Right to sustainable livelihoods;
- The need to protect the recreational heritage of the estuary;
- The importance of and the need to retain a sense of place and;
- Promotion of economic development.

In this case it is clear that having gazzeted the management plan is a major concern. While the plans and other instruments are not legally defensible, there is no way to force the people to obey the plan and to avoid environmental damages when they are occurring.

In addition, the major threats were also identified by the stakeholders. These are the followings:

- Consistent freshwater input as base flow and loss of marine state;
- Poor water quality (due to the use of fertilizers, herbicides and pesticides);
- Poor sewage system;
- Overfishing;
- Unsustainable development and tourism;
- Bank erosion; and
- Climate change.

In this case it is visible again that the major threats are the poor water quality and overfishing. Nevertheless, it is clear that the unsustainable development and tourism is also a key threat for the Sundays Estuary.

In the process of developing the plan, after the main concerns and threats were identified, the stakeholders drafted the local vision for the Sundays Estuary. It echoes the importance of achieving an integrated management and a sustainable development; therefore the vision is the following: “We, the custodians, strive for the equitable, integrated and sustainable protection and use of the marine and other resources of the Sundays Estuary, recognizing that the resources are finite and tradeoffs between users are essential to achieving benefits for residents and the environment at a local, regional and national level” (Sundays Estuary Management Plan, 2011).

In addition it was developed a series of the strategic objectives which states the qualitative goals for the estuary, as defined in the vision statement (Sundays Estuary Management Plan, 2011). The strategic objectives of the Sundays Estuary are the followings:

1. To restore and maintain estuarine health

Improve by 2020 the Present Ecological State (PES) of the Sundays Estuary from Moderate to Good, as recommended by the Resource Directed Measures study (Sundays Estuary EWR 2008). Improved water quality and the protection of line fish stocks, in particular, are pertinent to the restoration and maintenance of the Sundays Estuary’s health.

2. To sustain and manage land use, development and infrastructure

Promote ecologically sustainable developments and the sustainable use of non-living resources, while taking cognizance of future changes and impacts (flood events; climate change; increased resource use). The estuary is subject to extensive future developments. These need to be carefully managed, while cognizance is taken of the potential impacts of climatic changes.

3. To promote socio-economic and heritage values

Support economic growth as well as the sustainable livelihoods of the community of the Sundays Estuary, while protecting the ecological and heritage assets of the estuary. A careful balance needs to be maintained between the ecological requirements of the estuary, protection of the heritage assets of the community (including established recreational activities such as fishing and boating), and the economic needs (including sustainable subsistence, tourism and economic development in general) of the community.

4. To institute governance structures

Ensure integrated, effective co-management of the Sundays Estuary by the relevant government and institutional agencies, together with representation by the local community, by providing the necessary infrastructure through the establishment of an Estuary Management Forum with Technical Working Groups.

These strategic objectives are once more stressing the characteristics and principles that were pointed out in the theoretical framework of this research about integrated coastal management approach. Once more there is a consensus on the fact that integrated coastal management should focus on preserving ecological, social and cultural richness, create a sustainable development, having participative processes, and development of laws and policies which are actually been implemented.

In the case of the Sundays Estuary Management Plan it has been made an analysis on how to achieve the four strategic objectives mentioned above; therefore, it has been also elaborated a series of management objectives (Sundays Estuary Management Plan, 2011) which if they are followed, it could help to achieve the four Strategic Objective:

1. In the case of the restoration and maintenance of ecosystem health, it has to be addressed the following aspects:

- Water quality and quantity;
- Conservation of Biodiversity;
- Sustainable use of living resources;
- Management of general recreational use and;
- Regular monitoring.

2. To manage sustainable land use, development and infrastructure, a particular focus is needed on:

- Land use, development and infrastructure.

3. To promote socio-economic and heritage values, it has to be addressed the following aspects:

- Supporting sustainable livelihood initiatives;
- Promoting sense of place;
- Managing user access and;
- Facilitate education and awareness.

4. Last but not least, to institute governance structures, it needs to be established the following:

- Institutional and management organization and consolidation.

These management strategies are developed in order to address the key threats and most important concerns of relevant stakeholders with regards to the effective management of the Sundays Estuary. The management objectives are implemented by means of a series of management actions, which provides the operational specifications for the objectives.

The strategic objectives and management strategies can be achieved by performing specific, strategic actions. These management actions need to be prioritized, to ensure that sufficient attention and resources are allocated to achieve the most critical goals. Different actions need to be taken in different sites of the Estuary. That is why the Estuary is having a zonation plan. This plan regulates utilization of the estuary and reduces conflict between different user groups. It also reduces conflicts between users and the environment by protecting sensitive habitats and by ensuring sustainable use of the estuary. The zonation plan considers the estuary boundaries which were mentioned above, also, a subdivision of the estuary into different management zones has been made. In addition, it has been done a regulation of activities by providing the conditions for use of the estuary.

In addition, the Sundays Estuary has been subdivided into 6 zones by which estuary-based activities will be regulated (Sundays Estuary Management Plan, 2011).

- Zone A: Area around the mouth (square with a radius of 300 m around the mouth), south of the SANParks fence.
- Zone B: From Zone A to the Pearson Park Resort slipway.
- Zone C: Pearson Park Resort slipway to the north-eastern boundary of the High Banks.
- Zone D: From the north-eastern boundary of the High Banks to the Cannonville slipway.

- Zone E: Area between Cannonville slipway and the Koppies (north-western boundary of the Ingleside River and Wildlife Resort).
- Zone F: Area from the Koppies (north-western boundary of the Ingleside River and Wildlife Resort) to the Barkly Bridge.

There are also operational specifications of the zonification plan which are been made to identify and describe the various management zones of the estuary, and also to provide details on the management requirements of these zones (Sundays Estuary Management Plan, 2011). These zones are the following:

1. Recreational use management areas;
2. Non living resources use areas;
3. Biodiversity areas and;
4. Land use and infrastructure.

These operational specifications include the activities allowed, the activities which are prohibited and its exemptions in each of the management areas. All this has been done in order to achieve a better management in the Estuary.

Another tool that has been incorporated in the plan in order to achieve a better management in the estuary is the auditing and evaluation. It has been established that this process will be conducted at different intensities and frequencies (Sundays Estuary Management Plan, 2011).

- Quarterly auditing: Executive Team meetings
- Annual or biannual auditing: EMF meetings
- Five-yearly auditing: State-of-the-Estuary Report, which re-evaluate the Situation Assessment and previous evaluations.

These mechanism are important, firstly to monitor the success and efficacy of the management plan; and secondly to accommodate the implementation of necessary modifications to the plan. Changes in the status and health of, or impacts on the estuary might require alterations to the plan. In addition, changes in the socio-economic needs of the community or altered legislation might also require amendments to the plan.

After the analysis of the Sundays Estuary Management Plan it can be stated that because the confidence in the whole participative process, and because those responsible for creating the plan really passed time with stakeholders and created an environment of trust; it was developed an management plan which could be consider as a good example of integrated coastal management. In addition, this plan is providing confidence to the stakeholders because it was developed based on scientific research and liable measures.

Nevertheless, a lot of work still needs to be done, it is necessary to pressure the government to have gazzeted the Protocol, so this important mechanism of integrated coastal management become a legally defensible instrument, and besides it is essential to convince the government of the necessity to allocate budget to the plans. It is known that without budget these initiatives are doomed to fail.

