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Africains Riverains de l'Océan Atlantique (COMHAFAT)



The Ministerial Conference on Fisheries Cooperation among African
States Bordering the Atlantic Ocean (ATFALCO)

Fisheries and Aquaculture industry in Namibia

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ATLAFCO member countries

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Acronyms

AAGDS	Accelerated Agricultural Growth and Development Strategy
CAADP	Comprehensive Africa Agriculture Development Program
CBFMCs	Community Based Fisheries Management Committees
CF	Credit Facility
CSP	Country Strategy Paper
DA	District Assemblies
DFI	Designated Finance Institutions
DOF	Department of Fisheries
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessments
EPA	Economic Partnership Agreement
FAD	Fish Aggregative Device
FAO	Food and Agriculture Organization of the United -nations
FASDP	Food and Agriculture Sector Development Policy
FC	Fisheries Commission
FDB	Food and Drugs Board
GDP	Growth Development Products
GSP	Generalized Schemes of Tariff Preferences
HACCP	Hazard Analysis Critical Control Point
HP	Horse - Power
ICCAT	International Commission for the Conservation of Atlantic Tuna
IEZ	Inshore Economic Zone
IO	International Organization
MCS	Monitoring, Control and Surveillance
MDGs	Millennium Development Goals
METASIP	Medium-Term Agricultural Sector Investment Plan
MFRD	Marine Fish Research and Development
MLGRD	Ministry of Local Government and Rural Development
MOFA	Ministry of Food and Agriculture
MSY	Maximum Sustainable Yield
NAFAG	National Fisheries Association of Ghana
NEPAD	New Partnership for African Development
NTE	Non- Traditional Exports
SPS	Sanitary and Phytosanitary Measures
TBT	Technical Barriers To Trade
QC	Quality Control
UNEP	United Nations Environment Program
UNOPS	United Nations Operating Program System
WRC	Water Resources Commission

ATLAFCO and Fisheries Promotion Fund

The Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean (ATLAFCO) is an intergovernmental organization for cooperation in Africa that brings together 22 States located on the Atlantic coast stretching from Namibia to the south, to, Morocco in the north. It stems from international cooperation imperatives to improve the framework for sustainable management of fisheries for its member states. The mandate of ATLAFCO is:

- To promote and strengthen regional cooperation on fisheries management
- To develop, coordinate and harmonize efforts and capabilities of Member States for the conservation and sustainable exploitation of fisheries resources.
- To revitalize all national economic sectors on the basis of direct and induced effects that may result from the exploitation of fishery resources

ATLAFCO signed on October 29, 2009 a Memorandum of Agreement with the Japanese Foundation for cooperation on fisheries (OFCF, Japan) which enabled the implementation of a Fisheries Promotion Fund (FPF). This fund is intended to finance development projects in the area of capacity building of Member States in fisheries and aquaculture as well as support for the implementation of international regulations.

Within the framework of this Fund, ATLAFCO is to finance a series of studies of the fishery and aquaculture industry in its 22 Member States. The aim is to analyze the fishing industry in the ATLAFCO region in the light of commercial changes at the international, regional and national levels for consideration in policy management and utilization of fisheries resources.

Executive summary

Fishery stocks in Namibia are subject to pronounced natural fluctuations due the general instability of the oceanographic, biological environment and climate change. Some fish stocks can even break down completely for a period of time and changes in species composition can occur. Clearly, such variations have severe consequences for the fisheries sector and are an enormous challenge for fisheries management. With the exception of the Hake resource showing a relative abundance estimated around 1 million tons, the fish commercial species showed a decline of the biomass in 2010. More studies are needed on the fisheries stocks. Namibia has no important natural freshwater bodies and perennial rivers are found only in the southern and northern border areas and provide over 1 million hectares of floodplain wetland with fisheries potential. Freshwater aquaculture is therefore a challenge.

The MFMR adopted an appropriate framework of regulatory texts (Marine Act, Inland fisheries Act and Aquaculture Act) complying with world requirements and therefore set conditions to responsibly manage living aquatic and resources to continuously ensure a sound environment for the fisheries and aquaculture sector to prosper. Fisheries management is based on quotas allocations to right holders and nontransferable and the MCS system is today widely regarded by the international community as a very effective system. The cost of MCS is calculated and found to be at an acceptable level (around 42% of the income to Government),

The country still struggles against the inadequate capacity in both the public and private sectors which the main bottlenecks for sustainable development. The shortage of suitably-trained entrepreneurs in either vocational or business disciplines is a major disadvantage of the small business sector in Namibia. The lack of access to finance at realistic rates hampers the growth of fishing, aquaculture and processing. Entrepreneurs looking for capital to venture in aquaculture operations are facing difficulties because both local and international financial institutions are reluctant to provide startup capital. The inadequate cold storage capacity merely 10,000 tonnes, limits the opportunities for landing more frozen products (e.g. Horse mackerel) and sardines imports from Morocco/Mauritania to increase raw material supply of pilchards canning factories. Market and product diversifications are weak, main outlets are found in South Africa, DR Congo and in the EU. The high costs of the overheads (electricity, water) as well as operating and maintenance costs of the factories/vessels (old age of vessels) and the low value added production and lack of absence of value chain analysis are hindering the competitiveness of the Namibian products in the international markets.

Despite the above difficulties, Namibia is a middle-income country whose considerable successes rest on a strong multiparty parliamentary democracy that delivers sound economic management, good governance, basic civic freedoms, and respect for human rights. These conditions are favorable for long- term investments.

The main recommendations at the national level are :

- Assist the MFMR to revise its Organogram which will include a Legal and cooperation Department which will be directed to follow up the country's commitment to regional and International instruments, conventions and agreements on sustainable fisheries management, adjusting fishing to climate change; ecolabelling; creation of Marine protected Areas; management of shared stocks and gender mainstreaming

- Partners in development could work together in building capacity on matters relating to business plan development, value chain analysis; creation of value added for both public and private sectors;
- Assist the country's private in examining opportunities for funding of a strategic investment plan for the Modernization of the Fish Industry including soft loans for the renewal of fishing fleet, credit for fresh/freezing plants and canning factories to renew equipment and increasing cold-room capacities in Walvis Bay;
- Assist the small pelagic canning industry of Namibia in their search in of raw material from the region in matching Namibian canning factory managers and frozen small pelagic exporters from Mauritania and Morocco.

In that context, ATLAFCO could :

- Assist Namibia in revising its organigram
- Cooperate with the other Partners in development in the capacity building on matters relating to business plan development, value chain analysis; creation of value added for both public and private sectors;
- Assist the country's private in examining opportunities for funding of a strategic investment plan for the Modernization of the Fish Industry including soft loans for the renewal of fishing fleet, credit for fresh/freezing plants and canning factories to renew equipment and increasing cold-room capacities in Walvis Bay;

The main recommendations at the regional level are :

- Propose to MFMR a comprehensive feasibility study on the cost of utilization of the R/V Marabilis to carry out stock assessment activities in the ATLAFCO region
- Partners in Development could spearhead the funding of activities on the modernization of fisheries and aquaculture laws and regional research activities through RAFISMER in the region
- Organize with the fish industry in Namibia of buyers and sellers meeting in Namibia to match importers and exporters of fish and fishery products.
- Cooperation of Partners in development in setting of in Namibia an Regional SADC observatory agency for fish trade and marketing

In that context, ATLAFCO could :

- Cooperate with NEPAD in assessing the feasibility of a Fish and Aquaculture Marketing Organization for the SADC region
- Assist in facilitating cooperation between Mauritanian and Moroccan industry and Namibia private sector in the areas of small pelagic supply for the Namibian canning industry in matching exporters from Mauritania and Morocco

The main recommendations at the international level are :

- Promoting the fight against IUU fighting; development of MPAs; gender mainstreaming; promotion of the right based and quotas system approach; international cooperation on fisheries research;

- ATLAFCO could promote an African voice at FAO Committee on Fisheries; Partnership for African Fisheries (PAF) using the experience of Morocco and Namibia.
- Cooperation could be promoted with different countries in mariculture development using the experience of Namibia.

Table of contents

Introduction.....	1
1 General information on geography and population	2
1.1 General background	2
1.2 Population	2
2 Political, Social and Economic Context.....	3
2.1 Economic and Social Aspects	3
2.2 Public policy process	4
2.2.1 EPA.....	4
2.2.2 HIPC	4
2.2.3 Poverty Reduction Strategy.....	5
2.2.4 National Development Plan	5
2.2.5 Privileged Relationship Namibia-EU.....	5
2.2.6 Relationship between Namibia and other countries and organizations	6
2.2.7 Regional integration policy process	6
3 Coastal and marine Environment, aquatic ecosystems and fishery resources	8
3.1 Coastal and marine Environment health and climate change.....	8
3.2 Main environmental of the Benguela current and fishery biology	8
3.3 Main fishery resources of Namibia	9
3.4 Scientists statements concerning the main species caught.....	10
4 Fisheries Context in Namibia	12
4.1 The EEZ Limit.....	12
4.2 Artisanal fisheries	12
4.2.1 Inland:	12
4.2.2 Aquaculture:.....	12
4.3 Multi- species fisheries	12
4.4 Trawling.....	13
4.4.1 Demersal fisheries	13
4.4.2 Mid-water fishery.....	13
4.4.3 Purse-seine fishery	13
4.5 IUU fishing.....	13
4.6 Conflict in different fisheries	13
4.7 The contribution of the fishery sector in the national economy.....	13
4.7.1 The marine fishery:	13
4.7.2 The inland fishery.....	16
4.7.3 The aquaculture sector.....	16

5	Consumption, supply, processing and trade channels in Namibia	18
5.1	Fish consumption and supply	18
5.2	Main fish trade channel	18
5.3	Fresh fish trade channel	19
5.4	Processed fish trade channel	19
6	Regulatory Framework for fishing and trade in fish and fishery products	20
6.1	Management framework for fishing in Namibia	20
6.1.1	Fishery policy	20
6.1.2	Fisheries legislation	20
6.1.3	Involved Organizations	21
6.1.4	The Directorate of operations	21
6.1.5	The Directorate of policy, planning and economics	22
6.1.6	Other government institutions working with the MFMR	22
6.1.7	Marine Protected Areas (MPAs)	25
6.1.8	Co- management	25
6.2	Regional fishery management framework	25
6.3	International fishery management framework	26
6.3.1	Main international agreements/conventions	26
6.3.2	Vessel monitoring	27
6.3.3	Catch declaration	28
6.3.4	National Action Plan to curb down IUU fishing	28
6.3.5	Community Action Plan for shark management and conservation	28
6.3.6	Sanitary regulation applied to fish and fishery exports to EU	29
6.4	Fishing agreements	29
7	Main constraints and opportunities to the fisheries development	30
7.1	Institutional constraints	30
7.2	Sanitary constraints	30
7.3	Monitoring constraints	30
7.4	Environmental constraints	30
7.5	Business climate constraints	30
7.6	Environmental opportunities	31
7.7	Opportunities linked to MPAs creation	32
8	Conclusions and recommendations	33
8.1	Conclusion	33
8.2	Recommendations	34
8.2.1	National Recommendations	34

8.2.2	Regional Recommendations	34
8.2.3	International Recommendations	35
9	Références.....	36

Introduction

Namibia has one of the most productive fishing grounds in the world, based on the Benguela Current System, one of the four eastern boundary upwelling systems in the world (the others are off North – West Africa, off California and off Peru). These systems support rich populations of fish, which form the basis for the Namibian marine fisheries sector.

