EVALUATION OF THE LAWS, POLICIES AND GOVERNANCE STRUCTURE OF THE NIGERIAN FISHERIES

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DISCLAIMER

Abstract

The steady increase of countries signing International agreements, conventions and treaties signifies rising political recognition of the establishment of good governance structures.

This study evaluates the laws, policies and governance structure of the Nigeria Fisheries with a view to determining its effectiveness.

The study was conducted using desk review of literature on international standards and regulations in relation to responsible fisheries management and governance in general. Global and regional development in fisheries governance such as United Nations Law of the Sea (UNCLOS), Food and Agriculture Organization (FAO), FAO's Code of Conduct for Responsible Fisheries, FAO Compliance Agreement, The Abidjan Convention and Agenda 21 were explored by critically investigating the forms and processes of governance and planning in the fisheries sector. Various approaches to fisheries managements that evolved and have been adopted over the years by international agreements were also examined. These fisheries management approaches include the Integrated Coastal Zone Management; Ecosystem Based Management; Participatory Management; Precautionary Approach; Adaptive Management; and Sustainable Livelihood Approach. Fisheries governance in Nigeria and its implication on sustainable fisheries management was examined. The study further examined fisheries governance in a developed economy using Canada as a case study and lessons worthy of consideration were highlighted.

Examination of this structure revealed that the Nigeria has since been making more efforts to comply with international agreements and standards fisheries management plan. This is

Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks on the 2 November, 2009.

Evaluation of the content of the fisheries management plan, revealed current status of the Nigerian fishery sector, established user rights; th

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MPAs	Marine Protected Areas
MSY	Maximum Sustainable Yield
NAS	North Atlantic Subtropical
NEC	North Equatorial Current
NEC	North Equatorial Cyclonic
NEEDS	National Economic and Empowerment Development Strategy
NGO	Non-Governmental Organization
NIFFR	National Institute for Freshwater Fisheries Research
NIOMR	Nigerian Institute of Ocean and Marine Research
NPC	National Planning commission
OAU	Organization of African Unity
SEC	South Equatorial Current
SEC	South Equatorial Cyclonic
TACs	Total Allowable Catches
UN	United Nations
UNCED	United Nations Conference on Environmental and Development
UNCLOS III	Third United Nations Conference on the Law of the Sea
UNECA	United Nations Economic Commission for Africa
USD	US Dollar

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PART I

Chapter 1

1.1 Introduction

Nigeria is located in West Africa and East Central Atlantic the bordering the Gulf of Guinea between Benin and Cameroon. It is a coastal state with a coastline of 853km and a 200 nautical miles Exclusive Economic Zone (EEZ), in which it has exclusive rights to the fish and other natural resources.

The brackish and coastal waters of Nigeria support harvests at the artisanal level fishing. Activities occur in creeks, estuaries and the inshore areas with fishermen operating in waters of less than 40 m depth, while the industrial sector operates outside the 5 nautical miles.

Nigeria has a total land area of 923,768 sq. km. and 13,000 sq. km. of inland water bodies. Generally, the climate varies from South to the North ranging from equatorial in the South, tropical in the centre and arid in the North.

In addition to the marine and brackish water resources, Nigeria has massive freshwater systems, including lakes, rivers, reservoirs, dams and floodplains which support extensive artisanal fisheries. The River Niger which rises in Sierra Leone and has a total length of 4,184 kilometers, flows through West Africa, enters Nigeria in the northwest and runs southwards to join the River Benue a loo 5h100098-0.498047(s)2.4739( )-15900098()-0.20G0.899658.400391(g)-0.393?(B)-0.658.400391(]

History of fisheries development dates back to 1914. Nigeria is Africa's largest and most complex country, the population of the country is more than 140 million from over 250 tribes[1].

In recent years, there is more global awareness on the scarcity of fisheries resources; hence better fisheries management instruments have become crucial.

The adoption in 1982 of the United Nations Convention on the Law of the Sea (UNCLOS)[2] provided a new framework for the better management of marine resources. Knowledge and understanding of the FAO Code of Conduct for Responsible Fisheries are fundamental for effective conservation, management and development of living aquatic resources, with due respect to ecosystem and biodiversity.

Nigeria is signatory to many international agreements, conventions and treaties. In particular, Nigeria signed UNCLOS and was ratified on the 14 August 1986; she also ratified the agreement relating to the implementation of Part XI of the Convention on the 28 July, 1995[3]. Nigeria also signed and ratified the Agreement for the Implementation of the Provisions of the Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory[4] Fish Stocks on the 2 November, 2009. There is also the Abidjan Convention adopted in 1981[5]. The Convention expresses the decision of the West and Central African (WACAF)[6] Region to deal individually and jointly with common marine and coastal environmental problems. The Abidjan Convention also provides an important framework through which national policy

[1] National Population Commission, 2006

[2] United Nations Convention on the Law of the Sea of 10 " ! Nations Convention on the Law of the "

health by the year 2015 (including the coastal ecosystems that support these fisheries)[7]. Some of the specific actions that participating governments, including the countries of the GCLME region, agreed to undertake are:

- Maintaining or restoring fish stocks to levels that can produce the maximum sustainable yield by 2015;
- Assisting developing countries in coordinating policies and programs aimed at the conservation and sustainable management of fishery resources;
- Strengthening donor coordination and partnerships between international financial institutions, bilateral agencies and other relevant stakeholders to enable developing countries to develop their capacity for sustainable use of fisheries;
- Establishing representative networks of marine protected areas, consistent with international law and based on scientific information; and
- Developing national, regional and international programs for halting the loss of marine biodiversity, particularly in coral reefs and wetlands.

1.2 Scope and Objectives

Availability of good governance is an effective and efficient process to develop policies that set the strategic directions for the fishery industries

Chapter 2

2.1 The Gulf of Guinea

The Gulf of Guinea (figure 1) is the part of the Ea

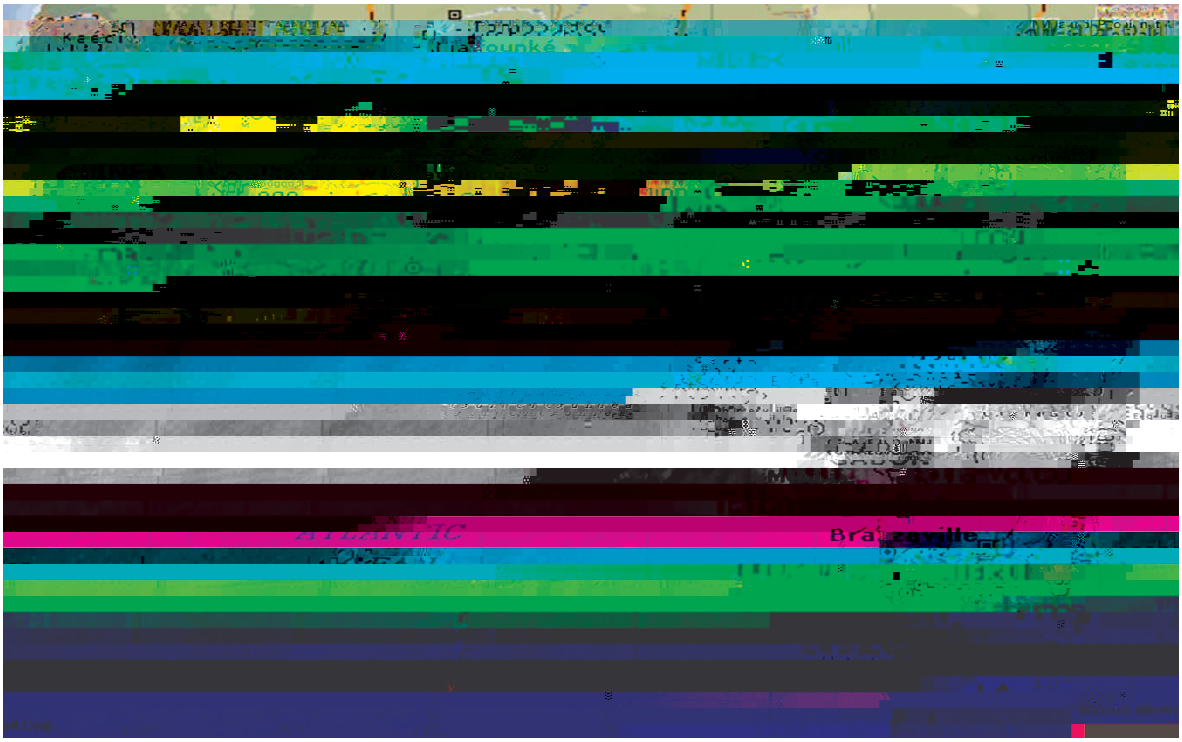

Figure 1: The Gulf of Guinea

Figure 2 : Large Marine Ecosystems of the world and Linked Watersheds[12]

[12] Ibid 9

The Gulf of Guinea's coastline forms part of the Western edge of the African tectonic plate and is said to correspond remarkably to the continental margin of South America which runs from Brazil to the Guianas. The coincidence between the geology and the geomorphology of these two

creeks of which connect the estuary to large lagoons eastwards of it[14]. Sediments flow into the gulf from rivers and coastal erosion transporting great quantities of deposits. The Niger River in particular deposited organic sediments out to sea over millions of years which became crude oil.

The northern subsystem of this area (GCLME) is thermally unstable and is characterized by intensive seasonal upwelling while the southern half, which is generally thermally stable, depends on nutrients input originating from land drainage and river flood and turbulent diffusion, although periodic upwelling have been reported. Two upwelling seasons, major and minor, occur annually with differing duration and intensities of Ghana and Cote d'Ivoire in the central part of the LME[15]. These characteristics combine to make the Gulf of Guinea one of the world's productive marine areas that is rich in fishery resources, oil and gas reserves, precious minerals, and an important global reservoir of marine biological diversity

Kelvin waves[21]

Figure 3: Surveys for Fish and Fisheries stock indicators for the 16-country Guinea Current LME project[25]

25

Chapter 3

3.1 Nigeria- Geographic Context

Nigeria is a country in West Africa. Nigeria shares land borders with the Republic of Benin in the West, Chad and Cameroon in the East, and Niger in the North. Its coast lies on the Gulf of Guinea in the South and in the Northeast it borders Lake Chad (figure 4). The total area of Nigeria is 923,768 km²; Land makes up 910,768 km², while water takes up 13,000 km². Nigeria's total boundaries are 4,047 km in length. The countries it borders with account for most of this. The border with Benin is 773 km, boarder with Cameroon is 1,690 km, Chad's is 87 km, and Niger's is 1,497 km and coastline is 853 km.[26]

Nigeria's surface consists mostly of ancient crystalline rocks of the African Shield. Having been subject to weathering and erosion for long periods, the characteristic landscape of this area is extensive level plains interrupted by occasional granite mountains. These features form a major landscape type of Nigeria and of West Africa as a whole. There are also smaller areas of younger granites found in areas like the Jos Plateau.