Laws and policy	Development of integrated coastal zone management law according to the international treaties	Development of integrated coastal zone management law and policy according to the international treaties	Development of protection and Conservation Laws according to the international treaties	Implementation of the laws and policies as customary practices	Main achievements	Major challenges
South Africa	Yes	Yes	Yes	Poorly	Development of a robust legal framework	Implementation of the laws and policies

Figure 14 Development and implementation of laws and policies South Africa as customary practices

Laws and policy	Development of integrated coastal zone management law according to the international treaties	Development of integrated coastal zone management law and policy according to international treaties	Development of protection and Conservation Laws according to international treaties	Implementation of the laws and policies as customary practices	Main achievements	Major challenges
Costa Rica	No	Yes	Yes	Poorly	Protection and conservation	Implementation of the laws and policies
Germany	No	Yes	Yes	Effective	Effective implementation	Coordination and integration
South Africa	Yes	Yes	Yes	Poorly	Development of a robust legal framework	Implementation of the laws and policies

Figure 15 Development and implementation of laws and policies in Costa Rica, Germany and South Africa as customary practices

Chapter IV. Comparative Analysis

Within the development of this Master Thesis a new concept of integrated coastal management has been developed. Integrated coastal management should be: *a holist approach to manage in an ecologically sustainable and socially equitable way the coastal zones which include marine and terrestrial ecosystem but also its inhabitants and their needs. To implement this kind of management it is necessary to develop specific coastal laws and policies and guarantee their implementation. These management tools have to take into consideration the environmental, social and cultural conditions of each coastal zone and have to be done including all relevant stakeholders in the decision making process.*

The importance of pointing out this concept is to make clear all the characteristics and the scope that the integrated coastal management approach should include. For this research it is central to mention that the coastal zones are not just important for its ecological richness but also because of their social and cultural values. Therefore, it is relevant to stress the importance to implement mechanisms to preserve the marine and terrestrial ecosystems, but also to create a better quality of life for the people currently living in these areas and for future generations. In addition, it is relevant to stress the importance of having coastal laws and policies and guarantee their implementation. Finally, it is fundamental to include environmental, social and cultural conditions and participative processes when developing these management tools.

To summarize the main characteristics of the integrated coastal management approach for this research are: preserving ecological, social and cultural richness, create a sustainable development, having participative processes, and develop management tools as laws and policies which are actually been implemented in customary practices.

After mentioning these characteristics it will be made a comparative analysis between Costa Rica, Germany and South Africa and their implementation of the integrated coastal management approach.

When doing a comparative analysis is essential to take into consideration the contextual factors, as political, social and cultural, otherwise the analysis done will be superficial. Therefore, the comparative analysis done between Costa Rica, Germany and South Africa and the implementation of the coastal management approach encloses these conditions.

In that order, the first statement that has to be clarified is that comparing between the implementation of the integrated coastal zone management approach in a developed country such as Germany and developing countries like Costa Rica and South Africa presents differences in their response, as well as in the challenges in their implementation. For a rich, developed country like Germany to fulfill the characteristics of the integrated coastal management approach is easier than for Costa Rica and South Africa, because Germany has a more consolidated structure of the government and its institutions, and besides it has more economic resources which are dedicating to the implementation of environmental issues such as monitoring systems.

In the cases of Costa Rica and South Africa, even though they are developing countries, their political, social and cultural factors are quite different. The apartheid in South Africa excluded the majority of South Africans not just from the benefits of the coast, as it was mentioned, but also from any kind of rights for a long period of time. That represents another challenge for South Africa which is currently more focus on generating employment, fighting against poverty, promoting equality, education for everybody; and so forth. Therefore, again an environmental right such as integrated coastal management is not at the top of the priorities' list of the government.

In Costa Rica, even though is a developing country, the situation regarding the mentioned problems has been relatively good in comparison with South Africa and other developing countries; for example Costa Rica is a politically stable society, has one of the oldest democratic systems in America Latina, and by doing without an army, it was possible to allocate more resources to education, health services and housing; meaning that the government has been able to give more attention to social rights and environmental rights.

Next, the comparative analysis is completed. The focus of the comparative analysis includes these variables:

- Preserving ecological, social and cultural richness;
- Creating a more sustainable development;
- Having participative processes,
- Developing management tools as laws and policies and;
- Guarantee the implementation of the laws and policies as customary practices.

V.1. Preserving ecological, social and cultural richness

On one hand, the three cases have a clear intention and are doing efforts in preserving the ecological richness of the coastal zones. This fact is visible when studying the scientific papers and the laws and policies. This is due to the awareness of the environmental deterioration of the marine and terrestrial ecosystems of the coastal zone.

On the other hand, there is no so visible the importance to foster the preservation of social and cultural richness of the coastal zones. Even though in some laws and policies of the three cases was mentioned the importance of preserving social and cultural richness in the coastal zone. Nevertheless, the focus was always very limited.

In Costa Rica it could be stated that is due to strong sectors of the society which are having commercial interests, as well as the massive tourism development, and the lack of interest of politicians in social and cultural issues. In South Africa, even though there are policies and laws stating that coastal management has to be people centred and is founded on a shared national vision for the coast, there is a lot of work to do in order to confront the legacy of apartheid in this zone and to recover all the cultural richness that has been eliminated. In Germany, definitely has been found the better implementation of the preservation of the social and cultural richness not just in the development of the laws and policies but as well as in the implementation of customary practices like in Langeoog where for example is not allowed for people who were not born on the island to build a house there.

Besides, in Costa Rica, there is a tremendous problem faced by the coastal zones due to real-estate and the only responsible for this is the government, which has always been prioritizing the exploitation of real-estate and tourism before taking into considerations the need of the local communities located in the coastal zones. The social and cultural values of the coastal communities are disappearing. Nevertheless, Costa Rica has been worked in a systematic effort to preserve the ecological richness. The best example of this is the creation of the national park system since 1970, which nowadays protects representative sections of all the major habitats and ecosystems for the present and future generations.

In the case of South Africa there is the clear intention to work more on the achievement of the preservation of ecological, social and cultural richness, one example of this is the White Paper which states that coastal zones and its terrestrial and aquatic ecosystems should be conserved and preserved. Besides, there is visible the intention to confront the legacy of apartheid when mentioning that is people-centred, stressing all people without any kind of discrimination. In addition, with the example of the Estuary Management Plans it is possible to understand the big step done by South Africa in the preservation of ecological richness. This management plans provide a structure for management of the wide range of activities and actions that occur within estuaries and their environs because it is known the importance to have written plans to guide environmental management processes and to improve the quality of what is been done.

It could be stated that Langeoog is implementing in a more effective way the preservation of the ecological, social and cultural richness because they are protecting marine ecosystems such as salt marshes and wetlands; and also terrestrial ecosystem such as national parks, urban areas, and sustainable tourism.

Besides, it is implementing specific local policies and regulations in order to achieve a more sustainable development like having buildings with just two floors and not allowing cars on the island. In addition, the social and cultural factors are being contemplated, most of the people on the island are having accommodations like bed and breakfast which represents a sustainable tourism and at the same time is improving the welfare of the people who live on the island. There is not a massive tourism like in the case of Costa Rica.

V.2. Creating a more sustainable development

As it was already mentioned in the first chapter, the concept of sustainable development was adopted in 1987 by United Nations and this was achieved thanks to the Brundtland-report where this concept was first introduced. Later on, at the UNCED in 1992, the concept was implemented into the Agenda 21 when it became popular and a central guiding principle of the United Nations (UN), governments and private institutions, organizations and enterprises.

Therefore, it has been introduced in all the legal instruments related to environmental issues and of course it has been implemented when dealing with integrated coastal management. In the cases of Costa Rica, Germany and South Africa there is a palpable use of this concept in the developing of laws and policies. The problem with this concept is its implementation, which is not as easy as it appears. Achieving a sustainable development is almost impossible due to human beings are always thinking about how to use and exploit natural resources instead of how to protect and conserve.

Until now, even though Costa Rica has been achieved a more sustainable development in the national parks and the protected areas, the country as a whole hasn't achieved a more sustainable development. A lot of work still needs to be done, it is necessary to pressure the government to implement a more integrated sustainable development. In the Costa Rican laws, even though it was clear the inclusion of the sustainable development in the environmental laws, it wasn't the case for the Maritime Terrestrial Zone Law.

In the European Directives it was evident the inclusion of the sustainable development statement as well in the national (federal) laws and in the local laws in Langeoog. In this case, even though it could be pointed out that in the case of Langeoog it has been implemented a more sustainable development, the country as a whole is still facing a lot of environmental problems like the continued development of the industry such as chemical and mechanical engineering; and nuclear power plants.

In the case of South Africa it could be stated there has been also an important influence by the goals and compromises declared in the international treaties about sustainable development which have been incorporated in the laws and policies. Some similarities were clear about this fact, especially when looking at the White Paper and the Integrated Coastal Management Act. It could be stated that South Africa has been made good achievements in including the international principle of sustainable development in their laws. Nevertheless, there is still a lot to do in the practice in order to achieve a more sustainable development in South Africa. It could be stated that the implementation of the Estuary Management Plans, like the Sundays Estuary, have been essential to go on the right track to achieve this huge task.

V.3. Having participative and inclusive processes

The importance of having participative and inclusive process is to build good groundwork for an effective implementation. Therefore, if there is a need of implementation, there has to be a participative and inclusive process.