Namibia's 200 nautical mile Exclusive Economic Zone (EEZ)'s commercial biomass contain about 20 different species consisting primarily of small pelagic species (pilchard, anchovy, horse mackerel and mackerel) and lobster along the shallower onshore waters on the continental shelf, as well as large pelagic species including adult mackerel, demersal hake and other deep – sea species (monkfish, sole and crab) in the waters further offshore.

The Namibian fisheries are vulnerable to external economic and ecological shocks making catch volumes unpredictable because of the fluctuations of the Benguela current due to climate change. Consequently, this leads to downstream affecting employment, income, and government revenue.

The National development Plan which is poverty focused containing macroeconomic and structural benchmarks consistent with the country's Poverty Reduction Strategy (PRS) – National Poverty Reduction Action Program (NPRAP) which was formulated in 1998. The PRS focuses on increasing agricultural production and productivity; promoting community based tourism; promoting the development of small and medium scale enterprises; strengthening social safety nets; and labor intensive public works.

Inadequate capacity in both the public and private sectors has been identified as one of the main bottlenecks for sustainable development in Namibia. The shortage of suitably-trained entrepreneurs in either vocational or business disciplines is a major disadvantage of the small business sector in Namibia. Not only are these businesses poorly managed, but the products or services they make or sell also leave much to be desired. In order to attain the objectives of Vision 2030 and NDPs, the capacities of the private sector, including small and medium scale enterprises (SMEs) must be developed. It is essential that the Bank supports vocational training for both the public and private sectors, including the provision of opportunities for entrepreneurship training to SMEs.

Taking seriously into consideration challenges by the Namibian fisheries and on the basis of its mandate, the Ministry of Fisheries and Marine Resources (MFMR) adopted an appropriate framework of regulatory texts (Marine Act and Aquaculture Act) to responsibly manage living aquatic and resources to continuously ensure a sound environment for the fisheries and aquaculture sector to prosper. These Policies and legal framework were set to create incentives for economically and environmentally sustainable fisheries and aquaculture. Yet, the employment generated by the fishery sector is below expectations.

The objective of the ATLAFCO mission is to review the fishery and the aquaculture sector in order to prepare a Fisheries and Aquaculture Industry Report highlighting areas where the regional Organization can assist the country in developing a sustainable fishery and a sound aquaculture development.

1 General information on geography and population

1.1 General background

Namibia covers an area of 823,290 km² and has a coastline of 1,500 km. Inland water resources in this mainly arid country are extremely scarce and prolonged periods of drought occur regularly. The territory is divided in 13 administrative regions. Its neighbor countries are Angola, Zambia, Zimbabwe, Botswana and South Africa.

Namibia has adopted an active regional integration policy and is member of two regional groupings: Southern African Customs Union (SACU) and Southern African Development Community (SADC). The country participates also in international bodies such as the International Commission for the Conservation of Atlantic Tunas, the Commission for the Conservation of Antarctic Marine Living Resources and the South-east Atlantic Fisheries Organization.

1.2 Population

Independent from South Africa since 1990, the Republic of Namibia has one of the lowest population densities in Africa. This population is estimated to be about 1.9 million people with 32 percent of the population living in urban areas. The ethnical composition includes a variety of different groups with a considerable prevalence of the Oshiwambo speaking tribe (about 50 percent of the total population). AIDS mortality is relatively high. About 20 percent of the population between 15 and 49 years are infected. Life expectancy at birth is only 42 years.

2 Political, Social and Economic Context

2.1 Economic and Social Aspects

The Good governance is a prerequisite for sustainable fisheries. Namibia was perhaps even more aware of the necessity for good governance of fishing activities after inherited fish stocks that had been systematically depleted throughout the preceding decades. The One of the first acts passed after Independence was the proclamation of the 200 nm EEZ, demonstrating the importance attached by the government to responsible management of the marine region. Thus, in terms of fisheries management, Namibia has adopted much of the important internationally accepted management legislature, with necessary adjustments for the particular circumstances of the country. In contrast to many developing countries, the fishing industry is composed of a few large industrial companies and no artisanal fishers. This allows for a relatively simple management model. Of the total landings more than 90 percent come from total allowable catch (TAC) controlled stocks, which are issued as individual non-transferable quotas. These TACs are based on scientific recommendations, recommendations which are followed to a remarkable degree by managers. Effort controls are also used in an attempt to prevent over-capitalization. These are implemented through limited long-term vessel rights, the period of the right being largely determined by the level of Namibianization of the vessel (see below). Additionally, none of the Namibian fisheries are subsidized; hence market forces largely control the efficiency of the various participants. As a result of these developments, Namibia has gained a reputation for having one of the more effective governance systems (Nichols 2004).

Namibia has a long history of social injustices prior to Independence and in an effort to redress the inequities of the past; the policy of Namibianization has been introduced to many facets of life. The fishing sector is a classic example of these inequalities, whereby prior to Independence the industry was largely owned and managed by foreigners, with some limited participation of white Namibians. The black Namibians that were part of the industry held lowly jobs, mostly as seasonal workers in on-shore fish processing plants. The Namibianization policy encourages the participation of “previously-disadvantaged” Namibians in the fishing industry, both at the ownership and management levels and in the provision of jobs for workers, both on shore and at sea.

The participation of Namibians is promoted at all levels of the industry. Licenses are issued preferentially to vessels that are owned and crewed by Namibians, and the largest quotas are given to companies that own vessels, process fish on land (thereby providing employment opportunities for Namibians) and support welfare and other social causes. In addition, rebates on catch levies are offered according to the level of Namibian involvement. These equate to 25, 50 or 75 percent of the levy depending on the level of Namibianization and as such form a strong incentive for companies to Namibianize. This policy has seen a major structural rearrangement of the industry, which in itself has facilitated the introduction of new initiatives.

Finally, mention must be made of the HIV/AIDS pandemic that has hit Namibia harder than most countries, where national infection rates are currently estimated to be greater than 20 percent and in coastal towns closer to 30 percent and rising (UNAID/WHO 2004). Fishing communities often suffer higher infection rates than other sectors (Allison and Seeley 2004) and hence it can be expected that this will

have a profound impact on Namibia's fishing and ancillary coastal industries. While some laudable efforts have been made by the authorities and fishing companies to reduce infection rates, the lack of planning mitigating against the severe economic and social impacts of the disease is alarming (table 1).

Table 1: Economic and Social aspects of the Namibian fisheries

Bio-ecological	Institutional-economic	Social
Effective national research component	Development of effective legislature and fisheries management policies	Policies developed to address past social injustices, notably Namibianization
Research supported by foreign countries	Implementation of recognized fisheries management instruments	HIV/AIDS
Development of regional research programs	Implementation of effective (and cost-effective) monitoring, control and surveillance Authorities have actively promoted regional cooperation	

2.2 Public policy process

2.2.1 EPA

An interim EPA was signed by the EU and by Botswana, Lesotho and Swaziland on 4 June 2009. Mozambique signed the agreement on 15 June 2009. Namibia has indicated it is not ready to sign. The agreement has not been ratified. The last Technical Working Group (TWG) and Senior Official Meeting (SOM) met in May 2012 in South Africa. It focused in addressing all matters: market access, textual unresolved issues, rules of origin and trade related.

In February 2010, Botswana, Lesotho, Namibia, Mozambique and Swaziland informed the Commission that they did not intend to provisionally apply the Interim EPA initialled in 2007. They proposed to focus on reaching an "inclusive" and comprehensive agreement with the whole SADC EPA Group (these countries plus Angola and South Africa) by the end of 2010. Negotiations now are now focusing on market access issues, in particular between the EU and South Africa. The Parties decided an extension to 2016 for the full implementation of the Agreement.

2.2.2 HIPC

Namibia is not in the list of countries HIPC. Classified as a Lower-Middle Income country, Namibia is at first glance a non-typical recipient of aid, and one of the more privileged of the African nations. However, in reality Namibia is a country faced with serious development challenges. Income inequality is one of the most severe in the world, unemployment rates are high, the HIV/AIDS pandemic has hit society hard, and the economy is still largely commodity dependent. The Government of Namibia, with the support of donors, chooses an active, interventionist approach to tackle these challenges. One key element of its legal and policy framework is targeted

public procurement – giving preferential treatment to Namibian firms when purchasing goods and supplies or contracting works.

The Government of Namibia should quickly implement its plans to make the benefits of targeted procurement more broad-based and pro-poor, along the principles of the Transformational Economic and Social Empowerment Framework.

2.2.3 Poverty Reduction Strategy

The National development Plan which is poverty focused containing macroeconomic and structural benchmarks consistent with the country's Poverty Reduction Strategy (PRS) – National Poverty Reduction Action Program (NPRAP) which was formulated in 1998. The PRS focuses on increasing agricultural production and productivity; promoting community based tourism; promoting the development of small and medium scale enterprises; strengthening social safety nets; and labor intensive public works.

Inadequate capacity in both the public and private sectors has been identified as one of the main bottlenecks for sustainable development in Namibia. The shortage of suitably-trained entrepreneurs in either vocational or business disciplines is a major disadvantage of the small business sector in Namibia. Not only are these businesses poorly managed, but the products or services they make or sell also leave much to be desired. In order to attain the objectives of Vision 2030 and NDPs, the capacities of the private sector, including small and medium scale enterprises (SMEs) must be developed. It is essential that the Bank supports vocational training for both the public and private sectors, including the provision of opportunities for entrepreneurship training to SMEs.