Sedimentary strata dating from various periods overlay the older rocks in many areas. The sedimentary areas typically consist of flat-topped ridges and dissected plateaus and a

3.2 Nigeria's Coastal Zone

plain behind with a few swamp systems. The swamp is in direct contact with the sea at the Cross River estuary and the Rio-del Rey estuary. The swamp systems are backed by older sediments. Two major breaks occur on the Strand coast at the Kwa Iboe River and Cross River entrances. There is a well-developed delta at the entrance to the Kwa Ibo river, while the Cross River entrance represents a typical estuarine complex

3.24 The Niger Delta

The Niger Delta is a major geomorphic feature in the Nigerian coastal zone. It stretches from the Benin River estuary for about 450 km eastward and terminates at the mouth of the Imo River estuary. A total of 21 estuaries open and discharge into the sea through the Delta. The Niger Delta consists of many distinct ecological zones such as fresh water swamp, mangroves, creeks, estuaries and barrier islands. The Niger Delta has been classified into four major ecological zones namely[30]; The barrier island complexes, the vegetated tidal flats, the lower flood plain and the upper flood plain.

3.3 Hydrology

The Nigerian Coastal Area has three main hydrological areas[31]:

3.31Western Litto

3.32 Niger Delta Hydrological Area

This hydrological area comprises the rivers of the arcuate Niger Delta. The zone consists of a dense network of rivers and creeks. The major rivers include: Ramos, Dodo, Pennington, Sengana, Nun, Brass, Santa Barbara and Sombrero. Most of these rivers are short coastal rivers and are distributaries to the Niger River. They originate within the coastal plain sands of the Benin Formation. The waters are transparent and acidic.

3.33 Eastern Littoral Hydrological Area

This zone includes the rivers on the eastern Delta flank and the Strand coast. These are: Bonny, Andoni, Imo, Kwa Iboe and Cross Rivers. The Imo and Cross rivers are large river(r)-(r)

of the equator which can intensify the Guinea current and cause a shoaling of the thermocline near the northwestern coast of the Gulf of Guinea. However, Favorable conditions thus exist, for the creation of upwelling along the coast where local winds drive an offshore Ekman drift.

Researchers[35]

By April or early May in most years, the rainy season is under way throughout most of the area south of the Niger and Benue river valleys. From September through November, the northeast trade winds generally bring a season of clear skies, moderate temperatures, and lower humidity for most of the country. From December through February, however, the northeast trade winds blow strongly and often bring with them a load of fine dust from the Sahara. These dust-laden winds, known locally as the harmattan, often appear as a dense fog and cover everything with a layer of fine particles. The harmattan is more common in the north but affects the entire country except for a narrow strip along the southwest coast. An occasional strong harmattan, however, can sweep as far south as Lagos, providing relief from high humidity and pushing clouds of dust out to sea.

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highs during the wet season. Average highs and lows for Lagos are 31° C and 23° C in January and 28° C and 23° C in June. Although average temperatures vary little from coastal to inland areas, inland areas, especially in the northeast, have greater extremes. There, temperatures reach as high as 44° C before the onset of the rains or d

As the full potential of wild fisheries resources has been achieved – and often 'lost' through overfishing – the main objective and emphasis in capture fisheries development strategies has changed from increasing harvest (the main objective for three quarters of the last century) to establishing a more sustainable and optimal use of the available fisheries resources[38]. The same path has been followed by aquaculture where development from the 1950s to the 1990s emphasized technology development, intensification, and larger harvests. Concern for environmental management and sustainability appeared essentially during the 1990s.

Harmonizing development and management objectives and plans is a precondition to improve the implementation of both. Limiting growth (e.g. in fishing capacity) and promoting cross sectoral compatibility, taking a precautionary and ecosystem approach, represent key requirements for both capture fisheries and aquaculture.

Nigeria is a coastal State with huge fishery resources both in marine and inland waters. Records have shown that the history of fisheries development dates back to 1914 when a fisheries development branch headed by a senior agricultural officer was established in the agriculture department of the colonial office[39]. It was charged with the responsibility of conducting a survey of the industry with a view to determining the potentials. Early in 1945, this fisheries branch was temporarily transferred to the development branch of the secretariat and for the first time, a fisheries development officer was appointed. Following this five year development for fisheries

After gaining independence in 1960, Nigeria embarked on a number of fisheries development plans within the context of normally 5 year development plans, 1962-1968, 1970-1974, 1975-1980 and 1981-1985. The five year rolling plans we

the supporting services in the two plan periods were geared towards achieving a measure of self-sufficiency in fisheries production in terms of food materials for the growing population and raw materials for the growing industrial sector.

The periods 1975 to 1985 witnessed a much greater in

- Inshore Fishing Project (IFP) 1980 – 1985. Procurement and introduction of 45 nos 13m medium size trawlers to bridge the gap between the artisanal canoe fishery and the sophisticated industrial fisheries operators. This policy encouraged Nigerians to own and operate trawlers.

- Pilot Fish Farms Project (PFFP) 1982 – 90. Establishment of pilot fish farms in strategic locations in the country to serve as demonstration and training centres, for rapid aquaculture development. Many private fish farmers were trained at these centres.

- Artisanal Inshore Fisheries Development Project (AIFDP) 1980–87. Fishing communities were empowered through the provision of boats and engine repair facilities, educational and social infrastructures. This intervention created employment opportunities for gear, craft repair, and reduced post-harvest losses.

seines and traps. The artisanal fishery is very im

some 11 million people through subsistence fishing, whose numbers peak in the flood seasons from June to October, and through related activities such as net manufacturing, processing, marketing, seed collection and distribution, and other ancillary activities.

3.9 Structure of the Nigerian Fisheries Sector

The coastal fisheries can be classified into two sectors namely; Artisanal Fisheries and Industrial fisheries.

The industrial sector is characterized by high capital outlay on vessels, net and cold storage, effective and efficient market distribution network, advanced technology application requiring the employment of highly trained manpower, high maintenance and operational costs, foreign exchange outflow and generation, local and foreign market oriented[46]. The foreign exchange generation is its major attribute. This suggests a reason for the attraction by industrialists for investment in industrial trawl fisheries more readily than artisanal fisheries.

The rich fishery resources of the region are both locally important resident stocks supporting artisanal fisheries, and transboundary straddling and migratory stocks that have attracted large commercial offshore foreign fishing fleets from the European Union, Eastern Europe, Korea and Japan.

[46] Ibid.45

jurisdictional, space and time scales; define the conditions for allocation of power, resources and benefits; interact with other governance systems; and maintain the capacity to learn and change[49].

4.3 Features of effective management

for resolving conflict between States. The Food and Agriculture Organization (FAO) is the UN specialized Agency with a global mandate for fisheries policy through its Committee on Fisheries (COFI).

4.5 *International Fisheries Agreements of Interest to Nigeria.*

The Federal Republic of Nigeria is a member of the

4.5.1.1 The

organizations have also adopted the principles and goals of sustainable development, including the European Union and the United Nations Economic Commissions in each region. Indeed, over

and sustainability as well as improving human health, human settlements, and

sustainable development of coastal areas, including exclusive economic zones; (b) Marine environmental protection; (c) Sustainable use and conservation of marine living resources of the high seas; (d) Sustainable use and conservation of marine living resources under national jurisdiction; (e) Addressing critical uncertainties for the management of the marine environment and climate change; (f) Strengthening international, including regional, co-operation and co-ordination; and (g) Sustainable development of small islands. Chapter 18, Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources, is alo important because inland water resources condition the quantity and quality of the aquatic life and resources which provide the basis for fisheries. Finally, Chapters 19 to 21, dealing respectively with toxic chemicals, hazardous wastes, solid wastes, and radioactive wastes, and their management, are relevant in view of the serious impacts from various land-based activities on aquatic habitat, resources, and fisheries. While the aspects of importance to inland fisheries and aquaculture are spread in most chapters of section II, practically the aspects relevant for marine fisheries are all contained in Chapter 17.

Section III: Strengthening the role of major groups contains important guidance when considering the improvement of governance needed for an effective transition to more sustainable fisheries, particularly in the chapters concerning women, indigenous people, NGOs, local authorities, trade unions, industry, and the scientific community.

Section IV: Means of implementation addresses one of the major issues of Agenda 21 including financial resources, technology transfer, science for sustainable development, education, public awareness and training, capacity building in developing countries,.3002ep7754(.3002ep76.0.908200.0976563(n)-0.100)-0u02ep76.0rna
.4008(e)-1.09863(n)-0.100098(t)-0.397949(i)0.397715(e)-0.39,715(e)-274.9991.498047(r)-0.397949(a)-0.40917( )-115(()-6drpi

refer to fisheries in particular they reflect pract

Subsequently, the United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks was convened, to which FAO provided imp

When adopting the Code, the FAO Conference made a broad international call to all those involved in fisheries, including FAO and non-FAO Members, intergovernmental organizations and non-governmental organizations (NGOs), industry and fishers to collaborate in the fulfillment and implementation of the Code's objectives and principles. This call underscored the international nature of the Code and the role envis

- promote the contribution of fisheries to food security and food quality, giving priority to the nutritional needs of local communities;
- promote protection of living aquatic resources and their environments and coastal areas;
- promote the trade of fish and fishery products in conformity with relevant international rules and avoid the use of measures that constitute hidden barriers to such trade;
- promote research on fisheries as well as on associated ecosystems and relevant environmental factors; and
- provide standards of conduct for all persons involved in the fisheries sector.[63]

The Code has 12 articles and two annexes. The substantive articles of the Code are found in articles 6 to 12. These articles, which demonstrate how comprehensive the Code is, address its general principles, fisheries management, fishing operations, aquaculture development, the

4.5.7 Other relevant Fisheries Agreements

Other fisheries initiatives/international agreements that promote long-term sustainable management and utilization of fisheries, and which support Agenda 21, include:

- The 1946 International Whaling Convention: This Convention established the International Whaling Commission (IWC), a system of international regulation for the whale fisheries to ensure proper and effective conservation and development of whale stocks.

- The 1971 Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat: Signed in Ramsar, Iran, this treaty provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources.

