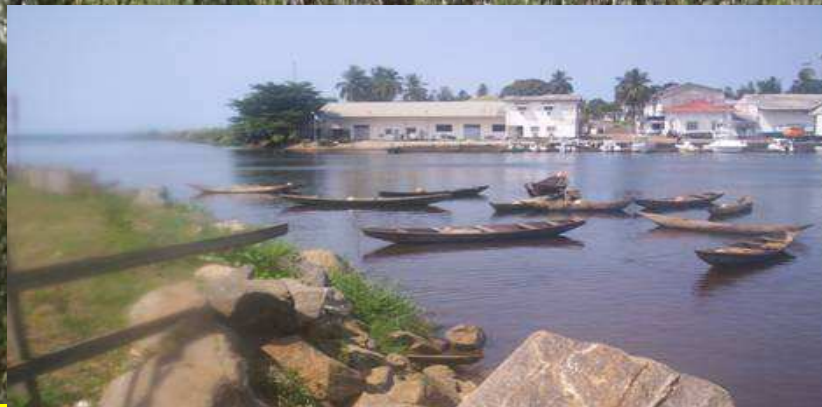




**REPUBLIC OF CAMEROON**

**MINISTRY OF ENVIRONMENT AND NATURE  
PROTECTION (MINEP)**

**FINAL DRAFT REPORT  
MAIN TEXT**



**THE IMPLEMENTATION OF INTEGRATED  
COASTAL MANAGEMENT (ICM) FOR THE KRIBI-  
CAMPO AREA IN CAMEROON**

*Presented by:*

**ENVI-REP CAMEROON**



**Environment and Resource  
Protection Cameroon**

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## LIST OF ACRONYMS

ACEFA	Improvement Programme on Family Agro-pastoral Exploitations Competition
AFDB	African Development Bank
AQUASOL	Aquaculture and Solidarity
BCSAP	Brigade de Contrôle et de Surveillance des Activités de Pêche
BM	World Bank
BRD	By Catch Reduction Device
CBD	Convention on Biological Diversity
CBO	Community Base Organization
CARPE	Central African Regional Programme
CECAF	Fisheries Committee for Eastern Central Atlantic
CEMAC	Central Africa Economic and Monetary Community
CERECOMA	Specialized Research Centre for Marine and Coastal Ecosystems
CIE	Interministerial Committee for Environment
CMNP	Campo Ma'an National Park
CNCEDD	National Consultative Commission for Environment and Sustainable Development
CNPC	National Council for Civil Protection
CNSP	National Corps of Military Pioneer
COMIFAC	Central Africa Forestry Commission
COOPEL	Londji Fishermen Cooperative
COREP	Fisheries Regional Committee for the Gulf of Guinea
COTCO	Cameroon Oil Transportation Company
CPUE	Catch per Unit Effort
CRC	Cameroon Red Cross
DCP	Dispositif de Concentration de Poissons
DIRPEC	Direction des Pêches
EIA	Environmental Impact Assessment
EMA	Environnement m'Accompagne (NGO)
ENVI-REP	Environment and Resource Protection (NGO)
FAO	Food and Agricultural Organization of the United Nations
FEDEC	Fondation pour l'Environnement et le Développement au Cameroun
FEM	Fond pour l'Environnement Mondial
FICR	International Federation of Red Cross and Red Croissant
FMP	Fisheries Management Plan
GC-LME	Guinea Current Large Marine Ecosystem
GDP	Gross Domestic product
GEF	Global Environment Facility
GESAMP	Group of Experts on the Scientific Aspects of Marine Environment Protection
GIRMAC	Programme for Integrated Management of Coastal and Marine Resources
GRT	Gross Registered Tonnage
GTS	Guinean Trawling Survey
HEVECAM	Hévéa Cameroun
HCR	High Commissariat of Refugees
ICAM	Integrated Coastal Area Management
ICZM	Integrated Coastal Zone Management
IGA	Income generating Activity
IGCC	Interim Guinea Current commission
IQs	Individual quotas
IUU	Illicit, Undeclared and Unregulated (relative to fisheries)
INC	National Institute of Cartography
IRAD	Institute for Agricultural Research for Development

IUNC	International Union for the Conservation of Nature
MAEL	Mission d'Aménagement et d'Etudes du Littoral
MAETUR	Mission d'Aménagement et d'Etudes des Terrains Urbains
MCS	Monitoring, Control and Surveillance
MDGs	Millenium Development Goals
ME	Monitoring and Evaluation
MEAO	Mission d'Etude et d'Aménagement de l'Océan
MINCOM	Ministry of Commerce
MINADER	Ministère de l'Agriculture et du Développement Rural
MINAS	Ministry of Social Affairs
MINATD	Ministry of Territorial Administration and Decentralization
MINCULT	Ministry of Culture
MINDAF	Ministry of Domain and Land Affairs
MINDEF	Ministry of Defense
MINDUH	Ministère du Développement Urbain et de l'Habitat
MINMEE	Ministère de l'Eau et de l'Energie
MINFI	Ministry of Finances (Directorate General of Customs)
MINEF	Ministry of Forestry and Environment (Former)
MINEP	Ministry of Environment and Nature protection
MINEPAT	Ministry of Economy, Planning and Territorial Development
MINEPIA	Ministry of Livestock, Fisheries and Animal Husbandry
MINESUP	Ministry of Higher Education
MINFOF	Ministry of Forestry and Wildlife
MINRESI	Ministry of Scientific Research and Innovation
MINTOUR	Ministry of Tourism
MINIMINT	Ministry of Industries, Mines and Technology
MINSANTE	Ministry of Public Health
MINT	Ministry of Transport
MINTP	Ministry of Public Works
MPA	Marine Protected Area
MTR	Mid-Term-Review
NAP	National Action Plan
NBSAP	National Biodiversity Strategic Action Plan
NEMP	National Environmental Management Plan
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organization
NESDF	National Environmental and Sustainable Development Fund
NTFP	Non-Timber Forest products
ODINAFRICA	Ocean Data and Information Network for Africa
ONR	National Risk Observatory
PACD/PME	Support Programme on Creation and Development of medium Size Enterprise
PADPAM	Support Project to the Development of Artisanal Maritime Fisheries
PADREL	National Support Programme on Regional and Local Development
PAENC	Support programme to Non-Conventional Rearing
PAIJA	Support Programme to Young Farmer Initiatives
PAJER-U	Support Project to Rural Urban Youths
PAPVCC	Support project to the Protection of Coco and Coffee Orchard
PARETFOP	Support project on the Reform of Technical and Professional Education
PACD/PME	Support Programme on Creation and Development of medium Size Enterprise
PADPAM	Support Project to the Development of Artisanal Maritime Fisheries
PADREL	National Support Programme on Regional and Local Development

PAENC	Support programme to Non-Conventional Rearing
PAIJA	Support Programme to Young Farmer Initiatives
PAJER-U	Support Project to Rural Urban Youths
PAPVCC	Support project to the Protection of Coco and Coffee Orchard
PARETFOP	Support project on the Reform of Technical and Professional Education
PDFP	Development programme on Pig Path
PFNL	Produits Forestiers Non Ligneux
PM	Prime Minister
PDPV	Native Palm Development Programme
PME	Small and Medium Size Enterprises
PMRFFLP	Rotative Microcredit Project in Favor of Women to Fight Against Poverty
PNAFM	National Support programme in Maize
PNDP	National Participative Development Programme
PNDRT	National Programme on Development of Roots and Tubers
PNPCGR	National Programme for Risk Prevention and Disaster Management
PNSO	National support programme to orphans
PNVBF	National Programme on Valorization of Swamping Areas
PNVRA	National Research programme on Agricultural Vulgarization
PPP	Public / Private Partnership
PRCM	Regional programme for Conservation of Coastal and Marine Zone for West Africa
PRFP	Stimulation Programme on Plantain Path
PRECESSE	Projet de Renforcement des Capacités Environnementales et Sociales pour le Secteur de l'Energie
PRVC	Coco Orchard Regeneration Project
PSC	Project steering Committee
PSFE	Forest-Environment Sectoral programme
RCU	Regional Coordination Unit
SADEC	South African Development and Economic Community
SAMU	Service of Emergency Medical Assistance
SAP	Strategic Action programme
S-ICM-KCAC	Sustainable Integrated Coastal Management of the Kribi Campo Area in Cameroon
SNH	National Hydrocarbon Company
SNV	Service Neerlandais des Volontaires
SOCAPALM	Cameroon Palm Company
TED	Turtle Exclusion Device
TURFs	Territorial Use Right Fishing
UFA	Forest Development Unit
UNDP	United Nations Development programme
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nation Organization for Education, Science and Culture
UNEP	United Nations Environment Programme
VMS	Vessel Monitoring System
UNIDO	United Nations Industrial Development organization
WCMC	World Conservation and Monitoring Centre
WIJMA	Timber Logging Companies
WHO	World Health Organization
WOPA	Women Promotion and Assistance (NGO)
WWF	World Wildlife Fund

# EXECUTIVE SUMMARY

*The management of coastal areas has during the last ten years received considerable attention and got a prominent place on the international agenda in connection with UNCED in Rio de Janeiro in 1992 and Johannesburg Summit on sustainable development in 2002 and the passing of agenda 21, chapter 17.*

*In the Kribi Campo area, growing tourism, oil and gas activities, fisheries, agro industries, physical development are competing for dominance. The threats imposed by economic development activities are increasing due to settlement of many development projects such as hotels building, planning of a deep sea port project in Grand Batanga, oil exploitation platform at Ebome. The area has sensitive habitats and rich biodiversity zones (Campo Ma'an National Park for example,). Human impacts such as those described in the Kribi-Campo coastal area by previous studies, coupled with global climate change, place continuous pressure on coastal environments. In addition conflicts of interest arise from demand for coastal space and resources. It is important to clarify the rules of access and control of resources.*

*To sustainable manage these trends, Cameroon Government decide to propose the demonstration project on Integrated Coastal Area Management (ICAM). The area chosen is the Kribi Campo coastal zone which extends along the Atlantic coast for about 150km*

*The Guinea Current Large Marine Ecosystem (GCLME) project goal is “**combating living resource depletion and coastal area degradation in the Guinea Current LME trough eco-system based regional actions**”. The GCLME region extends from Guinea Bissau in the North to Angola in the South. To promote regional cooperation, countries of the GCLME have established the Interim Guinea Current Commission (IGCC) with the Regional Coordination Unit (RCU) in Accra, Ghana. The main partners of the demonstration project in Cameroon are: the RCU, the Ministry of Environment and Nature Protection (MINEP) of Cameroon, national experts, local partners including civil society (NGOs, Associations etc.,) local administration, industries, traditional rulers, timber forest exploiters, municipalities and local development organizations such as the Ocean Development Authority (MEAO)*

*The overall objective of the project is to assist the Government of Cameroon to implement Integrated Coastal Area Management (ICAM) using on Kribi-Campo Area as demonstration site.*

***Chapter one** defines the integrated coastal area management concept as “A continuous and dynamic process that unites government and community, science and management, sectoral and public interest in preparing and implementing an integrated plan for the protection and development of the coastal ecosystem and resources” (GESAMP, 1996)<sup>1</sup>.*

***Chapter two** gives brief description of the Cameroon coastal zone and its location and identifies the following key issues within the project area:*

*(i) Pollution; (ii) Unsustainable exploitation of fisheries and other coastal resources; (iii) Degradation of water quality; (iv) Coastal degradation and mangrove deforestation; (v) Inadequate institutional and legal framework; (vi) Conflicts between users; (vii); Information, financial and economic constraints; (vii) Poverty. The most commonly cited problems related to the*

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<sup>1</sup> GESAMP, 1996. The Contribution of science to integrated coastal management, GESAMP Reports and Studies No 61

management of the Kribi-Campo coastal area are in line with the main issues of the Trans boundary Diagnostic Analysis (TDA) identified in the regional project document. This chapter also highlights institutions and strategic tools elaborated by government and which are directly or indirectly related to coastal zone management, establishment of the Project Steering Committee (PSC) endorsed by the government. The mandates of the PSC are: Programming; (ii) planning; (iii) Monitoring and evaluation of the project activities; (iv) Dissemination of results

**Chapter three** defines coastal zone boundaries and the delimitation of the project area describes the climate, hydrology and oceanographic conditions within the project area, coastal habitats, biodiversity, vulnerable and threatened species, archaeological sites, Fragile ecosystems which need protection and socio-economic sitting: agriculture, fishing tourism, forest and wildlife exploitation, sand mining, industrial and port activities. Main industries are petroleum exploitation and transportation with the Chad Cameroon Pipeline which terminal is in Kribi maritime waters, commercial activities and development projects (there are more them 30 ongoing or planned projects within the project area). Opportunities in the area concern mainly fishing, tourism, agriculture, industry and handicraft

**Chapter four** focuses on the causal chain analysis of key issues within the Kribi Campo, and management of natural resources notably conflicts, keys sectoral issues and transectoral issues such as:

**Sectoral issues:** (i) Degradation of coastal habitat in particular coastal erosion; (ii) Overexploitation of fisheries resources; (iii) Over-exploitation of wildlife resources; (iv) Over-exploitation of timber forest products and uncontrolled harvesting of non-timber forest products; (v) Inadequate land use and planning; (vi) Poor organization of a growing tourism sector and (vii) Pollutions.

**Transectoral issues:** (i) Limited capacity of institutions and human resource; (ii) Poor communication and sensitization mechanism; (iii) Inoperational legal Framework ; (iv) Weak support to association(NGOs) sector; (v) Poor development of rural activities; (vi) Marginalization of local communities ; (vii) Lack of coordination between sectors; (viii) Low priority for coastal development and (ix) Climate change

Chapter four also assesses the environment and socio-economic of the Kribi-Campo area.

**Chapter five** gives the vision of the ICZM of the Kribi Campo Area and its zonation. The Common vision is the “**Equitable access to coastal resources and resources being used on a sustainable basis for the benefit of present and future generation**”. The Kribi Campo area was divided in four major zones as follow:

**Zone I:** The sea front from river Lokoundjé to the north of Grand Batanga, including the EEZ, Kribi town and from low tide water mark to about 5 to 10 km hinterland; activities: growing tourism, fishing, urban development, commerce and transport

**Zone II:** From the South of Grand Batanga to the south of Lolabe including the EEZ, the site of deep sea port and from low tide water mark to about 5 to 10km hinterland; activities: site of the future deep sea port project and mineral port for iron exportation ; fishing, tourism, crude oil exploitation.

**Zone III:** From the south of Lolabe to Campo (River Ntem) including the EEZ, the Campo Ma'an National park and characterized by high biodiversity; potential site for the future national marine park; activities are tourism, fishing, hunting

**Zone IV:** Behind the sea front including forest, SACAPALM and HEVECAM plantations and extended from about 5 to 10Km from sea front to about 60 km hinterland; this zone includes SOCAPALM and HEVECAM plantations; UFA no 09-026 and UFA no 09-025 with 25,516 ha and 88,276 ha respectively; activities are traditional agriculture, agro-industrial activities, hunting, timber forest exploitation and NTF products

This chapter also presents a partnership agreement for Sustainable Integrated Coastal management of the Kribi-Campo Area in Cameroon (S-ICM-KCAC) adopted during the stakeholder workshop in March 2010

**Chapter six** develops sectoral management plans or programmes on: (i) Government and capacity building, (ii) the management of the Campo Ma'an National Park, (iii) fisheries, (iv) tourism, (v) pollutions, (vi) mangrove, coastal forest and wildlife, (vii) climate change, risk and natural hazards, (viii) coastal development and land use, (ix) conflict and (x) biodiversity; identifies micro projects. From 10 micro project proposals received, the PSC through a transparency and equity criteria retained the following: (i) the creation of a family unit of shrimp production; (ii) pisciculture associated with poultry; (iii) the vulgarization of the mushroom cultivation; (iv) Waste oil collection and management (v) Promotion of sustainable tourism within the Kribi Campo coastal area. The shrimp project, the mushroom project and the project associating poultry with pisciculture were successfully implemented. From the implementation of the micro-projects key lessons learned are: (i) the poor capacity organization of local communities or institutions; (ii) improvement of partnership between private and government institution; (iii) selection of project should also be based on site visit of the presenter; (iv) synergies between projects should be seen in combination; (v) the opportunity for local organization to evolve in their function should be provided; (vi) The possibility that a community based organization (CBO) may develop into a small medium size enterprise; (vii) rewards for efficient implementations; (viii) adequate and transparent control over funding; (ix) implementation process and quality of end product; (x) training and technology transferred are better "in situ"

**Chapter seven** develops the full ICAM Plan with the following components prioritized as follow: (A) Fisheries management; (B) coastal development and land use planning; (C) Pollution control and waste management; (D) Management of mangrove, coastal forest and wildlife; (E) Tourism management; (F) Natural risk and hazards management and (G) Governance and capacity building. Chapter seven also reporting the meeting organized in Kribi on November 23, 2010 where the full ICAM plan was adopted by the Interministerial committee. This chapter also reporting on the donor roundtable organized in Yaounde on April 5, 2011. During this last meeting, donors clearly specified which activities they are willing to finance during implementation of the ICAM Plan.