2.2.4 National Development Plan

The National Development Plans are the main instruments for implementing the policies and programs to achieve Vision 2030. They are designed to reverse the inherited colonial legacy of high income inequality and poverty through pro-active policies such as the Green Schemes and land reform. The Third National Development Plan (NDP3), (2007/08-2011/12) is an attempt to translate Vision 2030 objectives into concrete policies and actions. It is a medium-term strategic implementing tools for systematically achieving the objectives of Vision 2030 and its main theme is "Accelerating Economic Growth and Deepening Rural Development".

The NDP3 is poverty focused containing macroeconomic and structural benchmarks consistent with the country's Poverty Reduction Strategy (PRS) – National Poverty Reduction Action Program (NPRAP) which was formulated in 1998. The PRS focuses on increasing agricultural production and productivity; promoting community based tourism; promoting the development of small and medium scale enterprises; strengthening social safety nets; and labor intensive public works. The Namibia Aquaculture Strategic Plan (NASP) published in 2004.

2.2.5 Privileged Relationship Namibia-EU

The EU is Namibia's main export market (around 30% of total exports) outside Southern Africa. In 2010, Namibia exported €1.16 billion worth of goods to the EU, and imported €327 million worth of goods from the EU. Most Namibian exports involve manufactured goods (52%), while chemicals account for 15%. Food and live animals account for 27%. Namibia's main agricultural exports to the EU are beef, grapes and fish. In 2007 Namibia initialled the EU-SADC EPA Group interim EPA,

but has not signed it so far. It is participating in negotiations with a view to reach a comprehensive regional agreement with the EU.

2.2.6 Relationship between Namibia and other countries and organizations

Namibia became the 160th member of the United Nations on 23 April 1990 upon independence. Namibia maintains diplomatic ties with many countries and based on the ties during the apartheid era, South Africa is Namibia's most important economic partner and holds approximately 80% of all investment in the key industries of mining, retail, banking and insurance. Namibia is a member of the Southern African Customs Union (SACU) which allows for a free flow of trade between the countries. No bilateral trade figures are available as these statistics are recorded in terms of the combined imports from one country to all other SACU countries. 80-85% of the canned pilchards are exported to SA. Germany, Norway, Canada, US, Denmark, France, Spain, China (developed close economic relations, with trade increasing twofold between the two countries), Japan are countries assisting Namibia to achieve the MDGs.

The SADC landlocked countries maintain trade ties with Namibia because of its port and also the high fishery resources. Botswana relations with Namibia are friendly, with the two neighboring countries cooperating on economic development . from 2003-2006. During a February 2007 visit. Namibia and Cuba have held joint meetings every two years for Economic, Scientific-Technical and Commercial Cooperation.

2.2.7 Regional integration policy process

2.2.7.1 African Union

With a small army and a fragile economy, the Namibian Government's principal foreign policy concern is developing strengthened ties within the Southern African region. A dynamic member of the Southern African Development Community, Namibia is a vocal advocate for greater regional integration.

2.2.7.2 SADC Fisheries

Fisheries in the SADC region remains one of the key economic sectors that contributes significantly to the Gross Domestic Product of Member States. Of paramount importance is its impact on food security, poverty alleviation, and employment creation. Its contributions towards the realization of the aims of SADC as enshrined in the SADC Treaty, and in particular on deeper regional integration and poverty reduction, and to that of the United Nations Millennium Development Goals.

SADC has developed a Protocol on Fisheries to guide the sector. This protocol is a comprehensive legal instrument that has taken into consideration the aspirations of the people of SADC with regard to sustainable management of aquatic resources and their ecosystems, livelihoods of fishing communities, food security and poverty alleviation and an ultimate goal for its eradication, and the need to realize the full benefits of the potential of the sector in the region. This legal instrument is based on modern paradigms of precautionary principles, ecosystem approach and the principles of the International Code of Conduct for Responsible Fisheries and those of other International Agreements.

There are currently a number of programs, projects and Action Plans that support the initiatives of the SADC Fisheries Program, the following of which merit special mention:

- Benguela Current Large Marine Ecosystem (BCLME) Program
- Benguela Environment Fisheries Interaction and Training (BENEFIT)
- Benguela Current Commission (BCC)
- South West Indian Ocean Fisheries Commission (SWIOFC)
- NEPAD Action Plan for the Development of African Fisheries and Aquaculture

3 Coastal and marine Environment, aquatic ecosystems and fishery resources

3.1 Coastal and marine Environment health and climate change

Climate change is likely to exacerbate the dry conditions already experienced in Southern Africa. And when rainfall does come, it is likely to be in bursts of greater intensity leading to erosion and flood damage. But these predictions gain little policy traction in Southern African countries. Research in Namibia suggests that over 20 years, annual losses to the Namibian economy could be up to 6 per cent of GDP due to the impact that climate change will have on its natural resources alone.

GRN is implementing the NACOMA Project's Global and Project Development Objective is to strengthen conservation, sustainable use and mainstreaming of biodiversity in coastal and marine ecosystems in Namibia

The project will support the Namibian Government through Regional Councils, Local Authorities and Line Ministries by putting in place a coastal zone management system for sustainable development of the coast, while working to conserve the unique environment and biodiversity of Namibia's coast.

Consequently, the project hopes to address the root causes of biodiversity loss and coastal degradation and to sustain the environmental and economic potential of the coast. This will be made possible by mainstreaming biodiversity conservation and sustainable use of the environment into coastal policy and legislative framework, by contributing to institutional and technical capacity, and by supporting targeted investment in biodiversity conservation in critical coastal ecosystems. The expected results are:

- Enable Namibians to agree on a common vision for sustainable management and conservation of their coast;
- Develop and support the implementation of the Namibian Coastal Zone Management White Paper;
- Support the improvement of the legal and regulatory framework for coastal zone development planning;
- Develop enabling environmental policies, planning framework and strategies;
- Harmonize institutional mandates and roles on coastal zone management and development;
- Provide required training and practical skills to key stakeholders responsible for coastal zone management and development;
- Increase funding towards environmental management; and
- Improve awareness of environmental problems and the coastal value

3.2 Main environmental of the Benguela current and fishery biology

The best-case scenario is that climate change will increase the productivity of the Benguela ecosystem. This could occur if the recovery of certain fisheries were promoted by a shift in the ecosystem dynamics and environmental conditions which have seen the system depressed since the mid-1990s. It is possible that the system could be revived and we would see, for example, a recovery in the pelagic stocks in

the northern Benguela (off Namibia and Angola). Other scenarios, such as the increased oxygenation of the system, might also have unforeseen advantageous effects which could bring new opportunities to the Namibian coast (Neville Sweijd, personal communication 2007).

Other scenarios are worse. It is possible that changes in the physical parameters (such as acidification and temperature) that affect the life cycles of key fish species or influence environmental forcing (such as upwelling) would have a detrimental effect on productivity and survival in the Benguela. This would further challenge resources that are already under pressure and could affect important elements of the system like gobies and mesopelagic fish which are important food sources for commercially exploited fish. The other worst-case scenario is that the frequency, intensity and duration of extreme events could increase. If this happened then the system would not have the capacity to recover – at least in economic timeframes (Neville Sweijd, personal communication 2007). The four possible climate change scenarios described by Roux (2003) earlier would each have different effects on the Namibian fisheries:

- Reduction in coastal upwelling intensity would probably have disastrous effects on established fisheries. Valuable commercial stocks are likely to undergo major irreversible stock reduction while the total productivity of the system, and therefore the potential yield, declines. The demersal hake fishery would likely be the most affected fishery, which will result in a large reduction of the contribution of the fisheries sector to the national revenue from exports.
- Increase in average summer winds could lead to both positive and negative effects on the established fisheries depending on the scale of the change. Significantly, it might put the ecosystem at risk of 'regime shift' and it is difficult to predict which species would dominate under the new environmental regime and if it will be a commercially valuable one.
- Increased frequency and severity of Benguela Niño events would result in rapid population fluctuations for some stocks, lowering productivity, reducing safe levels of exploitation and increasing the risk of collapse.
- Low-amplitude gradual affects would impact the pelagic fisheries (both positively and negatively) most. The associated industry already experiences recurrent crisis periods, but this would compound this uncertainty.

Namibia also has small inshore fisheries, primarily in the north-eastern Caprivi region. These fisheries contribute little to Namibia's economy, but support a large subsistence-based population. The February roundtable estimated significant losses from this sector resulting from damage to the wetlands.

3.3 Main fishery resources of Namibia

Namibia has rich fishing grounds based on the Benguela Current System, one of the four eastern boundary upwelling systems in the world (the others are off North – West Africa, off- California and off- Peru). These systems support rich stocks of demersal and small pelagic species. Namibia's 200 – nautical mile Exclusive Economic Zone (EEZ)'s commercial biomass contain about 20 different species consisting primarily of small pelagic species (pilchard, anchovy, horse mackerel and mackerel) and lobster along the shallow inshore waters on the continental shelf, as

well as large pelagic species including adult mackerel, demersal hake and other Deep-sea species (monkfish, sole and crab) in the waters further offshore.

More than 20 fish species are commercially exploited in Namibia and eight species are regulated through TACs. Resources available in quantity for export are horse mackerel and hake. Namibian horse mackerel is the dominating species in terms of volume in the Namibian waters. It contains only three to eight percent body fat, it is both healthy and highly nutritious as well as a vital staple food source for many nations in the region. Hake products are of good quality and increasingly in demand in EU and other international market for the catering and retail markets. The orange roughly often referred to as the 'diamond of the sea', made Namibia the world's second largest supplier but this fishery is under moratorium for five years.

Other marine exports include rock lobster; crab; oysters; kabeljou; monk; tuna; pilchards, seaweed, anchovy, red-eye, snoek, sole, kingklip, panga, John dory, angelfish, shark, swordfish, kob, barbel, squid, cardinal fish, Cape guarnard, grenadier, Jacopever, chub mackerel, octopus and mullet.

The state of the stocks is fair for most of the species, [Monkfish (healthy stock), horse mackerel (abundant), deep sea crab and rock lobster (in recovery stages)] despite declining in landings in recent years. The hake survey in 2009 showed the total relative abundance estimate of hake to be 1,476,000 tones, an increase of about 58% from the previous year of 936,000 tones. The measures taken in 2006 to close the fishing season during the month of October are kept in place to allow stocks to improve. The pilchards show a stressed stock and give rise concern about the effect of the low biomass of this forage species in the whole Northern Benguela ecosystem.