- The 1995 Jakarta Mandate of the Convention on Biological Diversity: This Mandate sets out general guidelines for applying the Convention on Biological Diversity (CBD) to economic activities in marine and coastal areas such as mariculture and fisheries. While these guidelines are not binding, they offer common principles for the design of marine protected and conservation areas, for aspects of aquaculture and for the relationship of coast dwellers and resource users with concepts of biodiversity protection and use.

- The1995 Kyoto Declaration and Plan of Action on the Sustainable Contribution of Fisheries to Food Security;

- The 1995 UN Agreement on the Conservation and Management of Straddling and Highly Migratory Stocks: This Agreement calls on coastal states and states fishing on the high seas to pursue co-operation in relation to straddling and highly migratory stocks either directly or through the creation of appropriate sub-regional or regional organisations or arrangements.

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fisheries management and identify future challenges and strategies. The Conference included a Scientific Symposium where world-renowned scientists gave papers analysing the global issues related to the various aspects of ecosystem-based fisheries management. It was attended by national delegations from 60 countries, including all the leading fisheries nations and representatives from 21 intergovernmental organizations and 11 non-governmental organizations. Some over 200 scientists attended the Scientific Symposium. The Conference adopted the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem.

In its consideration of the Reykjavik Declaration the FAO Conference at its Thirty first Session in November 2001 acknowledged the increasing contribution of fisheries to food security and

Matter (London-Dumping Convention)[66], 1972; International Convention for the Prevention of Pollution from Ships, 1973, as modified by the protocol of 1978 (MARPOL 73/78)

4.5.8.1 MARPOL

The Marpol entered into force 2 October 1983, and h

applying to fishermen: five conventions and two recommendations. These instruments cover the issues of minimum age, medical examination, articles

communications and the prevention of collisions. In taking such measures, each State is required to conform to generally accepted international regulations, procedures and practices and to take any steps necessary to secure their observance (Article 94(5))[70].

4.5.9.1 International Convention for the Safety oﬁe

The international conference that adopted SOLAS 1960, however, approved three resolutions related to fishing vessels. The first referred to the application of the SOLAS 1960 stipulations to such vessels, and particularly to reasonable measures regarding rescue equipment on board. The second called upon governments to inform IMO about the degree to which they apply SOLAS to fishing vessels. The third concerned fishing vessel stability and resulted in extensive work carried out by subcommittees, with active participa

Maritime administrations have safety of seafarers as one of their overriding concerns. They usually have difficulty in addressing the safety aspects of the fishing industry adequately because the nature of fishing operations is so different from the cargo handling and transport activities encountered in merchant shipping. Fishing vessels are excluded from the vast majority of provisions of international shipping conventions, and to this day, there are few international

stringent or too lenient for their fishing fleets. It was therefore decided to prepare a Protocol to the Convention. The purpose of the Protocol is to overcome the constraints of the provisions in the parent Convention that have caused difficulties for States, and thereby enable the Protocol to be brought into force as soon as possible. In several chapters, this was achieved by raising the vessel lower size limit from 24m to 45m. The Protocol also calls for the development of

and recommendations. The document applies to the training and certification of both small-scale and industrial maritime fisheries. However, in the case of fishing vessels of less than 24m in

agencies, e.g. those organizing Monitoring, Control and Surveillance (MCS) and Safety at Sea.

- The infrastructure necessary for enforcement of law

4.6.1 New Partnership for African Development (NEPAD)

The New Partnership for Africa's Development (NEPAD) is an economic development program of the African Union[77]. NEPAD aims to provide an overarching vision and policy framework for accelerating economic co-operation and integration among African countries.

The leaders of G8 countries endorsed the plan on July 20, 2001; and other international development partners, including the European Union, China, and Japan also made public statements indicating their support for the program

participating in NEPAD ‘believe in just, honest, transparent, accountable and participatory government and probity in public life’. Accordingly

Bouteflika (Algeria) and Wade (Senegal) as deputy chairmen. The HSGIC meets several times a year and reports to the AU Assembly of Heads of State and Government.[78]

There is also a steering committee, comprising 20 AU member States, to oversee projects and program development. The NEPAD Secretariat is based in Midrand, South Africa.

The NEPAD Secretariat is not responsible for the implementation of development programs itself, but works with the African Regional Economic Communities, the building blocks of the African Union. The role of the NEPAD Secretariat is one of coordination and resource mobilisation.

Many individual African States have also established national NEPAD structures responsible for liaison with the continental initiatives on economic reform[79] and development programs

The eight priority areas of NEPAD are: political, economic and corporate governance; agriculture; infrastructure; education; health; sci

- Science and research: concerned with producing scientific advice that meets decision-makers' needs (such as integrating fisheries and environmental information), the need for continuing, accurate and comprehensive stock assessments, and assessments of associated species and ecosystems at national and regional levels.

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Figure 5: Regional Fisheries bodies of the world.

Figure 6: FAO Fishing Area 34[84]

[84] FAO;-http://www.fao.org/fishery/area/Area34/en 14/08/11

Chapter 5

5.1 Approaches to Fisheries Management

Over the years various approaches have been proposed and adapted toward achieving global sustainable fisheries systems. In this section, I tried to evaluate these different approaches with

The concept behind the idea of ICZM is sustainability. For ICZM to succeed, it must be sustainable. Sustainability entails a continuous process of decision making, so there is never an end-state just a readjustment of the equilibrium between development and the protection of the environment. The four commonly identified goals of ICZM are:

- Maintaining the functional integrity of the coastal resource systems;
- Reducing resource-use conflicts;
- Maintaining the health of the environment;
- Facilitating the progress of multi-sectoral development.

Integrated coastal zone management can thus be described as a process to identify, assess and compare all coastal resource values as a basis for making decisions on coastal resource use allocation[85]. Integrated coastal zone management includes:

- considering land and water capabilities for sustained use;
- considering social, economic and environmental values, needs and objectives;
- assigning resource use and management emphasis based on the relative merits of various coastal resource uses;
- piecing together a picture of coastal resource priorities for large areas; and
- selecting the best uses for the present, and scheduling coastal resource use changes over time.

[85] Michael Parkes J.G., and Manning, E.W., 1998;AN HISTORICAL PERSPECTIVE ON COASTAL ZONE MANAGEMENT IN Canada in OCEANS CONSERVATION REPORT SERIES. 33p. http://www.dfo-mpo.gc.ca/Library/253981.pdf

for Responsible Fisheries. In 2001, the political commitment formally materialized at the Reykjavik conference, 57 participating countries issued the Declaration on Responsible Fisheries in the Marine Ecosystem which included a declaration of their intention to work on incorporating

variability, uncertainty and likely natural changes in the ecosystem, the capacity of the aquatic ecosystems to produce fish food, revenues, employment and, more generally, other essential services and livelihood, is maintained indefinitely for the benefit of the present and future generations. Based on experience gained during 50 years of fisheries management, on the set of principles and points of operational guidance for ecosystem management recommended by the FAO Code of Conduct for Responsible Fisheries, the 5th Conference of the CBD, the 2001 Reykjavik Declaration, the FAO Technical Guidelines on EAF and on other instruments dealing with the subject, the following elements emerge as the foundations and components of an ecosystem management approach to fisheries and aquaculture:

- Recognize that management objectives are a matter of societal choice.
- Decentralize decision and action to the lowest appropriate level, while recognizing that there must also be mechanisms to ensure that management decisions and actions are consistent and coordinated at the higher levels required by EAF.
- Identify the fishery or fisheries to be addressed in each case and the geographic area to be addressed. This will include matching fisheries management system boundaries with ecosystem boundaries.
- Introduce measures to ensure transparency, public awareness and consensus building.
-

5.4 Precautionary Approach

Management according to the precautionary approach exercises prudent foresight to avoid unacceptable or undesirable situations, taking into account that changes in fisheries systems are only slowly reversible, difficult to control, not well understood, and subject to change in the environment and human values[88].

An important element of the precautionary approach is to establish legal or social management frameworks for all fisheries. At a minimum, such frameworks should establish rules controlling access to fisheries (e.g., all boats must be licensed), data reporting requirements, and processes for planning and implementing more comprehensive fishery management. Plans for management institutionalize prudent foresight that takes into

overdevelopment of harvesting capacity, loss of biodiversity, major physical disturbances of sensitive biotopes, or social or economic dislocations. Undesirable conditions can also arise when a fishery is negatively influenced by other fisheries or other activities and when management fails to take action in the face of shifts in the external conditions affecting, for

Adaptive management is management which consciously and thoughtfully seeks to learn from experience. Adaptive management in fisheries rests on a combination of three elements: the principle of quality assurance, coupled with mathematical modelling (particularly to investigate the effects of errors, uncertainties, and alternative management strategies), together with an intent to seek information from thoughtful management programs.

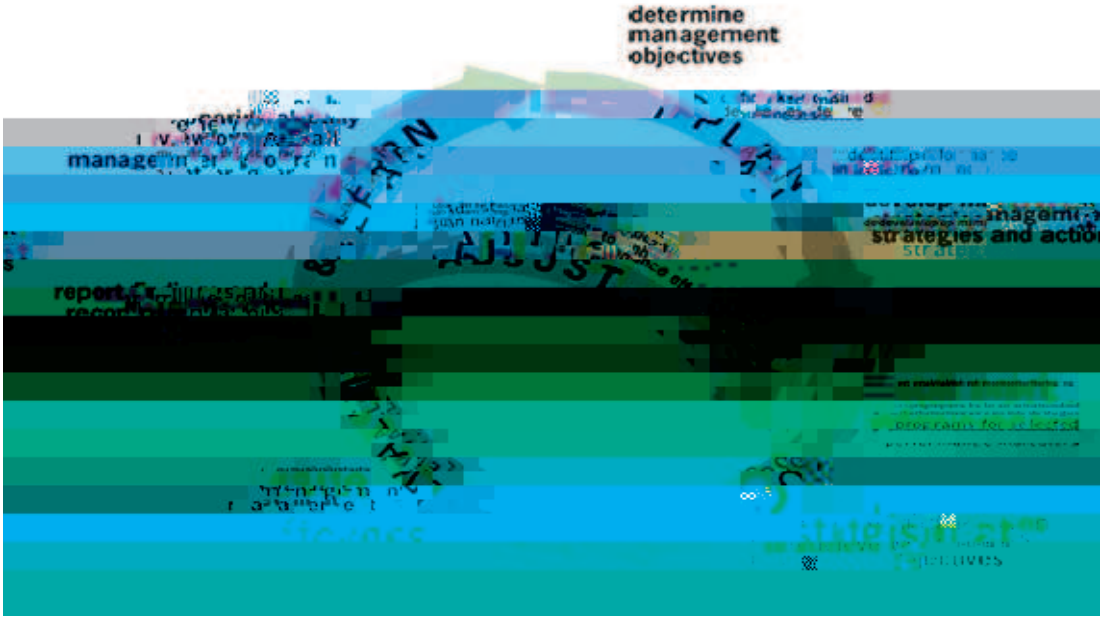

Figure 7:

The key aspects of adaptive management involve 2 options:

- Passive adaptive learning- here parameter estimates are updated as new information become available;
- Active adaptive management- the approach deliberately attempts to accelerate the learning process by probing the fishery experimentally

It has been said that no matter how successful a management system is in lessening the overall sensitivity to uncertainty, some uncertainties will not disappear[90]. It's therefore important to institutionalize processes for;

- Continuous learning about the fishery system, through suitable monitoring and,
-

imbedded in both fisheries managers and the fishermen, and the knowledge held by each must be respected and shared.