Finally **chapter eight** develops monitoring and evaluation indicators with detail spreadsheet based on the 7 ICAM Plan components

# CHAPTER I

## INTRODUCTION

### 1.1. INTEGRATED COASTAL AREA MANAGEMENT APPROACH

The management of coastal areas has during the last ten years received considerable attention and got a prominent place on the international agenda in connection with UNCED in Rio de Janeiro in 1992 and Johannesburg Summit on sustainable development in 2002 and the passing of agenda 21, chapter 17.

Coastal management is the complex interaction of laws, programmes and efforts to evaluate trade-offs and make decisions about how to use, conserve and value the resources and opportunities of the coastal zone; as a society how do we want our coasts to function, what do we want them to look like, and what uses do we want them to accommodate. Integrated Coastal Zone Management (ICZM) aims to reduce or eliminate such problems, resulting in ethical and economic benefits. Ethical benefits include *sustainable development*, the promotion of social equity (through consideration of viewpoints of all stakeholders) and protection of traditional uses of coastal resources. Economic benefits accrue from an integrated approach to management which can result in lower costs when compared to management for separate sectors. Effective planning for the future also provides cost benefits.

*Sustainable Development* has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (The World Commission on Environment and Development, 1987)

In fact what is Integrated Coastal Zone Management? Amongst many definitions, we will adopt the following one:

***“A continuous and dynamic process that unites government and community, science and management, sectoral and public interest in preparing and implementing an integrated plan for the protection and development of the coastal ecosystem and resources” (GESAMP, 1996)<sup>2</sup>***

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<sup>2</sup> GESAMP, 1996. The Contribution of science to integrated coastal management, GESAMP Reports and Studies No 61

ICZM is thus defined as being an iterative and collective process which must be coordinated using a multidisciplinary, multi-tool approach according to a non-linear time scale. Several categories of actors are involved in integrated coastal management. It is a process where we define many types of integrations:

- Integration between land and sea
- Integration across sector interests comprising utilization and protection, commercial and recreative interests etc. (horizontal integration)
- Integration between authorities at country and municipal levels and public participation (vertical integration)

The following principles underpin the Policy in integrated coastal area management:

***National asset:*** The coast must be retained as a national asset, with public rights to access and benefit from the many opportunities provided by coastal resources and that resources being used on a sustainable basis for the benefit of present and future generation

***Economic development:*** Coastal economic development opportunities must be optimised to meet society's needs and to promote the wellbeing of coastal communities.

***Social equity:*** Coastal management efforts must ensure that all people, including future generations, enjoy the rights of human dignity, equality and freedom.

***Ecological integrity:*** The diversity, health and productivity of coastal ecosystems must be maintained and, where appropriate, rehabilitated.

***Holism:*** The coast must be treated as a distinctive and indivisible system, recognising the interrelationships between coastal users and ecosystems and between the land, sea and air.

***Risk aversion and precaution:*** Coastal management efforts must adopt a risk-averse and precautionary approach under conditions of uncertainty.

***Accountability and responsibility:*** Coastal management is a shared responsibility. All people must be held responsible for the consequences of their actions, including financial responsibility for negative impacts.

***Duty of care:*** All people and organizations must act with due care to avoid negative impacts on the coastal environment and coastal resources.

***Integration and participation:*** A dedicated, co-ordinated and integrated coastal management approach must be developed and conducted in a participatory, inclusive and transparent manner.

***Co-operative governance:*** Partnerships between government, the private sector and civil society must be built in order to ensure co-responsibility for coastal management and to empower stakeholders to participate effectively.

## **1.2. CONTEXT OF INTEGRATED COASTAL AREA MANAGEMENT WITHIN THE KIRIBI CAMPO AREA**

In the Kribi Campo area, growing tourism, oil and gas activities, fisheries, agro industries, physical development are competing for dominance. The threats imposed by economic development activities are increasing due to settlement of many development projects such as hotels building, planning of a deep sea port project in Grand Batanga, oil exploitation platform at Ebome. The area has sensitive habitats and rich biodiversity zones (Campo Ma'an National Park for example,). Human impacts such as those described in the Kribi-Campo coastal area by previous studies, coupled with global climate change, place continuous pressure on coastal environments. In addition conflicts of interest arise from demand for coastal space and resources. It is important to clarify the rules of access and control of resources.

To sustainably manage these trends, Cameroon Government decide to propose the demonstration project on Integrated Coastal Area Management (ICAM). The area chosen is the Kribi Campo coastal zone which extends along the Atlantic coast for about 150km

The Guinea Current Large Marine Ecosystem (GCLME) project goal is “**combating living resource depletion and coastal area degradation in the Guinea Current LME through eco-system based regional actions**”. The GCLME region extends from Guinea Bissau in the North to Angola in the South. To promote regional cooperation, countries of the GCLME have established the Interim Guinea Current Commission (IGCC) with the Regional Coordination Unit (RCU) in Accra, Ghana.

The main partners of the demonstration project in Cameroon are: the Interim Guinea Current Commission (IGCC), the Regional Coordination Unit of the GC-LME project, the Procurement Service of UNIDO based in Vienna Austria, the Ministry of Environment and Nature Protection

(MINEP) of Cameroon, national experts, local partners including civil society (NGOs, Associations etc.), local administration, industries, traditional rulers, timber forest exploiters, municipalities and local development organizations such as the Ocean Development Authority (MEAO)

### **1.3. OBJECTIVE**

The overall objective of the project is to assist the Government of Cameroon to implement Integrated Coastal Area Management (ICAM) using on Kribi-Campo Area as demonstration site

### **1.4. TASKS TO BE PERFORMED BY ENVI-REP CAMEROON**

The following tasks have to be performed by ENVI-REP Cameroon

1. Identity and establish a Project Steering Committee (PSC) and launch a comprehensive participation process involving government, civil society, local communities to discuss/approve the key issues identified in the previous analysis, propose ways forward and agree on respective roles of specific stakeholder groups to address these issues
2. Update/reformulate Integrated Coastal Area management key documents including zoning, sectoral management plans (e.g. Management Plan of the Campo Ma'an National Park) necessary amendments to the local regulation framework, roles and responsibilities of stakeholders and Priority Action Plan including proposals for micro projects, etc. and formalize inter-sectoral coordination/agreement
3. Prepare and obtain endorsement of the full ICAM Plan including identification and implementation of priority micro projects agree upon by the Project Steering Committee (PSC) and UNIDO/IGCC to test the model
4. Facilitate a meeting with private sector and development partners representatives to attract donors willing to fund implementation of additional micro projects or activities in the Priority Action Plan (PAP)
5. Develop Monitoring and Evaluation (ME) Indicators
6. Submit a comprehensive report to UNIDO/IGCC

The first progress report identified and established a Project Steering Committee (PSC), an institutional arrangement and also launched a comprehensive participative process for government,

civil society and local community. During this process, key issues identified in the feasibility study were discussed and approved and were related to:

**(i) Cross cutting issues:**

- Limit capacity of local institutions
- Poor development of rural activities
- Marginalization of local communities
- Inadequate/Inoperational legal framework
- Poor communication and sensitization
- Weak support to association (NGOs) sector
- Lack of coordination between sectors
- Low priority for coastal development
- Insufficient and inadequate human resources
- Climate change
- Conflicts

**(ii) Sectoral issues:**

- Degradation of coastal habitats/coastal erosion
- Overexploitation of fisheries resources
- Overexploitation of wildlife resources
- Overexploitation of timber forest products
- Pollutions
- Inadequate land use and planning
- Poor organization of a growing tourism sector

The second progress report aims to update/reformulate the Integrated Coastal Area Management key document with regards to sectoral management, review of local regulatory framework, priority action plan (micro projects etc.)

The third progress report include report of the meeting organized on 22 and 23 November 2010 to validate and adopted the full ICAM Plan for the Kribi-Campo zone and results of the execution of micro-projects and lessons learned from their implementation.

In addition to information contained in the third progress report, this fourth report contains the report of the meeting organized on the 5 of April 2011 with private sector and development partners representatives to attract donors willing to fund implementation of additional micro projects and activities of the ICAM Plan components

# **CHAPTER II**

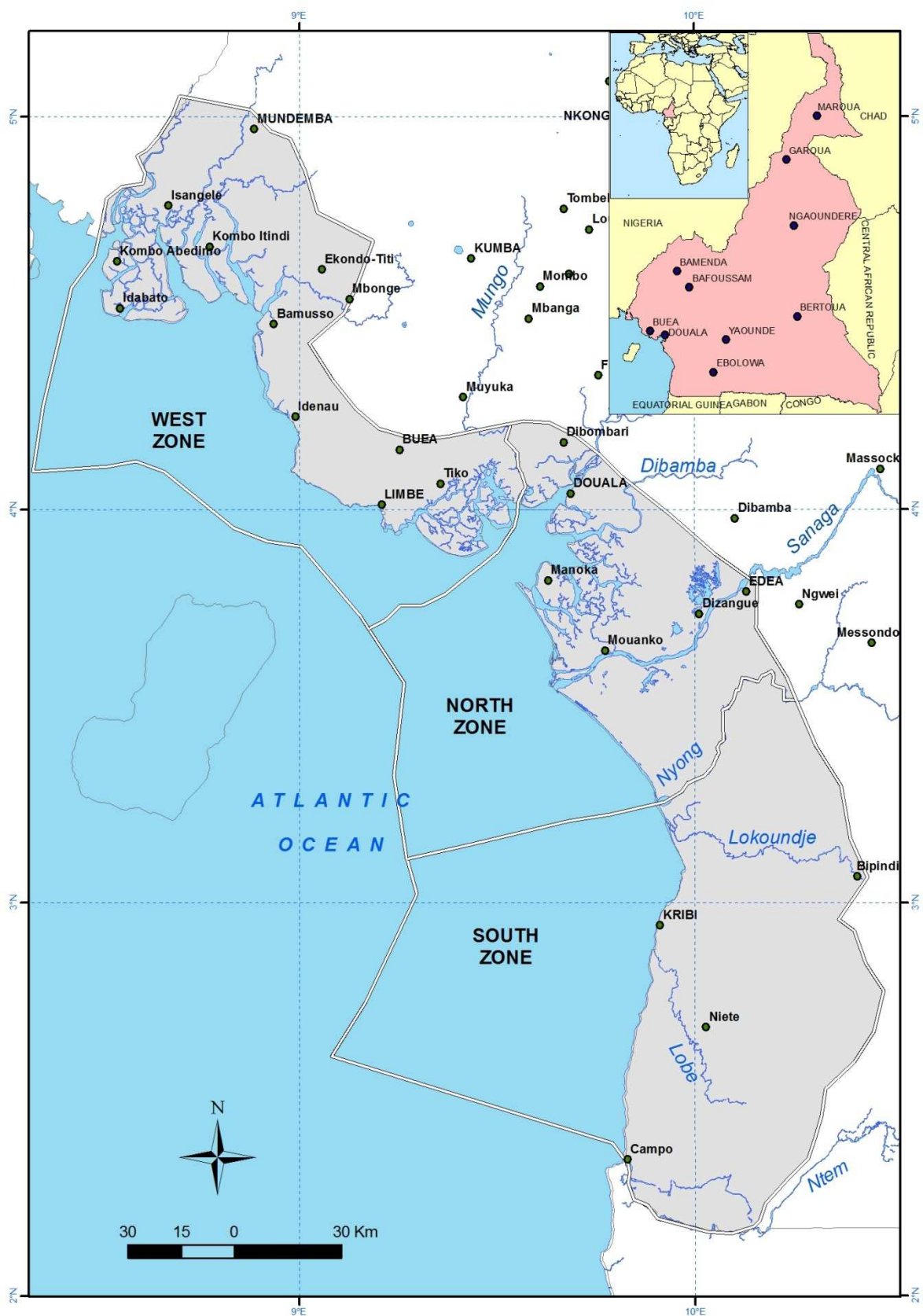
## **INSTITUTIONAL AND REGULATORY FRAMEWORK RELATED TO THE KRIBI CAMPO COASTAL ZONE SUSTAINABLE DEVELOPMENT**

### **2.1. BACKGROUND AND CONTEXT**

The Republic of Cameroon is one of the Central African countries located at the centre of the Gulf of Guinea (GOG) Large Marine Ecosystem (LME) within the Bay of Biafra. It has an area of 475, 412 km<sup>2</sup> with a population of approximately 18 million inhabitants (year 2005 census). The coastal environment of Cameroon is opened to the Atlantic Ocean with a coastline of about 402km (Sayer et al., 1992). This coastline extends from 2°20' N at the Equatorial Guinea borders to 4°40' N at the Nigeria borders. It is located between Longitudes 8°15' E and 9° 30E and was divided in three main zones (Figure 1). The ICAM project area is “Zone Sud” which extends from River Nyong to River Ntem in the Campo area. Generally coastal areas are governed by the interaction between land and sea, and are characterized by high productivity and biodiversity. Urbanization of coastal areas and utilization of resources eventually lead to the degradation of the coastal environment – the Kribi-Limbe coastal area of Cameroon is no exception.

The coastal zone is the industrial nerve centre of the country, as it is the location of almost 80% of the country's industries (Angwe and Gabche, 1997) Douala, the economic capital and main seaport, is located within this zone. More than 95 % of coastal industries are located in the Kribi-Limbe area. Because of the nature and variety of economic activities, it has become the fastest developing area in Cameroon, attracting more and more people from other parts of the country. This zone is therefore a highly urbanised area with major population centres at Douala, Buea, Tiko, Edea, Limbe, Kribi, Muyuka etc.

These seven towns located in the Kribi-Limbe area, represent 95% of the total population of the coastal zone (Table 1). This increased urban population has resulted in many land based activities, such as agriculture, efforts to meet up with their daily needs and strategies to cope with these increases, which are often and industrially difficult to manage.



**FIGURE 1: MAP SHOWING THE LOCATION OF THE CAMEROON COASTAL ZONE AREA (NGOUANET, 2010)**

**TABLE 1 POPULATION OF THE CAMEROON COASTAL ZONE**

<b>Administrative Circumscription</b>	<b>2005</b>	<b>2025</b>	<b>2050</b>
<b>SOUTH REGION</b>	634655	953208	1322496
NIETE	23921	35928	49847
BIPINDI	14118	21204	29419
CAMPO	6923	10398	14426
KRIBI	93246	140049	194306
<b>LITTORAL REGION</b>	2510263	3812832	5289984
DIBOMBARI	17141	26035	36122
DIZANGUE	17086	25952	36006
EDEA	88481	134394	186460
MOUANKO	9162	13916	19307
DOUALA 1	223214	339039	470388
DOUALA 2	261407	397050	550874
DOUALA 3	646347	981735	1362075
DOUALA 4	250626	380675	528155
DOUALA 5	544919	827676	1148331
MANOKA	5464	8299	11515
<b>SOUTH WEST REGION</b>	1316079	1985850	2755200
BUEA	131325	198158	274928
WEST COAST (IDENAU)	12725	19201	26640
LIMBE	118210	178369	247472
TIKO	117884	177877	246789
MBONGE	115692	174569	242200
BAMUSSO	19230	29016	40258
EKONDO - TITI	56503	85258	118289
DIKOME BALUE	13364	20165	27977
IDABATO	3482	5254	7290
ISANGELE	3476	5245	7277
KOMBO ABEDIMO	2146	3238	4493
KOMBO ITINDI	2958	4463	6193
MUNDEMBA	14385	21706	30115
TOKO	7035	10615	14728

*Sources: results of the 2005 census*

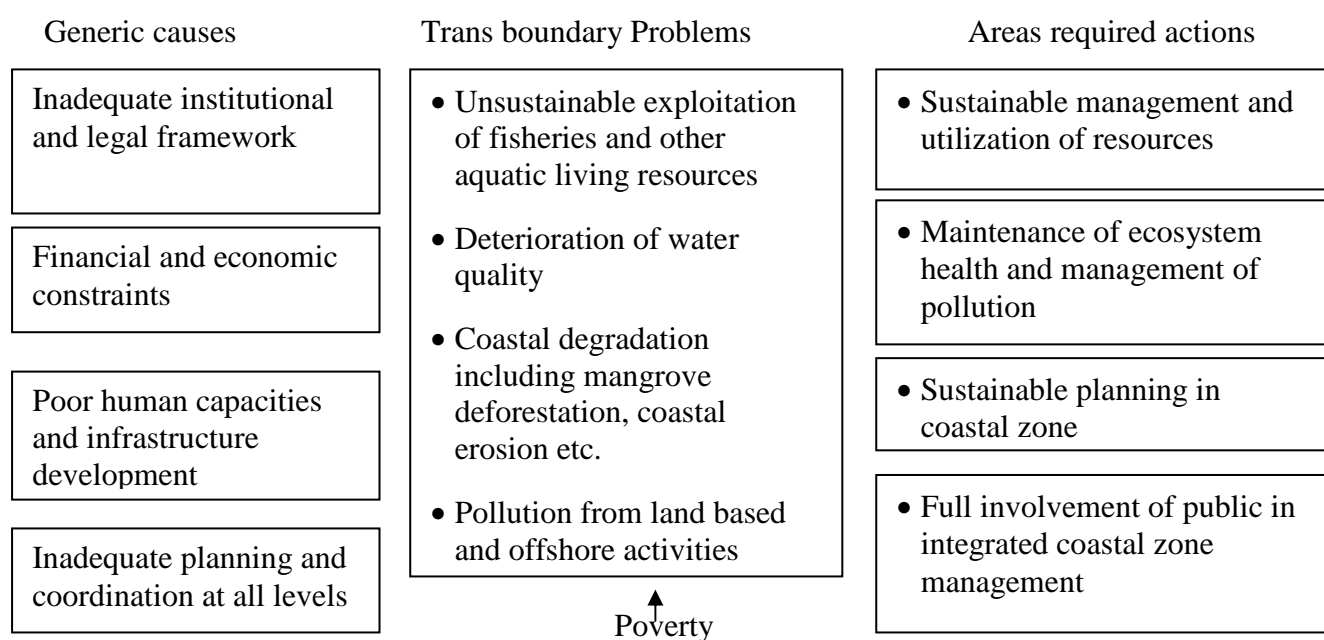
Maritime activities are substantial in this zone e.g. transportation, offshore prospecting and drilling, port activities at Douala etc. Huge agro-industrial companies involved in large scale cultivation of cash crops are based in the Kribi-Limbe zone. Some of which include CDC, DELMONTE, HEVECAM, SOCAPALM, PAMOL, SAFACAM, FERME SUISSE, SPNP, SBM etc. These companies cultivate a variety of crops including oil palm, rubber, bananas, tea etc.