Namibia has no important natural freshwater bodies suitable for commercial exploitation Inland fisheries. Some rivers on the borders in Angola, Zambia, Zimbabwe and Botswana in the Caprivi and Okavango region are used for limited fishing activities. There are no significant lakes in Namibia, the only permanent water bodies being man-made dams and sinkhole lakes. Perennial rivers are found only in the southern and northern border areas and provide over 1 million hectares of floodplain wetland with fisheries potential, varying by season between 6,000 and 8,000 tons per annum, comprising mostly of tilapia and tiger fish.

3.4 Scientists statements concerning the main species caught

For the Hake resource, the biomass survey in 2010/11 revealed a relative abundance estimated around 1 million tons, 29% lower than the previous year which was 1.4 million tons. The long term series catch rate (CPUE which is used as an index of stock abundance) has continued to show recovery and a very impressive increase in 2010. The Monk fish survey showed a decline of the biomass by 11% (45,000 to 40,000) since 2009. The Horse mackerel acoustic biomass was estimated at 1,207,000 tons. The Midwater vessels CPUE has increased to 18.8 tons/hour on average in 2010.

Pilchard, the biological indicators such as length at maturity show that the northern Benguela sardine stocks is still in a stressed, low biomass condition. A positive sign was the good recruitment encountered during the stat-of-art sardine survey in October 2010, but half of them were found in Angola. The relative biomass estimates from the acoustic survey decreased by almost 40% from 357,000 tons (2009) to 134,000 tons (2010). At such low biomass, the estimates show increased variability to high mortality.

The trawl of Sea Crab fisheries indicates a minor decrease of the biomass from 2008-2009. Concerning Rock Lobsters, the biological indicators revealed normal lobster distributions. There was a marked decline in catches but this believed to be an effect of environmental variables influencing the feeding behavior of lobsters and not a density factor.

The Atlantic Big eye tuna the biomass at the beginning of 2010 was estimated at between 0.72 and 1.34 (80% confidence limits) with median of 0.95. The assessment showed that the stock was overfished. South Atlantic Swordfish: considering the non-quantified uncertainties and the conflicting indications for the stocks, ICCAT recommends a more precautionary Fishery Management approach, to limit catches to the recent levels (15,000 tons)

4 Fisheries Context in Namibia

4.1 The EEZ Limit

When Namibia recovered its independence in 1991, the government proclaimed a 200 mile Exclusive Economic Zone (EEZ) (Act No 3, 1991) in accordance with the provisions of the United Nations Convention on the Law of the Sea (UNCLOS) of 1982.

4.2 Artisanal fisheries

4.2.1 Inland:

Namibia has no important natural freshwater bodies suitable for commercial exploitation. Some rivers on the borders in Angola, Zambia, Zimbabwe and Botswana in the Caprivi and Okavango region are used for limited fishing activities. There are no significant lakes in Namibia, the only permanent water bodies being man-made dams and sinkhole lakes. Perennial rivers are found only in the southern and northern border areas and provide over 1 million hectares of floodplain wetland with fisheries potential, varying by season between 6,000 and 8,000 tons per annum, comprising mostly of tilapia and tiger fish.

In the Okavango and Caprivi Region more than 100,000 people depend on this resource for their daily protein needs. Freshwater fish consumption in the Caprivi Region ranks over beef, game and poultry and also has a significant economic value for the communities. The recreational fishery is also a major business sector in the Caprivi region. The importance of freshwater fish resources is emphasized especially during periods of drought when the crop fails and people rely on fish catches from the river. The fish caught is partially consumed by the family of fisher-folks with the surplus sold at local markets.

4.2.2 Aquaculture:

Commercial marine aquaculture (mariculture) is currently dominated by oyster and abalone production in Walvis Bay, Swakopmund and Luderitz. Both Pacific oyster (*Crassostrea gigas*) and European oyster (*Ostrea edulis*) are grown. Culture methods include baskets suspended from rafts and long lines and onshore raceways, at open sea and ponds.

Good freshwater culture development potential exists along rivers such as the Okavango, Kunene, Orange and Zambezi, as well as lakes and dams. The production of freshwater and brackish water species in the Oshikoto Region can also be considered for culture

4.3 Multi- species fisheries

In carry out stock assessment and catch data combine both deep-water hake (*Merluccius paradoxus*) and shallow-water hake (*M. capensis*) species. Deep-water hake dominates total catch of Namibian hake (about 67% by weight and 73% by number). The relation of these stocks to neighboring South African stocks is as yet unclear.

4.4 Trawling

4.4.1 Demersal fisheries

Around 71 demersal trawlers (19-77m length) are currently licensed. Their principal target species are hake (*Merluccius capensis* and *M. paradoxus*), caught in deeper waters (trawling is not permitted in less than 200 m depth). Smaller trawlers fish inshore for monkfish (*Lophius spp.*), sole and kingklip. 18 demersal long-liners (19-55 m length range) also target hake, with smaller quantities of highly valuable kingklip and snoek.

4.4.2 Mid-water fishery

A number of 12 mid-water trawlers in the 62-120m length range are licensed to fish for horse mackerel (*Trachurus capensis*). However, of these, at least 9 are wholly owned by Namibian nationals, but retain foreign flag in order to facilitate work permits for the largely eastern-bloc crews.

4.4.3 Purse-seine fishery

A fleet of 36 purse-seiners (21-47 m length range) target pilchard (*Sardinops ocellatus*) for canning. Juvenile horse mackerel and anchovy (*Engraulis capensis*), which occurs sporadically in Namibian waters, are also caught for fishmeal. Namibia's pilchard stock has not progressed as well as other species to measures designed to re-build stocks, and there is concern about recruitment levels, which appear to be largely influenced by environmental factors.

4.5 IUU fishing

The Namibian fisheries operation is based on the deployment of fisheries patrols aircrafts harbor and plant inspections and coastal patrols. The country has adopted a national Plan of Action against IUU fishing.

4.6 Conflict in different fisheries

The fish industry is composed of industry vessels with the required equipment relating to safety at sea and vessel monitoring. Therefore few conflicts are recorded in the maritime end. However, the inland fisheries because of the low catch are subject to conflicts. It is expected the awaited law for the inland sector will curb down conflicts.

4.7 The contribution of the fishery sector in the national economy

4.7.1 The marine fishery:

This sector plays a substantial role as a source of employment, foreign exchange earnings and government revenue. The fishing industry is a source of considerable employment for many Namibians. It is currently estimated that the total employment in the fishing industry is about 14,000. Of this total, approximately 5,575 is employed on-board vessels, 68% of which are Namibians while 7,925 are involved in onshore processing, of which nearly all are Namibians. Total employment in the aquaculture sector is estimated at 200 people.

Based on the fishery Act and applying a quotas system The MFMR advised by the MRAC allocates rights of exploitations to Namibian applicants. The total number of existing rights during 2010/11 is shown in table below. The fiscal year 2010/11 recorded 199 licensed vessels operating in the Namibian EEZ. Compared to 2006 and 2009, the number of vessels diminished by 70 and 20 respectively. This is due to

Hake TAC allocation reduction and right holders adjusted their catches accordingly. For large pelagic, the decline can be attributed to the management measures introduced in 2008 and maintained in 2010/11 (table 2).

Table 2: Number of licensed vessels by fishery 2006-2010

Fishery	2006	2007	2008	2009	2010
Small pelagic	16	9	11	10	8
Demersal Trawlers	78	87	91	71	63
Longliners	39	30	18	18	13
Midwater	10	13	10	9	9
Deepwater	4	2	0	0	0
Large Pelagic	65	67	88	48	40
Linefish	15	15	15	15	14
Crab	2	2	3	3	3
Rock Lobster	18	32	29	29	33
Monk	22	20	31	16	16
TOTAL	269	277	292	219	199

Source: MFMR Annual Report, 2009

The TAC is set to thwart over exploitation of the fishery stocks in the Namibian EEZ. Pilchard, horse mackerel and monk fish TAC increased whereas the hake and Rock lobster decreased in 2010/2011. Orange roughy is in moratorium, there is no quota allocated (table 3).

Table 3: Quota per species 2005-2010 in tons

Year	Pilchards	Hake	Horse Mackerel	Red Crab	Rock Lobster	Orange Roughy	Monk
2006	25,000	130,000	360,000	2,400	420	1,100	9,500
2007	15,000	130,000	360,000	2,500	350	9,500	9,500
2008	15,000	130,000	230,000	2,500	350	9,500	
2009	17,000	149,000	230,000	2,700	350	8,500	
2010	25,000	140,000	247,000	2,700	N /A	9,000	

Source: MFMR, Annual report 2010/2011.

The 2010/11 volume of landings for the quotas species were 343,874 tons representing 11% decline compare to the 2009 which recorded 385,282 tons. This reduction of the landings is apparent for species such as Hake, Horse mackerel, Crab and Tuna (table 4).

Table 4: Landing of quotas species 2010/11 in tons

Species	2006	2007	2008	2009	2010
Pilchard	2,314	23,522	18,755	20,137	20,229
Hake	135,771	125,534	117,286	137,312	127,196
Horse Mackerel	309,980	201,660	186,996	215,051	185,673
Monk	9,816	8,932	7,270	6,922	7,904
Crab	2,228	3,245	2,100	1,577	766
Rock Lobster	285	153	195	43	82
Orange Roughy	545	255	0	0	0
Tuna	2,903	4,596	3,281	4,241	2,024
Total	463,842	367,897	335,883	385,282	343,874
Seals (numbers)	83,045	34,728	47,603	41,145	47,821

Source: MFMR Annual Report, 2010/11

The landings of by catch and non-quotas species recorded a reduction of 12% mainly due to less by catch.

Table 5: Landings of by catch and non-quotas species 2005-2010 in tons

Species	2006	2007	2008	2009	2010
Kingklip	4,493	4,366	3,424	4,380	4,180
Others	39,891	40,408	12,973	15,791	12,917
Total (tones)	44,384	44,774	16,397	20,172	17,727

Source: MFMR Annual Report, 2010/11

The catch value is shown in table 6 below. The landed value and final value increased over the period 2009 and 2010 while the export value decreased during the same period. This decrease is attributed to fluctuations in oil, product prices and exchange rate of the Namibian dollar to the US dollar.