5.6 Participatory Approach (Co-management)

The basic concept of co-management recognises that a natural resource can only be managed effectively with the co-operation and participation of the resource users in making laws and engaging in regulation work. Co-management or community based resource management is a

In recent years the need for co-management in fisheries administration has been more widely recognized. Acknowledgement and the desirability for fisheries stakeholder groups to take part in the fisheries management process are evident in Nigeria for example part II section 6 in the draft of the new fisheries act outlines the provision for a National Fisheries Advisory Council, but the fisheries resource-management process has been based on a centralized approach.

The Governments have formulated fisheries-development policy goals to maximize fish production at sustainable levels. These policies have always neglected existent traditional fishing methods, probably because they are regarded as primitive and not able to meet demand for fish. The current situation is that there is no framework or structure for the co-management process in the country's fisheries management plan. No doubt, success in fisheries development and management would depend on the extent to which stakeholders have participated in the design and implementation of policies[95]. Equity in participation is therefore very weak in Nigeria fisheries as many stakeholders are excluded from the various management and development processes. It is in the interest of the resource and of all parties that there is establishment of clear, strong effort to develop co-management protocols that will give local stakeholders and their communities a genuine sense of proprietary interest and participation in setting

Table 2: Fisheries Policy Development Processes and Stakeholder Participation in Nigeria

Stakeholders /Actors	Planning	Design

5.7 Sustainable Livelihood Approach

The Sustainable Livelihoods Approach (SLA) has become prominent in recent development

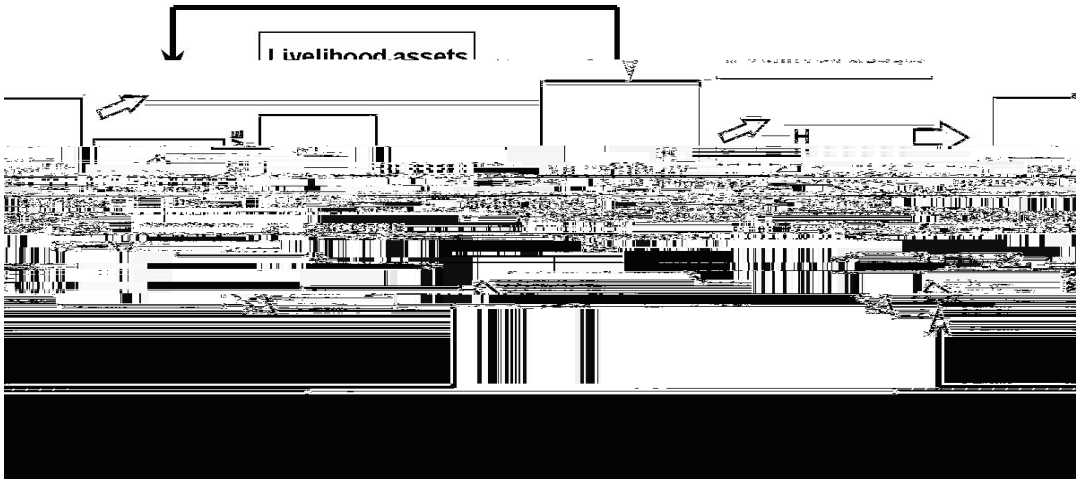

Figure 8: Sustainable management Approach Framework.

Source: Adapted from DFID, 2002[98]

Key: H = Human Capital N=Natural Capital F = Financial Capital S = Social Capital P= Physical Capital

Internal coping capability is determined by assets (land, food stores, savings, and support from kin or community, or government safety net policies

- sustainable: there are four key dimensions to sustainability - economic, institutional, social and environmental sustainability. All are important - a balance must be found between them; and
- dynamic: external support must recognize the dynamic nature of livelihood strategies, respond flexibly to changes in people's situation, and develop longer-term commitments of support.

The Nigeria Fisheries is aiming to be a livelihood centered fisheries management at it aims to achieve the following[100];

-

approach and sustainable livelihood approach. Attempts by Nigerian government to inculcate these approaches were highlighted.

Part II

Chapter 1

1.1 National Fisheries policy

Figure 9:

1.2 Issues and Challenges *of Sustainable fisheries management system in the GCLME Region*

The policy issues on each coast in the GCLME are similar the most important issues are conservation, rationalization of effort, reduction of fleet size, and market stabilization.

A recent study by UNEP on "Combating living resource depletion and coastal area degradation in the Guinea Current LME through ecosystem-based regional actions" characterized the following issues as factors affecting conservation of coastal fisheries resources: population growth, urbanization, habitat degradation, fisheries depletion, public health and sanitation, land use planning and coastal erosion[103]. In addition to these issues, Nigeria has peculiar issues that encompasses civil unrest to Poor political will, which contributes to inconsistent policy

Unplanned human settlements are threat to environment health, as most cities in the Gulf of Guinea region are situated along the coast[104], rapid population growth and urbanization in the region has led to increase in pollution from residential and industrial sources, these affects the waters of the GCLME, resulting in habitat degradation, loss of biological diversity and productivity, and also degenerating human health. Because the major cities, agricultural plantations harbours, airports, industries as well as other parts of the socio-economic infrastructure in the region are also located at o

GCLME is rich in living marine resources especially commercially valuable fish species, both deep sea and coastal. An estimated 1 million metric tons of fish are caught annually, of which a

indigenous Rizopora species are destroyed. This invasive species has a shallower root system

awareness of their danger has spread so the majority of the chemicals used are now organo-phophorous and carbamate based. Run-off of these chemicals reaches surface or groundwater where they may persist for long periods. Investigations of PCBs have shown they exist at a background level but are not a problem yet. Inorganic especially nitrate and phosphate based; fertilisers are being used on an increasing scale. Substantial quantities of nutrients originating from domestic and agricultural effluents which are used in primary production are carried to the

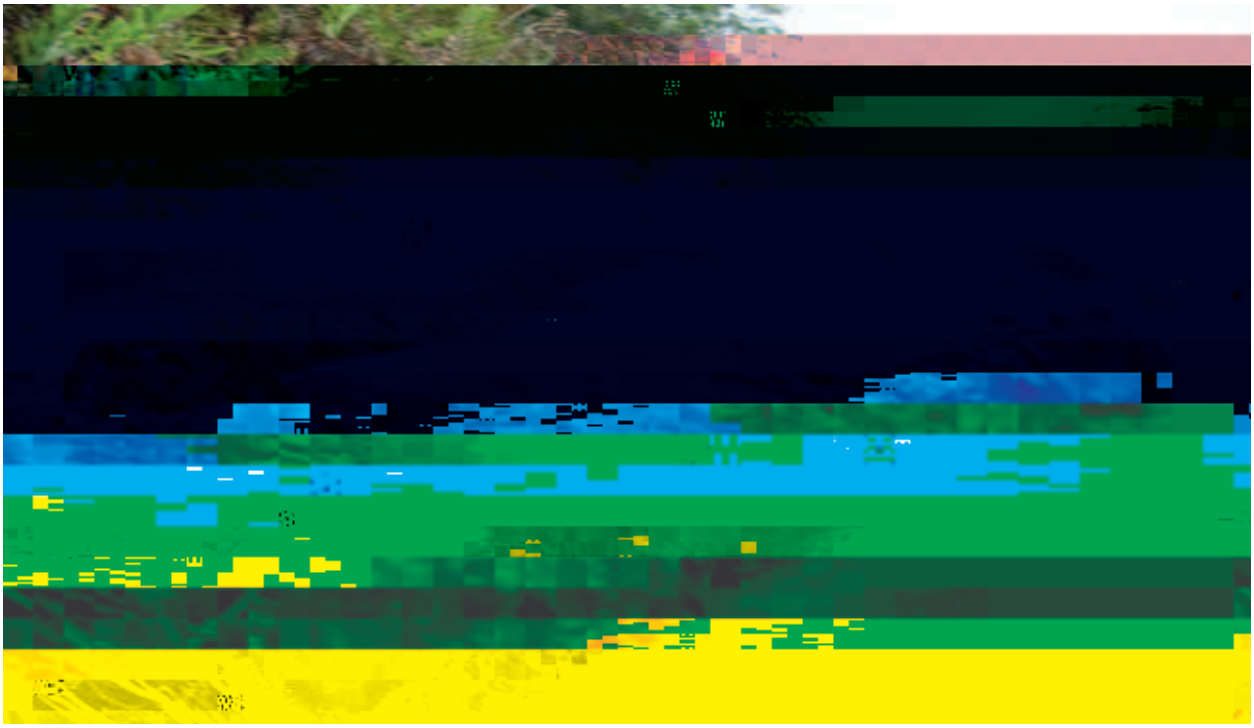

Figure 12: Coastal Erosion[110]

Risks from petroleum pipeline development and accidental spills of petroleum products and operational discharges from shipping (e.g. ship wastes) and the accidental introduction of toxic chemicals and exotic species that seriously damage the receiving ecosystem, leading to food and habitat loss; Harbor construction activities that generally alter long shore current transport of sediments and in many cases have led to major coastal erosion and siltation problems; Large amounts of sediments emptied by the many large rivers in this region that are important sources of nutrients and suspended matter to the coastal and marine environment contributing to eutrophication and harmful algal blooms with serious implications to ecosystem and human health; Apparent increase in the frequency and extent of coastal erosion placing fishing and other

There is also input of largely untreated sewage into the coastal environment; this affects human health, tourism and fisheries. Sewage treatment facilities are very limited throughout the region and raw sewage is discharged both into coastal lagoons and the rivers flowing into them. This, combined with the limited tidal water exchange of lagoon, has led to widespread eutrophication; discharges of untreated or partially treated industt85(raw m28t2e)7617(4(d)-0.30002735(n)-0.200293(h)-0.3c5

In Nigeria as well as other parts of the region, Fisheries contribute immensely to the livelihood of coastal dwellers. Td pi2.9988(pi2.rw3o 9129l.0-41())-0.399781911 gs q 0 8()-0.39917(w999781911 gs c

Table 3: A SWOT Analysis of Coastal Fisheries in Nigeria

Strength	Weaknesses
• High value species • Labour intensive system • Low cost of production in the artisanal sector • Foreign exchange earnings in the industrial sector	• Highly dispersed landing sites • Weak infrastructure •

1.3 Fisheries Governance structure in Nigeria

also mediate disagreements between the other two branches of government. They are also responsible for overseeing the legal system.