A good number of industries have developed in the Kribi-Limbe area. These are mainly Food processing, chemical, textile, metallic, and petroleum industries. Cameroon's sole oil refinery, SONARA, is located at Cape Limboh near Limbe. The refinery is at the centre of a variety of activities in the oil sector, which together with many touristic activities (many pleasure beaches and tourist hotels abound), contribute considerably to the dynamism and vitality of the coastal zone. The much publicised Chad-Cameroon oil pipeline will pass through this Area en route to the pressure release station and finally to the offshore terminal in the Kribi area. These activities produce complex waste discharges and emissions that lead to environmental degradation. The most commonly cited problems related to the management of the Kribi-Limbe coastal area include:

- Pollution
- Unsustainable exploitation of fisheries and other coastal resources
- Degradation of water quality
- Coastal degradation and mangrove deforestation
- Inadequate institutional and legal framework
- Conflicts between users
- Information, financial and economic constraints
- Poverty

These activities produce complex waste discharges and emissions that lead to environmental degradation. The most commonly cited problems related to the management of the Kribi-Campo coastal area are in line with the main issues of the Trans boundary Diagnostic Analysis (TDA) identified in the regional project document and which discussion and analysis are highlighted in chapter 4. Major environmental issues and areas required actions are summarized in Figure 2.

The Cameroonian Authorities are aware of the effectiveness of Integrated Coastal Areas Management (ICAM) *"as a dynamic system in which a co-ordinated strategy is developed in order to assign environmental, socio-cultural and institutional resources with the objective of reaching conservation and multiple and sustained use of coastal areas resources"* and are anxious to apply this principle to the Kribi-Campo Coastal Area which was highlighted in the National Profile of Cameroon as needing urgent intervention of this nature.



**FIGURE 2 MAJOR ENVIRONMENTAL ISSUES AND AREAS REQUIRED ACTIONS**

The institutional and regulatory framework of the Kribi Campo coastal area is very complex because of the nature of the area where land based and marine activities meet and interact. Normally land activities such as forest exploitation, conservation, agriculture, mining, agro industries, tourism and urban development and sea activities such as transport, oil exploitation, and navigation are organized by different regulatory national frameworks; some regulations of maritime activities are based only on the application of international conventions such as MARPOL 78 Convention. But integrated coastal area management needs an integrated regulatory framework and an institutional coordinating mechanism for effective actions.

In Cameroon, this situation creates a great variety of institutions involved at different level (national, regional and local). In certain cases, international institutions with signed agreements are also involved. With regards to national regulatory framework, there is a large variety of laws, legislations, decrees and ordinances elaborated by the government to clarify conditions of accessing and using coastal and maritime spaces and their resources

Do to this complexity, Kribi Campo coastal area is facing the following critical issues:

- Uncontrolled and unplanned development facilities
- Anarchic occupation of the sea front
- Environmental problems due to human activities and climate/natural change
- Conflicts of access and control of coastal and marine resources
- Conflict of competency among different government institutions

- Land use and planning context
- Difficulty to implement the Urban Development Master Plan of Kribi town
- Increasing marginalization of local communities despite the availability and abundance of resources in the Kribi Campo area
- Poor involvement of association sector to coastal development and decision taking

Several attempts of implementing a coherent strategy for sustainable coastal area management have been made by Cameroon government, notably:

- The Coastal Zone Study and Management Agency (MEAL) which was created in 1980's. In 1985, this institution completed a Development Master Plan of Kribi town which was not implemented
- The need of having a coherent development tool for coastal zone development in the Kribi Campo area appears in 1990's with the Presidential Decree creating the Ocean Division Development Authority (MEAO). The mission of MEAO is to elaborate and submit a full comprehensive Development Master Plan for the entire Ocean Division including the coastal area Kribi Campo
- The 18<sup>th</sup> January 1996 constitution makes a provision for a decentralized state in Cameroon with creation of two levels of decentralization: regional and council level.

## **2.2. INSTITUTIONAL FRAMEWORK FOR SUSTAINABLE COASTAL ZONE MANAGEMENT IN CAMEROON**

### **2.2.1. Key institutional tools**

Many tools or strategies have been elaborated by the government and are directly or indirectly related to coastal zone management:

- DSRP: National Poverty Reduction Strategic Document
- SDRADDT: Regional Development and Management Master Plan
- MPCMNP: Management Plan of the Campo Ma'an National Park
- FESP: Forest Environment Sector Programme
- KCCZMSTD: Kribi Campo Coastal Zone Management for Sustainable Tourism Development

When Cameroon was admitted in the circle of Highly Indebted Poor Countries, she was requested to elaborate a National Poverty Reduction Strategic Document (DSRP). This was a great achievement as it was admitted that it would from now on constitutes a reference framework for all projects dealing with sustainable development. This National Strategy was supposed to be on line with the Millennium Development Goal (MDG) and the NEPAD Environmental Plan of Action. Many

aspects of this document are absolutely fitting with ICZM process. Endorsed in 2002, the Regional Development and Management Master Plan (SDRADDT) drawing up rationale is in the following aspects:

- Lack of a framework for physical planning and development
- Existence of many regional imbalances
- Need to put an end to “visual flying”

The Regional Development and Management Master Plan finally sets fundamental orientations in matters of regional development, environment and sustainable development

Another key document for sustainable coastal area management was the Management Plan of the Campo Ma'an National Park (MPCMNP). The Management Plan of the Campo Ma'an National Park and its Environs is the strategic framework for the implementation of conservation initiatives, and the promotion of sustainable use activities inside and within the periphery of the park. Construed between 1999 and 2005 through an interactive participatory process involving all stakeholders in the management of the park and its environs, the Management Plan was designed and developed within the spirit of legal reforms optimising local community participation in natural resource management (the 1994 - 1996 resource use laws), and policy changes requiring that protected areas be effectively reflective (through the development of a biodiversity vision) of the biological diversity of Cameroon (The Forest and Environment Sector Programme). It is also a manifest articulation of the guiding principles behind the new institutional dispensation for natural resource and environmental management (the separation of the Ministry of the Environment and Forests into 2 different ministries). The overall objective of the Management Plan is to 'ensure the protection of the biological diversity of the Campo-Ma'an National Park and its environs within a context of planned land-use and sustainable management of forest and wildlife resources. To achieve this objective, 5 management programmes shall be implemented during the five-year lifespan (2006 – 2010) of the management plan:

1. An Administrative and Financial Management Programme which has a prime objective the strengthening of the capacity of the conservation department of the Campo-Ma'an National Park;
2. A Protection Programme that shall, through park surveillance, safeguard in a sustainable manner the biodiversity of the park;

3. A Co-management and Eco-development Programme geared at setting into place mechanisms for participatory management and the development of viable ecotourism initiatives and other alternative socio-economic activities;
4. A Research and Ecological Monitoring Programme that shall focus on some flagship species and demographic and socio-economic trends and dynamics;
5. A Trans-boundary Management Programme that shall facilitate the harmonisation of conservation efforts between the adjacent National Parks of Campo-Ma'an (Cameroon) and Rio Campo (Equatorial Guinea) thereby strengthening capacity to raise funds for joint activities.

Forest Environment Sector Programme (FESP), created in 2004 has the responsibility of coordinating the overall environmental and forest policy in the country. FESP is a programme-based approach that aims at strengthening the institutional framework to manage Cameroon's forestry and wildlife resources in a sustainable manner and ensure that the sector contributes significantly to the national economy, local development and poverty reduction. The general objectives of FESP are as follows:

*Overall objective:* conservation, sustainable management and exploitation of forestry and wildlife resources to meet local, national, regional and global needs of present and future generations;

*Development Objective* (level of beneficiary populations): heightened improvement of the living conditions of the surrounding populations through the sustainable management of forest ecosystems is assured;

*Programme Objective:* The stakeholders sustainably manage the forest and wildlife resources in order to perpetuate the economic, ecological and social functions of the overall forest ecosystems of Cameroon.

FESP is structured into 5 inter-linked components, which together provide a comprehensive 10-year strategy for forest conservation and environmental management in Cameroon. These components are:

- Component 1: Environmental management of the forest activities;
- Component 2: Management of production forests and valorisation of forest products;
- Component 3: Biodiversity conservation and valorization of wildlife resources;
- Component 4: Community management of forest and wildlife resources;
- Component 5: Institutional strengthening, training and research.

The Kribi Campo Coastal Zone Management for Sustainable Tourism Development (KCCZMSTD) is a recent initiative comes from Kribi and Campo councils. It was a comprehensive participative process which involved local stakeholders from a wide variety of sectors. The document was endorsed in 2005 by the Ministry of Territorial Development, Economy and Plan (MINEPAT) and was supposed to settle an inter-council office for sustainable tourism. Up today nothing has been done.

### **2.2.2. Ocean Division Development Authority (MEAO)**

This institution created by Presidential Decree n° 99/195 of 10<sup>th</sup> September 1999 and which was completed by law n° 99/016 of 22<sup>nd</sup> December 1999. MEAO was born out of a political will to organize and decentralize development. It is a public institution with functioning autonomy and which receives financial subvention from government. The MEAO is in charge of carrying out studies and work specified in the Decree of creation, notably:

- Conception and planning of development of the Ocean Division, up to date at the information level
- Draw the division 's projected image to the year 2015-2025 within the framework of a sustainable development master plan
- Carry out studies, surveys and experiments to be presented to the government in view of a rapid, global and integrated development of the Ocean Division
- Organize and ensure coherent spatial and human insertion of equipment and State owned projects in its area of intervention
- Ensure identification, inventory and preservation of resources from the soil, sub-soil, the ocean, tourism and the environment
- Follow up and reinforce procedures for the rational occupation of the public maritime estate, of the national and private state owned land in the Division
- Participate in the implementation of any major social, economic and cultural projects that are currently going on or still to be initiated either by the state, or by private operators
- Solicit necessary information from public services and local communities as well as from private enterprises in order to better accomplish its mission
- Receive, analyse, synthesise and exploit all economic, social and cultural reports and documents meaning from public or parapublic services and private enterprises operating within its intervention area

- Receive and manage funds for the financing of surveys, studies and experiments for the effective and harmonious development of its area of competence
- Draft and submit to the government , organic texts for a regional development company managed by public funds, in replacement of the authority

The expected outcomes of MEAO are:

- Present within two years a general report to the government on an appropriate ation plan for the development of the Ocean Division
- Design new management tools for local development, in terms of methods, structures, concepts and appropriate budgetary outlines

A part these tools and organizations, there are many government ministries which are concerned by the coastal zone management. Table 2 summarizes key institutions and organizations intervening in the management of coastal area in Cameroon and their role and responsibility

### **2.2.3. Other local institutions and bodies involved in coastal zone management**

There are many other institutions and bodies involve in the coastal zone management in Cameroon and particularly in the Kribi Campo coastal area. Main important are:

- Artisanal Maritime Fishing Development Mission (MIDEPECAM)  
MIDEPECAM provides financial and technical support for the development of the maritime artisanal fisheries in Cameroon
- Programme of Integrated Development of the Atlantic Coast (PDICA)
- National Participative Development Programme (PNDP)
- Institute of Agricultural Research for Development (IRAD) with the Specialized Research Centre for Marine Ecosystem (CERECOMA) based in Kribi and the Specialized Research Station for Fisheries and Oceanography located in Limbe, in the south west region. IRAD is an operational research structure under the Ministry of Scientific Research and Innovation
- Main local or international Non-Governmental Organizations operate in the Kribi Campo coastal area are:
  - i) SNV: capacity building in sustainable tourism, zoning scheme in Kribi-Campo
  - ii) IUCN: International Union for Nature Conservation
  - iii) WWF: World Wildlife Fund
  - iv) CODEPAM: Fishing and farming Development Committee of Mbeka

- v) OPEL: Association of Fishermen of Lolabe
- vi) OPENWA/ Association of Fishermen of Ngoye-Wamie
- vii) CDDM: Fishing and Landing Stage Development Committee Mboamanga
- viii) CDDN: Fishing and Landing stage Development Committee of Ngoye
- ix) CECOPAK: Artisanal Fisheries Community Centre of Kribi
- x) PATHBEL: Promoters of tourism, fishing and environmental activities of the Lobe Water falls
- xi) EBOTOUR: Ebodjé Ecotourism Association
- xii) BANABA LOHOVE: Maritime artisanal fishermen group

The Cameroon government is also part of many regional processes which aims to sustainable manage coastal resources, notably:

- CEFDHAC: Central Africa Humid and Dense Forest Ecosystems Conference
- CARPE: Central Africa Programme on Environment
- COMIFAC: Conference of Ministers in charge of Central Africa Forest
- ECOFAC: Central Africa Forest Ecosystems
- MAB: Man and Biosphere
- OCFSA: Organization for the Conservation of Wildlife in Africa
- PAFT: Tropical Forest Action Programme
- RAPAC: Central Africa Network of Protected Areas
- RAM: African Network for Mangrove Conservation

Despite the presence of these numerous organizations and institutions, the Kribi Campo coastal area does not really take off and management problems still exist at all levels.

#### **2.2.4. Institutional arrangement for the successful implementation of the integrated management for the Kribi-Campo coastal area in Cameroon**

For the successful implementation of the integrated coastal management for the Kribi-Campo coastal area, the following institutional arrangement is proposed (Figure 3)

**TABLE 2: INSTITUTIONS OF PRIMARY IMPORTANCE TO SUSTAINABLE MANAGEMENT OF THE KRIBI CAMPO COASTAL AREA**

<b>Institutions/organisation/organs/ministries</b>	<b>Main role and responsibility in sustainable development</b>
Presidency	Promulgating the laws enacted by parliament. Through decrees, he regulate government policies relating to coastal management, sets up and organizes administrative structures with well-defined roles in marine and coastal area management
National Assembly	Ratifies international conventions and treaties on coastal issues to which Cameroon is a signatory
<b>Coordinating organs</b>	
i. The Interministerial Committee for Environment (ICE)	-Ensures and coordinates the involvement of all ministries in the management of the coastal and marine environment and its resources
ii. The National Environment and Sustainable Development Advisory Committee	Provides an appropriate platform for effective participatory approach to coastal and marine area management
iii. The Forest Environment Sectoral Programme	Dedicated to the coherent integrated development of forest, fauna and environment; is in charge of the management of protected areas through implementation of their management plans
iv. The National Environmental and Sustainable Development Fund (NESDF)	Set up by the environment framework law of 1996; it is a funding structure for the implementation of the National Environmental Management Plan (NEMP)
<b>Key Ministries</b>	
i) Ministry of Environment and Nature Protection	Management and coordination of activities related to environment Coordination of Interministerial/multisectoral committees established within MINEP on policy issues related to environmental protection
ii) Ministry of Forest and Wildlife(MINFOR)	In charge of the elaboration, implementation and evaluation of national policy on forest and wildlife; coordinates management and conservation of forests of the national domain
iii) Ministry of Agriculture and Rural Development (MINADER )	Elaboration and implementation of government policy in the agricultural and rural development sector
iv) Ministry of Economy, Plan and Territorial Development (MINEPAT)	In charge of elaborating government general framework for medium and long term development plans, preparing investment plans and promoting public investments, coordinating all projects dealing with planning at local, national levels
v) Ministry of Water and Energy (MINMEE)	Coordinates the national policy of production, transport and distribution of water and power
vi) Ministry of Livestock, Fisheries and Animal Husbandry (MINEPIA)	Ensures management, conservation and development of fisheries and livestock
vii) Ministry of Land and Landed Property Affairs	Conception, implementation and evaluation of land property policy, manages the national land and proposes land use framework, protects the public and private lands and conceives cadastral plans, delivers land certificates
viii)Ministry of Urban Development and Housing	In charge of improvement of habitat condition and occupation of land, conservation of landed property and natural ecosystems, elaboration and execution of land ownership urbanization and housing policy, ensures waste disposal management in town
ix) Ministry of Scientific Research and Innovation (MINRESI)	In charge of the implementation of government policy on scientific research and innovation through operational research structures
x) Ministry of Transport (MINTRANS)	Coordinates development activities related to land, sea and air transportation
xi) Ministry of Finance and Budget (MINFIB)	Collects taxes, prepare overall framework for national budget execution
xii)Ministry of Tourism (MINTOUR)	Elaboration of the national tourism policy
xiii) Ministry of Public Work (MINTP)	Prepares plans and follow up construction of key infrastructures related to public work
xiv) Ministry of Defence (MINDEF)	Assures safety over the national territory, in coastal and marine area through the marine national
xv) Ministry of Communication (MINCOM)	Facilitation and dissemination of information on issues related to coastal development
xvi) Ministry of External Relation (MINREX)	In charge of international conventions, treaties and protocols on the environment and development including marine and coastal areas
xvii) Ministry of Mine, Industrial and Technologic Development (MINMIDT)	In charge of implementation of government policy on mining, industrial and technologic development