Table 6: Value of fish and fishery products 2005-2010 (N\$ millions)

Value	2006	2007	2008	2009	2010
Land value	3,146	3,772	4,290.4	5,087.4	3,749.4
Final value	3,985	4,843	5,084.1	4,789.3	4,059.8
Export value	3,883	4,711	4,934.5	4,637.3	3,926.8
% of total export of goods	18,9	17,3	14	15	13

Source: MFMR Annual Report, 2010/11

The fishery industry has grown to the extent that it currently Namibia's second biggest export earner of foreign currency after mining (90% of national output is marketed for export). It is also the third largest economic sector in terms of contribution to the Gross Domestic Product (GDP) which stands at about 3.7 per cent or N\$2,962 billion for 2010. Contribution to GDP has declined in the past four years from 5.3 % in 2007, 4.7 % in 2008 to 4.6% in 2009. The contribution has shown a decline brought on by the decrease in the TAC for Horse mackerel and rigorous management requirements in the small pelagic industry. The main contribution comes from fishing activities, while processing activities are still accounting for 1/3 of the GDP contribution table 7).

Table 7: Fisheries contribution to Gross Domestic Product

GDP contribution	2006	2007	2008	2009	2010
Fishing and fish processing on board	1,948	2,330	2,411	2,523	2,177
Processing on-shore	657	903	993	950	785
Total	2,605	3,232	3,404	3,473	2,962
% GDP	4.8	5.3	4.7	4.6	3.7

Source MFMR, Annual report 2010/11

Direct government revenue collected from the fisheries sector include quota fees, marine resources levy (a levy on landed species, used to fund research and training), a by-catch levy (all of which must be landed, discharging is prohibited) with charge rates per ton set on a species in specific basis, and license fees for vessels. Direct revenue generated from the sector has risen from N\$ 92,037 2006 to N\$ 113,785 in 2010/11 table 8).

Table 8: Revenue generated, 2006-2010/2011(N\$ Million)

Fees	2006	2007	2008	2009	2010/11
Quotas fees	68,299	107,318	59,255	68,800	78,500
Marine Resources Fund Levy	12,446	12,561	12,075	18,733	19,228
By- catch fees	11,199	9,639	10,837	8,410	15,972
License fees(000)	93	91	85	86	82
Total revenue	92,037	129,509	82,253	96,029	113,785

Source MFMR, Annual report 2010/11

4.7.2 The inland fishery

The inland fish production is estimated at 2,000 tons per annum of which Caprivi represents 800-1,000 tons. The species harvested are mainly made of catfish, bream and tiger fish. Freshwater fish are exported to Botswana, Democratic Republic of Congo, Malawi, Tanzania and Zambia. In terms of volume and value this trade is extremely low, 247 tons and 1.8 million N\$.

4.7.3 The aquaculture sector

The inland aquaculture is being promoted by the GRN. A total of 191 small scale fish farmers received fingerlings (tilapia and catfish) from the Ministry of Fisheries and Marine Resources to grow and sell for their own income. The feed production averaged 124 tons. Fish farms are located in Caprivi, Kavango, Otjozondjup, Hardap and Karas regions.

Mariculture sector is developing and records growing export to China. The farms are located along the coast in Luderitz, Swakopmund and Walvis Bay. In 2010, algae blooms devastated the oyster culture. Comparing 2009 to 2010, farmers lost 50% of their export values (table 9). Licenses for inland and Mariculture numbered 21 in 2010 and concern farming the of the following species: Abalone, Scallop, Pacific Oyster, Clam, Seaweed, Crocodiles, Tilapia, Catfish, Sea Lettuce, Silver Cob, Kelp, Yellow Tail and Oyster.

Table 8: Growth in Mariculture in Namibia

Species	2008		2009		2010	
	Volume tons	Value (million N\$)	Volume tons	Value (million N\$)	Volume tons	Value (million N\$)
Oyster (<i>Crassostrea gigas</i>)	4,9	19	6,0	24,2	5	14,5
Abalone (<i>Haliotis midae</i>)			2.9	0,116		

Source MFMR Annual report 2010/11

5 Consumption, supply, processing and trade channels in Namibia

5.1 Fish consumption and supply

Despite the abundance of marine fisheries resources of the country, fish consumption in Namibia is among the lowest in Africa, estimated at 13.3 per caput per year. Fish has not been part of the traditional diet of many Namibians. However, the Namibia Fish Consumption Trust has been established by the Ministry of Fisheries and Marine Resources with the objective of increasing domestic fish consumption.

The campaign has proven fruitful since its inception in 1992. The demand for fish is rising for frozen and chilled product in the Namibian traditional markets and expected to increase further. In the past, only low value fish such as horse mackerel and Dentex fish were supplied to the local markets. However this has changed and the local market is demanding higher value fish products such as value added hake, previously earmarked for export markets. The most popular fish in the local market is small hake locally known as baby hake, angelfish, snoek, jacopiva, alfosino, Walvis red and horse mackerel.

5.2 Main fish trade channel

The fishing industry has grown to the extent that it is currently Namibia's second biggest export earner of foreign currency after mining (90% of national output is marketed for export). In 2010, Namibia harvested about 343,874 tons of fish. The final value of processed products (export value) that year was around N\$2,962 million.

The domestic market for Namibia's population of 2 million is relative small, hence greater access to the international market is important to, inter alia, facilitate the diversification and value addition policies in the fisheries processing sector. Therefore, both market share and market entry are important to Namibia as foreign exchange earnings assist the country in meeting its food import requirements. On the other hand fish imports are limited and mostly comprises of canned products from South Africa. There are also few canned products such as tuna from USA and Asia and few amount of fresh and canned salmon sold in major supermarkets.

In general the amount of fish imports is relatively small compare to quantity that goes for export. The Namibian exported species are as follows:

- The Rock Lobster is traded internationally by NAMROCK. The lobsters are exported whole cooked or frozen tails. The latters are exported raw to Japan (95% of the volumes).
- Crabs are exported in forms of claws, flakes legs and sections in the Asian markets where Japan is the leading outlet. The Namibian producers encounter competitors from Brazil, Argentina, Russia and Uruguay. Locally, prices are 10 N\$ whereas in the international market the average price is between 33-40 N\$/kg.
- Monk fish are exported to Italy 70% of the exports). Prices decreased by 23% from 70.8N\$ in 2009 to 53.9 N\$/kg in 2010.
- The main market for the Namibian pilchard is South Africa which absorbs annually 80- 85%of the canned pilchard. UK was targeted in the past but due

to low volumes due to raw material availability, no more exports to this country. Thailand imports frozen cutlets. The products forms traded are canned pilchard in tomato and chili sauce; fishmeal and oil and cutlets. Prices differ from market to market due to transport cost and packaging.

- Large pelagic species tunas and other associated species (swordfish and shark) are exported to the US, Japan and Spain. Prices for these species are quite volatile; for 2009/10, price for whole round tuna was 18N\$/kg. Fresh tuna caught by polling recorded good prices 38.3 N\$/kg in 2010/11,
- USA, and Spain Most of the Namibian hake are exported mainly to the EU market and Spain is the biggest importer. <however to the economic downturn, the Spain market recorded a in 2010 significant drop in terms of volume, only 61% compared to 71% in 2008 and 49% in 2009.

5.3 Fresh fish trade channel

Fresh fish export mainly composed of hake, tuna, monk, oyster/mussels and crabs are shipped by air to Spain where high prices are offered.

5.4 Processed fish trade channel

Canned products found market in Sound Africa, value added frozen Hake are exported to EU, US and Japan whereas frozen horse mackerel are sold within the SADC region (DRC, Zambia, Tanzania, Malawi, Botswana, Zimbabwe) and in Central Africa (Cameroon) and West Africa (Nigeria)

6 Regulatory Framework for fishing and trade in fish and fishery products

6.1 Management framework for fishing in Namibia

6.1.1 Fishery policy

Before Namibia's independence in 1990, the rich fishing grounds were constantly over-exploited by foreign distant water fishing fleets as a result of poor or complete absence of fisheries management. Shortly after independence, a detailed White Policy Paper for the fishery sector came into force in December 1991. This master plan, based on long-term perspectives, has proven to be the right approach for the development of Namibia's fishery sector. These Policies and legal framework were set to create incentives for economically and environmentally sustainable fisheries and aquaculture.

The sustainable fishery management and stock rebuilding is realized through different marine resources policy and regulations such as control in the form of annual TAC's, by-catch restrictions, introducing closed seasons, allocation of individual quotas, licenses and allocation of fishing rights. Fisheries observers are placed on board all vessels and inspectors monitor the landings in order to guarantee a strict respect of the allowed landing volumes.

The MFMR has two Research vessels (R/V), the Welwitchia and (Walvis Bay) and the R/V Anichab (Luderitz). The R/V Marabilis had been received and inaugurated on July 31st, 2012. Marabilis is a 62.4 m, breadth 14 m and speed 15 knots. It can host 22 scientists along with 22 crew members and 42 cabin- crew members. The vessel is equipped with state-of-art technology to carry fisheries resource assessment based on the ecosystem approach

The non-transferable harvesting rights represent the central component of the fisheries management system. The rights have been granted initially for a period of 7, 10, 15 or 20 years depending on various factors (e.g. Degree of Namibian ownership, status of investment by the operator). In 2001, these periods were extended to respectively 4, 7 and 10 years. Furthermore, a 20 year right was introduced. The rights are considered to function as an entrance barrier to keep catches sustainable.

The TACs are determined on an annual base for all major commercial species (currently eight species) based on scientific recommendations.

6.1.2 Fisheries legislation

To take full control of its important Fishery Resources, the GRN promulgated the Marine Resources Act (2000) which now represents the primary marine fisheries legislation. It entered into force in August 2001. The Marine Act defines the general conservation of and control of marine resources. In different parts, it describes the role of inspectors, the fisheries observer agency, the Marine Resources Advisory Council, the Harvesting of Marine Resources. The role of the Marine Resources Advisory Council (MRAC) is of outmost importance, it provides advice to the Minister of Fisheries and Marine Resources.

The inland Fisheries Resources Act (2003) to provide an appropriate legal framework for the management and development of inland fisheries. On the aquaculture side, the MFMR developed an Aquaculture Policy (2001) - Towards Responsible Development of Aquaculture and an Aquaculture Act 2002. The Aquaculture Act

gives power to the Fishery Minister of determines the Aquaculture policy and establishes the Aquaculture Advisory Council which gives advices on different issues relating to Good Aquaculture Practices for sustainable aquaculture.

6.1.3 Involved Organizations

The MFMR is responsible for the management and development of fisheries and aquaculture. To strengthen Namibia's position as a leading fishing nation and contribute towards the achievements of economic, social and conservation goals for the benefit of all Namibians, key objectives are in box 1.