The Cabinet: The cabinet consists of a group of ministers that

The functions of Local Governments are detailed in the Nigerian Constitution and include: Economic recommendations to the State; Collection of taxes and fees; Establishment, maintenance and regulation of markets, motor parks and public conveniences; Construction and maintenance of roads, streets, drains and other public highways, parks, and open spaces; etc. Each of the LGA areas is further subdivided into wards with a minimum of ten and a maximum of fifteen.

The Federal government of Nigeria has exclusive responsibility for managing the marine resources, and a shared responsibility with the States for the inland resources. The Federal Department of Fisheries (FDF) is one of the departments under The Ministry of Agriculture and Rural Development and it's the main institution involved in fisheries management through the following units; Fish Production; Fisheries Monitoring, Control & Surveillance; Fish Quality Assurance & Quarantine Services; Commercial Fisheries and Fisheries Support Sw

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national fisheries law of Nigeria is yet to be updated[113]. The report ranked Nigeria as the 39th

- Providing infrastructures to enhance fish production and utilization
- Transferring modern fisheries technology to end users and extension agents in linkage with relevant state extension agencies
- Providing subsidized fishing inputs
- Restocking of lakes, lagoons and reservoirs for resource conservation and enhanced fish production.
- Conducting fish inspection and quarantine services for quality assurance.
- Conducting technical training on improved fish farming techniques, modern fishing methods, fish processing technologies and craft designs/construction for fish farmers, fisher folks and fish proc ?(o)0.100099g eegi

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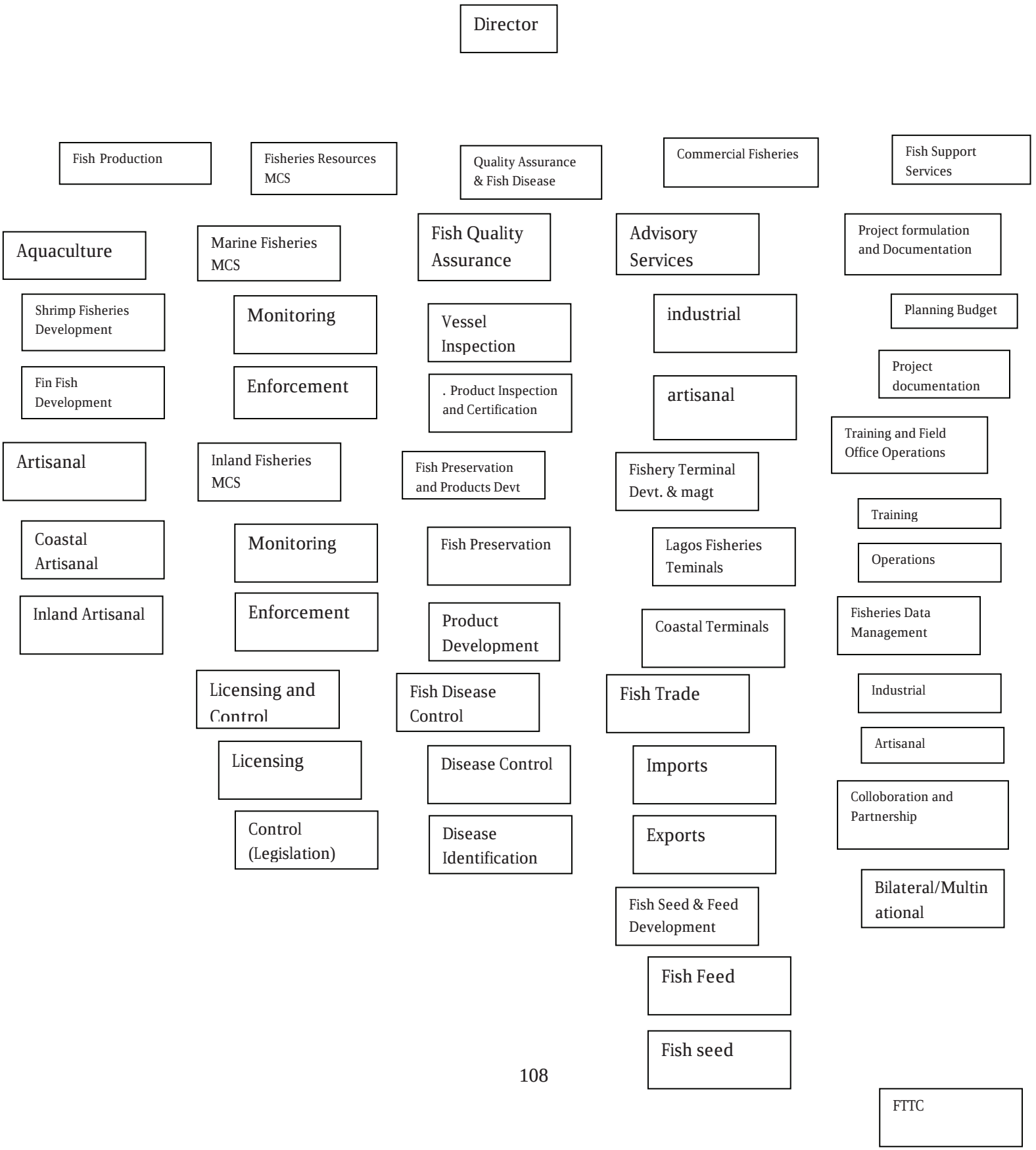
Director
Fish Production
Fisheries Resources MCS
Quality Assurance & Fish Disease
Commercial Fisheries
Fish Support Services
Aquaculture
Marine Fisheries MCS
Fish Quality Assurance
Advisory Services
Project formulation and Documentation
Shrimp Fisheries Development
Monitoring
Vessel Inspection
industrial
Planning Budget
Fin Fish Development
Enforcement
. Product Inspection and Certification
artisanal
Project documentation
Artisanal
Inland Fisheries MCS
Fish Preservation and Products Devt
Fishery Terminal Devt. & magt
Training and Field Office Operations
Coastal Artisanal
Monitoring
Fish Preservation
Lagos Fisheries Teminals
Training
Operations
Inland Artisanal
Enforcement
Product Development
Coastal Terminals
Fisheries Data Management
Licensing and Control
Fish Disease Control
Fish Trade
Industrial
Licensing
Disease Control
Imports
Artisanal
Control (Legislation)
Disease Identification
Exports
Colloboration and Partnership
Fish Seed & Feed Development
Bilateral/Multinational
Fish Feed
Fish seed
FTTC

Chapter 2

2.1 Management Measures aimed toward the Nigeria Fisheries Sector.

As the coastal fisheries sector comprises of three sectors, namely, artisanal, industrial and aquaculture the management measures aimed at sustainable fisheries in the foregoing sectors are as follows:

2.1.2 Artisanal Fisheries

The artisanal fishing sector provides jobs for some 1,000,000 small-scale fishermen scattered along the coast and around inland water bodies of Nigeria. Secondary employment in the artisanal fisheries sector is up to 5.8 million Fisher-folk including many women and youth involved in the supply chain.

It is evident in international conventions and agreement that there is distinct recognition of the need to protect the common property resource base of coastal communities, lest it be alienated by encroachment of interest groups with financial power to persuade governments for privileged entry. Article 61 of UNCLOS urges coastal States to enact conservation and management measures that inter alia take into account the economic needs of coastal fishing communities. In specific the section 6.18 CCRF of the code evidentlyg

The waters within 5 nautical miles from the coastlines are reserved by law for artisanal fishermen[118] . The exact size of the artisanal fleet is unknown and assumed to contain thousands of vessels.

The artisanal fisheries is generally a multi-species fishery catching pelagics, largely sardines;

Figure 15

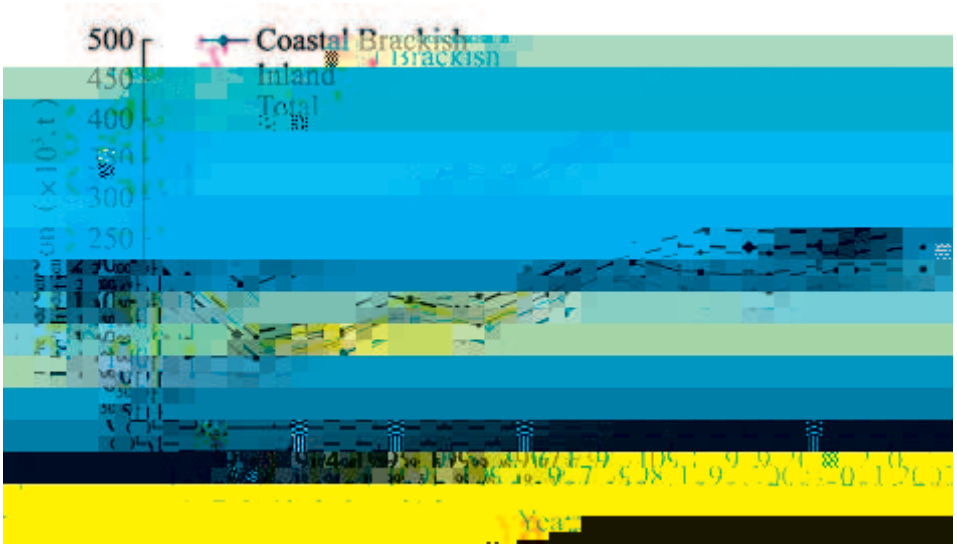

Figure 16: Trends in artisanal fish production, 1992-2002[121]

Specific management objectives aimed at the artisanal sector are as follows[122]:

- Reduction of Post-Harvest Loss of Fish and Value Addition,
- Culture-based Inland Fisheries Development for Diversification of Livelihoods, job creation including employment of youth and women.
- Development of Sardine Fishery in Reservoirs and Lakes.
- Integration of Fisheries into Water Resources Management.
- Artisanal Fisheries Credit for Fisher-folk through partnership with Government and lending sector,
- Infrastructure Facilities for Fishing Communities,

[121] Source: Nwafili Sylvanus A. and GAO TianXiang (2007) Structure and Dynamics of Fisheries in Nigeria. Journal of Ocean University of China (English Edition) Volume 6, Number 3, 281-291,