In Costa Rica there is a lack of integrated planning. The responsible institutions are working separately without a joint vision of participative processes. However, this view has been changed over time and it is becoming more integrated. Therefore, it could be stated that in Costa Rica there is still a lot to do in order to change the fragmented way in which the coastal management have been developed where each institution has been worked alone without integrating other governmental institution and also without involving the surrounding communities in the decision making process.

In the case of the Marino Ballena National Park it could be stated that more participative process in its creation and in the development of its management plan was required. Therefore, in Costa Rica there is still a lot to do in the integration and coordination of all the responsible authorities dealing with coastal management; as well as, in the implementation of more participative processes.

Nevertheless, it can be mentioned that recently more participative efforts have been made. One example of this is the work done by the Interinstitutional Coastal Marine Commission of ACOSA, which has been worked in the Marino Ballena National Park. This work has been the result of the coordination of actions and agendas of the different governmental institutions, NGOs and community associations interested in coastal marine zones.

In the case of Germany it could be stated that even though there is integration among the responsible institutions the problem with integrated coastal management projects is that they are working properly while there are having funds for its implementation but once that the funds are lacking, there is no continuity.

In the case of Langeoog it could be stated there are many stakeholders involved in the decisions making process such as the Lower Saxony State Agency for Water Management, the Coastal Defense and Nature Conservation (NLWKN), the National Park of Niedersachsen and the Major. Nevertheless, conflicts between the diverse stakeholders were founded in this case study. For example there are some differences between how the NLWKN and the National Park wanted to implement the ICZM on the island. On one hand, the NLWKN wants to put more focus on coastal protection for example investing more budget in dykes and dunes maintenance; and on the other hand, the National Park would like to focus the coastal management in nature conservation and invest more budget on protecting the sites and animals. Consequently, there are some problems implementing integration. Besides, there is the need of more coordination among the stakeholders, more inclusion from behalf the community is still needed; and more interrelationships between the different institutions are also needed. Nevertheless, it was also visible that there is an integration and more participative process than for example in Costa Rica and South Africa.

In the case of South Africa there is a clear inclusion of more participative and integrative process in the all the laws related to coastal management. As well, the necessity of this kind of process is been established in the Sundays Estuary Management Plan where it could be stated that because the confidence in the whole participative process, and because those responsible for creating the plan really passed time with stakeholders and created an environment of trust; it was developed a management plan which has been implemented.

Nevertheless, a lot of work still needs to be done, it is necessary to have more coordination between the governmental institutions. Besides, in the case of the Estuary Management Plans there is the need to pressure the government to have gazzeted the General Protocol, so this important mechanism of coastal management become a legally defensible instrument. It is known that without budget these initiatives are doomed to fail.

Nevertheless, it is possible to argue as well that having participative and inclusive process as well as coordination is complex because of the involvement of several stakeholders from different sectors, and numerous regulations from different levels. That makes hard its implementation. The diverse institutions in charge of different issues, such as, coastal protection, nature conservation; and social and cultural issues, need from each other to work properly, and sometimes it is difficult to achieve a real integrated coastal management.

V.4. Developing management tools as laws and policies

The analysis of this characteristic starts with the signing and ratification of international treaties. Costa Rica, Germany and South Africa had signed and ratified Agenda 21, the United Nations Convention on the Law of the Sea, the Convention of wetlands of international importance especially as waterfowl habitats, the International Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other

Matte, the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention of Climate Change; and the Convention of Biological Diversity. In general, it could be stated that there has been an implementation of the main environmental principles of these conventions in the legal frameworks of Costa Rica, Germany and South Africa. There is a visible relationship between the international treaties and the domestic law. Therefore, it could be said that the countries have been implemented part of the treaties in domestic law or policy to ensure that they can meet the treaties' objectives and obligations.

In the case of Costa Rica there is no compliance of the obligations assumed with the ratification of Agenda 21 about integrated coastal zone management; as there exists in the cases of Germany and South Africa. In Costa Rica there isn't a law which is looking forward to fulfill the implementation of an integrated coastal zone management approach. Therefore, there is the need to have an integrated coastal zone management law which incorporates all the integrated coastal management principles which have been discussed in this research. Even though there is a policy on integrated coastal management it hasn't been implemented, so there is also the need of its implementation. On the other hand, it could be affirmed that Germany has adopted an integrated coastal zone management policy in order to implement the goals and compromises declared in the international treaties. Nevertheless, it has to be mentioned that Germany has been more influenced by the European Union Directives especially by the Recommendation of the European Parliament than by the international treaties because it was evident the similitude between what is requested by this Directive and the extend of the German ICZM policy. This could be affirmed is due to the closeness of Germany to the European Union but also due to the control and monitoring mechanisms established in the European Directives, e.g. the National Reports on the Implementation of Integrated Coastal Zone Management.

In the case of South Africa it could be avowed that the White Paper and the Integrated Coastal Management Act were influenced by the Agenda 21 and its Chapter 17 regarding the principles about integrated coastal management. This could be affirmed due to it was evident the relationship between the vision and principles stated in the international instrument and the ones incorporated in the South African frameworks.

In South Africa the creation of legislation regarding protection in the marine and terrestrial ecosystems has been steadily improving and consolidating (like creation of national parks, marine reserve and so forth) but there is still scope for more comprehensive alignment and integration of coastal management. At a management and operational level, coastal management remains fragmented, unsustainable and less prioritized.

In addition in South Africa, there are still some challenges in the development of laws and policies, these included the definition and lack of involvement of new users (e.g. local subsistence and small-scale fishermen) system of rights allocation, selection of species and the quota of species to be harvested, and lack of conflict management mechanisms. The responsible authorities are not adaptive enough to respond to challenges and shifting of responsibilities within departments worsened this condition. The same challenges could be mentioned for Costa Rica.

V.5. Implementation of the laws and policies as customary practices

In Costa Rica there is still a lot to do in order to implement as customary practice the integrated coastal zone management approach. There is still the need to change the fragmented way in which the coastal management has been developed, where each institution has been worked alone without putting efforts together with other institution but also without involving surrounding communities in the decision making process. Nevertheless, some efforts have been made in order to implement the integrated coastal zone management approach. One effort in this sense is the Marino Ballena National Park, which has been worked with the Interinstitutional Coastal Marine Commission of ACOSA, and has been addressed and influenced the development of several projects in the coastal marines zones in this area. This work has been the result of the coordination of actions and agendas of the different governmental institutions, NGOs and community associations interested in coastal marine zones. Besides, it has been implemented a monitoring

system of the Marine Protected Areas in ACOSA through different strategies such as the creation of marine rangers who have been worked on controlling illegal activities of tourism and illegal fishing.

Germany on the other hand, it could be concluded that is the best example regarding implementation. In Germany was found a more effective implementation of the Integrated Coastal Zone Management National Strategy and the European Directives and Federal Laws. In Langeoog it was palpable the implementation of the principles of the integrated coastal management approach. These include the participation and coordination of different stakeholders including governmental institutions but also no governmental organizations and the community in the decision making process.

Finally, South Africa hasn't achieved an implementation of the integrated coastal management approach. Nevertheless, it is moving on the right track. The development of a robust integrated coastal zone management legal framework has been its first step in this direction. Besides, there are some efforts made regarding implementation, and the best example of this has been the coastal management done in the estuaries due to the implementation of the estuarines management plans. In the Sundays Estuary the implementation of its plan has been seen as an integrated customary practice. The process has been very participative. A lot of stakeholders have been involved and several issues have been driven the importance of protecting this unique place for example maintain estuary health, promote a sustainable development, support the sustainable livelihoods, and create a powerful institutional governance structures.

In addition, in South Africa like in Costa Rica there is a challenge due to lack of implementation of the current laws and lack of a leadership by the government. The most relevant challenges relate to a lack of a clear strategy or coordination to embrace the livelihoods of the users in a fair manner and protecting marine living resources both at government and managing authority levels. The coastal management continues to lack resources (human, financial and technical) meant to develop, support and manage the coastal system in sustainable manner.

Regarding the implementation of the integrated coastal management legal framework, in general there is still a lot of work to do in Costa Rica, Germany and South Africa. This statement is been reached after conducting 18 interviews and questionnaires, six in each country, with relevant stakeholders. It has to be mentioned that in the Germany most of the stakeholders that were interviewed mentioned that there is a compliance of the laws and policies in the customary practices.