### 2.2.5. Establishment of a Project Steering Committee (PSC)

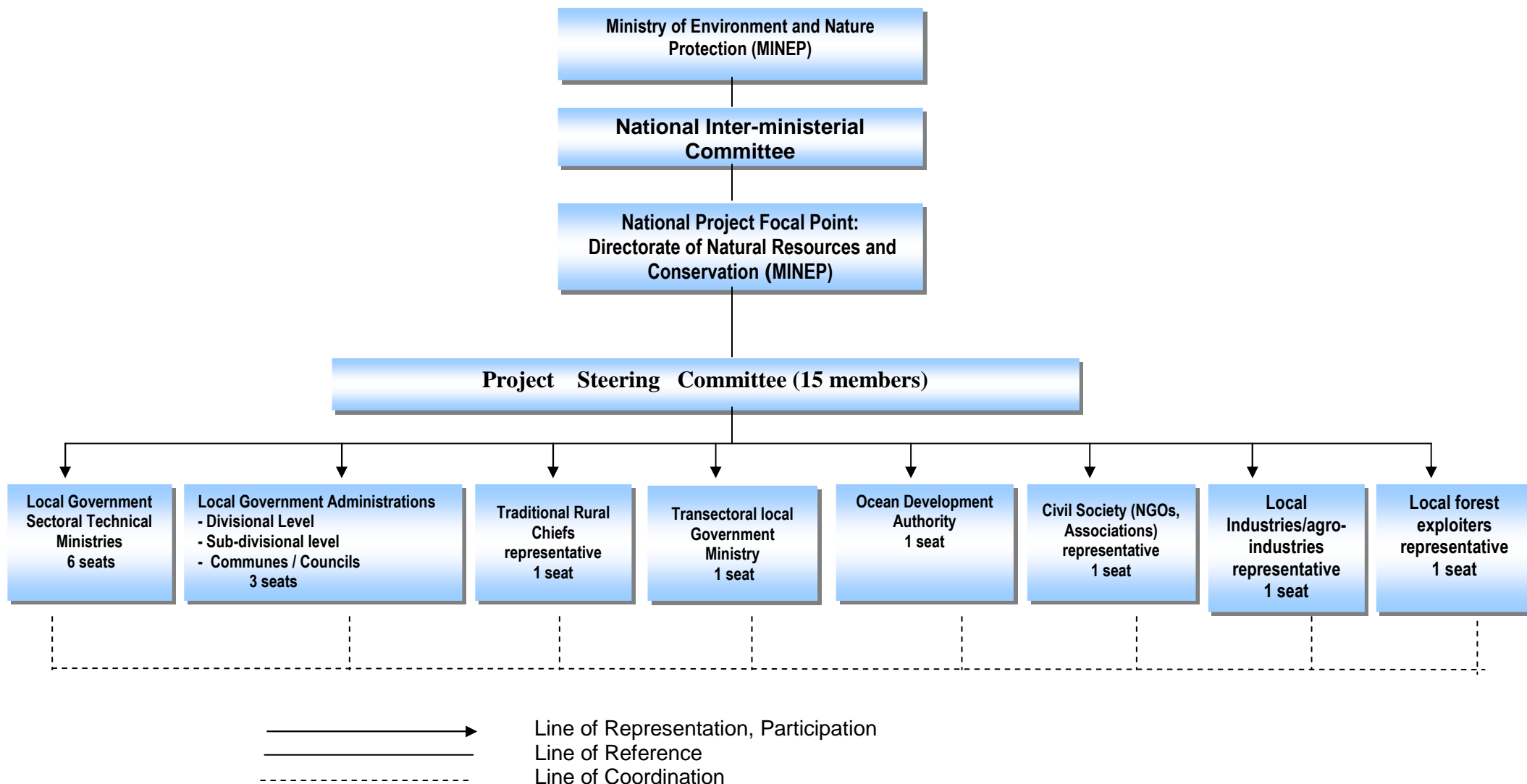
A Project Steering Committee (PSC) of 15 members is also established (table 3) through a large participative process during a national workshop where all stakeholders participated. The mandates of the PSC are:

- (ii) Programming
- (iii) planning
- (iv) The Monitoring and evaluation of the project activities
- (v) Dissemination of results

It was agreed that meetings of the PSC will be chaired by the local representative of the Ministry of Territorial Administration and Decentralization, and secretary of its meetings be held by the local representative of the Ministry of Environment and Nature Protection (MINEP) and that the PSC shall meet after two months of consultant work and twice a month for the rest duration of the project.

**TABLE 3: MEMBERS OF THE PSC, ICAM CAMEROON**

Type or quality of Member	Number of seats	Observations
<b>Local government administration ministry MINATD</b>	3	MINATD: Ministry of Territorial Administration and Decentralization including the Senior Divisional Officer of Ocean Representative of the 4 sub-divisional officers(DIO of Lokoundjé elected) Representative of the 4 mayors (Mayor Kribi I elected)
<b>Local government technical ministries : MINEP; MINFOF MINDAF; MINTOUR MINRESI; MINEPIA</b>	6	MINEP: Ministry of Environment and Nature Protection MINFOF: Ministry of Forestry and Wildlife MINDAF: Ministry of Domain and Land Affairs MINTOUR: Ministry of Tourism MINRESI: Ministry of Scientific Research and Innovation MINEPIA: Ministry of Livestock, Fisheries and Animal Husbandry
<b>Local government transectoral ministry</b>	1	Representative of MINEPAT: Ministry of Economy, Plan and Development
<b>Local Development Authority</b>	1	Representative of MEAO: Ocean Development Authority
<b>Representative of traditional rulers (chiefs)</b>	1	Chief JAHENGUE Jean Pierre has been elected by other traditional chiefs as their representative at the PSC
<b>Representative of NGOs, Associations</b>	1	The association COOPEL has been elected by other member of the civil society to represent them at the PSC
<b>Representative of local industries and agro-industry companies</b>	1	SOCAPALM Company: Société des Palmeraies du Cameroun
<b>Representative of local Timber forest exploiters</b>	1	WIJMA Company
<b>Total</b>	<b>15</b>	



**FIGURE 3: INSTITUTIONAL ARRANGEMENTS FOR THE IMPLEMENTATION OF INTEGRATED COASTAL MANAGEMENT FOR THE KRIBI-CAMPO COASTAL AREA IN CAMEROON**

### **2.2.6. Role and responsibilities for each stakeholder**

To assure smooth running of the project activities role and responsibilities of each participating stakeholders were identified and agreed (table 4). In addition to these role and responsibilities each stakeholder should continue to play its mandatory responsibilities during the project implementation; for example traditional rulers should continue to sensitize their population on the importance of the project and let them know that it is their project, they should become owner; local technical ministries should continue to play their role and responsibilities during project implementation.

Finally, the following two pioneers groups which already have some ongoing activities related to Integrated Coastal Area Management were identified and agreed during the participation workshop:

- (i) COOP.EL : Coopérative des Pêcheurs de Londji, a Community Base Organization
- (ii) ENVIRONNEMENT M'ACCOMPAGNE:an NGO active in pollution management and mangrove regeneration

## **2.3. REGULATORY FRAMEWORK**

### **2.3.1. General regulatory framework for sustainable coastal development**

Cameroon as signatory of many international conventions and agreement related to sustainable coastal zone management has the obligation to keep a healthy coastal environment and to conserve coastal resources. Cameroon has ratified many conventions related to sustainable coastal management but in practice, implementation of these conventions at the national level still has some difficulties. Increase interest for environmental issues and the recognition of the fact that natural resources are used and exploited in an unsustainable manner and which this lead to unbalanced ecosystem, This has made the environment management become a priority for Africa.

**TABLE 4: IDENTIFIED ROLE AND RESPONSIBILITIES OF EACH STAKEHOLDER**

Giving Role and responsibility	Project national focal Point (MINEP)	Stakeholders							Project Steering Committee
		Local government Territorial administration	Local government technical sectoral ministries	Local government transectoral ministry	Traditional chiefs	Civil Society (NGOs, Associations etc.)	Local Development Authority	Local industries and timber forest exploiters	
Define a common vision		X	X	X	X	X	X	X	
Assure effective Coordination and coherence at project site	X	X							X
Micro projects elaboration		X	X	X	X	X	X	X	
Search / finance for micro project implementation	X			X			X	X	
Monitoring and evaluation									X
Micro project approval	X								X
Implementation of micro projects			X	X	X	X	X	X	
Overall supervision	X								
Communication and dissemination of information	X								X

Cameroon effort to conserve and sustainable manage its coastal and marine environment are reflected in:

- i) The National Environmental Management Plan (NEMP) adopted in 1996 which identified coastal and marine areas as fragile ecological region which need an integral protection through sustainable management of its resources. For coastal and marine zone, the NEMP adopts the following strategies:
  - prevention and control for pollution (land based and marine based);
  - control of coastal erosion;
  - reinforcement of local population capacity to manage marine and coastal ecosystems,
  - taking in account policy options from international and regional instruments
- ii) Law no 96/12 of 5<sup>th</sup> August 1996 on Environmental Framework. This law contains mechanisms for reinforcement, guiding principles, national policy and strategic measures, guidelines for sectoral and cross cutting management with regard to coastal environment protection, coastal resources management and sustainable development. The environmental framework law develop pertinent mechanisms on environmental impact assessment (chapter 1); classified establishments (section 2); protection of receptors environments (chapter 3), inland waters and flooding planes( (article 25), protection of the coast and marine waters (section 3), protection of soil and sub-soil (section4)
- iii) Law no 94/01 of January 1994 on forests, wildlife and fishing defining natural parks and reserves. In article 30 on communal forests, this law gives the possibilities to local councils to apply for a land certificate on a forest whose objectives and limits are defined. This important measure is a precious tool for local councils facing the challenge of reducing pressure on land in order to plan future facilities without constraints
- iv) Law no 99/006 of April 14<sup>th</sup> 1998 on tourism activity and the decree of application no 99/443/PM of March 25<sup>th</sup> 1999 defines the creation of a National Technical Commission in charge of authorizing new tourism facilities. It gives the possibility in article 49 to create a Communal Tourism Agency
- v) Law no 96/14 of 05<sup>th</sup> August 1996 regulating transport by pipeline through national territory of liquid or gas hydrocarbons from neighbouring countries

- vi) Decree no 2005/0577/PM of 23<sup>rd</sup> February 2005 fixing modalities for carrying out environmental impact studies
- vii) Decision no 6069/MINTP of 8<sup>th</sup> March 2005 fixing different category of operations which the realization is submitted to the environmental impact study
- viii) Law no 98/005 of 14<sup>th</sup> April 1998 on Water Regime

This law regulating environmental management principles and public health protection directly link with water regime; it insists on:

- Protection of water against pollutants
  - Preservation of water resources and the quality of water for human consumption
  - Sanctions from non-respect of the provision of this law
- ix) Law no 62-07 of 31<sup>st</sup> March 1962 on marine merchant with subsequent modifications(law no 63/17 of 19<sup>th</sup> June 1963, law no 67-LF-25 of 30<sup>th</sup> November 1967)
  - x) Law no 64-LF-3 of 6<sup>th</sup> April 1964 on mineral substances regime with application decree no68/DF-224 of 6<sup>th</sup> April 1964
  - xi) Decree no 77/528 of 23<sup>th</sup> December 1977 regulating the storage and the distribution of petroleum products
  - xii) Law no 83/16 of 21<sup>st</sup> July 1983 regulating police activities within the port authority area
  - xiii) Law no 89/027 of 29<sup>th</sup> December 1989 on toxic and dangerous wastes
  - xiv) Ordinance no 90/001 of January 29<sup>th</sup> 1990 on industrial free zone regime and application text no 51/MINDIC/IGI of 28<sup>th</sup> September 1990
  - xv) Law no 98/021 of 24<sup>th</sup> of December 1998 on the organization of port sector and application decrees, organizing and creating autonomous ports of Douala, Limbe, Kribi and Garoua

Implementation of these instruments has been hampered or delayed by several factors such as:

- Incomplete legal framework
- Inadequate legal texts
- Gaps on regulatory instruments
- Lack of adequate logistic to apply laws
- Weak human and financial capacity
- Insufficient international support

There is an urgent need to review and update national legislation on coastal zone management. For a successful coastal area management within the Kribi Campo area, table 5 gives various national instruments, gaps identified, role of administration, role of other stakeholders and proposed amendments.

**TABLE 5: MAIN LEGAL INSTRUMENTS ON COASTAL ZONE MANAGEMENT AND PROPOSED AMENDMENTS**

<b>Regulation</b>	<b>Main contain of the regulation</b>	<b>Responsibilities of administration/ government</b>	<b>Responsibilities of other stakeholders</b>	<b>Gaps identifies</b>	<b>Proposed amendments for improvement</b>
National Environmental Framework Law, no 96/12 of 5 <sup>th</sup> August 1996	<ul style="list-style-type: none"> <li>-Interministerial Committee for Environment</li> <li>- National Advisory Commission for Environment and Sustainable Development (NACESD)</li> <li>- National Fund for Environment Sustainable Development (NFESD)</li> <li>-Protection of the atmosphere</li> <li>-Protection of continental waters and flooding planes</li> <li>-Protection of littoral and maritime waters</li> <li>-Protection of nature and biodiversity</li> <li>Types of forests, fishing</li> </ul>	Elaboration of application texts for implementation and supervision	Application of measures according to norms	<ul style="list-style-type: none"> <li>- Deconcentrated services are not associated, while they are at the basis in the field</li> <li>-Lack of application text</li> <li>-Lack of specific application text on biodiversity protection</li> </ul>	<ul style="list-style-type: none"> <li>-Invite to assessment meetings a responsible from regional level for a review of an environmental Impact in its area by an economic operator</li> <li>- publication of application texts précisng modalities of use of these fund</li> <li>- publication of application texts on coastal and marine areas protection</li> </ul>
National Environmental Management Plan (NEMP) adopted in 1996	Identifies marine and coastal ecosystems as very fragile ecological zone and which require protection	Put in place conditions for the implementation of the plan	Fully involved and Participate in the implementation of actions	<ul style="list-style-type: none"> <li>-No specific plan for mangrove exploitation</li> <li>-no specific attention to tourism and recreational coastal facilities</li> </ul>	<ul style="list-style-type: none"> <li>-Revision to include mangrove</li> <li>-include tourism and recreational coastal facilities</li> </ul>
Forestry, Fishing and Wildlife no 94/01 of 20 <sup>th</sup> January 1994	<ul style="list-style-type: none"> <li>- Management and conservation of fisheries resources: prohibits the use of small mesh size nets</li> <li>- Mariculture and pisciculture</li> <li>- Creation of fisheries establishments</li> <li>- Infrastructures and sanctions</li> <li>- Protection of common fishing zone for artisanal (3 nautical miles)</li> <li>- Prohibits fishing with inappropriate gears such as explosives</li> </ul>	Validation and supervision of actions	Information and participation during implementation	<ul style="list-style-type: none"> <li>-Inefficient control and implementation for protected zones and pollution control</li> <li>-No mesh size is giving for each exploited species</li> <li>-Surveillance problems are not clarified</li> <li>- no specific attention on mangrove</li> <li>No indication on biological rest period</li> </ul>	<ul style="list-style-type: none"> <li>-Revision to include management strategy and biological rest periods</li> <li>-Give mesh size per specie exploited</li> <li>-Put in place a monitoring and control programme</li> </ul>