[122] Ibid. 120

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2.1.3 Industrial Fisheries

The Nigerian industrial fisheries emerged around 1980s and as at 2003, a total number of 274 were licensed to operate trawlers for fish and shrimps in the Nigeria inshore waters. These

Nigeria marine waters yet unexplored. Report indicates that total annual allowable catch could be up to 200,000 MT. As such new window of investment in Nigeria's industrial fisheries have been identified to creating wealth and enhance fish food security. There are new areas of intervention for a holistic exploitation and sustainable management of Nigeria's Industrial Fisheries. These are identified as follows:

- Resource survey of the unexploited living marine resources
-

Table 4: Numbers of vessels licensed and operated in Nigeria, 1985-2003

Year	Fishing	Shrimping	EEZ	Total
1985	109	40	Na	149
1986	137	54	Na	191
1987	161	82	Na	293
1988	161	132	Na	293
1989	134	158	Na	292
1990	123	195	Na	318
1991	102	195	26	323
1992	75	203	13	291
1993	83	223	10	391
1994	74	230	16	320
1995	72	235	8	315
1996	57	196	1	254
1997	49	197	3	249
1998	38	187	3	228
1999	23	210	1	234
2000	34	173	1	208
2001	33	221	3	257
2002	30	212	1	243
2003	48	20	8	260

Source: FDF, 2003[125]

[125] Federal Department of Fisheries National Statistics 2003

2.1.4.

with the quantity or quality of any water in any water course or groundwater". Free use of water is allowed for minor purposes: the licensing system established by the Decree only concerns the diversion, storage and use of water on a commercial scale for the construction, maintenance, ,

Table 5: Fish supply by sector and percentage contribution of each sub sector to domestic

2.2. Fisheries Management Legislative measures in Nigeria

Since the adoption of the LOSC in 1982, coastal states are responsible for regulating access to fisheries resources within the waters under their sovereignty or jurisdiction. Access regimes apply to both individual fishers and to fishing vessels. These management measures rely on data collection on catch, species biodiversity, marketing etc. The Fisheries policy framework emphasizes the need to control the level of fishing effort so as to adjust it to the availability of the fishery resource and to evaluate the fishing capacity of the national fleet to determine whether it should be reduced or could be increased under certain conditions.

These management measures are backed up by enactment of laws at Federal level and edicts at State level. The subsisting laws are:

Commissioner responsible for fisheries (sect. 5). Authorized persons (not defined) may take actions set out in section 7 for the purpose of enforcing any provision of this Decree. Regulation making powers of the Commissioner are specified in section 11. (14 sections and a Schedule)

- Sea Fisheries Decree No. 71 of 1992: This Decree repeals the Seas Fisheries Act and makes Provision for the control, regulation and protection of sea fisheries in the territorial waters of Nigeria. The first part of the Decree concerns the licensing of motor fishing boats. No person shall operate or navigate any motor fishing boat for the purpose of fishing or a reefer vessel for the purpose of discharging frozen fish within the territorial waters of Nigeria or its exclusive economic zone, unless that boat or reefer vessel has been dully registered and licensed (sect. 1). Section 4 specifies criteria for issue of a licence. The owner of a motor fishing boat in respect of which a licence has been issued shall: (a) render to a licensing officer such periodical returns concerning the operation of the motor fishing boat as many be prescribed; and (b) permit a licensing officer or any person authorized in writing by a licensing officer to inspect the catch of the motor fishing boat either before or after the catch has been landed and shall give the licensing officer or that person all reasonable facilities for the inspection of the catch. The second part of this Decree concerns enforcement, the prohibition of certain fishing methods and offences and penalties. (17 sections)

- Sea Fisheries (Licensing) Regulations of 1992: These Regulations prescribe the form of application for a licence or a renewal of a licence, to operate or navigate a motor fishing boat within the territorial waters of Nigeria and the particulars which must be stated in such application (Form A, Schedule 1). Form B of Schedule 1 prescribes the form of a licence to operate or navigate a motor fishing boat and in Schedule 2 fees for licences are set out. Nothing in these Regulations shall apply to a fishing canoe, whether motorized or

concurrent powers under this decree. States that hitherto did not have fisheries legislation are encouraged to use the decree as a guide in drawing up theirs.

- Sea Fisheries (Fish Inspection and Quality Assurance Regulations), 1995: It is principally to institutionalize fish inspection and quality assurance in Nigeria, with emphasis on the

    - SM trht

subject to the provisions of this Act and any other law or Convention for the time being

- Environmental Impact Assessment decree of 1992- The EIA Decree (1992) provides that,

hydraulic works; to require information regarding boreholes or hydraulic works; to prohibit usages of land or water that are likely to interfere with the quantity and quality of water; to supply or sell raw water to any person or public authority; etc. No diversion, storage or use of water on a commercial scale can be undertaken without a licence issued pursuant to the Decree (sect. 9). Sections 11-19 deal with the issuing of such licences, licensing fees, the power to fix rates in connection with the abstraction of water, penalties and the issuing of regulations. A schedule to the Decree lists water sources which affect more than one state.

Others include:

- Exclusive Economic Zone Act of 1990
- Territorial waters Act of 1990
- Territorial Waters Decree (Amendments) 1998
- National Inland Waterways Authority Decree no. 13 of 1997
- Live Fish (Control of Importation) Act of 1990
- Natural Resource Conservation Act of 1990
- The Forestry Ordinance, 1937
- The Wild Animals preservation Law (Lagos state) 1972
- The Endangered Species Decree, 1985
- Oil in Navigable Waters, Act of 1990;
- Federal Environment Protection Agency Act of 1990 and Amendment decree of 1992
- Maritime Operations Co-ordination Board Decree of 1992.

There is also the Treaty between the Federal Republic of Nigeria and the Democratic Republic of Sao Tome and Principe on the Joint Development of Petroleum and other Resources[128], in respect of Areas of the Exclusive Economic Zone of the Two States. This Agreement provides

community to request FAO to address these issues through the development of an International Plan of Action (IPOA) for the management of fishing capacity within the framework of the Code of Conduct for Responsible Fisheries. The objective of this IPOA was for states and regional fisheries organizations to achieve an efficient, equitable and transparent management of fishing capacity by 2005. Towards this end, States are encouraged to assess and monitor fishing capacity of their fleets and prepare and implement national plans of action[129].

A review of national fisheries legislation of Nigeria reveals that taken action to tighten the control and monitoring of the fishing capacity of their fleet, is inadequate. The major measure of control is the prohibition to issue fishing licences to certain categories of vessels and restriction on licence transfer and on the vessel's replacement. A shrimp trawler is not to exceed 23.2m in dimension and 130 gross registered tonnages.

The maximum engine power of trawlers authorized to fish within territorial waters is not mentioned in the act. The transfer of fishing licences in respect of a fishing vessel or fishing company is prohibited in Nigeria.

Traditional conservation and management measures such as closed season, fishing gears and methods, minimum landing size, fishing zone, protected species and bycatch are measures also instituted in the Nigerian fisheries regulation.

2.3.1.1 Closed season and temporary suspension

2.3.1.6 By-catch

Controlling the act of taking non-targeted species i.e. regulating by-catch, is a complex issue in Nigeria, as it is characterized by a wide diversity of species. The provisions addressing this issue are found in the fisheries decree. The decree includes a provision restricting dumping of fish by-catch especially by shrimp trawlers.

2.3.2.1 Management of fishing effort

2.3.2.2 Limit on the number of fishing licenses to be issued

The primary objectives of fish licensing in Nigeria is to

-

put on strengthening in-port monitoring and control. To this end, the IPOA provides that the port State should establish a port inspection scheme:

- requiring fishing vessels and vessels involved in fishing related activities seeking permission to enter their ports to provide reasonable advance notice, a copy of their authorization to fish and information on their fishing activities;
- requiring the port State to deny authorization to land or transship fish in its ports to any vessel suspected of having engaged in IUU fishing; and
-

responsibility of the FDF is the production and publication of national fishery statistics. There is a Fishery Statistics Unit with a Chief Statistics Officer and a support team based in Abuja. In addition, the FDF has data collectors in State centres; that are responsible for the collection of data on fisheries catch and effort.

Today, there remains in each State an alternative source of fisheries information collected by the ADPs. The general purpose of ADP is to strengthen agricultural services and

different geographical zones. The smallest division is termed “circle” each staffed by extension officers. A group of eight circles, called a “block”, is supervised by a Block Extension Officer. Groups of four blocks are called “areas” each with an Area Extension Officer. These are grouped into “zones” and supervised by Zonal Extension Officers.

- Support of the industry and fishers; there exist numerous fishers organization in Nigeria.
- Bilateral, subregional and regional cooperation with other MCS components; and,
- Professional staff.

There are several institutions involved in support to fisheries management and development in Nigeria, they include:

- Federal Fisheries Schools in Baga, Kainji and Lagos;
- Aquaculture Technology Transfer Centres (Panyam, Kaduna, Oluponna, Umunna-Okigwe, Wuya, and Tiga Dam), none of ?( )2 b l.297852(002252(i)0.200195(y) fi08877(d)-0.10333-1c-0.300293
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- Nigerian Trawler owners Association (NITOA)
- Catfish Farmers Association of Nigeria (CAFAN)
- Nigerian Union of Fishermen and Seafood Dealers (NUFAS)
- Association of Fish Importers of Nigeria (AFIN)
- Association of Ornamental Fish Exporters of Nigeria (AOFEN)

There is also the National Fisheries Development Committee (NFDC) which is a forum of all stakeholders mentioned above. It meets twice a year to deliberate on issues of policy, management, development, research, training, sector constraints, perspectives, etc. This body assists FDF to articulate policies and programmes f

of Nigeria comprise of the main river system (Rivers Niger and Benue which form a confluence at Lokoja), creeks, lagoons, lakes and intra-coastal waters.

- Nigerian maritime administration and safety agency (NIMASA): Formerly National Maritime Authority (NMA), the apex maritime regulat

2) Gulf of Guinea Large Marine Ecosystem project: The project was formulated on the realisation of the need to control water pollution and conserve biodiversity in the Gulf of

conventional meteorological elements are being undertaken. Data obtained from such systematic observations complement the existing oceanographic database of the country.