In the case of Costa Rica is been mentioned that even though there are important efforts made in order to protect marine and terrestrial ecosystems; and wildlife and forest locate in the coastal zone most of them there are still fragmented. Nevertheless, there is the implementation of the monitoring system of the Marine Protected Areas in ACOSA through different strategies such as the creation of marine rangers who have been worked controlling illegal activities of tourism and illegal fishing which as well has been a participative and integrated process. In addition, there are different ongoing projects to establish a Marine Spatial Planning to consolidate Marine Protected Areas around Costa Rica. The same positive aspect could be mentioned about South Africa, and the implementation of the Sunday Estuary Management plan, where the process followed was participative and integrative and now even though this plan is not a legal instrument it has been already implemented.

Variables	Preserving ecological, social and cultural Richness	Creating a more sustainable development	Having participative processes	Developing laws and policies	Guarantee the implementation of the laws and policies in customary practices
Costa Rica	It has the approach for ecological richness. Limited in the case of social and cultural richness	It has the approach but fragmented	Some initiatives but still too limited	Don't have an integrated coastal management law	Poorly
Germany	It has the approach for ecological richness. Limited in the case of social and cultural richness	It has the approach and it is integrated	It has participative processes	Don't have an integrated coastal management law	Effective
South Africa	It has the approach for ecological richness. Limited in the case of social and cultural richness	It is starting with the approach	Some initiatives but still too limited	It has an integrated coastal zone management law and policy	Poorly

Figure 16 Comparative analyses on the development of the integrated coastal management approach Costa Rica, Germany and South Africa

Conclusions

The comparative analysis of three study regions in Costa Rica, South Africa and Germany has provided further evidence that coastal zones and its terrestrial and marine ecosystems contain huge numbers of animal and plant species which are very important for having a healthy and ecological balanced environment; nevertheless, many of these species have been extinct or are in danger of extinction because of irresponsible human activities such as unplanned coastal development, massive tourism, over-fisheries and pollution..

A scientifically sound and socially admitted-approach is needed in order to solve the problem related to increasing degradation of the coastal zones and its terrestrial and marine ecosystems. This globally widespread accepted approach is the integrated coastal management approach which has been largely discussed in this research. As well, its development, its characteristics and principles have been argued.

In this study it could be exemplified that the importance of this approach is the provision of a better way to address and solve coastal management problems. However, it is known that the only manner of achieving this goal is the effective implementation of this integrated coastal management. Therefore, there is the need of implementing this approach worldwide. In order to achieve that, there are many initiatives that several countries around the world are implementing. In this research have been studied the development of international conventions and national laws and policies; and the implementation of these mechanisms as customary practices.

On one hand, there are the international conventions. It could be concluded that there is an inclusion of the integrated coastal management approach within these treaties; nevertheless it has been limited and not integrated. There is still the need of incorporating this approach to all of the international treaties related to coastal and marine issues. Nevertheless, thanks to the international treaties the concepts of sustainable development and integrated coastal management have become popular as well the importance of its implementation. The most notable strength of these instruments is that they attempt to establish a global awareness of the chaotic situation. That is why these tools are so important for the countries and for the people.

On the other hand, there are the national laws and policies. Firstly it can be mentioned that the development of laws on integrated coastal management have been influenced by the international treaties. In Costa Rica, Germany and South Africa was evident the influence of the international treaties in the national laws, which represent one of the major achievement of the international legal framework. Nevertheless, the most relevant achievement that these instruments could have is its implementation as customary practices.

It could be affirmed after the analysis of the legal frameworks developed in Costa Rica, Germany and South Africa that there has been an implementation of the main environmental principles of these conventions. There is a visible relationship between the international treaties and the domestic law. Therefore, it could be said that the countries have been implemented part of the treaties in domestic law or policy to ensure that they can meet the treaties objectives and obligations. In the cases of Germany and South Africa it was evident the inclusion of the integrated coastal management principles in their domestic laws and policies. Nevertheless, in the case of Costa Rica there is no influence of the integrated coastal management and its principles in the main Coastal Law.

Regarding the implementation of the international treaties on integrated coastal management as customary practices, in general, there is still a lot of work to do in all of the presented cases. However, it was proved after this research that there is a level of implementation of these treaties in customary practices in the cases of Marino Ballena National Park, Langeoog and Sunday Estuary. Therefore, it could be affirmed that these practices have been supported somehow by the international legal framework in Costa Rica, Germany and South Africa. This could be concluded after conducting several interviews and questionnaires, with relevant stakeholders in the three countries.

It has to be mentioned that in the case of Germany, according to most of the stakeholders that were interviewed, there is a compliance of the principles of the international framework, European directives and national laws and policies on integrated coastal zone management in the customary practices. Nevertheless, there are relevant conflicts between the diverse stakeholders such as different visions about how to implement integrated coastal management, if there should be more focus on coastal protection for example investing more budget in dykes and dunes maintenance; or if should be given more importance to nature conservation. Consequently, there are some problems implementing integration. Besides, there is the need of more coordination among the stakeholders, more inclusion from behalf the community; and more interrelationships between the different institutions.

In the case of Costa Rica is been mentioned by the relevant stakeholders that were interviewed that even though there are important efforts made in order to protect coastal zones, and its marine and terrestrial ecosystems with the creation of national parks and other protected areas, there is a lack of integrated planning. The responsible institutions are working separately without having integrative processes. As well, there is a lack of participative processes on decision making concerning coastal management. Therefore, it could be stated that in Costa Rica there is still a lot to do in order to change the fragmented way in which the coastal management have been developed. Nevertheless, in the case of Marino Ballena National Park, it has been achieved an implementation of the integrated coastal management approach thanks to the efforts made by the Interinstitutional Coastal Marine Commission of ACOSA. This work has been the result of the coordination of actions and agendas of the different governmental institutions, NGOs and community associations interested in coastal marine zones.

It can be mentioned that in South Africa the development of national laws and policies has been better than in Germany and Costa Rica. South Africa is the only example where an integrated coastal zone management policy and law is in place; and both of them are actually interconnected and interrelated and are including all the principles of the integrated coastal management approach. Nevertheless, according with the relevant stakeholders that were interview even though they are going on the right track to implement the principles of the integrated coastal zone management they haven't achieved them. However, there is an implementation of the integrated coastal management in the Sundays Estuary, where it was fulfilled as a participative and integrative process which wants to preserve the ecological, social and cultural richness and create a sustainable development.

To conclude, the research questions have been responded as follow:

What is the most relevant international legal framework that contains regulations on coastal management?

The most relevant international treaty on coastal management is Agenda 21 and its chapter 17. In this instrument are been defined what is integrated coastal management, the characteristics that this kind of management should have, how to conduct the process related to it, the principles and the importance of having this kind of management in order to achieve a more sustainable development. Besides, the Law of the Sea Convention that provides a basic constitution for the oceans, establishing specific jurisdictional limits on the ocean area including the 12-mile territorial sea limit and the 200-mile exclusive economic zone. In addition, the London Convention, which represents one of the most important conventions for the protection of the marine environment from human activities, contributing to the international control and prevention of marine pollution by prohibiting the dumping of certain hazardous materials.

To what extent this international framework has been implemented by the development of laws and policies in Costa Rica, Germany and South Africa?

Costa Rica hasn't defined an integrated coastal management national law or policy. Its main instrument related to coastal management is the Maritime Terrestrial Zone Law which is not including the principles of the integrated coastal zone management. However, there are several environmental laws which are providing important elements to achieve protection and conservation to marine and terrestrial ecosystems. A special law which has achieved conservation in Costa Rica is the National Parks laws.

Germany hasn't developed an integrated coastal zone management law. Nevertheless, has developed the Integrated Coastal Zone Management National Strategy which is the main instrument in Germany to deal with coastal management. This strategy includes the following principles: sustainable development, integration, participation and experience transfer. Another important legal instrument related to the coastal management in Germany I is the European Directive concerning the implementation of Integrated Coastal Zone Management in Europe.

South Africa is the best example in this sense. It has developed an Integrated Coastal Zone Management Policy and afterwards the Integrated Coastal Zone Management Law. Both instruments are including the principles of the integrated approach. Besides it has developed environmental laws in order to achieve as well conservation and participation being the best example the National Environmental Management Act.

What has been done by Costa Rica, Germany and South Africa in order to implement integrated coastal management customary practices and how these practices have been supported or hindered by the international legal framework?

In general in the three cases it could be stated that the international legal framework has been supported customary practices; however, in all of the cases in a different extent.