<b>Regulation</b>	<b>Main contain of the regulation</b>	<b>Responsibilities of administration/ government</b>	<b>Responsibilities of other stakeholders</b>	<b>Gaps identifies</b>	<b>Proposed amendments for improvement</b>
Ordinance no 62/OF/30 of 31 <sup>st</sup> March 1962 on Merchant Marine Code	-Transport of inflammable products, explosives or dangerous -Prohibits fishing with	-Ensure implementation and supervision	Information and participation during implementation	Inefficient control measures	Reinforce control measures
Law no 64/DF/162 of 26 <sup>th</sup> May 1964 fixing research, exploitation, and gas and liquid hydrocarbons transport modalities	- Research on liquid and gas hydrocarbons - Transport of liquid or gas hydrocarbons through pipelines -Fixing modalities of mineral and petroleum research within the national territory	-Ensure implementation and supervision	Information and participation during implementation	-nothing is said on the protection of environment during drilling and petroleum prospection -no defined responsibility in case of accident	-take in account environment protection in the application text -precise responsibilities of each stakeholder in the application text
Law no 78/14 of 29 <sup>th</sup> December 1978 completed with law 64/LF/of 6 <sup>th</sup> April 1964 on regime of mineral substances	-Research and exploitation by petroleum companies	-Ensure implementation and supervision	Information and participation during implementation	-inefficient in application -nothing on the protection of environment with regard to exploitation of mineral resources	-Reinforce application -Include in the application text measures to be taking for the protection of the environment during mineral substances exploitation
Law 83/16 of 21 <sup>st</sup> July 1983 regulating inspection within the port domain	Prevention of fire disasters and pollution of waters with fines for defaulters	Ensure implementation and supervision	Information and participation during implementation	-Too general for pollution issues	Provide specific text for marine environment
Law no 89/27 of 29 <sup>th</sup> of December 1989 on toxic and dangerous waste	-Ban introduction of dangerous wastes into the national territory -Considers as toxic or dangerous wastes: wastes containing inflammable, explosive, radioactive substances and which -Request enterprises to declare volume and nature of toxic and dangerous waste produced and ensure their elimination	Ensure implementation and supervision	Information and participation during implementation	-Too general -No measure for the follow up and control of declaration of these enterprises	Provide specific text for marine environment -Include measure for follow up and control of declaration from enterprises on their wastes
Law no 78-23 of 29 December 1978 on protection of national parks	Consider as offence the pollution of water, the introduction of alien species	Ensure implementation and supervision	Information and participation during implementation	Responsibility of the population is not clarified in the law	Participation of the local population to be taking in account in the application text
Abidjan Convention		Take measures for the	To negotiate as		

<b>Regulation</b>	<b>Main contain of the regulation</b>	<b>Responsibilities of administration/ government</b>	<b>Responsibilities of other stakeholders</b>	<b>Gaps identifies</b>	<b>Proposed amendments for improvement</b>
1981 on the cooperation for the protection and development of coastal and marine environment of the West and Central Africa and its protocol ratified in 1983		protection of marine and coastal environment from pollution and other human degradations	civil society the statute of observer		
Alger Convention 1968 on the nature and natural resources conservation		Establish Cooperation mechanism with other countries	To negotiate as civil society the statute of observer		
Bamako Convention on the interdiction of importation to Africa and control of Trans boundary dangerous waste in Africa		Establish cooperation mechanism with other countries Propose sanctions in case of infraction	Be able to understand emergency and inform on time government authorities		

Amendments to the national regulatory framework will conduct to achieve the following actions:

- Enact special regulations for fragile ecosystems such as estuaries, mangroves
- Update and enforce relevant existing regulations guarding against environmental degradation or biodiversity loss
- Strengthening environmental impact assessment programme
- Monitor and mapping of high risk zones
- Restore damage areas through reforestation
- Creation of public awareness on environmental issues and the need for conservation and sustainable uses of natural resources
- Provide adequate funding or efficient financial mechanisms to support programmes/activities that promote healthy environment and sustainable use of resources
- Promote research and data and information collecting on the area of coastal zone management

# **CHAPTER III**

## **NATURAL ENVIRONMENT OF THE KRIBI CAMPO COASTAL ZONE**

### **3.1. DEFINITION OF THE COASTAL ZONE BOUNDARIES**

The coastal zone here is defined as the area which extends from high tide mark up to 60 km into the hinterland and 200 nautical mile limits offshore. The continental limits are illustrated by a hypothetical line drawn from the north to the south which passes through: Mundemba, Dibombari, Edea and Bipindi (Figure 3). This line passes through the national regions of South-West, Littoral and South. The continental shelf is about 10.600km<sup>2</sup> with an Exclusive Economic zone (EEZ) of about 15,400km<sup>2</sup>. All aquatic ecosystems of this coastal plain of the Atlantic are covered within these limits, notably: ocean, coastal forests, deltas, sand dunes, mangroves, coastal rivers, estuaries, bays, lakes, beaches and muddy coasts. The total river basin drainage area is about  $2.7 \times 10^5 \text{ km}^2$  with the Sanaga contributing the highest sediment load ( $2.8 \times 10^2 \text{ km}^3 / \text{year}$ ).

### **3.2. DELIMITATION OF THE PROJECT AREA**

The project area is located in Zone south of the coastal zone as described in Figure 1). To delimit the project area, two criteria were used: the distance from the coastline to hinterland which should not exceed 60 km (MINEF-UNIDO, 1999) and some major components of the physical environment. For instance, the zone is delimited in the North by the Lokoundjé River and in the South by the Ntem River (Figure 4) which plays the role of international boundary between Cameroon and Equatorial Guinea. In the East, the high topography which goes from the Djipikar Island to Bipindi with altitudes higher than 800 m in places can be considered as an important physical barrier with the maritime influence. The line delimitating the catchment area or watershed of small coastal rivers, which is located at about fifty or sixty kilometers from the coastline was used as limit.

### **3.3. CLIMATE, HYDROLOGY AND OCEANOGRAPHIC CONDITIONS WITHIN THE KRIBI CAMPO AREA**

The climate of the Kribi Campo area is the equatorial climate type which is exposed to oceanic influences. This climate is determined by the dynamism of ICZ (Inter-tropical Convergence Zone). South West Guinea Monsoon is the main source of rainfall in the area. Kribi receives a mean annual rainfall of about 2900 mm covering 204 days. Four identified seasons are found: a major raining

season from mid-August to November, a minor rainy season from March to June, a major dry season from December to mid-March and finally a minor dry season from June to mid-August.



**FIGURE 4: MAP SHOWING LIMIT BOUNDARIES OF THE PROJECT AREA**

The mean air temperature of Kribi is about 25°C, this figure can rise up to 28°C in dry season with maximum of 31.5°C in March. Winds are moderated to weak (0.5 to 2m/s).

The hydrographical network is dense with small river draining basins with fast flowing creeks and rivers in rocky beds containing many rapids and small waterfalls. Characteristics of main rivers are giving in table 6.

**TABLE 6: KEY FEATURES OF THE MAIN RIVERS OF THE KRIBI CAMPO COASTAL AREA**

River	Length	Drainage basin (Km <sup>2</sup> )	Mean discharge (m <sup>3</sup> /s)	Mean lowest water (m <sup>3</sup> /s)	Mean flow discharge(m <sup>3</sup> /s)	Highest discharge registered (m <sup>3</sup> /s)
Nyong	800	14 000	2.8X10 <sup>9</sup>	-	376	-
Lokoundjé	216	1150	28.2	3.3	118	220 (1976)
Kienké	130	1435	49.2	7.8	177	228 (1966)
Lobe	130	2305	102	8.3	390	564(1976)
Ntem	460	18100	276	50	764	1318(1971)

*Source: Olivery, 1986*

Tides are semi diurnal with mean tidal ranges being 1.8 to 2.8m. Spring tides can attain 2 to 4m on the open coast (Bird and Schwartz, cited in CSIR, 2002).

Currents in bay of Biafra offshore of Cameroon are generally fairly weak and constitute a zone of convergence between the eastward flowing Guinea Current and the northwards surface flows from the south. Measurements of surface currents offshore Cameroon indicate a convergence of surface flows offshore of the Cameroon Estuary and a flow of surface waters in the south westerly direction into the bay of Biafra

Waves crest are oriented North-East and are diffracted by the Bioko Island before reaching the Kribi coasts. Measurements in the south of the Cameroon coast which includes the Kribi Campo region indicate swells to be mainly from the western sector, with higher wave heights during the rainy season. Maximum wave heights have been recorded between 2.65 and 3m(5 year storm) and between 2.8 to 3.25m (10 year storm)( CSIR, 2002). Local generated waves are small. During dry season, oceanographic conditions are more stable than during rainy seasons. Surface temperatures are generally above 25°C and the salinity is always low. Data recently collected (Table 7) during the Dr Fridjof Nansen cruise along Cameroon coast gives surface temperatures 28.4°C at Campo and 28.6°C in Kribi (Krakstad and al., 2006). For the same period, salinities recorded are 31 and 32 ppt.

**TABLE 7: DATA ON SURFACE TEMPERATURE AND SALINITY WITHIN THE CAMEROON COASTAL WATERS (KRAKSTAD AND AL. 2006)**

Location	2004		2005		2006	
	Temperature (°C)	Salinity (ppt)	Temperature (°C)	Salinity (ppt)	Temperature (°C)	Salinity (ppt)
Limbe	27.5	23	26.8	19	28.8	28
Wouri Estuary	27.4	23	27.2	17	29.2	23
Kribi	27.2	27	27.4	30	28.6	31
Campo	27.2	30	27.3	34	28.4	32

### 3.4. COASTAL HABITATS, BIODIVERSITY AND THREATENED SPECIES

Cameroon's coastal zone is characterized by diverse habitats such as lagoons, beaches, bays, mangroves / estuaries, lowland coastal forests. These habitats are identified in the Kribi Campo zone. This area is very rich in biodiversity and contains one of the important national parks of the country, the Campo Ma'an National Park.

#### 3.4.1. Coastal habitats

Coastal habitats include beaches, small lagoons, estuaries, mangroves and coastal forest.

##### 3.4.1.1. Beaches and bottom feature

There is a long sanding section of beach with little or no outcropping rock from the mouth of river Lokoundjé to the Londji bay. The rest of the coastline of the Kribi Campo area is characterized by stretches of straight to undulating beaches alternating with outcropping areas. Streams and rivers are located within these outcrops flowing into small lagoons that empty into the bays during periods of high tides. The seabed sediments consist of a mixture of partly silicified or calcified coastal sands, muddy - sand, sandy- mud, mud, silt and possibly little coral. Fine grain mud and silt deposits occur in the estuaries of all rivers.

##### 3.4.1.2. Estuaries

Although there are four rivers (Lokoundjé, Kienké, Lobe and Ntem) that drain into the coast, only Lokoundjé and Ntem have extensive estuaries. The Lobe River flows over a waterfall (Chute de la Lobe) into a large pool that opens directly into the sea. Diversity in the estuaries is determined largely by phytoplankton and associated primary production, as well as inputs of organic carbon in the form of mangrove litter and other plant litter (Gabche and al. Cited in CSIR, 2002) in the Ntem estuary. The Ntem also has an extensive coastal plain that was formed by deposits of large quantities of sand, silt and clay into the coastal environment over several millennia. Interactions between the river and tidal exchange have created creeks, mud banks and islands dominated by *Rhizophora racemosa* with some *R. harrisonii* (Afa, 1986) within the Ntem estuary

##### 3.4.1.3. Mangroves

All the six species of the Gulf of Guinea mangrove are found in Cameroon. These include *Rhizophora mangle*, *R. Harrisonii* and *R. Racemosa*, *Avicennia germinans* and *A. Africana*, *Leguncularia racemosa*, *Conocarpus erecia* (Annon, 1992). 80 % of mangrove in the Kribi Campo zone are found in the Ntem estuary. The Ntem has a much greater proportion of the regressive *Rhizophora* series and the

*Pandanus* or *Acrosticum* communities and covers about 1769.35 ha (CSIR, 2002) The Lokoundjé estuary has a high proportion of mixed mangrove (*Rhizophora* and associated mangrove species) indicating greater freshwater influence in the area and covers about 469.36 ha (CSIR, 2002). Plant species associated with mangrove in the Ntem estuary include: *Hibiscus tiliaceus*, *Dalbergia acastaphyllum* and *Drepanocarpus lunatus*, palms and number of coastal forest species.

#### 3.4.1.4. Coastal forest

The Kribi Campo zone falls within the region of Atlantic equatorial coastal forests (MINEF, 1977). It has many creepers (lianas) of which an inventory is giving in Tropenbos/MINEF/SNV, (2002). The Campo area is dominated by lowland evergreen forests rich in Caesalpinioideae, with *Calpocalyx heitzii* and *Sacoglottis gabonensis*, a vegetation type that is only known from this area. The Campo-Ma'an area also supports a great diversity of habitats from coastal vegetation on sandy shorelines at sea level to the submontane forest at about 1100 m. The main vegetation types found in the coastal area and its peripheral zone are:

- *Lowland evergreen forest rich in Caesalpinioideae, with Calpocalyx heitzii and Sacoglottis gabonensis*: This forest type is unique in Cameroon and only occurs in the Campo area between 50-200 m above sea level (Letouzey, 1985; Thomas & Thomas, 1993; Tchouto *et al.*, 2004). It is characterised by its abundance in Caesalpinioideae, *Calpocalyx heitzii* and *Sacoglottis gabonensis*.
- *Lowland evergreen forest rich in Caesalpinioideae, with Sacoglottis gabonensis and other coastal indicators*: Generally, this forest type is found along the coast and around Massif des Mamelles, Mont d'Eléphant, Nyete and Lobe between 50-350 m above sea level. It is characterised by its richness in Caesalpinioideae and the presence of many coastal indicators amongst which *Sacoglottis gabonensis* is the most frequent.
- *Coastal forest rich in Sacoglottis gabonensis*: These forests are predominantly found along the coast between Kribi and Campo at altitudes between 10-100 m above sea level. It is characterised by the frequent occurrence of *Sacoglottis gabonensis* that occurs in association with other tree species such as *Coula edulis*, *Cynometra hankei*, *Lophira alata*, *Ochthocosmus calothyrsus* and *Pycnanthus angolensis*. This forest type is heavily affected by human activities such as agriculture, logging, road construction, and urbanisation. It is rather difficult to find traces of undisturbed forest of this type despite its primary appearance in some areas.
- *Coastal forest rich in Calpocalyx heitzii and Sacoglottis gabonensis*: This vegetation type occurs in the Campo area between 0-100 m above sea level and represents a transitional zone where the evergreen forest rich in Caesalpinioideae, *Calpocalyx heitzii* and *Sacoglottis*

*gabonensis* mixes with the coastal forest. As a result, it contains many more coastal indicator species and much less Caesalpinoideae than the latter.

#### **3.4.1.5. Coastal lagoons**

The coast here is made by numerous small rivers and streams that have small sand barrier lagoon at their mouths. Twenty small lagoons could be identified in this area (CSIR, 2002). These habitats are not veritable lagoons. They are seasonal and with large volumes of water that flow in and out with every tidal cycle all year round. A good example can be seen where the Londji stream drains into the Londji bay. Most of these lagoons are bordered by mixed fresh and salt water mangrove vegetation, dune forests or near shore forests. These ecosystems are highly vulnerable to oil spills.

#### **3.4.1.6 Coastal vegetation on sandy shorelines**

It occurs along the coastline between Kribi and Campo, supporting a species-poor belt of low-canopy woody vegetation, often with herbaceous and shrubby maritime plant species. The foreshore is dominated by the typical Atlantic shore species *Ipomea pes-caprae* spp. *brasiliensis* that occurs on a low sandy coastline. The seaward side bordering this formation is rich in maritime tree species such as *Terminalia catappa*, *Syzygium guineense* var. *littorale*, *Phoenix reclinata*, *Chrysobalanus icaco* spp. *icaco*, *Manilkara obovata*, *Calophyllum inophyllum*, *Carapa procera* and *Cocos nucifera*.

#### **3.4.1.7 Seasonally flooded and swamp forests**

They are found throughout the Campo-Ma'an area along rivers, in river basins and creeks in areas which are permanently or seasonally inundated. Many species have breathing or aerial roots that give a conspicuous physiognomy to this vegetation when combined with the unusual architecture of other species such as *Lasiomorpha senegalensis*, a giant spiny aroid, *Ficus vogeliana* with long sinuous spreading buttresses bearing *flagelliform infructescences* and the sprawling, highly thorny *Pandanus*. Riparian forest communities are mostly found on seasonally exposed rocks along riverbanks that are seasonally submerged.

### **3.4.2. Vulnerable species**

#### **3.4.2.1. Marine and terrestrial fauna**

Almost 80 species of large and small mammal are found in the CMNP area of which 23 species are considered to be either endangered or vulnerable (IUCN, 2004; Matthews & Matthews, 2000, Vivien, 1991). Furthermore up to half of the total mammal species found in Cameroon and two-thirds of those found in dense forest are recorded in the area. The site is also an important area for primate conservation with 18 species of with 5 of the 9 vulnerable primate species found in Cameroon. Endangered species include the forest elephant *Loxodonta africana cyclotis*, the chimpanzee *Pan*

*troglodytes*, the gorilla *Gorilla gorilla gorilla* and the giant otter shrew *Potamogale velox*. Vulnerable species include the forest leopard *Panthera pardus*, the Mandrill *Mandrillus sphinx*, the Black colobus *Colobus satanas*, the Spot-necked otter *Lutra maculicollis*, the African manatee *Trichechus senegalensis* and the Dwarf crocodile *Osteolaemus tetraspis*.