Box 1: Key objectives

Box 1

- Promote and regulate the optimal sustainable utilization of living marine resources within the context of conserving marine ecosystems;
- Establish a conducive environment in which the fishing industry can prosper and derive optimal income from marine resources;
- Further Namibia's interest within the international fishing sector;
- Provide professional, responsive and customer focused services;
- Deliver services efficiently and effectively, providing best value for money; and continuously invest in human resource development.

The Office of the Permanent Secretary provides executive management to four directorates, namely: the Directorate of Resource Management, responsible for scientific research and advice; the Directorate of Operations, responsible for monitoring, control and surveillance (MCS); the Directorate of Policy, Planning and Economics, responsible for MFMR planning activities, formulating fisheries policies and legislation as well as undertake research to advise on the socio-economics, Directorate of Aquaculture, responsible for the administration and development of aquaculture. A General Services Division provides support services.

The Directorate of resource management: Purpose of the Directorate: Provide advice needed to manage the sustainable utilization and conservation of livening aquatic resources. Objectives of the Directorate:

- Provide scientific advice to enable Total Allowable Catches (TAC's) to be determined;
- Provide advice so that policy on harvesting activity and techniques can be formulated; and
- Provide advice on the interrelationship of the environment and the impact this has on fish stocks.

The Directorate has two research centers: The National Marine Information and Research Centre, (NatMIRC) and the Hardap Freshwater Research Institute.

6.1.4 The Directorate of operations

The purpose of the Directorate is to regulate fisheries sector activity within the EEZ. The Objectives of the Directorate are as follows:

- Restrict fishing activity to those entitled to do so;

- Ensure that fishing activity is conducted within the legal and administrative guidelines;
- Ensure that revenue from landings are correctly calculated; and
- Ensure that landings of species caught outside Namibia's EZZ are done in accordance with provisions of international fisheries organizations of which Namibia is a member.

The Directorate is composed of two divisions: the Technical Services Division is responsible for aerial (an aircraft) and surface patrol craft and operations, and the Monitoring, Control and Surveillance Division which is responsible for operations of the two Fisheries Inspectorate Offices: one in Luderitz and one in Walvis Bay. Two research vessels of which the Marabilis recently received from Finland.

6.1.5 The Directorate of policy, planning and economics

The purpose of the Directorate is to manage the development of the fisheries sector both nationally and internationally, including fisheries administration. The objectives of the Directorate are :

- Ensure that fisheries activity contributes Namibia's socioeconomic development goals;
- Create a conducive environment in which the fisheries sector can grow to its full potential;
- Ensure that Namibia is properly represented internationally and that national fishery interests are protected;
- Administer fisheries legislation and regulations;
- Administer the collection of fees and levies generated by fishing activity; and
- Manage the collection and preparation of information and fishery statistics.

The Directorate is composed of five Divisions namely: Policy and Planning, Economics, Fisheries Administration, Statistics and Fisheries Information Management. All staff of the Directorate is based at MFMR headquarters in Windhoek.

Training: The MFMR places very high emphasis on the development of human resources right across the board, from fishermen to vessel skippers, from research scientists to observers, inspectors and managers. Main courses run within the country include: the Fisheries Inspectors and Observers Course, the Commercial Sampling Program for Fisheries Observers, the Cadet Program for patrol boat officers and the Scientific Technical Assistance course. These courses are undertaken at the Namibian Maritime and Fisheries Institute (NAMFI) at Walvis Bay and the Polytechnic of Namibia.

6.1.6 Other government institutions working with the MFMR

The Namibia Standards institution (NSI): The NSI is governed by the Namibian Standards Council (NSC), which was inaugurated on the 17th of February, 2011. The NSC provides strategic leadership to the NSI and consists of eight members, who are all non-executive, independent Directors, while the CEO serves as an *ex officio* member of the NSC.

The NSI Program is an established and functional national standards body in Namibia, capable of:

- Developing, adopting and applying standards;
- providing accurate measurement traceability to the international standards (SI) through the meteorology division;
- providing reliable testing especially for food such as fish and fishery products including shellfish, beef and agro-products and rendering food safety technical support to the aquaculture, fishing and other industries through regular tests conducted at the NSI Biotoxins and Microbiology laboratories at Walvis Bay and through NSI Inspection and Certification

Marine Resources Advisory Council (MRAC), which provides advice to the Minister of Fisheries and Marine Resources. The advisory council shall consist of the Permanent Secretary and such other persons as the Minister may appoint, of whom. 7 (a) one shall be a staff member of the Ministry; (b) five shall be persons who, in the opinion of the Minister, have knowledge in matters relating to marine resources or any other expertise of relevance to the issues on which the Minister is required to consult the advisory council under this Act; and (c) five shall be persons who, in the opinion of the Minister, fairly represent the fishing industry or employees in the fishing industry.

Before making an appointment under subsection (1) (c), the Minister shall consult with any trade association or trade union which, in the opinion of the Minister, is representative of the fishing industry or of employees engaged in the fishing industry. The Minister may from time to time and for such period and on such terms and conditions as the Minister may determine, appoint any person to assist the advisory council in an advisory capacity. The Minister may appoint a secretary to the advisory council to perform such tasks as the Minister may designate. The Permanent Secretary shall be the chairperson of the advisory council and the Minister shall appoint one other member of the advisory council to be the vice-chairperson thereof. In making appointments under subsection (1), the Minister shall take gender balance into consideration.

Confederation of the Namibian Fishing: The Confederation of Namibian Fishing Associations was formed in 2003 superseding the previous *Ad-Hoc* committee which was started in 1995. All the Associations in the Namibian Fishing Industry are members of this Association, which main aim is and to liaise with Government bodies, public and private establishments and individuals on matters of general and specific interest.

- Hake association: The Namibian Hake Association was formed in 1992 to protect and further the interests of the Namibian Hake Industry; Provide a forum for collaboration and discussion between members; Negotiate for the entire hake industry with all government departments as and when required; Encourage rational fishing by its members by pursuing practices with due regard to recognized fisheries conservation concepts. Membership of the association is open to any hake concessionaire engaged in activities derived from hake fishing in Namibian waters, provided that the application is approved by a majority of members.
- The Namibian Monk and Sole Association founded in 1996 for all holders of Namibian fishing rights for monk and sole. The Association serves as a forum

for communication among members and with government. It actively participates in local and international projects to achieve optimum sustainable utilization of the monk and sole resource.

- The Pelagic Fishing Association of Namibia was formed for all holders of small pelagic fishing rights. The Association serves as a forum for communication among member and with the government on all issues concerning the small pelagic fishing sector. The members actively participate in research surveys aimed at rebuilding the pilchard resource and ensuring its optimum sustainable utilization.
- The Namibian Tuna & Hake Long lining Association was founded in 1992 for all holders of Namibian fishing rights for tuna and long lining of hake. The Association serves as a forum for communication among members and with the authorities. It co-operates closely with the government to obtain a reasonable share of the quota on migratory and straddling fish stocks appearing in Namibian and international waters.
- The Namibian Deep-water Fishing Association founded in 1999 for all holders of Namibian fishing rights for orange roughy. The association provides opportunities for collaboration and discussion amongst its members, as well as liaise with Government bodies, public and private establishments on matters of general and specific interest.
- The Namibian deep-water Fishing Association founded in 1999 for all holders of Namibian fishing rights for orange roughy. The association provides opportunities for collaboration and discussion amongst its members, as well as liaise with Government bodies, public and private establishments on matters of general and specific interest.

Namport: Namibia has two major ports which consist of the Port of Walvis Bay and the Port of Lüderitz. The Walvis Bay Port is Namibia's largest commercial port, receiving approximately 1,000 vessel calls each year and handling about 2.5 million tons of cargo. It is a sheltered deep water harbor benefiting from a temperate climate. Namport is Namibia's Ports Authority Company and it has a container terminal at the port of Walvis Bay that can accommodate 380 containers, with space for 210 reefer container plug points. The container terminal can host about 150,000 containers per annum. The Walvis Bay syncrolift, a modern dry-docking facility, which is also owned and operated by Namport, is located between the commercial and fishing harbors, and it caters mainly for fishing vessels, offshore supply boats and offshore mining industry vessels of up to 2,000 tones. While many of the smaller fishing boats berth at the jetties of the various factories, larger white fish trawlers use the commercial port. Since 1995, investment in the Port of Lüderitz has significantly improved harbor facilities as it can now handle modern coastal traffic, as well as the needs. Cold Storage capacity is merely 10,000 MT compared to the growing demand superior to 30,000 MT.

The Ministry of Environment and Tourism (MET): The main functions of the Directorate of Environmental Affairs is to: promote sustainable development; protect biological diversity; improve environmental awareness; encourage democratic environmental planning and management and involve Namibia in regional and global environmental issues, programs and treaties

The Ministry of trade and Industry (MTI): the Namibia Investment Centre (NIC) offers the following services: Act as the first port of call for any potential investors to Namibia, Offer investor services such as required in establishing business in Namibia, e.g., application for work permits, assistance with search and identification of land/premises, Identify and advise on the elimination of administrative bottlenecks confronting investors, Promote investment opportunities to both local and foreign investors, Conduct research on investment climate and trends, sector studies, identify , profile and market investment projects and avail this information to interested investors, Promote and facilitate joint venture arrangements and encourage domestic participation in investment initiatives, Issuing of the Certificates of Status Investment, Investment Incentives

6.1.7 [Marine Protected Areas \(MPAs\)](#)

Under the Namibian Coast Conservation and Management Project (NACOMA) Namibia will create the first offshore MPA in the region would have immense benefits and exposure to the country.

6.1.8 [Co- management](#)

The NACOMA project is designed to run parallel with Namibia's decentralization process, which aims to transfer more responsibility and authority to the Regional Councils and Local Authorities.

6.2 [Regional fishery management framework](#)

The NG through the MFMR cooperates with the following Organizations:

- **SADC Regional Fisheries MCS Program:** Namibia is a partner in this Program, which operates under the SADC Protocol on Fisheries. The objectives of the program address the marine fisheries resources of the Region. Capacity building and regional cooperation for MCS are prominent objectives. Expected results of the RDC MCS Program include:
 - National fisheries MCS systems functioning;
 - Establishment of a basis for the management of shared stocks and international fishing activities
 - Harmonized approaches to the control of international fishing activities
 - Marine environment more protected
 - Enhanced regional cooperation and communication
- Benguela Current Commission (BCC) Established in 2007 is a multi-sectoral initiative; it has a mandate from Angola, Namibia and South Africa to promote the integrated management of a trans-boundary nature, including the status of shared fish stocks, sustainable development and protection of the Benguela Current Large Marine Ecosystem (BCLME). The Benguela Current Commission provides a vehicle for the three SADC countries to introduce an ecosystem approach to the management of the BCLME. The Commission is focused on the management of shared fish stocks, the assessment and monitoring of the physical environment, the establishment of an ecosystem information system, and the cooperative management of biodiversity and ecosystem health (pollution studies, habitat destruction/alteration and biodiversity and environmental monitoring)..