In Costa Rica there is still a lot to do in order to implement as customary practice the integrated coastal zone management approach. There is still the need to change the fragmented way in which the coastal management has been developed, where each institution has been worked alone without putting efforts together with other institution but also without involving surrounding communities in the decision making process. Nevertheless, some efforts have been made in order to implement the integrated coastal zone management approach. One effort in this sense is the Marino Ballena National Park, which has been worked with the Interinstitutional Coastal Marine Commission of ACOSA, and has been addressed and influenced the development of several projects in the coastal marines zones in this area. This work has been the result of the coordination of actions and agendas of the different governmental institutions, NGOs and community associations interested in coastal marine zones. Besides, it has been implemented a monitoring system of the Marine Protected Areas in ACOSA through different strategies such as the creation of marine rangers who have been worked on controlling illegal activities of tourism and illegal fishing.

Germany on the other hand, it could be concluded that is the best example regarding implementation. In Germany was found a more effective implementation of the Integrated Coastal Zone Management National Strategy and the European Directives and Federal Laws. In Langeoog it was palpable the implementation of the principles of the integrated coastal management approach. These include the participation and coordination of different stakeholders including governmental institutions but also no governmental organizations and the community in the decision making process.

Finally, South Africa hasn't achieved an implementation of the integrated coastal management approach. Nevertheless, it is moving on the right track. The development of a robust integrated coastal zone management legal framework has been its first step in this direction. Besides, there are some efforts made regarding implementation, and the best example of this has been the coastal management done in the estuaries due to the implementation of the estuarines management plans. In the Sundays Estuary the implementation of its plan has been seen as an integrated customary practice. The process has been very participative. A lot of stakeholders have been involved and several issues have been driven the importance of protecting this unique place for example maintain estuary health, promote a sustainable development, support the sustainable livelihoods, and create a powerful institutional governance structures.

Recommendations

After completing this research the following recommendations on (i) the scientific approach of the integrated coastal management, (ii) the international legal framework and the national laws and policies; and (iii) the specific cases considered in this study:

1. The main recommendation regarding the scientific integrated coastal management approach is that more inclusion of the social and cultural values of the coastal zones is compulsory. It is not

sufficient to preserve the ecosystem but it is relevant to stress the importance to conserve the unique social and cultural richness of these places. As well, it is significant to create a better quality of life for the people currently living in these areas and for future generations.

2. Another key recommendation is that an effective implementation of the international legal framework and the national laws and policies is required. The only way to achieve an effective implementation is to have inclusive and participative processes, where all the stakeholders (community, academic sector, public institutions, fisheries groups, NGOs, and business sector) are working on decision making together; therefore, the implementation of the approach will be done because everybody will be convinced of its relevance.
3. Another general recommendation is to have reviewed the international legal framework and work on more interrelation between the different treaties related to coastal management and sea protection. There is the necessity of more inclusion of the integrated coastal management approach within the international treaties related to sea protection. So far, the integration among them has been limited. There is still the need of incorporating this approach to all of the international treaties related to coastal and marine issues.
4. It is also important for the governments to obey and include in their national laws and policies the principles established in the international treaties. All the governments are participating in the international conferences; therefore, they can include their vision when drafting the international treaties and then, that vision should be included in the national laws and policies.
5. In addition, some specific recommendations are presented for Costa Rica, Germany and South Africa. In the case of Costa Rica is recommended to develop a new coastal management law which should include the principles of the integrated coastal management approach. In addition, is strongly recommended more implementation of the current laws and policies. Finally, to define a clear strategy for coordination among the public institutions is essential.
6. For Germany is strongly recommended more coordination and integration between different stakeholders related to coastal management. Besides, it is recommended to develop an integrated coastal management law according with the principles of the integrated coastal zone management strategy.
7. For South Africa it is strongly recommended to make more efforts related to the effective implementation of the laws and policies. In addition, it is recommended the involvement of all relevant stakeholders in the decision making process.

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Appendix. Interviews

In the three countries were applied the same questionnaires. There are two kinds of questionnaires, the general one which was applied to the people who are having more general knowledge for example the ones working in the central offices of the Ministries of Environment; and a more specific one, which was applied to the people who are directly working with the chosen cases.

General Questionnaire

1. Is there an influence of International Treaties like Agenda 21, United Nations Framework Convention on Climate Change (UNFCCC) or United Nations Convention on the Law of the Sea (UNCLOS), or any other, in the development of the coastal zone management laws and policies?
2. What are the most important laws and policies that have influenced the coastal zone management?
3. In the development of the laws and policies that regulate the coastal management which have been the most relevant conflicts, challenges and lessons learned?
4. Now, concerning the implementation of the coastal management which are the most relevant conflicts, challenges and lessons learned?
5. Could you please mention and explain some remarkable examples of a real implementation of coastal management?
6. What do you think are the further steps needed in order to improve what has been done related to the development of laws and policies?
7. What do you think are the further steps needed to have a real implementation of integrated coastal management?

Specific Questionnaire

1. What are the most important legal instruments and policies that have influenced the coastal management in this specific case?
2. Besides the national laws and policies are there other legal instruments that have been important for the development of the coastal management in this case? If yes, which ones are the most important ones?
3. Concerning the implementation of the coastal management in this case which are the most relevant conflicts, challenges and lessons learned?
4. Could you please mention and explain if you consider that in this case has been implemented an integrated coastal management approach?
5. What are the most relevant actors and institutions involved in this topic?
6. What do you think are the further steps needed in order to improve the integrated coastal management done so far?

Germany

1. Interview with Hans Jassen, Ex- Major Langeoog and people from the NWLKL.

Date: February 17, 2011

In Langeoog we apply different laws and different taxes for coastal management, like dyke conservation, among others. For example: German Government's law, Lower Saxony Federal State's law and the Langeoog Island's law. There is an influence of International Treaties like Agenda 21. But more important is the influence of the European Directive in this case the most important one is the European Directive on Integrated Coastal Zone Management.

NWLKL is doing coastal protection in the whole Germany. They are getting money from all the Germans. With that, they are also protecting the water supply. Here in Langeoog we don't problems with storms surge or rainfalls; nevertheless, we have problems with high tides and strong storms coming from the west.

In order to prevent that, we have built dunes and dykes. First, to defend the old dunes and also to give more protection to the island.

We have a plan in case that a natural hazard occurs. The plan involves all people from the island between the age of 18-60 since 1970. We have a siren and when this sound all the people know what to do. The island is coordinating this action with the municipality of Wittmud.

In January 2006 we suffered a very high flood but nothing happened. We could prevent all the damages.

In 2006 people from the National Park suggested to build another dike closer to the village with the objective of bringing sediments to help conserve the salt marshes. Also they argued that like this the people will be more protected. The dyke is working but there has passed just a few years. We still need more time to see who is going to work.

One important issue for us is coastal protection. In order to do the coastal protection we are getting the money from the Federal State of Lower Saxony and from the German Government. The Municipality of Wittmund and the Islands are not paying for that. Langeoog is protecting the main land so that is also why is so important to protect the island.

We have an evacuation plan in case we need it but we have never used it.

For us in the island the forecasts are very important. We are always looking out for the forecast. And if they say that we will have waves above 2 meters we start making some preparation. If is necessary we have an evacuation plan.

We have a good coordination with main land but if a tragedy occurs we have to work alone. They are not going to come here to pick us up.

Twice a year we have the monitoring of the dikes and the dunes systems. The NLWKN is responsible for the monitoring. They are always doing reports of the condition of the dikes and dunes, because if they are in bad condition they need to ask for money to improve the condition of the dikes and dunes.

We are also taking important measure to protect the fresh water. We have very good water's quality. We take the water from the ground and we don't have lack of water and we don't have problems of intrusion. We even have enough water for tourism. We are implementing a sustainable tourism.

We have very good sewage system. We treat all the waters and they are in good quality when we send them to the beach.

Here in Langeoog is very hard to have a car. We have very strict regulation to get cars in order to avoid pollution.

We have a very good recycling program and everything is sent to mainland. Bags are collected with different materials like paper, glass, plastic, and everything is sent to mainland. For that public service, we charge €3 per m³ which is €160 per year per family.

People in Langeoog are paying the same amount for energy that people in mainland. We built the pumps in 1921.

For us the most important thing to do an integrated coastal management is to work together. Work together with the people from the Coastal Protection, with people from the Water Supply, with people from the City Hall major, the brigades, and people from the community of Langeoog. This is defined like that in our Major Plan.