The CMNP and its peripheral zone, including the coastal area contain 122 species of reptile, of which six new species (Chiro, 2000), 80 species of amphibians including the vulnerable Goliath frog (*Conraua goliath*), three threatened species of crocodiles (African long-nosed crocodile: *Crocodylus cataphractus*, Nile crocodile *Crocodylus niloticus*, Pygmy African crocodile *Osteolaemus tetraspis*) and four endangered species of turtle (Hawksbill turtle *Eretmochelys imbricata*, Leatherback turtle *Dermochelys coriacea*, Green turtle *Chelonia mydas* and Olive Ridley *Lepidochelys olivacea*). These four marine turtles are either endangered or critically endangered and need integral protection in this area since they usually use beaches as spawning area where they lay their eggs (WWF, 2005; IUCN, 1995).

About 249 different kinds of fish are known from CMNP area, including the coastal area, with four endemic species and 08 species which geographical distribution is limited to the area (Djama, 2001). Ornithological studies carried out by Languy & Demey (2000), Anye *et al* (2001), Yana *et al* (2001) and Anye (2002) have confirmed the presence of 302 bird species of which 24 are rare or endangered and 168 that are partially or fully confined to the guineo-congolian forest type. Furthermore, a good number of these bird species are part of the ICBP. According to ICBP/IUCN two species found in the area are considered to be endangered or vulnerable include the Red-headed Rockfowl *Picathartes oreas* and *Ploceus batesi*. The coastal area provides habitats for limited number of migrant birds. Water habitats such as rivers, small streams, marshes as well as estuaries support many bird species that might be affected by upstream industrial development. Twenty-eight species of bat are present in the area of which two are endemic to Cameroon *Nycteris major* and *Hipposiderus curtus*, seven species of flying squirrels and three species of pangolin including the vulnerable giant pangolin *Manis gigantea* (Thomas & Thomas, 1993).

#### **3.4.2.2. Floristic richness and diversity**

The Campo-Ma'an area is recognised as an important site within the Guineo-Congolian Centre of Endemism (White, 1983; Gartlan 1989; Davis *et al.*, 1994). It is characterised by a rich and diverse flora with more than 2297 species of vascular plants, ferns and fern allies belonging to 851 genera and 155 families. The area has about 114 endemic plant species, 29 of that are restricted to the area, 29 also occur in south-western Cameroon and 56 others that also occur in other parts of Cameroon (Thouto *et al*, 2004). An explanation for this high incidence of endemism, richness and structured pattern of the

vegetation might stem partly from the fact that the area falls within a series of postulated rain forest refuges in Central Africa (Hamilton, 1982; White, 1983; Maley, 1987 & 1989; Sosef, 1994 & 1996). The distribution patterns of high conservation priority species showed a high concentration of these species in the National Park between Dipikar Island and Ebianemeyong-Akom II area. Other areas of high concentration of strict and narrow endemic species were located outside the park in the coastal zone and in areas such as Mont d'Eléphant and Massif des Mamelles. Unfortunately, these areas that support 17 strict endemic species that are not found in the park were much more affected by human activities.

### **3.4.3. Archaeological sites**

In the Kribi Campo area, there are about 50 archaeological sites distributed in various zones: Nko'Elon, Campo Ma'an National Park, Nlende-Dibe, Eboundja, Melabe, Bwendjo (Bouandjo), Ebodje, Bissoubiliga (Boussebiliga), Lolabel I, Lolabe II, Lolabe III, Lohengue, Etonde Fang,

### **3.4.4. Fragile ecosystems which need protection**

In the study area, mangrove ecosystems are not well developed and are mainly located along the Nyong, Lokoundje and the Ntem rivers estuaries. These mangroves are nurseries areas for many fisheries species and where they also found two species of antelopes: *Cercus euryceros* (bongo) and *Tragelaps spekei* (statunga)

## **3.5. SOCIO-ECONOMIC SETTING**

### **3.5.1. Introduction**

The coastal and marine ecosystems of Cameroon and other Guinea current regions have in operation, several socio-economic activities such as fisheries, off and onshore oil exploitation, industrial, port and agricultural activities; sand and mineral resources exploitation. These anthropogenic characteristics exist in line with dynamics in natural features of the zone such as natural disasters, hydrodynamics, winds, ocean waves. These have resulted in very productive ecosystems when considered from a global perspective, with much prospects for socio-economic development. This coastal environment and its resources are under much pressure from natural factors (impacts of eruption of the Cameroon Mountain with the most recent one on the 25<sup>th</sup> May 1999, impact of coastal erosion, etc.), human and development activities. The best economic benefit from these and their sustainability depends on an excellent environmental quality and the control on production and diversity of the resources. These will entail that a high value be given to the food and other resources

production, tourism with the benefits derived from these. Table 8 gives general and socio-economic indicators for the Republic of Cameroon with regard to coastal zone.

**TABLE 8: GENERAL AND SOCIO-ECONOMIC INDICATORS FOR CAMEROON**

Indicators	Cameroon
Political capital	Yaoundé
Length of the coastal zone ( km)	402
Area of the continental shelf ( km <sup>2</sup> )	10600
Area of EEZ (km <sup>2</sup> )	15400
Country surface area (km <sup>2</sup> )	475,4
Total Population (2005)	18879 301
Growth rate (2009) (%)	2,19
Population density (hab./km <sup>2</sup> )	33
Urbanisation rate (2009)(%)	57
Live expectancy (2009)(years)	53,69
Children mortality rate (2009) (%o)	63,34
Alphabetisation rate (2009) (%)	67,9
GDP (2009) (Million \$)	21820
GDP/inhabitant (2009) (\$)	2 300
GDP/activity sector :	
• Agriculture	19,8
• Industry	29,7
• Services	50,4
Population without access to potable water in 2007 (%)	70
Poverty indicator (%)	30,7
Population with \$2/day (%)	57,7
Human Development Indicator (IDH) - 2007	0,523
Weight of the debt in 2009 (in% GDP)	13,4

Sources : Cameroon Factbook; Rapport Mondial sur le Développement Humain (PNUD, 2009)

### 3.5.2. Socio-economic activities

#### 3.5.3.1. Population and social groups

Socio cultural groups of the study area are organized in about 7 different ethnic groups

- Bulu, mainly farmers and hunters between Kribi and Mefo
- Ntougou, mainly farmers and hunters between Mefo et Mvi'ilimengalé,
- Batanga et Yassa, coastal people mainly fishermen between Kribi and Campo;
- Mabéa, farmers , hunters fishermen established in Mabiogo village near Grand Batanga
- Mvae, people of forest, agriculture hunters and fishermen between Bouandjo and Itonde
- Fang located on the Kribi Campo, and between Akak and Mvi'ilimengalé
- Bagyéli (pygmies) traditionally migrant people. They live of hunting and harvesting

Table 9 gives the structure of the population in the study area between the two national census carried out in 1987 and 2005 . The population of the study area is essentially rural except the Kribi area where 64.3 % of the populations are urban

**TABLE 9: KRIBI CAMPO COASTAL ZONE POPULATION (2005 CENSUS)**

Administrative unit	Male	Female	Total	% of urban	Male Rate (%)
Kribi	47 057	46 189	93 246	64.3	118
Campo	3 485	3 438	6 923	36.0	101
Niete	12 554	11 367	23 921	03.4	110
<b>Total Kribi-Campo Coastal area</b>			<b>124 090</b>		

Generally, the area has a low population density of about 10 inhabitants per km<sup>2</sup> and is sparsely populated with most people living around Kribi, along the coast, and in HEVECAM, SOCAPALM and HFC camps (ERE Développement, 2002; de Kam et al., 2002). In addition to these main ethnic groups mentioned above, there are residents from other parts of Cameroon and Equatorial Guinea who depend on the work provided by the timber companies and agro-industrial plantations. The Bakola pygmies are mainly forest dwelling hunters and gatherers, although they seem to be in the process of sedentarisation (Annaud & Carriere, 2000). They are in small number and depend mostly on the forest for their livelihood. Their life style is seriously threatened by the ongoing logging activities. The Batanga, Mabea, and Yassa are mostly found in small fishing villages along the coast between Kribi and Campo. They rely mostly on the sea for their livelihood and have fishing as their main occupation. The Mvae, Ntumu and Bulu are mainly farmers, hunters and forest gatherers.

### 3.5.3.2. Main human activities

#### i) Agriculture

In the study area there are traditional and industrial agriculture; agriculture is the main activity (table 10) and is mostly practice hinterland.

**TABLE 10: DISTRIBUTION OF HOUSEHOLDS ACCORDING TO KEY ACTIVITY SECTORS (%)**

Activity sector	Coastal zone	Agro industrial zone	Hinterland
Agriculture	31.00	8.70	72.00
Fishing	29.60	5.80	2.10
Hunting	2.00	0.00	12.10
Craft	1.80	1.45	1.40
Trade	14.80	10.14	5.00
Civil servant	9.26	1.00	5.00
Agro industry	0.00	68.10	0.00
Other	11.60	4.50	1.40
total	100	100	100

Source: MEAO, 2003

Traditional agriculture is characterized by traditional farming systems where slash and burn is widely practiced. Main crops are cassava mixed with banana tree and sweet potato. Yields are below the standards due to inappropriate agricultural techniques, lack of means for extension workers, rural exodus and poor investment in the sector. It is a pity that availability of land does not constitute opportunity for local economy. Decline of traditional agriculture because former farming lands are sold by local communities to city dwellers looking for land to buy. Everywhere in the area, people complain about the decline of coconut tree which use to be an important cash crop resource. It is obvious that this is an important issue as coconut tree constitutes a source of diversification of income while protecting the coast and improving the stability of the landscape and coastline

The study area is dominated by commercial crop such as rubber, palm and cacao. Two huge agro industrial companies operate in the area: HEVECAM and SOCAPALM which occupy 14,259 and 33,220 ha respectively in 2001. The perspective of extending these plantations by increasing planting of new areas is planned. HEVECAM can produce 40,000 tons of dry rubber per year and employs 5250 workers disseminated in 17 villages regrouping more than 28,000 persons; HEVECAM is the third national employer after the government of Cameroon and the Cameroon Development Corporation (CDC) based in the south west region.

SOCAPALM is specialized in palm tree and palm oil production. In 2002, SOCAPALM has 385 staff in charge of the management of the livelihoods of more than 5750 persons. Recently the total surface area occupied by SOCAPALM was increased to 20,000 ha of which 8,000 are effectively planted for an annual production of 120,000 tons of palm nut which after processing give 26,000 tons of palm oil (MINEP, 2005)

## ***ii) Fishing***

Maritime fishing is the main rural activity in the Kribi Campo coastal area. Fishing ethnic groups are mostly located around Kribi, Londji, Campo and Ebodje. In this area 8 important landing sites can be identified and are: Lokoundjé, Dikobe, Londji, Nzamie, Ngoy-Wamie, Mboamanga, Ebodje and Campo beach. Compared to the entire coastal zone where foreigners represent more than 80% of the fishermen population, local fishermen count for more than 70% in the study area (Folack and Njifonjou, 1995). From the Nyong River to the Ntem River some 54 fishing camps or villages have been inventoried during frame survey carry out by joint teams from MINRESI and MINEPIA in 1995 (Folack and Njifonjou, 1995). It is regrettable that until now data obtained during this survey never be updated. There is an urgent need to update this information. Batanga and Iyassa said their annual income from fishing activity varies from 180,000 to 1,600 000 FCFA per year and per person.

### **iii) Logging**

Timber exploitation is the main economic activity in the area and is dominated by two main logging enterprises which are “la Forestière de Campo” (HFC) and Wijma (GWZ). HFC is operational since 1966 and operates a sawmill and port facilities at Ipono near Campo. Other companies such as Wijma and CFK also have sawmill facilities. Log production is about 39250 m<sup>3</sup>/year and more than 135000 m<sup>3</sup> of sawn woods are produced per year. Timber harvesting in the area provides about 115 million FCFA/year (\$ 201,754) to the local communities concerned and direct employment of about 1000 jobs that represent wages of about 1 billion FCFA/year (\$ 1,8 millions) (ERE Développement, 2002; de Kam et al., 2002). Logging concessions represent about 31.4% of the area. The south-western part of the National Park and the coastal zone has been selectively logged at least twice during the past 40 years.

### **iv) NTFP collection**

The Campo-Ma'an area has about 250 NTFPs (Tchouto et al., 2002 unpublished). These forest products form an integral part of the rural economy, and contribute to all aspects of rural life, providing food, fuel, building material, medicine, craft material, other household items, ornamental and horticultural plants. The collection of NTFPs is mostly done in the area for local consumption, but few local people rely on it as a source of income. So far the collection of NTFPs has little or no effect on the Campo-Ma'an forest and its ecosystem (Tchouto et al., 2002 unpublished).

### **v) Tourism**

Activity in this area concern beach and business tourism, cultural tourism and ecotourism. The warm marine water temperature is another interesting condition for beach tourism. The following tourism sites are found in the area:

- The Campo Ma'an National Park
- The Lokoundjé –Nyong Reserve
- Sand beaches of Londji, Grand Batanga, Ebodjé, Lolabe and Campo
- Ebodjé marine turtle spawning zone ( between Mbendji and Bekolobe)
- Lobe waterfalls
- The Rocher de Loup
- The Nko Elon caves
- Pygmy camps disseminated along the coast between Kribi and Campo
- Sacral forest of Yassa People (Mbonde et Likodo)
- Other tourism sites are estuaries of Lokoundje and Ntem, the mysterious rock of Guap, German cathedral and Mbouamanga Lighthouse

#### **vi)     *Hunting***

Hunting is one of the important economic activities in the area. Three main types of hunting:

- Traditional or small scale hunting: it is practiced by local people, notably pygmies. who use as hunting techniques trap, net and cross-bow
- Authorized formal hunting
- Illegal hunting

Hunting takes place out the year with a peak period during rainy season. Study conducted near the park by of Campo Ma'an (SEDA, 1992) shown that a professional hunter with a gun can earn up to 500,000 FCFA per year and a small hunter without gun about 260,000 FCFA. There is about 1900 professional hunters in Kribi and its surroundings and 740 in the Campo area (MEAO, 2003)

#### **vii)    *Sand mining***

There is a minor activity in the area and is practiced around major towns like Kribi where there is high demand for construction materials. The most active extraction sites are: Kienké mouth, Bondadoué, Nziou beaches in the Kribi area. Other sand mining sites are identified around Campo. This activity is not allow, but in reality without means of enforcement, illegal sand mining is taking place in these sites

#### **viii)   *Industrial activities***

The area is characterized by intense petroleum activity (exploration and production). It is in the Kribi maritime waters where is located the COTCO petroleum terminal which received through a pipeline of about 890km crude oil from the Republic of Chad. The COTCO Company has the following infrastructure in the Kribi area:

- A Pressure Reduction Station installed at Talla in the Kribi area
- A pipeline with 11km under sea bottom
- A terrestrial pipeline which links Kribi and Chad (890km)
- A Floating oil Terminal Platform (FTP) located at about 11km offshore from the coastline

From October 2003 and November 2005, 20. 5 million barrel of crude oil have been exported from the FTP by 148 ships. PERENCO company has a production crude oil platform at Ebome, located at south of Kribi with on-going drilling operation at Ebodjé. PERENCO also just started a project called Sanaga Sud to develop exploitation of offshore gas reserves located at 10km North West of Kribi; this will produce gas to the electricity company AES-SONEL to generate electricity from a power station to be installed in Kribi

#### ***ix) Port activities***

Kribi has a small estuary port located at the Kienke estuary with 250m of wharf for timber exportation only. Recently a modern artisanal fishing landing site was constructed with the assistance of the Japanese government in partnership with Cameroon government. Timber is also been transported from Campo port. Due to difficult access conditions to the Kribi Port, ships have to drop their anchor at 2 to 3 km offshore. From 1994 to 2004, Kribi port has imported about 1098 tons and exported 894608 tons of goods for a financial bilan of 2.21 billion.

#### ***3.5.3.3. Infrastructure***

##### ***i) Road infrastructure and airports***

Kribi has one airport which is under construction and in Campo at Ipono; there is a small landing runway which can receive small planes. The road network is very poor:

- Kribi-Campo: 75km practicable in all season
- Kribi-Nieté: 50km no practicable in rainy season
- Kribi-Edea: 106km
- Kribi-SOCAPALM: 12km

Waterways are also used for transport notably Ntem, Nyong, Lokoundjé rivers and the Atlantic Ocean. Kribi alone has a road network of about 41.41 km among which 15.9 km are tarred. Potable water in Kribi is processed from the Kienké River.

##### ***ii) Power, water and telecommunications***

Among the three main localities (Kribi, Campo and Nieté), Kribi has the key infrastructure with regard to power, water and communication. Campo and Nieté are poorly equipped. The Kribi water treatment has a tower with a capacity of 400m<sup>3</sup> and during dry season, only 60% of this capacity is used. Some of the quarters of Kribi experienced severe water shortages. Kribi receives a 30000 volts energy supply shared among about 37 convertors of 2000 KW each. The number of household having electricity is less than 40%. The classic telephone network has a capacity of 1200 subscriber and about 250 lines are still available. There are three companies operating the telephone system in the area: MTN, ORANGE and CAMTEL.