4) Niger Delta Development Master Plan:

Launched in March 2007, Niger Delta Regional Development Master Plan is a blueprint for the sustainable development of the area. It is the first integrated development plan in Nigeria that is solely based on stakeholders' participatory inputs and experts' analytical guidance in 25 sectors, including health, education, transportation, and agriculture. Its objectives embrace economic growth, infrastructural development, communities' peculiar needs and environmental preservation for the developmental transformation of Nigeria's oin0684(e)-0.70N1.09131(i)-1

6) National Policy on Environment

It was implemented in 1989. This policy identified key sectors requiring integration of environmental concerns and sustainability with development. It presented specific guidelines for achieving sustainable development in the following fourteen sectors of Nigeria's economy: Human Population; Land Use and Soil Conservation; Water Resources Management; Forestry, Wildlife and Protected Natural Areas; Marine and Coastal Area Resources; Sanitation and Waste Management; Toxic and Hazardous Substances; Mining and Mineral Resources; Agricultural Chemicals; Energy Production; Air Pollution; Noise in the Working Environment; Settlements; Recreational Space, Green Belts, Monuments, and Cultural Property.

7) Creation of Federal Ministry of Environment.

8) Environmental Impact Assessment

2.5 Conflict Management

Conflict emerges when 'the interests of two or more parties clash and at least one of the parties seeks to assert its interests at the expense of another party's interests'. Conflicts of this type do not necessarily have to be neither violent nor highly disruptive; in fact many conflicts that arise as a result of differing interests are low-level, non-violent phenomena[131].

Three causes of conflict identified in the artisanal fisheries of the coastal communities of Nigeria[132], are;

a) Claim over the rights of ownership of the fishery resources. It was identified in the study that in the riverine communities, ownership rights derive from prevailing water tenure

[131] Bennett E., Neiland A. , Anang E., Bannerman P., A Rahman A., Huq S., S Bhuiya, Day M. and Clerveaux W. 2001; Towards a better understanding of conflict management in tropical fisheries: evidence from Ghana, Bangladesh and the Caribbean. University of Portsmouth, CEMARE Research Paper 159

[132] Olomola AS. Sources and resolution of conflicts in Nigerian artisanal fisheries. Society and

system, this consist of communal ownership, family (kin group) ownership and individual ownership, depending on the type of fishing ground.

b) Acquisition of use rights-modes of acquiring use rights varies between states and according to the type of fishing ground. Use rights have been acquired through

Resolution of conflict have been reported to be largely informal, most times issues were resolved through negotiation, mediation and arbitration[133]. The parties to the dispute are guided by rules and operate within

As at time of this writing there no governance structure

The industry is, however, looking forward to expansion in the area of culturing the indigenous species.

Nigerians are high fish consumers with a total curr

Table 8: Fish imports to Nigeria and value, 1995–2004

Year	Quantity (tonne)	Value (US$)
1995	266 448	140 308 752
1996	403 273	290 351 310
1997	382 442	158 632 744
1998	373 043	190 098 052
1999	466 840	209 958 638
2000	557 884	241 006 537
2001	648 196	368 188 841
2002	681 151	375 027 917
2003	663 179	403 485 885
2004	648 033	425 080 231

Source: FAO, 2007

In order achieve the much desired fisheries development in Nigeria need to emulate fisheries development in the developed countries and the important role played by the State in encouraging modernization of the fishery, development of supportive physical infrastructure, promoting scientific research and taking measures to ensure the livelihood security of the fishing communities.

Examples to illustrate this include the following[141]: In Canada, when fishermen incurred losses due to bad weather, the government introduced a subsidized vessel insurance plan. Unemployment insurance was also introduced to tide over times when the sea was too dangerous to venture into. When the cod collapsed in 1992, a massive adjustment programme to help individuals and communities to adjust out of the fishery, largely through training, retirement and licence buyback programmes was introduced. .

[141] Schrank W E, 2003: Introducing Fisheries Subsidies, FAO Technical Paper 437, FAO, Rome

Chapter 3

3.1 Fisheries Governance in Canada

Canada is a large and wealthy country with vast deposits of natural resources. Canada has one of the world's largest exclusive economic zones spanning three oceans and encompassing some highly productive fisheries. The country played a leading role in the development of the U.N. Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries and has a number of fisheries that are examples of the world's best practices.

The fishery objectives in Canadian[142] are to achieve safe, healthy, productive waters and aquatic ecosystems, for the benefit of present and future generations, by maintaining the highest possible standards of service to Canadians in marine safety and environmental protection, in scientific excellence and in conservation and sustainable resource use. In recent years, resource conservation has emerged as the principal objectives of Fisheries Management, taking preeminence over the other objectives i.e. economic and social objectives.

The Canadian fishing industry is committed to the a

The Canadian Code of Conduct is consistent with, and in no way diminishes, the FAO Code. It is based on the following fundamental points of agreement:

- That the Code of Conduct for Responsible Fishing Operations is applicable for all participants in commercial fishing operations in Canadian waters;
- That there are four distinct fishing regions in Canada: Atlantic, Pacific, Arctic and inland fisheries, and each region will require specific mechanisms and regulations to address the unique problems and needs of their fisheries;
- That nothing in this Code will serve to justify or impose any allocation or sharing of freshwater or marine resources;
- That Conservation Harvesting Plans or Fisheries Management Plans should incorporate the Code of Conduct.

In developing this Code, Canadian commercial fish harvesters expect that other users of marine and freshwater resources will develop their own codes of conduct within the FAO framework to contribute to the sustainability of those resources. It is also expected that Canadian fisheries regulatory agencies will take appropriate steps to bring their fisheries management policies and practices into line with this Code and will make themselves accountable to the resources users in this regard[143]. The Code of Conduct for Responsible Fishing Operations articulated by Canadian fish harvesters has at its core a philosophy of res

achieve the stated objectives. The choice of measures applied in any given situation depends

3.1.2 Other Relevant Canadian Institutions

There are several other institutions that influence Canadian fisheries management. As Canada's fisheries and oceans policies are firmly based on scientific and traditional knowledge which encompasses both natural and social dimensions. According to the Policy Framework for Management of Fisheries on Canada's Atlantic Coast, "Fisheries and Oceans Canada will continue to pursue excellence in fisheries science and stock assessment"[147]. The scientists and fisheries and oceans research capability are recognized as among the best globally in research and education. Scientific research is conducted by

The Canadian fisheries are characterized by an incentives-based approach to governance, rather than the "input controlled" system that encourages fishermen to catch as much as they can in a limited fishing season[150].

Several Canadian fisheries have adopted an incentives-based approach through the implementation of individual transferable quotas (ITQ). These rights are a proportion of the total allowable catch (TAC) and are tradeable among licence holders. Appropriate TAC combined with adequate monitoring and enforcement creates a successful fisheries governance system.

3.3 Organizational Structure of DFO

The DFO is headed by a Minister who is supported by a Deputy Minister (Parliamentary Secretary). Below the Deputy Minister there is a Senior Assistant Deputy Minister (ADM) and four staff ADMs to cover science, fisheries operations, regulation, policy and international issues. Regional operations, headed by Regional Directors General (RDG) are consolidated into six geographic regions, i.e., Newfoundland, Maritime Provinces, Gulf, Laurentian, Central and Arctic, and Pacific[151] (figure 19).

The main responsibilities of the Federal Government are fisheries conservation, protection and management, scientific research, habitat protection, food safety standards, international trade and commerce, navigation, shipping and operation of public harbours. The provincial Governments share jurisdiction over the management of fisheries and aquaculture. The main responsibilities of the provincial governments are local commerce (buying and selling of fish and seafood), fish inspection, food inspection (ensuring standards are maintained at restaurants, sfri2(t)-1s-0.69822LTJ -2

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An overview of the Fisheries and Aquaculture Department (FAD) of Nova Scotia gives an illustration of the role and function of a provincial fisheries department. The FAD, headed by a Minister is mandated:

> "to service, develop and manage the harvesting processing, recreational and aquaculture segments of the Nova Scotia fishing industry for the betterment of our coastal communities and the province overall."[153]

The Nova Scotia Fisheries Department groups together the following sub-divisions and functions as seen in the table below:

Table 9: Nova Scotia Fisheries Department: sub-divisions and functions.

Departments	Marine	Units		Responsibilities
			Marine services	fisheries advisory services, federal and provincial stakeholder interaction, ocean and coastal zone management
			Licensing Services	processors/buyers licensing
			Innovation and Field Services	cost-shared funding for harvesting technology, seafood processing, aquaculture development, and coastal community infastructure, frontline service delivery
	Aquaculture			site development, leasing and licensing fish health extension services
	Inland Fisheries			inland sportfish management sportfishing development/promotions inland conservation lake and river stocking
	Fisheries and Aquaculture Loan Board			Loans financial advisory services

[153] http://gov.ns.ca/nsaf/department/divisions/fishaqua.shtml in ibid., 120

3.4 Legal Structure of Fisheries Management

3.4.1 National Fisheries Legislation

arrangements, to manage freshwater fisheries[157]. For example, if the Federal Government decided that there will be a fishery and determined the allowable catch, the provincial Governments decide who may fish and how much each person or company may harvest.

The primary federal fisheries legislations are:

a) **The Fisheries Act of 1868**

The Fisheries (General) Regulations[158] make provisions which have general application for management of fisheries throughout Canada. Two of its key provisions are in ss. 6 and 22. Section 6 authorizes a Regional Director-General of DFO[159], by order, to vary a close season, fishing quota or limit on the size of fish that has been set by regulation for a particular area. Variation orders are an important tool for managing the commercial fisheries on a day–to-day basis since they allow the DFO flexibility to respond quickly to changing conditions. Section 22 gives the Minister authority to impose licence conditions for the proper management and control of the fishery.

In addition, there are also specific regulations governing recreational, commercial and sport fisheries in various provinces and territories, for aboriginal fisheries and for marine mammals.

The Fisheries Act, 1868, is now considered out-dated and efforts are currently underway to replace it with a more modern statute.

b) The Canada Oceanac teeanee

After many years of conflict over Aboriginal fishing right, the Canadian Supreme Court in a landmark decision reaffirmed the right of Aboriginal people on the West Coast to fish for food, social and ceremonial purposes in the Sparrow case[163]. The Court also held that the right takes priority over all other uses of the fishery, subject only to conservation of the resource. The Supreme Court further set out the necessity of consulting with Aboriginal groups when their fishing rights might be affected. In 1999 the Court returned to the issue of

3.6 Provincial Fisheries Legislation

In addition to the federal laws, there are also provincial statutes and regulations laying down the

UNFA in 1999. UNFA provides a framework for the management and conservation on the high seas of straddling fish stocks and highly migratory fish stocks. Canada signed the Western and Central Pacific Highly Migratory Stocks Convention (WCPFC) on 2 August, 2001. Canada's main fisheries interests in the Convention are in northern albacore tuna stocks. Signature of the Convention is in line with a key component of Canada's international fisheries policy – promotion of the provisions of UNFA. The WCPFC is to date the most faithful implementation

> criteria must be applied in a fair and consistent manner through a decision-making process that is open, transparent and accountable and that ensures fair treatment for all. In this regard there is a commitment to ensure participation of resource users in the decision-making process. Of equal importance is the notion that fishery is a common, public resource that should be managed in a way that does not create or exacerbate excessive interpersonal or interregional disparities.