2. Interview with Jörn Bunje, Niedersachsen National Park

Date: March 20th, 2011

We apply different laws and different taxes for coastal management, like dyke conservation, among others. For example: German Government's law, Lower Saxony Federal State's law and the Langeoog Island's law. There is an influence of International Treaties. But more important is the influence of the European Directive in this case the most important one is the European Directive on Integrated Coastal Zone Management.

The Niedersachsen National Park was created in 1986.

On our maps we have 3 different zones. Nature protection is the red zone. The green zone is the intermedia, and the yellow zone is for recreation. The airport and houses are out of the national park. Main think for protection are people.

Infrastruture: very limited just 2 floors. There are some exceptions made for tourism.

We reduced the amount of cattle in the island for conservation reasons. Before there were 200 pieces and now there are just about 70.

We have as a compromise to work together, all the institutions involved in the coastal management of the island but we are facing some problems with coordination. It is not easy always to work in an integrated way.

We have had some problems with the people from the island because at the beginning they were against the national park. But now they like the park. Because of it, there is a lot of tourism and the people are working in tourism.

We are fixing the dunes, marine grass, and working on coastal protection. Bring the sand to maintain the dunes.

There is a law that said that the drills have to be supervised by the national park.

In Langeoog according with data from 2009 the number of tourist per year is around 1.569.366, this is especially during summer.

3. Interview with Prof Holder Freud

Date: April 10, 2012

There is an influence of International Treaties like Agenda 21, United Nations Framework Convention on Climate Change (UNFCCC) and United Nations Convention on the Law of the Sea (UNCLOS) in the development of the coastal zone management laws and policies. But more important is the influence of the European Directive in this case the most important one is the European Directive on Integrated Coastal Zone Management.

The most important laws and policies in Germany are the ICZM Strategy and the European Directive on ICZM

The main challenge is monitoring.

Again there is the challenge to implement more monitoring. Besides, more coordination among institutions is needed.

There are some projects which are having European funding but the problem is that when the funds are over, there is no continuation of the projects.

Overall, we need to improve on monitoring, and better coordination among the institutions.

Costa Rica

1. Gerardo Palacios, SINAC, MINAET

Date: May 20, 2012

Las principales leyes relacionadas con el tema marino costero son:

- > Ley de Zona Marítimo Terrestre
- > Ley de Vida Silvestre
- > Ley de Biodiversidad
- > Ley de Pesca
- > Ley de Parques Nacionales
- > Ley Forestal

Sí, todos los tratados han influenciado en gran medida la adopción de leyes o el interés de ciertos sectores para trabajar algunos temas, así como ponerlos en la agenda pública y política. Además de los nombrados está RAMSAR, Comisión Ballenera Internacional, Convención de Biodiversidad, CITES. Convención Internacional del Atún Tropical (CIAT).

Intereses comerciales de fuertes sectores de la sociedad como el desarrollo turístico de gran escala, la pesca semi-industrial, intereses creados por algunos políticos corruptos, desorden y malas prácticas de algunas agroindustrias, urbanismo desordenado e irresponsable.

La Comisión Interinstitucional Marino Costera de ACOSA con 8 años de trabajo continuado ha abordado e influenciado el desarrollo de varios proyectos de la zona, por medio de una ventana de coordinación de acciones y agendas de las principales instituciones, ONGs y asociaciones comunales de la zona sur interesadas en aspectos marino costeros.

Así como la vigilancia de las Áreas Marinas Protegidas de ACOSA por medio de diferentes estrategias como la creación de los guarda-recursos marinos con cinco años de trabajo regulando actividades de turismo y pesca ilegal en el agua.

Así como proyectos en curso para el Ordenamiento Espacial Marino muchos de ellos redactados desde el SINAC como el proyecto BID Golfos, BIOMARCC con GIZ y barreritas para consolidar y socializar las Áreas Protegidas Marinas en todo el contexto nacional.

Por ahora el manejo es fragmentado pero se están desarrollando esfuerzos para hacerlo integrado con un éxito relativo y naciente. Tradicionalmente ha sido una sola visión pero atravesamos un proceso de cambio donde por zonas la participación crece y en casos aislados ha sido de varios actores.

Dependiendo de la región del país ha sido un manejo sustentable turístico en otros casos no. En la zona Sur ha sido más sustentable que en el Pacífico Norte por ejemplo. En términos generales el manejo ha obedecido más a falta de planificación.

Los actores claves han sido: guardacostas, INCOPECA, UCR, UNA, TNC, Fundación Promar, Fundación MarViva, municipalidades y asociaciones comunales.

Consolidar un marco legal que haga vinculante las decisiones tomadas en diferentes comisiones interinstitucionales relacionadas con el tema o unificar diferentes actores en un órgano público que se

dedique al tema marino costero. Apoyar e integrar más procesos a nivel regional dentro del país como los iniciados en el proyecto BID Golfos.

2. Entrevista Jenny Asch SINAC, MINAET

Date: June 17, 2012

Sería la Ley Orgánica del ambiente, La Ley Biodiversidad y su reglamento, además en la Ley de Vida Silvestre también tenemos legislación para los refugios al igual que su reglamento, hay algunos decretos que también nos dan fundamento Legal, hay uno que tienen que ver con dos categorías de manejo que están mencionadas en el reglamento de la Ley de Biodiversidad, donde reglamenta las categorías de Reserva Marina y Área Marina de Manejo, además de algunas convenciones como la diversidad biológica, Bellezas escénicas y AP, Ramsar, Sitios de Patrimonio, entre otras. Por otro lado existe la Estrategia Nacional para gestión integral de los recursos marino costeros, que contiene 8 políticas sobre este tema, con sus líneas de acción.

Se está trabajando en un proyecto de ley para áreas protegidas y contiene el tema de áreas protegidas marinas, se está trabajando por parte del Ministerio de Transportes, en el proyecto de Ley de Navegación, donde existe una comisión, nombrada por la señora presidenta, que está trabajando en una propuesta que tiene que presentarle sobre gobernanza marina. Además, con un proyecto que estamos trabajando con MarViva sobre ordenamiento espacial marino.

El tema de la gobernanza es la debilidad en el tema marino costero por parte de las instituciones y el reconocimiento de una institución que lidere el proceso y que sea una posición nacional.

Los procesos deben ser muy participativos pero también deben de tener una dimensión, que la rectoría en este tema debe ser claro y aceptada por todos, es necesario que exista una institución líder para avanzar.

Cuando se trabaja la estrategia es un proceso integral donde participamos las principales instituciones que teníamos que ver con el tema, y se buscó que la estrategia fuera para el manejo integral y que no fuera de un solo sector, que hubiera sido lo más fácil, pero no era la idea, y aunque MINAET lo lideró sabemos que tenemos que definir bien ese tema para que quede claro, yo no sé si será MINAET al que le corresponde, ya que eso no está claro aún, y es una gran debilidad, pero tenemos claro que es necesario definirlo.

Los principales actores son: ONGs. Universidades, comunidades locales, INCOPECA, Servicio Nacional de Guardacostas, ICT

3. Licda. Wendy A. Barrantes R. Coordinadora Programa de Investigaciones Departamento Técnico Sistema Nacional de Áreas de Conservación (SINAC) Área de Conservación Osa (ACOSA), Ex administradora del Parque Nacional Marino Ballena

Date: June 29, 2012

En el caso del PNMB por ser área protegida la legislación que se aplica es en primera instancia la ley de Parques Nacionales, sin embargo también se toman en cuenta leyes como: Ley Forestal 7575. Ley de biodiversidad 7788. Ley Orgánica del Ambiente 7554. Ley de aguas 276 y la ley de pesca y acuicultura (NO SIEMPRE APLICA PARA ASP), entre otras.

También se aplican las políticas de áreas protegidas del SINAC del 2011, también hay manuales y protocolos de actuación oficializados para el trabajo y patrullajes en áreas marinas.

Desconozco del tema ya que he trabajado más que todo en la aplicación y no en la formulación de las herramientas.

Uno de los principales retos en el manejo de las aéreas marinas es la falta de planificación integral del área terrestre que impacta de manera directa el área marina por ejemplo actualmente la planificación y ordenamiento territorial a nivel de cuencas hidrográficas es muy deficiente.