6.3 International fishery management framework

6.3.1 Main international agreements/conventions

Namibia through the MFMR cooperates with following regional and international fisheries organizations:

- **Southern African Development Community (SADC).** The SADC Protocol on Fisheries aims to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems within the SADC region.
- **INFOPECHE:** In 2001 Namibia signed a cooperation agreement with this International Fisheries Marketing Advisory Body to establish an INFOPECHE Unit in Namibia's capital, Windhoek. This Unit provides information and technical assistance in fish trade, marketing, processing and new innovations to INFOPECHE member states.
- **South East Atlantic Fisheries Organization (SEAFO):** establishes a management regime for conservation and sustainable utilization of fish, mollusks, crustaceans and other sedentary species in the high seas portion of FAO Statistical Area 47, but excluding those sedentary species that are subject to the fishery jurisdiction of coastal States and also tuna and tuna-like species because these fall under the jurisdiction of ICCAT. Namibia is host to the SEAFO Secretariat.
- **International Commission for the Conservation Of Atlantic Tunas (ICCAT):** The rapid development of a thriving domestic tuna fishery provided the impetus for Namibia to join ICCAT in 1999, becoming the 28th member of the Commission. Namibia welcomes and supports the considerable effort that ICCAT is making in developing comprehensive management tools to deal with, *inter alia*, IUU fishing in the Atlantic Ocean.
- **Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR):** As a member of CCAMLR, Namibia is committed to the management and conservation of the marine resources of the Antarctic. The Namibian fishing industry is interested in fishing in CCAMLR's waters and is ready to participate responsibly in the harvesting of fishery resources, especially tooth fish.
- **Inter-governmental Oceanographic Commission (IOC):** Namibia became the 129th member of the IOC became on 25 April 2001.

Below is a box on conventions and agreements which are ratified or endorsed by Namibia (Box2)

Box 2 : conventions and agreements which are ratified or endorsed by Namibia

- The Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea (UNCLOS) of 10 December 1982 relating to the Conservation and Management of Fish Stocks and Highly Migratory Fish Stocks (more commonly known as the "UN Fish Stocks Agreement" - ratified in 1998);
- The FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (more commonly known as the "Compliance Agreement" - signed in 1998);
- The GRN ratified the ICCAT convention in 1999,

- The GRN ratified the CCAMLR convention in 1999
- The SEAFO convention was ratified by the GRN in 2002;
- The FAO Code of Conduct for Responsible Fisheries was adopted by the GRN.
- An International Plan of Action against IUU Fishing was adopted by the GRN

6.3.2 [Vessel monitoring](#)

Namibia's MCS system has evolved over the years into what is today widely regarded by the international community as a very effective system. A crucial element has been the financial, human and material support from the Namibian government. The costs to Government and industry of MCS and other management activities have been kept commensurate with the value of the sector. An integrated program of inspection and patrols at sea, on land and in the air ensures continuing compliance with Namibia's fisheries laws. The major features of the program are described below.

Fisheries Observer Program: emplacement of fisheries observers on board larger vessels serves both to ensure compliance and the collection of scientific data. Coverage rates range from 70-100%, depending on the fishery in question. The establishment of the new Fisheries Observer Agency under the Marine Resources Act will improve current capacities in this regard.

Compliance and Enforcement: the Act specifies the powers of enforcement officers in regard to stopping and boarding vessels, search and inspection, hot pursuit, seizure, and arrest. It provides for the establishment and functions of a Fisheries Observer Agency, which is charged with the collection of scientific operational data onboard fishing vessels, and observation and reporting on the fishing activities thereof.

Sea, air and shore patrols: systematic sea patrols aim to ensure compliance with fishing conditions by licensed vessels through regular at-sea inspections. Air patrols detect and deter unlicensed fishing vessels and monitor the movement and operations of the licensed fleet. Shore patrols ensure compliance by both recreational and commercial fishers with conservation measures for inshore resources.

Monitoring of landings: To ensure compliance with quota limits and fee payments onshore inspectors do complete monitoring is done in all landings, at the two commercial fishing ports of Walvis Bay and Lüderitz, by. Transshipping fish at sea between catching vessels and carrier vessels is prohibited – all fish must be landed at a Namibian port. This is another unique feature of the management system, and one that ensures comprehensive monitoring of catches.

Vessel reporting: all vessels are required to supply EEZ exit and entry reports, as well as daily catch and effort reports via radio and in the form of vessel log-sheets.

Vessel monitoring system: Namibia is well advanced in implementing a national satellite-based vessel monitoring system (VMS). Once fully operational the system will benefit fisheries management in real-time monitoring of vessel movement and activities. The system that has been chosen is already in use in the United Kingdom, Germany, United States, Morocco, and, closer to home, South Africa and Mozambique. Namibia is fully supportive of collaborating in the development of a cost-effective, regional VMS.

6.3.3 Catch declaration

Namibia as a member of ICCAT strives to fully implement all ICCAT conservation measures in force. Foreign vessels which entered Namibian ports are thoroughly inspected to ensure they have not contravened national laws and regulations, as well as conservation and management measures were in place in 2010 to ensure that all products coming from license tuna fishing vessels, when entering or leaving the country, are accompanied by a dully completed and validated statistical document.

Namibia collects statistical data from its tuna fishing fleet, through information gathered from the logsheets applied to fishing vessels, as well as from that are filled in Fishery observers

6.3.4 National Action Plan to curb down IUU fishing

In 2007, the GRN published a Namibia's National Plan of Action against IUU fishing (NPO-IUU). Currently the country exercises its rights as a coastal State and signatory to the 1982 Law of the Sea in regard to conservation and management of the living marine resources under its jurisdiction. Existing policy, legislation and management measures have been effective in reducing IUU fishing within the Namibia EEZ to a low level. Namibia will ensure that:

- MCS and enforcement activities continue to ensure compliance with national laws and license conditions by all vessels that are authorized to fish in Namibia's EEZ;
- No vessel fishes in Namibia waters (or outside, in the case of Namibia flag vessels) without a valid authorization (license);
- Only vessels that are duly recorded on a vessel register are authorized to fish;
- Transshipment occurs only in Namibia ports, as authorized by MFMR;
- No vessel with a history of IUU fishing is given an authorization to fish, or is able to become registered to fly the Namibia flag.

In implementing the NPOA-IUU, Namibia will cooperate with its neighboring coastal States, especially those in which Namibian vessels are fishing or those who have vessels operating under charter arrangements in Namibia waters, with a view to exchanging data and cooperating in enforcement of IUU fishing. Cooperation will be carried out bilaterally and through the RFMOs of which Namibia is a member. In addition, information will be sought from ICCAT, CCAMLR, SEAFO, FAO and other sources as appropriate as to the vessels that may be fishing in Namibia's EEZ.

6.3.5 Community Action Plan for shark management and conservation

Namibia is not member of the Convention of Migratory Species (CMS). Many shark species and populations straddle boundaries between adjacent EEZs and others are migratory and move among EEZs of different countries and between the high seas and waters under coastal State jurisdiction. As a result no part of any straddling or migratory stock can benefit fully from any regulations introduced within the waters of a single country. Conservation and management of these species will only be effective if introduced by region, or entire ocean basin, therefore coordinated international and regional initiatives are essential for their effective conservation and management. This conservation can be done under the NACOMA project. Box 3 is on FAO IPOA for sharks.

Box 3 : FAO International Plan of Action for Sharks

Widespread concern over the lack of management of shark fisheries and declining shark populations led to the adoption and endorsement of the UN FAO International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks) in 1999. This is aimed at ensuring the conservation and management of sharks and their long-term sustainable use, with particular emphasis on improving species-specific catch and landings data collection, and the monitoring and management of shark fisheries. The IPOA–Sharks recommends, inter alia, that all States contributing to fishing mortality on an elasmobranch species or stock should participate in its management, and should develop a National Shark Plan by 2001. Progress in most States remains disappointing; with approximately 10% of shark fishing States having prepared National Plans of Action under the IPOA-Sharks by end 2004.

6.3.6 Sanitary regulation applied to fish and fishery exports to EU

The Ministry of Trade (MIT) is responsible for the export policy of fish and fishery products. In the past, the MIT had appointed the South African Bureau of Standards (SABS) as the technical body responsible for the execution of almost all technical duties to guarantee the compliance with the European Council Directive 91/493/EEC and related legislation, such as initial inspections for approval of processing establishments and vessels, the sampling and testing and the issuance of health certificates. Today, this fish inspection is implemented by the fish inspectors from the NSI which validates the HACCP plans and the algae surveillance plan. This is based on the Namibian sanitary legislation which determines the sampling plans for seafood. Samples of products are sent to the NSI QC laboratory which is well equipped and has good technicians. The NSI still has link with the SABS.

The country Competent Authority is recognized by the FVO of the EU, therefore the country can, without restrictions sent products to the EU market.

6.4 Fishing agreements

In Namibian fisheries the quota system is adopted where fishing right are given to Namibian or companies where Namibian has at 50% of the shares. Fishing agreements usually signed between EU and third parties is not common in Namibia.

7 Main constraints and opportunities to the fisheries development

7.1 Institutional constraints

The MFMR laws and regulations have yet to be harmonized with SADC Directives. The Ministry does not have a legal and international cooperation directorate; this is currently done by the DPP&E which is overloaded with work. This department is also in charge of value addition thus, reducing the efficiency of the staff. The carrier promotion is low; this is translated by a high turnover of the personnel. When staffs are sent for training/capacity building and once skilled, they just resign and go for another job.

Inadequate capacity in both the public and private sectors has been identified as one of the main bottlenecks for sustainable development in Namibia. The shortage of suitably-trained entrepreneurs in either vocational or business disciplines is a major disadvantage of the small business sector in Namibia. For the MFMR there is a need for aquaculture, legal and cooperation officers.

7.2 Sanitary constraints

The Competent Authority does not carry out inspections on board vessels but only at landing sites, and in approved establishments. The NSI has no mandate to check imported products; the ministry of health does this. This may lead to confusions. Despite the existence of a Model Shellfish Sanitation Monitoring Program, the implementation is low.