Access to the Canadian fisheries also depends on th

required to pay fees which are related to the value of the benefit they obtain from the resource and the cost of managing the resource.

3.9 Rationale for User Fees[171]

A "user fee" is the direct fee paid by a user of a resource, product or service. In the context of the commercial fishery, such fees are tied to: (i) the private benefits accruing from access to a

Licence-holders are also charges for dockside or catch monitoring, at-sea observers, basic fisheries science, enforcement and other fisheries management services. These services are

3.11.6 Harbour Fees

Since 1987 local Harbour Authorities have been responsible for maintenance and day-today operation of commercial fishing harbours, which provide berthage (moorage), wharfage and other services (e.g., utilities) to commercial and recreational vessels. Small Craft Harbour fees for vessel berthage depend on vessel length and duration of stay in the harbour.

3.11.7 Fisheries Management Fee

- Dockside Monitoring Fees: The Dockside Monitoring Program (DMP) was established

646 Fishery Officers, in addition to Seasonal Contract Guardians (Newfoundland) and First Nations Guardians employed by DFO to provide inspection and enforcement services.

Sections 49 -51of the Fisheries Act gives Fisheries Officers inspection and enforcement powers including the power to search with or without a warrant in exigent circumstances s.49(1), the power to make arrest (s.50) and the power to seize fish or other things related to8 o8 rrt

DFO works in close cooperation with a number of local and international partners through

3.14 Aquaculture Development

Canadian aquaculture is growing rapidly with production in 2004 valued at C$668.9 million or over 25% of total landed value of fish and seafood. Aquaculture has emerged as a high priority since the early 1990s and has averaged 14-15% annual growth rate, which is higher than the annual global growth rate for aquaculture. Canadian aquaculture production in 2006 was

Northwest Territories. These MOUs deal with specific federal and provincial responsibilities and set out the role of each government.

The MOUs are also customized to meet the needs of the aquaculture industry in each province and territory. While the Department of Fisheries and

The aim of IMTA is to increase long-term sustainability and profitability per cultivation unit (not per species in isolation as is done in monoculture), as the by-products or wastes of one crop (fed animals) are converted into fertilizer, food and energy for the other crops (extractive plants and animals), which can in turn be sold on the market. Feed is one of the core operational costs of finfish aquaculture operations. Through IMTA, some of the food, nutrients and energy considered lost in finfish monoculture are recaptured and converted into crops of commercial value, while biomitigation takes place. In this way all the cultivation components have an economic value, as well as a key role in services and recycling processes of the system, the harvesting of the different types of crops participating in the export of nutrients out of the coastal ecosystem. Contrary to monoculture, IMTA takes advantage of organisms functioning at

cucumbers, and kelps in an intensive IMTA system design. This pilot IMTA initiative, also

- Complex regulatory framework and limited government supp

The fishing industry needs to share with governments a commitment to responsible fishing. This commitment should be shown by financial contribution to science by the fishing industry and shared decision-making in resource protection and management programs.

Science must be the basis for fisheries management: Canada's commitment to a consultative approach to research and decision-making that came out of the post cod collapse is most exemplary. The best way to ensure sustainable fisheries is through sound scientific research and advice. Scientists collect the information needed for analysis by conducting research surveys at sea. Research at sea reveals important data on the number of fish, the number of spawning fish and the overall health of the fish making up a discrete stock of fish. Science should inform decision most especially in the following areas:

- **Catch Controls**: Catch controls are the centre piece of Canadian fisheries management. Nigeria can emulate this measure through The Federal Department of Fisheries. The FDF will establish a Total Allowable Catch (TAC) or fishing effort for each fish stock, which should be rigorously enforced. The DFO in Canada also introduced harvesting rights, often referred to as Individual Quotas or Enterprise Allocations, into a number of different fisheries. Under these programs, annual catch limits may change as a result of scientific advice, but access to a defined share of

- **Healthy Habitat**: Healthy fish habitat is critical to healthy fish and fisheries. Habitat management aims to restore, protect and improve the marine and freshwater environment, as well as reduce the effect of pollution on marine ecosystems. Fish habitat can be damaged in many ways. Among the most common threats are those associated

strategy to promote development of aquaculture to supply domestic demands and the export market. Nigeria has in recent years placed high priority to aquaculture development (including mariculture) development not only to improved food-security within the community but also as an export commodity. The natural environment, coupled with the socioeconomic conditions within Nigeria are more favourable to the production of internationally competitive aquaculture products especially shrimp than in many temperate environment, provided the technology, managerial and technical skills are available.

All aspects of commercial and recreational fisheries and aquaculture in Canada are highly regulated. The fisheries laws have been substantially developed and reformed over the past ten years, a process, which is still ongoing. Managing complex multi-dimensional natural systems such as marine and inland living aquatic systems and the social and economic activities of disparate stakeholders in a modern democracy can only be done thorough a system of detailed and clear legal rules.

Canada's monitoring, control, surveillance and enforcement capability and strategy to eradicate illegal, unreported and unregulated fishing are commendable. In Nigeria there is need for arrangements to enhance cooperation among the different enforcement agencies within each state, navy, fisheries departments and other agencies i195(e)-0.2001d96(navy,)-43anavy, nnavy,

United Nations Agreement on Straddling and Highly Migratory Fish Stocks, known as UNFA. This agreement, as well as Canada's participation in multilateral forums, will provide opportunities to achieve an effective high-seas enforcement regime for managing and conserving these stocks for future generations of Canadians. Nigeria is following this example as the country has ratified this convention and also entering into agreement with neighboring countries in the GCLME to make arrangement for joint management.

Chapter 4

4.1 Recommendations and Conclusion

Overfishing of the world's marine resources is the main cause of the decline of fisheries productivity. According to the Food and Agriculture organization (FAO), fifty per cent of all fishery resources are already fully utilized, twenty-five per cent are still potentially exploitable and the remaining twenty-five per cent are in severe danger of depletion and require major interventions to restore sustainable yields. Widespread overfishing is generally recognized as a growing threat to the sustainable management of the

not enhanced national interests, as adequate developmental programmes were not established to guide the prevailing situation in the country. This was because of the following reasons;

- Insufficient information on the coastal resources-
- Lack of knowledgeable managers-
- Inadequate technical skill
- Financial constraints
- Poor political will
- Conflicting interests

In the Nigerian Fisheries management plans there is also no provision for conflict resolution or incidences of climate change which is prevalent not only in Nigeria but on a global scale.

The institutions relevant to Fisheries management in Nigeria have conflicting mandates and the enabling laws backing them up are mostly outdated and need urgent review.

Most of the laws address the need to develop the resources of the coastal or marine areas; they do not clearly address the management that sustains the resources for posterity. The laws are also silent on important stakeholders like the local communities and their indigenous knowledge.

The policies and laws of the federal Government of Nigeria over the years are well intended, but there are several issues that need to be addressed.

- Particiaptory Fisheries management. There is need to involve various stakeholders in decision making.
- Clear structure for managing conflict in the fishing communities should be established.
- Climate change is very evident in all the regions of the world. There is need to make adequate arrangement for climate change adaptation in fisheries management plans
- The policy on input subsidy to create production incentives and invariably contribute to sustainable ecosystem based fisheries management by opening new fishing grounds especially for the artisanal fisheries is good but could have been improved through policy consistency on the part of government and improved loan repayment via the promotion of well-organized credit cum marketing fishermen cooperative society.
- Incorporating an intergrated ecosystem based management approach towards managing entire coastal area of Nigeria.
- Increase security on coastal waters. In recent year's armed robbery, theft and piracy have become rampant on the waters off the coast of Nigeria. There is need to improve investment in acquiring measures for improved security.

4.3 Summary- Part Two

Chapter one in this part discusses issues and chall

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Appendix I

Ocean currents affecting the

•to establish the scientific basis for regulatory measures leading to the conservation and management of marine fishery resources, to formulate such measures through subsidiary bodies, as required, to make appropriate recommendations for the adoption and implementation of these

- to harmonize members’ national regulations with a view to having a unified regulation

4. La Conférence Ministérielle sur la Coopération Halieutique entre les Etats Africains Riverains de l'Océan Atlantique (COMHAFAT)

La Conférence Ministérielle sur la Coopération Halieutique entre les Etats Africains Riverains de l'Océan Atlantique (COMHAFAT) also Known as The Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean (ATLAFCO) is a

Convention was amended in 1984 and 1992.
(http://www.iccat.int/Documents/Commission/BasicTexts.pdf 6/6/11)

The Commission may be joined by any government that is a member of the United Nations (UN), any specialized UN agency, or any intergovernmental economic integration organization constituted by States that have transferred to it competence over the matters governed by the ICCAT Convention. Instruments of ratification, approval, or adherence may be deposited with the Director-General of the Food and Agriculture Organization of the United Nations (FAO), and membership is effective on the date of such deposit. Currently, there are 48 contracting parties namely:

Albania, Algeria, Angola, Barbados, Belize, Brazil, Canada, Cape Verde, China, Sierra Leone, Côte d'Ivoire, Croatia, Egypt, Equatorial Guinea, European Union, France, Gabon, Ghana, Guatemala, Guinea, Honduras, Iceland, Japan, nlS-0.302735(u)-0.3v1cAlS-0.3027300.300293(n0.0b0.3v1cAlS-
102539(c)- V.092779(h)-0e0]TJ(a3( )0.996094(G)-0e0]TJ(a3( )0z0]TJ(a3( )0u.092779(h)-0e0]TJ(az)0.0970927735(n)-0.10009

compiles and prepares the databases, makes preparatory data analyses, executes meeting arrangements, prepares publications, etc.

The Commission is the main decision-making body where each of the contracting parties is represented. The Commission holds annual meetings, alternating between regular meetings and special meetings every two years.

Subsidiary Bodies

•Panels

- Tropical Tunas (yellowfin, skipjack and bigeye),
- Northern Temperate Tunas (albacore and bluefin),
- Southern Temperate Tunas (albacore and southern bluefin),
- Other Species;

•Standing Committee on Finance and Administration (STACFAD);

•Standing Committee on Research and Statistics (SCRS);

•Permanent Working for the Improvement of ICCAT Statistics and Conservation Measures (PWG);

•Conservation and Management Measures Compliance Committee;

•Special Working Groups.