Dentro de los principales conflictos se pueden citar: desinterés y desinformación de las comunidades aledañas. Conflictos e intereses individuales con tenencia de la tierra en zonas costeras, planificación costera deficiente y no hay una integración de todos los actores claves en esta planificación (Municipalidades, IMAS, MINAET, etc)

Las principales lecciones aprendidas en todo este proceso son:

1. Involucrar a las comunidades aledañas en la planificación y creación del mismo desde sus inicios
2. La creación tiene que verse a nivel de territorio más macro y no caer en el error de crear áreas solo marinas sin el complemento terrestre y sin analizar todo el agro paisaje como tal, para definir los límites terrestres y marinos de manera más eficiente para lograr los objetivos de conservación a largo plazo.
3. Implementar diferentes categorías de manejo en un mosaico que permita el manejo de forma integral con las comunidades y resguardando áreas núcleo.
4. Establecer programas de monitoreo sistémicos de la biodiversidad y factores sociales
5. Contar con programas fuertes de proyección comunal y generación de experiencias productivas con las comunidades aledañas
6. Tomar en cuenta la conectividad tanto terrestre como marina del área silvestre protegida

En este caso todavía existe un manejo fragmentado carente de planificación integral en donde las instituciones hacen sus esfuerzos cada quien por su lado sin una visión conjunta de desarrollo sostenible aunque esta visión ha sido cambiando con el transcurso del tiempo. Por ejemplo para el ACOSA existe la Comisión Marino Costera que integra una serie de actores sociales, gubernamentales y ambientales en la toma de decisiones pero faltan políticas a nivel de gobierno que integren toda la costa o al menos 3 fragmentos de la costa pacífica como bloques de planificación x ejemplo.

Los principales actores son: INCOPECA, GUARDACOSTAS, COMUNIDADES, ONGs como Marviva, copesolidar, Edumar, Promar, Keto, organizaciones de pescadores, Comisión Marino Costera de ACOSA, etc.

Falta aclarar la parte legal - administrativo ya que existen traslapes administrativos principalmente en materia fuera de las áreas protegidas. Además, definir más claramente en la Ley de Vida Silvestre que es Vida Silvestre y su administración en el ámbito marino.

Igualmente, establecer sistemas de planificación integral entre las instituciones de gobierno involucradas y de manera ecosistémica además se debe de involucrar a las comunidades en el proceso. Esto implicaría un cambio de mentalidad en las municipalidades y a nivel del SINAC.

Trabajar el tema de cuencas y definir prioridades, ordenamiento territorial y modelos de desarrollo sostenibles.

Hay que hacer mención que la categoría de parque nacional es una de las más restrictivas del país por lo que la aplicación de la ley y tratados están implícitos en el accionar del área protegida. Claro está en la medida de las posibilidades técnicas y humanas del equipo de protección del área protegida.

4. Licda. Mariamalia Rodríguez, Marviva Foundation

Date: May 15, 2012

Existe mucha influencia en Costa Rica de los tratados internacionales como Agenda 21. Además, de los convenios Centroamericanos como el Convenio para la Conservación de la Biodiversidad y Protección de Áreas Silvestres Prioritarias en América Central.

La primera de las leyes que han influenciado el manejo costero en Costa Rica es la Ley de Zona Marítimo Terrestre N° 6043 y su Reglamento, Otra norma importante es la Ley de Concesión y Operación de Marinas Turísticas.

Admeás, la Ley Orgánica del Ambiente y finalmente Estrategia Nacional para la Gestión Integral de los Recursos Marinos y Costeros de Costa Rica.

En el desarrollo de leyes y políticas en materia de manejo costero en Costa Rica, uno de los mayores obstáculos para consolidar normas integrales es la tendencia a dividir en sectores y no plantear procesos integrales de planificación.

Por ejemplo, la herramienta de planificación costera que se utiliza es el Plan Regulador Costero, bajo la rectoría del ICT, lo que lo hace un instrumento que parte de la idea de que la costa es un escenario destinado al desarrollo turístico, de hoteles e inversiones que beneficien al sector turismo.

En este contexto, se invisibilizan muchos otros usos y actores clave en el desarrollo y manejo de la costa, y no se contempla de manera real la situación de los pobladores de zonas costeras, quienes son en su mayoría sectores vulnerables por la falta de acceso a la educación formal, a la seguridad social y con irregularidades en cuanto a la tenencia de la tierra.

Otro elemento que entra en conflicto con el instrumento de planes reguladores costeros con miras al desarrollo puramente turístico, es el Patrimonio Natural del Estado (PNE), el cual está constituido por las áreas silvestres protegidas, los bosques y los terrenos de aptitud forestal. El PNE presente en la zona marítimo terrestre pasa a ser jurisdicción del Ministerio de Ambiente, Energía y Telecomunicaciones, lo que ocasiona en algunos casos pugna entre las instituciones competentes en dichas áreas costeras.

Las lecciones aprendidas se asocian principalmente a fortalecer y consolidar procesos de planificación inclusivos y con participación real de los actores clave en un espacio costero determinado; así como la coordinación interinstitucional y la toma de decisiones informada y fundamentadas en estudios técnicos.

En cuanto a la implementación de acciones de manejo costero, las lecciones aprendidas provienen de conflictos con actores clave en dichos procesos de manejo costero. Por ejemplo, la imposición de instrumentos de planificación como los planes reguladores costeros, o la creación de áreas silvestres protegidas, sin el apoyo de las comunidades costeras o de otros actores como asociaciones de pescadores, cámaras de comerciantes, y otros, han demostrado que los procesos de planificación sin apoyo local fracasan y encuentran obstáculos al momento de su implementación. Asimismo, la falta de coordinación entre las instituciones competentes dificulta la implementación de normas y estrategias de manejo.

Debe rescatarse la importancia de los procesos de planificación costera en el cual se elaboran Planes Reguladores costeros, que son los mecanismos legales y estratégicos para ordenar el uso de la tierra y proponer el mejor aprovechamiento territorial. Sin embargo, debe señalarse que dichos planes están limitados a planificar el espacio de la zona restringida de la ZMT.

Al constituir el Manual de Planes Reguladores Costeros del ICT la herramienta para planificar la zona marítimo terrestre. Dicho Manual se enmarca en los lineamientos del Plan Nacional de Turismo (2002-2012) y de los Planes de uso del suelo y desarrollo turístico del ICT, por lo que se reafirma que el objetivo del mismo es dar un carácter meramente turístico a la costa costarricense.

En este escenario se puede inferir que los ejemplos de manejo costero en Costa Rica han sido sectoriales (guiados hacia el sector turismo), por lo que un caso en el cual se implemente de manera integral un manejo costero es difícil de señalar en Costa Rica.

El aporte a partir de los planes reguladores costeros se queda corto ante la vasta problemática que presentan las áreas costeras, pues lo que plantea es el inicio de lo que debería ser un proceso de planificación integral, con coordinación e integración interinstitucional (IMAS, INA, INCOPECA, MINAET/SINAC, ICE, SETENA, DINADECO) y con la participación de las comunidades y el sector privado, para brindar alternativas viables a los problemas de quienes habitan estas áreas.

Propiamente sobre el ejemplo del Parque Nacional Marino Ballena, debe señalarse que el Plan de Manejo es el instrumento de planificación que dicta los lineamientos y acciones a realizar dentro del área protegida, sin embargo, dichas pautas de acción se impactan los alrededores del Parque, por lo que podría considerarse como una unidad de planificación.

La Administración del Parque Nacional y la comunidad de Uvita han sido actores clave en los procesos de planificación de actividades costeras que se desarrollan en el área.

Por ejemplo, se ha organizado un grupo de tour operadores que realizan actividades de turismo sostenible y avistamiento de cetáceos, quienes se ven directamente beneficiados por las acciones de conservación realizadas en el Parque Nacional.

Algunos de estos tour operadores fueron pescadores que entraron en conflicto con las autoridades del Parque Marino, por actividades de pesca ilegal sin embargo cambiaron su actividad productiva y actualmente son aliados del Parque Nacional.

Algunas ONGs apoyan la consolidación y capacitación de estos grupos organizados y de redes de turismo sostenible, por ejemplo Fundación MarViva, Fundación Keto, Conservación Internacional, Promar, entre otras.

Asimismo, se realizan en actividades de monitoreo biológico por parte de ONGs que apoyan labores de conservación marina, por ejemplo Fundación Keto en cuanto a cetáceos, ecosistemas coralinos, entre otros.

Los próximos pasos que deberían tomarse para mejorar los procesos de manejo integral de las costas es crear políticas inclusivas y representativas de los sectores involucrados en dicho manejo, así como implementar efectivamente las regulaciones que tiene el país, sería dar un paso de lo establecido en la legislación a la ejecución de acciones concretas por parte de las instituciones con competencia en el manejo y planificación de las costas.