7.3 Monitoring constraints

The cost of MCS is calculated and found to be at an acceptable level (around 42% of the income to Government), but concern is raised over the future cost implications with two new patrol vessels and possibly a new plane and helicopter on the horizon, at the same time as withdrawal of substantial donor support.

Careful planning and streamlining will be required if the MCS organization is to continue to develop a successful and sustainable operation; options for this are identified.

7.4 Environmental constraints

Fish stocks are subject to pronounced natural fluctuations due the general instability of the oceanographic and biological environment. Some fish stocks can even break down completely for a period of time and changes in species composition can occur. Clearly, such variations have **severe consequences for the fisheries sector and are an enormous challenge for fisheries management**. More studies are needed on the fisheries stocks.

Namibia has no important natural freshwater bodies and perennial rivers are found only in the southern and northern border areas and provide over 1 million hectares of floodplain wetland with fisheries potential. Freshwater aquaculture is therefore a challenge

7.5 Business climate constraints

The fisheries associations though they exist, are not functioning efficiently; lack of expertise in strategic investments towards diversification of economic activities. Also

the fishing fleet composed of vessels obsolescent (an average of 25 years in age increase), vessel operation and maintenance costs is high.

There is a lack of investment incentives for the fishing sector which is not enjoying the manufacturing status. Also, lack of access to finance at realistic rates hampers the growth of fishing, aquaculture and processing. Entrepreneurs looking for capital to venture in aquaculture operations are facing difficulties because both local and international financial institutions are reluctant to provide startup capital.

The cold storage capacity is merely 10,000 tonnes, limiting the opportunities for landing more frozen products (e.g. Horse mackerel) and sardines imports from Morocco/Mauritania to increase raw material supply of pilchards canning factories. The port is boxed in within the town of Walvis Bay, it is not possible to extend along the shoreline and cargo-handling volumes are growing. The Port has reached its maximum capacity. There is no market diversification, the outlets for Namibian products are found in South Africa, DR Congo and in the EU.

The high costs of the overheads (electricity, water) as well as operating and maintenance costs of the factories/vessels and the low value added production and lack of absence of value chain analysis are hindering the competitiveness of the Namibian products in the international markets.

The social aspects, workers coming from the North have jobs for only three months, especially in canning factories

7.6 Environmental opportunities

Namibia is a middle-income country whose considerable successes rest on a strong multiparty parliamentary democracy that delivers sound economic management, good governance, basic civic freedoms, and respect for human rights. These conditions are favorable for **long- term investments**.

The National Development Plans are poverty focused containing macroeconomic and structural benchmarks consistent with the country's Poverty Reduction Strategy (PRS) – National Poverty Reduction Action Program (NPRAP) which was formulated in 1998. The PRS focuses on increasing agricultural production and productivity; promoting community based tourism; **promoting the development of small and medium scale enterprises**; strengthening social safety nets; and **labor intensive public works**.

Namibia has rich fishing grounds based on the Benguela Current System, one of the four eastern boundary up-welling systems in the world (the others are off North – West Africa, off-California and off- Peru). These systems support rich stocks of demersal and small pelagic species. The management system in place is efficient, the Namibian waters are not polluted and resources are healthy **fisheries regulated through TACs**.

The MFMR has a regulatory framework basis for a sustainable management of the fisheries sector including: marine fisheries, freshwater fisheries and aquaculture both marine and inland. UNCLOS, CCRF and IPOA to combat IUU fishing are incorporated into laws. Concerning the management aspects, the MFMR, which is advised by the Marine Resources Advisory Council (MRAC), has two Research vessels (R/V), the Welwitchia and (Walvis Bay) and the R/V Anichab (Luderitz). The third R/V Mirabilis had been received and inaugurated on July 31st, 2012. The research centers (NatMIRC, Hardap); NAMFI and the sub- regional program BCC

(through the SADC management policy), are useful institutions contributing to best understanding of the fisheries sector and training/capacity building in the fishery sector. The Monitoring, control and Surveillance System is efficient. The waters are controlled by a patrol vessel and by an aircraft, the marine supplement these operations. The inspectors are disseminated along the coast and observers are embarked on board fishing vessels which are equipped with VMS systems.

The Public- Private dialogues are strong. The private sector grouped under the umbrella of the Federation of fishing is working closely with the MFMR in implementing a responsible fishery. Further, the MFMR assists aquaculture farm to implement GPA.

The MFMR cooperate with MIT for the export health certificate delivery and also the Enterprise status of the fish plants. Also MFMR collaborate with the MET on the Coast Conservation and Management and the Environmental Impact Assessment (EIA) studies. The Namibian Standards Institution is accredited ISO 17025 by SANAS (SA) and some plants have been already certified ISO 22000. Namport has an expansion plan to better serve vessels (fishing vessels, reefers, cargos). The products (live, fresh, frozen and canned) oriented to the export market are of high quality even in the regional markets (DRC, Zambia, Zimbabwe, South Africa).

7.7 Opportunities linked to MPAs creation

The Benefits of MPA include: Conservation of the biodiversity and Ecosystems; Maintenance of genetic diversity; Protection of rare or threatened Species and communities; Contributions to technology and Scientific knowledge; Conservation of scientific reference sites; Conservation of cultural heritage; Educational opportunities and Contribution to sustainable tourism.

8 Conclusions and recommendations

8.1 Conclusion

Fishery stocks in Namibia are subject to pronounced natural fluctuations due to the general instability of the oceanographic, biological environment and climate change. Some fish stocks can even break down completely for a period of time and changes in species composition can occur. Clearly, such variations have severe consequences for the fisheries sector and are an enormous challenge for fisheries management. With the exception of the Hake resource showing a relative abundance estimated around 1 million tons, the fish commercial species showed a decline of the biomass in 2010. More studies are needed on the fisheries stocks. Namibia has no important natural freshwater bodies and perennial rivers are found only in the southern and northern border areas and provide over 1 million hectares of floodplain wetland with fisheries potential. Freshwater aquaculture is therefore a challenge.

The MFMR adopted an appropriate framework of regulatory texts (Marine Act, Inland fisheries Act and Aquaculture Act) complying with world requirements and therefore set conditions to responsibly manage living aquatic resources to continuously ensure a sound environment for the fisheries and aquaculture sector to prosper. Fisheries management is based on quotas allocations to right holders and nontransferable and the MCS system is today widely regarded by the international community as a very effective system. The cost of MCS is calculated and found to be at an acceptable level (around 42% of the income to Government),

The country still struggles against the inadequate capacity in both the public and private sectors which are the main bottlenecks for sustainable development. The shortage of suitably-trained entrepreneurs in either vocational or business disciplines is a major disadvantage of the small business sector in Namibia. The lack of access to finance at realistic rates hampers the growth of fishing, aquaculture and processing. Entrepreneurs looking for capital to venture in aquaculture operations are facing difficulties because both local and international financial institutions are reluctant to provide startup capital. The inadequate cold storage capacity, merely 10,000 tonnes, limits the opportunities for landing more frozen products (e.g. Horse mackerel) and sardines imports from Morocco/Mauritania to increase raw material supply of pilchard canning factories.

Market and product diversifications are weak, main outlets are found in South Africa, DR Congo and in the EU. The high costs of the overheads (electricity, water) as well as operating and maintenance costs of the factories/vessels (old age of vessels) and the low value added production and lack of absence of value chain analysis are hindering the competitiveness of the Namibian products in the international markets.

Despite the above difficulties, Namibia is a middle-income country whose considerable successes rest on a strong multiparty parliamentary democracy that delivers sound economic management, good governance, basic civic freedoms, and respect for human rights. These conditions are favorable for long-term investments.

8.2 Recommendations

8.2.1 National Recommendations

The main recommendations at the national level are :

- Assist the MFMR to revise its Organogram which will include a Legal and cooperation Department which will be directed to follow up the country's commitment to regional and International instruments, conventions and agreements on sustainable fisheries management, adjusting fishing to climate change; ecolabelling; creation of Marine protected Areas; management of shared stocks and gender mainstreaming
- Partners in development could work together in building capacity on matters relating to business plan development, value chain analysis; creation of value added for both public and private sectors;
- Assist the country's private in examining opportunities for funding of a strategic investment plan for the Modernization of the Fish Industry including soft loans for the renewal of fishing fleet, credit for fresh/freezing plants and canning factories to renew equipment and increasing cold-room capacities in Walvis Bay;
- Assist the small pelagic canning industry of Namibia in their search in of raw material from the region in matching Namibian canning factory managers and frozen small pelagic exporters from Mauritania and Morocco.

In that context, ATLAFCO could :

- Assist Namibia in revising its organigram
- Cooperate with the other Partners in development in the capacity building on matters relating to business plan development, value chain analysis; creation of value added for both public and private sectors;
- Assist the country's private in examining opportunities for funding of a strategic investment plan for the Modernization of the Fish Industry including soft loans for the renewal of fishing fleet, credit for fresh/freezing plants and canning factories to renew equipment and increasing cold-room capacities in Walvis Bay;

8.2.2 Regional Recommendations

The main recommendations at the regional level are :

- Propose to MFMR a comprehensive feasibility study on the cost of utilization of the R/V Marabilis to carry out stock assessment activities in the ATLAFCO region
- Partners in Development could spearhead the funding of activities on the modernization of fisheries and aquaculture laws and regional research activities though RAFISMER in the region
- Organize with the fish industry in Namibia of buyers and sellers meeting in Namibia to match importers and exporters of fish and fishery products.
- Cooperation of Partners in development in setting of in Namibia an Regional SADC observatory agency for fish trade and marketing

In that context, ATLAFCO could :

- Cooperate with NEPAD in assessing the feasibility of a Fish and Aquaculture Marketing Organization for the SADC region
- Assist in facilitating cooperation between Mauritanian and Moroccan industry and Namibia private sector in the areas of small pelagic supply for the Namibian canning industry in matching exporters from Mauritania and Morocco

8.2.3 [International Recommendations](#)

The main recommendations at the international level are :

- Promoting the fight against IUU fighting; development of MPAs; gender mainstreaming; promotion of the right based and quotas system approach; international cooperation on fisheries research;
- ATLAFCO could promote an African voice at FAO Committee on Fisheries; Partnership for African Fisheries (PAF) using the experience of Morocco and Namibia.
- Cooperation could be promoted with different countries in mariculture development using the experience of Namibia.

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