#### ***3.5.3.4. Commercial activities***

Due to poor road network development, exchange and communication within the Kribi Campo, coastal area, is very poor. Commercial activity is limited to small businesses because the purchase power is very low in the region. The success of small scale commercial activities is linked to development sites such as forestry unit exploitation, roadways maintenance,

### 3.5.3.5. Development projects executed or planed in the Kribi Campo coastal area

Table 11 gives list and status of projects in the Kribi Campo area. Main development projects in the area are generally in the sector of education and agriculture. The project entitled Kribi-Campo coastal zone management for sustainable tourism was initiated by the three municipalities (Kribi rural, Kribi Urban and Campo). This project was endorsed by the Ministry of Economy, Plan and Development (MINEPAT) since 2004 and a tourism Inter Communal Office Organisation was supposed to be created, but not yet. Analysis of these project to make link with the present ICAM will be done when develop the full ICAM plan.

**TABLE 11: MAJOR PROJECTS DEVELOPED/ PLANED TO TAKE PLACE IN THE KRIBI-CAMPO ZONE**

N°	PROJECT TITLE	SECTOR	STATUS
01	Support programme on creation and development of Medium Size Enterprise of transformation and conservation of local consumed products (PACD/PME)	Industry	On-going
02	National support programme to orphans (PNSO)	Social	On-going
03	Participative Development National Programme (PNDP)	social	On-going
04	National programme on Agricultural Research and Vulgarization (PNVRA)	agriculture	On-going
05	Atlantic Coast Integrated Development Programme	Transectoral	Planned
06	National support Programme on Regional and Local Development (PADREL)	Transectoral	On-going
07	National programme on elimination of illiteracy	Education	On-going
08	National Programme on Development of Roots and Tubers(PNDRT)	Agriculture	On-going
09	Native Palm development Programme (PDPV)	Agriculture	On-going
10	Stimulation Programme on Plantain Path (PRFP)	Agriculture	On-going
11	National Programme on Valorization of swamping areas (PNVBF)	Agriculture	On-going
12	National Support Programme on Maize Path (PNAFM)	Agriculture	On-going
13	Programme of Reform of the sub sector Fertilizer	Agriculture	On-going
14	Support Programme to Young Farmer Initiatives (PAIJA)	Agriculture	On-going
15	Development Programme on Pig Path(PDFP)	Agriculture	On-going
16	Support Programme to non-conventional rearing (PAENC)	Livestock	Ongoing
17	Church Palm project (PPP)	Agriculture	On-going
18	Coco Orchard Regeneration Project (PRVC)	Agriculture	On-going
19	Support Project to the Protection of Coco and coffee Orchard (PAPVCC)	Agriculture	On-going
20	Support Project to the Development of Artisanal Maritime Fisheries (PADPAM)	Fisheries	Ongoing
21	Rotative microcredit Project in favor of women to fight against poverty (PMRFFLP)	Social	Ongoing
22	Support Project to Rural and Urban youths (PAJER-U)	social	ongoing
23	Registration of the Lobe Waterfall as Cultural heritage of UNESCO	Culture	Ongoing
24	Project on Sustainable Tourism	Tourism	planned
25	Support project on the Reform of Technical and Professional Education (PARETFOP)	Education	Ongoing
26	Support Integrated project to Actors from Informal Sector(PIAASI)	Employ	Ongoing
27	Marine Turtles Conservation in the Kribi Region	Conservation and Research	Ongoing
28	Development Project of Djipikar Island	Tourism	Ongoing
29	Support Project to the Conservation of Biodiversity in the Campo Ma'an National Park and it surroundings	Biodiversity and Conservation	Ongoing
30	Mangrove Project	Conservation	Ongoing
31	ODINAFRICA Project	Research	Ongoing
32	Monitoring of Cameroon Coastal Water Quality	Research	Ended December 2009
33	Deep Sea Port Project	Industry	Planned
34	Construction of a gas station at Mpolongwe near Kribi	Industry/Energy	Planned
35	Construction of a factory of gas onshore at Bipaga I	Industry/Energy	Planned
36	Construction of a railway Mbalam-Kribi-Edea	Industry/transport	Planned
37	Construction of a oil mill at the south of Kribi	Industry	Planned
38	Construction of a factory to produce chemical fertilizer	Industry	Planned
39	Programme to improvement competitively of family agro-pastoral exploitations (ACEFA)	Livestock/agriculture	Ongoing
40	Exploitation of non-timber forest products	Forestry	Ongoing
41	Creation of a fish market in Londji	Commerce	Planned

### 3.5.3.6. Opportunities in the Kribi-Campo Coastal Area

Table12 gives findings of participants on opportunities in the Kribi-Campo Coastal Area

**TABLE 12: OPPORTUNITIES AND POTENTIAL AREAS FOR MICRO-PROJECTS**

SECTOR	OPPORTUNITIES	POTENTIAL AREAS FOR MICRO-PROJET
<b>FISHERIES</b>	- Modern fish market - production of fish materials - Fish conservation	Construction of a modern fish market in Londji Construction of a unit for manufacturing fishing materials such as canoes, nets, lead, floaters etc. Creation of fish smoking unit in fishing village
<b>TOURISM</b>	-Development and valorization of tourist sites -Cultural richness	Development of a modern tourist camp in Londji and Ebodjé Construction of modern hotel in CAMPO Restoration of degraded mangrove sites Creation of a reserve basin for juvenile marine turtles in Ebodjé Revalorization of local cultures
<b>FINANCE</b>	MICRO –FINANCE	Creating of a specialized micro finance for local rural population
<b>EDUCATION</b>	Training of youths and local population within the Kribi-Campo area	Creating of a professional training Centre for tourism fishing activities Capacity building of local population on livestock, fishing, aquaculture and agriculture techniques
<b>INDUSTRY</b>	Jobs creation	- Promotion of job - -Creation of a recycling unit of solid waste
<b>AGRICULTURE</b>	-Production of fruits and vegetables -Transformation	- Creating of orchards around Kribi town - Promotion of small l size agriculture producers - Creating of food –producing transformation unit - Creating of animal food production unit
<b>LIVESTOCK</b>	-Exploitation of marsh/swampy areas -Rearing	- Creating of fish ponds - Creating of breeding units for snail, shrimps cutting grass etc.
<b>ARTISANAT</b>	Valorization of non-timber forest products	Creating a Centre of artisanal products manufacturing
<b>ENVIRONMENT</b>	Intense oil activities	Creating a waste oil recycling unit in Kribi town
<b>COMMERCE</b>	Trans boundary exchanges	Building of a Trans boundary market in Campo Beach

# **CHAPTER IV**

## **DISCUSSIONS AND ANALYSIS OF KEY ISSUES WITHIN THE KRIBI CAMPO COASTAL AREA**

### **4.1. KEY CONFLICTS ANALYSIS WITHIN THE KRIBI CAMPO COASTAL ZONE**

During first phases many conflicts were identified in the Kribi-Campo coastal area. Table 13 gives a detailed summary of these conflicts. In this area key major conflicts comprise of:

- Industrial fishing trawlers with artisanal fishermen
- Local populations with agro-industrial companies, notably HEVECAM and SOCAPALM around Nieté area and Bidou
- Populations surrounding the Campo Ma'an National Park to the park management
- Pygmies population with Bantu on land use/property
- Petroleum companies like COTCO and PERENCO with local population and local council
- Small beach operator with land owners
- Many local sectoral ministries or local sectoral ministries and local council/administration
- Local populations with forest timber exploiters
- Private individual and land owners within the sea from zone

In table 13 the following issues are analyzed and discussed:

- Nature and parties in conflict
- Origin and cause of conflict
- Government institution concerned or competent authority
- Applicable legal instrument
- Present methods of conflict resolution
- Constraints to the success of the present methods
- Proposed effective resolution tool to apply
- Other suggestions to overcome conflict problem in the area

These conflicts are always aggravated because parties in conflict did not have the same power for action. Some of these conflicts exist because parties in conflict do not understand some natural processes or are ignorant of existing regulatory framework. There is an urgent need to sensitize local population on existing laws and regulations and to set up a coordination and effective coordination mechanism amongst local government institutions with clarification of role and responsibilities of each institution

**TABLE 13. ANALYSIS OF KEY CONFLICTS IDENTIFIED IN THE KRIBI CAMPO COASTAL AREA**

Nature and Parties in conflicts	Origin and cause of conflict	Government Institutions concerned	Applicable legal instrument	Present method of conflict resolution	Constraints for the success of present methods	Propositions of effective resolution Tools	Other suggestions
<b>Pygmies/Bantu in different areas of hinterland for land occupation</b>	<ul style="list-style-type: none"> <li>- Modernization of pygmies (changing of living status) ;</li> <li>- Creation of protected areas , agro industrial and forestry companies</li> <li>- Bantu agricultural land occupied by pygmies</li> </ul>	MINATD. MINFOF. MINDAF. MINDUH	<ul style="list-style-type: none"> <li>-Law on the protection of autochthonous populations</li> <li>-Land Law</li> <li>- Law regulating forests,</li> <li>-Customary right</li> </ul>	<ul style="list-style-type: none"> <li>-Plea method (influence politics through adequate legal framework on resolving pygmies problems;</li> <li>-Recognition of pygmies land rights</li> </ul>	<ul style="list-style-type: none"> <li>Lack of financial means</li> <li>- Lack or poor sensitization and actors mobilization</li> <li>- Problem of understanding between beneficiaries</li> </ul>	<ul style="list-style-type: none"> <li>Carry out monographic studies (identification, case study)</li> <li>-Bring pygmies to be main actors for negotiations</li> <li>-Creation of lobbying</li> </ul>	<ul style="list-style-type: none"> <li>Carry out mediations at national and international level (looking for alliances at sub regional, regional and international level)</li> </ul>
<b>Local Populations/ Agro-industrial companies (HEVECAM, SOCAPALM)</b>	<ul style="list-style-type: none"> <li>-Occupation of local population land through extension</li> <li>-Dispossession local populations of their land without adequate compensation</li> <li>-Olfactory Pollution from waste water</li> <li>-Non participation of these companies to local development</li> </ul>	MINADER MINEP MINIMIDT MINFOF MINEE	<ul style="list-style-type: none"> <li>- Law relating to Environment Mangement</li> <li>- Law regulating Forest,</li> <li>- Law on classified establishments</li> <li>- Law on the water regime</li> </ul>	<ul style="list-style-type: none"> <li>- Complains from local populations</li> <li>- Grievances of local populations addressed to senior divisional officer about occupation of agricultural space</li> </ul>	<ul style="list-style-type: none"> <li>- Agro industries interests are protected by administration against local population preoccupations</li> <li>- Local population are not implicated at decision making level</li> <li>- Lack of dialogue between local populations and agro industrial companies</li> </ul>	<ul style="list-style-type: none"> <li>Implication of local population at the level of decision making</li> <li>- Implication of NGOs and associations in conflict resolution ;</li> </ul>	<ul style="list-style-type: none"> <li>Putting in place a framework suitable for dialogue between local populations and agro industrial companies</li> </ul>
<b>Local populations/petroleum companies (COTCO, PERENCO)</b>	<ul style="list-style-type: none"> <li>- Sea and beach pollution by hydrocarbons</li> <li>- Destruction of ecological habitats</li> <li>- Depletion of living resources</li> <li>- Non-implication of petroleum companies to the local socio-economic development</li> </ul>	MINEPIA MINEP MINIMIDT MINEE MINTOUR MINTRANS	<ul style="list-style-type: none"> <li>- Law relating to Environment Mangement</li> <li>- Law on classified establishments</li> <li>Petroleum Code</li> <li>MARPOL Convention</li> <li>Convention ORPC ;</li> <li>Law regulating fisheries sector</li> </ul>	Complains against petroleum companies ;	Absence of a collaborating platform between petroleum companies and local populations	Government should put in place at the local level a framework for dialogue between petroleum companies and local populations	Regular Contribution of petroleum companies to local socio-economic development
<b>Local populations/ Campo Ma'an Reserve</b>	<ul style="list-style-type: none"> <li>Reduction of living pace of local populations</li> <li>Destruction of cultures by protected wildlife animals</li> </ul>	MINEP MINFOF MINADER MINDAF MINATD MINTOUR MINAS MINCULTURE	<ul style="list-style-type: none"> <li>- Law relating to Environment Mangement</li> <li>Law regulating Forest ;</li> <li>Regulation on the protection of minorities ;</li> <li>-Land law Decision on compensation of goods and cultures</li> <li>Law on tourism activity</li> </ul>	During the creation of the park, Campo Ma'an project has been established to bring local population to adopt new behavior, to finance micro projects and reinforce capacities through redynamization of existing OSC	<ul style="list-style-type: none"> <li>-Lack of finances;</li> <li>Failure of the project due to poor planning and inadequate implementation</li> <li>Lack of implication of beneficiaries at all levels of decision making</li> </ul>	<ul style="list-style-type: none"> <li>-Finalization of non-achieved projects</li> <li>-Continue Sensitization and sustainable implication of beneficiary</li> <li>-Implement all recommendations of the management Plan of the Park</li> </ul>	<ul style="list-style-type: none"> <li>Materialize a belt surrounding the park through putting in place community forests as mentioned in the Management Plan of the park</li> </ul>

Artisanal Fishermen/ industrial fishing	- Non respect by trawlers of zone reserved to artisanal fishing - Destruction of artisanal fishing materials	MINEPIA Marine Marchande	Law relating to fisheries regulation	Complains from artisanal Fishermen	Lack of transparency and effectiveness during examination of complain files from fishermen	Monitoring industrial fishing activities	Organize maritime artisanal fisheries sector provide support to the sector
Small beach operators/land owners	<ul style="list-style-type: none"> <li>Development of small tourism activities by small beach operators on certain portion of the beach</li> <li>Interdiction by land owners and hotel owner development of tourism activities on some beach space Interdiction du</li> </ul>	MINDAF MINATD MINTOUR MINEP	<ul style="list-style-type: none"> <li>- Law relating to Environment Mangement</li> <li>- Land Law ;</li> <li>- Law regulating tourism activities</li> <li>- Law regulating decentralized territorial collectivities</li> </ul>	None	<ul style="list-style-type: none"> <li>- Lack of dialogue between actors, intimidation of small operators by land owner</li> <li>- Laxity of government on application of laws</li> </ul>	<ul style="list-style-type: none"> <li>- Sensitization of stakeholders</li> <li>- Establishment of eco tourism projects by valorizing portion of beach suitable for tourism activities</li> </ul>	Under standing between actors
Between local technical ministries MINEP/MINFOF MINIMIDT/MINEP MINEE/MINEP MINDAF/CUK MINEPIA/MARINE MERCHANT MINDAF/MINATD MINDAF/MINTOUR MEAO/- CUK MINEPAT/MEAO	<ul style="list-style-type: none"> <li>Overlapping between missions of some ministries</li> </ul>	Prime Minister Office	<ul style="list-style-type: none"> <li>- Law relating to Environment Mangement</li> <li>- Law regulating Forest Regime</li> <li>- Land Law ;</li> <li>- Law regulating fisheries sector</li> <li>- Law regulating decentralized territorial collectivities</li> </ul>	Dialogue	<ul style="list-style-type: none"> <li>- Lack of synergy for action ;</li> <li>- Leadership and interests</li> </ul>	<ul style="list-style-type: none"> <li>- Carry out actions in the field with other concern ministry departments</li> </ul>	Development of synergies between ministry departments at all levels
Local populations/ Forestry companies	<ul style="list-style-type: none"> <li>- Non respect of UFA limits by forest exploiters</li> <li>- Air and surface water pollution by dust from Wood processing factory and by other waste</li> </ul>	MINFOF MINEP MINEE	<ul style="list-style-type: none"> <li>- Law relating to Environment Mangement</li> <li>- Law regulating Forest regime</li> <li>- Law regulating Water Regime</li> </ul>	Complains from the local populations	<ul style="list-style-type: none"> <li>- Lack of intermediaries between local population and concerned companies</li> <li>- Intimidation of the populations by the administration</li> </ul>	<ul style="list-style-type: none"> <li>- Creation of a framework for dialogue between local population and forest companies</li> </ul>	Active Implication of technical ministries for resolution of problems raised by the population

## **4.2. ANALYSIS OF SECTORAL ISSUES**

Keys sectoral issues were analyzed in group 2 during first day and the discussions came out with the results in table 6 which are essentially related to:

- Degradation of coastal habitat in particular coastal erosion,
- Overexploitation of fisheries resources,
- Over-exploitation of wildlife resources,
- Over-exploitation of timber forest products and uncontrolled harvesting of non-timber forest products ,
- Inadequate land use and planning and
- Poor organization of a growing tourism sector
- Pollutions,

### **4.2.1. Degradation of coastal habitat/coastal erosion,**

Kribi-Campo area is characterized by accelerated degradation of coastal habitat, due essentially to human activities (sand and gravel mining, hotel and other infrastructure construction, human settlements, mangrove trees cutting and destruction of vegetal cover) and also as a consequence of global warming (accelerated sea level rise, coastal erosion). There is poor planning and control of settlements along the sea front which lead to the loss of beach and landscape aesthetics and therefore reduction of tourism activities

### **4.2. 2. Overexploitation of fisheries resources**

There is increasing over exploitation of fisheries resources in the Kribi –Campo coastal area due to bad fishing practices (use of non-authorized net with small mesh size, fishing in the nursery zone or spawning ground such as estuaries). There is no clear regulation restricting fishing in estuaries. There is a legislation defining mesh size to be used by maritime artisanal fishermen. Consequently, there is loss of income from fisheries, reduction in the availability of fish and fishery products, and resultant increase in poverty. Details are given in table 13

### **4.2.3. Over-exploitation of wildlife resources**

Endemic poverty has forced local communities to exercise high pressure on utilization of wildlife in an unsustainable manner. Today commercial hunting for bush meat is an important livelihoods means for impoverished local people and immigrant workers. The market for bush meat is very large. The

uncontrolled movement across international border with Equatorial Guinea leads to Transboundary poaching. Also high demand for bush meat in urban cities has led to increased hunting for commercial purposes in the area. They are strong indicators (e.g. absence of some species on the market) that wildlife populations in the zones near villages have declined alarmingly (Campo Ma'an National Park Management Plan, 2002). Local population is still trying to come to consensus with the local authority's distinction between the use of wildlife for local consumption (which is authorized) and its use for commercial purposes (which is forbidden or severely restricted to some conditions). This misunderstanding has led to increased conflicts between park managers and the local population

#### **4.2.4. Over-exploitation of timber forest products**

There is increased over-exploitation of timber forest by industrial forest exploiters because most of them did not respect their legal quota allotted to them. Government efforts to reduce this were through creation of UFA, but many exploiters evaded these restrictions to specified areas for which permits are granted. Also the government has established community forests which are managed by local population themselves. This strategy recognizes the right of local communities to share revenue from forest exploitation. After more than 10 years of existence of laws regulating community forest and UFA, misunderstandings still exist between government, local population and forest exploiters. There is also an illegal exploitation of timber forest by local farmer or individual despite controls carried out by staff of MINFOF in various zones. Poor governance of revenue resulting from forest exploitation has limited its contribution to local economic development

#### **4.2.5. Inadequate land use and planning**

There are various problems or conflicts related to land use planning in the Kribi-Campo area. The boundaries of the Campo Ma'an National Park overlap with some areas used by local farmers for their traditional activities. The territory of some villages such as Onoyong in Ma'an area now lies within the park, while in other cases it has been reduced by the establishment of a logging concession on the edge of the protected core zone. In addition, most of the population living around the park ignores its boundaries. There is also direct conflict between HEVECAM and the government related to overlapping of their domain/estate with a sector of the park. The same problem is identified in urban areas but with different actors as we analyzed in table 5.