South Africa

1. Prof. Janine Adams, NMMU.

Date: June 02, 2012

Concerning the implementation of the integrated coastal management approach in the Sunday Estuarines Management Plans, it could be stated that the main problems are:

-Water quality due to the use of fertilizer; and

-Over fishing

Different stakeholders, first the issues from the stakeholders and then fishing's club, business groups, home owners, agricultural, private properties, CBO, land claimers, scientist, all the governmental agencies.

The main concerns are: The necessity for effective estuary law enforcement, distrust in SANParks as a potential managing authority, right to access and utilisation of the Sundays Estuary, right to sustainable livelihoods, the need to protect the recreational heritage of the estuary, the importance of, and the need to retain a sense of place, and promotion of economic development.

The main threats are: Consistent freshwater input as base flow and loss of marine state, poor water quality due to agricultural fertilizer, overfishing, unsustainable development and tourism, bank erosion and climate change.

This is a healthy Estuary. Its terrestrial and aquatic ecosystems are in good conditions. It qualities are providing better quality of life for people.

When they started the development of the Estuary Management Plan they balanced the social and environmental needs and concerns. Stakeholders helped to prioritize the social needs and the environmental problems.

The main issues that were discussed were water quality, putting a budget, environmental education, water and fishing and job opportunities.

As it is now the Sunday Estuary hasn't over pass its carrying capacity.

In the upper part is needed: more protection, more restrictions. Example: no fishing, no fast boats.

In the middle part: more activities were allow.

In the low part: Houses are allow and different kind of activities.

The most important lesson learned is having participative processes. Trust to the whole participative process. It was important spending time with stakeholders in order to achieve an effective management plan. We did it based on scientific research that gave us liable measures.

Major water quality, new developments are better well done, there is a zonation plans, more sustainable fishing, more sustainable development.

Monitoring is still needed it.

It is important to state that the government hasn't gazzeted the Protocol so that is a problem for making this instrument legally defensible, even though it has been implemented. Besides, there is the necessity of having it gazzeted in order to have budget.

Overall we need more control, policing, more monitoring, more compliance, more cooperative government, accountability, budget, and more coordinated work between institutions.

2. Mr. Godfrey Murray, Nelson Mandela Bay Municipality.

Date: June 10, 2012

Yes a lot of influence, especially Climate Change Convention. We can see the climate change and the damages in the coast. If we don't see it, we don't deal with it.

The ICM Act: directly related to climate change convention. In Port Elizabeth we set the lines for the coast. Off shore protocols $\frac{3}{4}$ of the law relates to pollution. Very little relates to ocean interface.

There is no influence of the African Union Conventions.

At the beginning there was nothing. We were working without any laws.

The Sea Shore Act was regulating some things in the coast but it didn't go too far.

Then it came more laws

Prevention legislation: NEMA, Biodiversity conservation Act, ICM Act, and Marine Living Resources Act:

Example: there is a fine of 50 R for taking plants from the beach, but the fine is too less, therefore nobody cares. It's not been implemented.

We at the Municipality wanted to draft a law that everybody can implement. So, we did it. This law took all the fines implemented in all the national laws. We are implementing it in the Nelson Mandela Bay Municipality. We care if somebody doesn't apply it and we are charging everybody the fines.

The most relevant conflicts, challenges and lessons learned for us have been drafting law: time consuming, expensive.

Challenges and lessons learned cooperation between the University and Municipality. It is possible, we worked together in the draft of that law.

It is easy to implement the law if you have a lot of people but the hard thing is getting people to be responsible. There is a lack of responsibility.

We are working on training for implementation. The biggest challenge is the lack of the wiliness of the government. A lot of people are not following the law.

The government is having others concerns like reduce poverty and creating jobs and security.

Anything in the environment can be sustainable, as humans being we are completely non sustainable.

The Marine Living Resources Act is perfect for sustainability. Laws are great in paper and they have been written because of political reasons but because they can be implemented.

The coastal management here is not very integrated. It is very fragmented. We don't have very good people. The work is not integrated. There are not participative process, the public is not interested, people don't read, they just care about social events. There is an empathy against coastal and municipality things. NIMBY. Non in my back yard policy but I don't care where you are going to do it.

Sustainability works in the rural areas, national parks but not in the city. That is why is not integrated. There is a lack of sense of responsibility.

Overall, international treaties, policies and laws are good for pressure, immediately concerns. They had some results, protects national assets for economical reason. The fundamental reason at the end for

developing countries is not about environmental things is about economical issues. Driven forces are always economics, the protection of the animals (elephants, rhinos) because of money from tourists.

3. Dra. Lara Van Niekerk and Dra. Susan Taljaard, (CSIR)

Date: June 13, 2012

When we starting this process we were reviewing all the international treaties and national laws and policies that was 10 years ago.

Too many stakeholders were involved back at that time. The Ministry of Environmental Affairs, Municipality, water agency and agricultural and fisheries.

Water affairs and we started this project. A lot of laws in the last 15 years in environmental issues. Constitution not having the right. Or is not saying that municipalities had the right to do it.

Managing is not just how to do something. It is about everything, sewage systems and everything.

Environmental unfunded mandates. There is not enough and efficient monitoring process. We the municipalities is the same, they don't want to do monitoring, they think it is not necessary.

There is not an effective implementation of the environmental laws.

At the local level is not good, but at the national level is better. However, still the monitoring is not good. There is a better implementation of the environmental laws at the national level than at the local level.

ICM Act, the implementation of many actions is not explicit. You have to have everything written down otherwise is not implemented; you have to put everything in the law.

From the CSIR point of view, is really important the monitoring.

Government should be doing more monitoring, but some things you don't need monitor them you can see that anything is being implemented.

CSIR feel the necessity of implementing monitoring systems because when they participate in international conferences –where the international treaties are drafted- the developed countries argue the importance of monitoring, stating that without it environmental management will not yield accurate results. Nevertheless, developing countries have no means of monitoring environmental occurrences.

These estuary management plans are not legally defensible yet, but is because the people are interested and motivated they have been implemented.

When drafting these management plans there were a real integration, It was having a scientific driven with the international GEF money and the scientific community took the leadership of the initiative

Integration with universities, scientific community and governmental institutions.

Implement international treaties in the South Africa atmospheres is really hard, but we are working on that.

Another difference between developed countries is that they are having a lot data. They have everything money and prepared people. For us is more complex, we don't have too much money for monitoring programs.

The main problem with these plans is that they haven't been gazzeted.

Racial things are still there, they still have are separated black, white, colored, afrikkas in the Estuary. That represents another problem to coordinate actions.

4. Mr. Gavi Snow, Dr. Prof NMMU.

Date: May 24, 2012

Yes, Especially RAMSAR. There is an implementation of these treaties through South African laws and policies.

No. most influence is coming from the international agreements.

1999 they started the process, integrated coastal management act from 2010.

The main actors are local municipalities, public, participation, scientific, communities and NGOS'S. We are having more participating process, however, we are still having a fragmented management.

The Minister of Environmental Affairs is the head of coastal issues but they are doing everything in a very "top down" approach, not very good communication, local group very important but they haven't been completed integrated.

5. Dra Ané Oosthuizen, Marine Co-ordinator, Park Planning and Development

Date: June 11, 2012

Legislation dealing with the coast incorporates international laws. Absolutely helps in the development of implementation of new coastal zones management.

Not really at the African level. South Africa is the leading country in coastal management.

The most important legal instruments for us are: Green paper, White paper, ICM Act, The sea shore act, But they are not been implemented.

Making the laws and policies represents a lot of challenges: Challenges: properties owners they don't want to lose their houses and rights, they didn't want to include the community as a legal body in the Estuary Management Plans.

There is a lack of government capacity to implement the laws and policies this is due lack of budget and capacity, knowledge, last important thing, national and provincial. In South Africa the main important issues are jobs, poverty, food security.

If you implement the laws everything would be great, but know still disjointed and fragmented, EIA but not integrated. We are not very good in participation issues due to lack of political will in environmental issues.

They started the integrated coastal management process since 1992. It is the main policy in South Africa. No democratic government. Process most important that the content. Long process, costly, frustrating process. Diverse groups, NGO, CBO, Business, Project management Labels.

We are not implementing the integrated coastal management approach, but we are going on the right track.

Yes, all these international obligations are putting into practice at some level, for example sea level rise, climate change concerns.