#### **4.2.6. Poor organization of a growing tourism sector**

Tourism is the fastest growing sector in the Kribi Campo Coastal Area. The sector is characterized by two main categories: the powerful tourism operators and the small scale tourism initiatives. Constructions of hotels and related facilities are not well planned and have not followed the rules of urban master development plan. Most of hotels are concentrated in Kribi urban area. No system of control and organization of this sector is in place. There is a need to develop, at a local level, a tourism code and to put in a place a system of planning tourism infrastructure, construction and designation of sites. Normally there is the state domain represented by the land of 50m wide along the coast and where any construction is prohibited, but this rule is not respected.

#### **4.2.7. Pollutions**

Pollution is a major issue in the Kribi Campo Coastal Area due to the fact that there are two large agro industrial companies in this zone and also due to the fact that the Kribi hosts the terminal of Chad Cameroon pipeline with an installation in Cameroon coastal waters of floating tank to receive crude oil from the Republic of Chad. This has led to a high risk of pollution by hydrocarbons and other sources in the area. This issue needs a detailed analysis which is given in table 14.

**TABLE 14: ANALYSIS OF SECTORAL ISSUES IN THE KRIBI CAMPO COASTAL AREA**

Issue	Immediate Causes	Activity sector	Root causes	Competent /responsible Institution	Regulatory framework to apply	Effectiveness of regulatory framework	Impacts
<b>1) Degradation of coastal habitats/coastal erosion</b>	-Global warming -Sand mining -Destruction of coastal vegetation	-natural phenomenon -Mining -Agriculture -Urbanization	-Natural changing in current and littoral drift -sea level rise -Inadequate enforcement -Poor land use planning -Scarcity of land -Lack of impact studies -Lack of control	-MINEP -MINFOF -MINDAF -MINRESI -		Gaps on application of laws	-loss of beach aesthetic -Reduction of coast line -Reduction of tourism activity -Increase poverty -Loss of beach space -Loss of vegetal cover and biodiversity -Loss of carbon sinks and release of carbon to the atmosphere -loss of migratory species using the habitat and altered migratory patterns
<b>2) Over exploitation fisheries resources</b>	-Increase catch and fishing effort inappropriate fishing methods and gear	Fisheries	-High local demand of fish product -lack of alternative livelihoods -social and cultural traditions -inadequate knowledge on stock sustainability -non respect of fisheries regulation -inadequate capacity of fisheries management -lack of alternative suitable gears - lack of sufficient involvement of stakeholders -Poverty -High value of fish products in the market	MINEPIA MINEP Marine Merchant	Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime,	Insufficient application of law	-Increase of poverty -Drop in fish catch
Over exploitation of Wildlife resource	-Low income of local population -Lack of other sources of proteins -poaching	Hunty	-Increase Poverty -Lack of alternative -inadequate hunting practice	MINFOF	Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime	Insufficient application of law	-Loss of biodiversity and disappearance of certain species

Issue	Immediate Causes	Activity sector	Root causes	Competent/responsible Institution	Regulatory framework to apply	Effectiveness of regulatory framework	Impacts
Over exploitation of timber Forest products	<ul style="list-style-type: none"> <li>- non-respect of quota by forest exploiters</li> <li>- Over cutting of mangrove wood or timber</li> <li>- Inadequate exploitation of community forests</li> </ul>	Forestry industry	<ul style="list-style-type: none"> <li>-High value of timber forest products</li> <li>- Lack of coordination of exploitation activities</li> <li>-Lack of enforcement of law</li> </ul>	MINFOF MINEP MINRESI MINADER	Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime	Insufficient application of law and regulation	<ul style="list-style-type: none"> <li>-Loss of biodiversity</li> <li>-Loss of ecological habitats</li> <li>-Desertification</li> <li>-Increase of Greenhouse gas</li> </ul>
<b>3) Pollutions</b>	<ul style="list-style-type: none"> <li>-Discharge of industrial agro-industrial and domestic waste/effluents</li> <li>-Release from ships/offshore platforms</li> <li>-Dumping of waste liquid in the environment</li> </ul>	Agriculture, Industry, Urbanisation, and domestic activities	<ul style="list-style-type: none"> <li>-Lack of adequate waste treatment plan</li> <li>-Non respect of legislation</li> <li>-Demographic growth</li> <li>-Increase industrialization and use of inadequate practices</li> <li>-High cost of treatment techniques</li> <li>-Poverty</li> <li>-Lack of education and awareness</li> <li>-Lack of political will</li> <li>-Non respect of Marpol Convention</li> <li>-Absence of beach waste collecting system</li> <li>-Lack of public facilities on beaches</li> </ul>	MINEP MINIMDT MINSANTE MINEPIA MINADER MINDAF	<ul style="list-style-type: none"> <li>- Law relating to Environment Management</li> <li>-Mining Code</li> <li>-MARPOL Convention</li> </ul>	<ul style="list-style-type: none"> <li>-Insufficient application of law and regulation</li> <li>-Lack of means for the follow up in the field</li> </ul>	<ul style="list-style-type: none"> <li>-Increase risks to human health</li> <li>-Soil degradation</li> <li>-Modification of community structure</li> <li>-Loss of fisheries</li> <li>-Lost of tourism, recreational value</li> <li>-Loss of potable water supply</li> <li>Reduced agricultural productivity</li> </ul>
<b>4) Inadequate land use and planning</b>	<ul style="list-style-type: none"> <li>-Uncontrolled occupation of the state domain</li> <li>-anarchic and illegal selling of land</li> </ul>		<ul style="list-style-type: none"> <li>-Scarcity of land</li> <li>-Lack of land security and urban development plan</li> <li>-Low management capacity</li> <li>-non application of land law</li> <li>-Lack of control</li> <li>-Lack of awareness on land issue</li> </ul>	MINDAF MINATD MINDUH MINTP	Land law	<ul style="list-style-type: none"> <li>-Insufficient application of law and regulation</li> </ul>	<ul style="list-style-type: none"> <li>-Occupation of risk zones</li> <li>-Inundation, land slide</li> <li>-Land conflicts</li> </ul>
<b>5) Poor organization of a growing tourism sector</b>	<ul style="list-style-type: none"> <li>-Inaccessibility to some tourism sites due to lack of roads</li> <li>-Sites not developed</li> <li>-Lack of a tourism coordinating office</li> </ul>	Tourism	<ul style="list-style-type: none"> <li>-Insufficient legal framework</li> <li>-Poor promotion in the tourism sector</li> <li>-Absence of tourism agency</li> <li>-Insufficient financial allocation from government</li> </ul>	MINTOUR MINATD	Law n°98/004 of April 16, 1998	<ul style="list-style-type: none"> <li>Insufficient application of law and regulation</li> </ul>	<ul style="list-style-type: none"> <li>-Reduced tourism activity</li> <li>-Drop of revenue from tourism activity</li> <li>-Bad image of the country</li> <li>-Reduction of number of tourists</li> <li>-Loss of job opportunities</li> </ul>

### **4.3. ANALYSIS OF TRANSECTORAL ISSUES**

Transectoral issues were analyzed in group 3; discussions reported in table 15 are related to:

- Limited capacity of institutions and human resource
- Poor communication and sensitization mechanism
- Inoperational legal Framework
- Weak support to association(NGOs) sector
- Poor development of rural activities
- Marginalization of local communities
- Lack of coordination between sectors
- Low priority for coastal development
- Climate change

#### **4.3.1. Limited capacities of local institutions and human resources**

A part of MINEP which is in charge of environmental issues, other institutions such as MINEPIA, MINTOUR, MINADT, MINFOF, and MINRESI have to carry out actions in the management of coastal and marine areas. Unfortunately, there is lack of means (materials, finance, and human resource capacity). There is a need to train senior and junior staff. Other constraints are poor information and many actions are isolated or are ad hoc without coordination. The creation of an Interministerial Committee for Environment is a first step to put in place a suitable coordination mechanism at the national level. At local level, many actions are carried out without taking in account a preliminary EIA. Technical capacities presently available at national and local levels are very limited. There are few institutions of the ministry of Scientific Research and Innovation (MINRESI) such as CERECOMA and SRHOL located respectively in Kribi and Limbe. These two institutions are mandated to carry out scientific research and innovation in the domain of coastal and marine areas management. For the past ten years, these institutions which are key element for coastal zone management in the entire country are facing critical problem of inadequate human resources. Many scientists have passed away, gone to retirement, or got a job overseas and have not been replaced. There is an urgent need to recruit new staff. Results from research are used by other institutions such as MINEPIA, MINFOF, MINTOUR, MINDAF etc. Government has made effort to send scientists oversea for training, but some of them remain in their host country after end of training. Training at the local level on marine science is not evident. There are some universities like Yaounde I and Buea which deliver degree on environment; there is a lack of planning of training. There is a need to urgently develop a yearly training programme in the area of coastal zone management

#### **4.3.2. Poor communication and sensitization mechanism**

Introduction of information, sensitization and communication in Cameroon as support to the environmental policy for sustainable human development is recent. Presently, documentation, media and means of communication are still limited for effective use in the management of coastal and marine zones; this is true at national and local level. Basic actions are carried out at local level and local populations should be sensitized and kept informed for all development which take place in a coastal area like Kribi-Campo area. At the local level, there is a lack of an institutional leadership capable to report adequately after a workshop. Efforts have been made by private media outlets, but lots still to be done by government at local level, in particular at the Kribi-Campo coastal zone

#### **4.3.3. Inoperational legal Framework**

The 1994 forestry law that lays down forestry, wildlife and fisheries regulations, its associated decrees, and the 1996 law relating to environmental management established a political and strategic framework for forest management and environmental protection. The forestry policy and the 1994 forestry law is a testimony of the willingness of the Cameroon government to enhance the participation of local communities in the sustainable management of forestry and wildlife resources. So far, most of these legislations lack application (byelaws are not being enforced) text for their efficient implementation. The tendency is that most of legislations related to environment have normative character; damages of environment are common, without sanctions be taken for those who cause damage to environment. Furthermore, the mechanism for the participative management of the Campo Ma'an TOU is not yet well developed and organised. As result, the local populations are not interested in conservation activities and their involvement is almost inexistence or very limited. Forest guards play a key role in the protection of the park and its peripheral zone. Unfortunately some of them are not recruited in the public services and their status is not clearly defined. Furthermore, there is a poor collaboration and a conflict of competence between the local forest control MINFOF staff and the conservation services, thus contributing the reduction of efficiency of the control system. The conservation as well as the local MINFOF services are suffering from limited human resources, lack of equipment and logistic necessary for the effective control and a proper management of the TOU. Since its creation, the TOU (including the park) has been largely subsidised by financial supports from donors, cooperation and projects who have paid for most of the capital expenditure and even some of the recurrent expenditure. The State budget is often very limited and difficult to mobilize.

#### **4.3.4. Weak support to association sector**

In the last decade, associations (NGOs) for the protection of the environment have mushroomed around the country. They are constituted of members from various groups of the society: traditional rulers, youths, women, civil servants, retired persons, farmers, students, unemployed persons, etc. Most of these associations carry out voluntary actions on sensitization, cleaning, reforestation and get no support from government. They need support from government and other potential donors for their organization and functioning.

#### **4.3.5. Marginalization of local communities**

The Bakola/Bagyéli people (Pygmy) estranged from mainstream society due to weak institutional integration policies are involved in an unbalanced relationship with Bantu communities that do not recognize their rights on the forests, its resources and agricultural land. Around the agro industrial plantation of HEVECAM and SOCAPALM. They are threatened by immigrants who have occupied their territories. Also there is a conflict with Campo Ma'an National Park because of misunderstanding on the definition of subsistence hunting (tolerated) and commercial hunting (forbidden). The predominance of community forest under the control of Bantu groups will accentuate insecurity of land tenure for the Bagyéli and consequently increase their vulnerability.

#### **4.3.6. Low development of rural activities**

In the Kribi Campo area, rural activities (hunting, fishing, agriculture) constitute the main occupation for a large majority of the population. Most of these activities are for subsistence and for supply of fresh fish to big towns like Yaoundé and Douala. Artisanal fishing is poorly organized and receives little support from government. (Poor control systems, lack of human resource and financial means). The MIDEPECAM (Mission de Développement de la Pêche Artisanale Maritime) was created with a mandate to carry out actions to support maritime artisanal fishing, by providing them with cheaper fishing materials and loans; but this institution is presently not operational because of mismanagement. (the basis fund allocated by the government at the creation of this organism was not well managed because most of fishermen who got credit did not reimburse because credit was giving on a non-performance and transparency basis).

**TABLE 15: ANALYSIS OF TRANSECTORAL ISSUES IN THE KRIBI-CAMPO COASTAL ZONE**

Issues	Immediate causes	Root causes	Competent institution	Legal framework to apply	Efficiency of the legal framework	Impacts
Limited capacity of concern institutions	-Lack of means -lack of dialogue and coordination Instability of government institution (e.g.: MINEF which become MINFOF and MINEP)	-Political and international pressure -Poor organization	MINEP (focal point ) MINEPIA, MINFOF, MINTOUR, ...	-Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime -Petroleum Code -Mining Code - Law relating to Environment Management -Water Law	Limited efficiency since application texts are insufficient or did not even existed in certain cases	-Continue Degradation of the environment -spread poverty -Installation of social and institutional conflicts
Poor development of rural activities	-Insufficient structures of liveliness of youths -Low capacity of actor to play their role -Enclosing	-Population are not aware of development problems Lack of continuous sensitization of stakeholders -Lack of local initiatives -Ignorance of local populations	MINADER (focal point), MINEPIA/MINRESI	DSRP, DSDR (Rural Development Strategic Document) Cameroon Vision at Horizon 2035 PSFE (Sectoral Programme for Environment and Forestry)	Mitigated efficiency	-Under development of rural sector -Increased Poverty -Unemployment
Marginalization of local communities	Lack of representatives of some institutions at the local level Lack of awareness Insufficient capacity building reinforcement	Populations are not interested to public goods Poor education level	MINAS(focal point ), MINATD, MINEP, MINEPIA, MINTOUR	-Cameroon Constitution United Nations - Convention eliminating all forms of discrimination -Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime	Inefficacité dans l'application des lois	Population marginalisée Population apathique Création des conflits entre les institutions et les populations Sous-développement Dégradation environnement
Inoperational legal Framework	Incomplete legislation Insufficient application Insufficient dialogue of all stakeholders Non implication of all stakeholders during preparation of law	Intervention of multiple actors which applies various politics	MINATD (point focal), sectoral technical administrations (MINEP, MINEPIA, MINTOUR,...)	Most of the laws regarding environment	Limited efficiency	-Installation of disorders -Degradation of the nature and environment -Violation of texts Unsustainable development
Poor communication and sensitization mechanism	Ignorance of Rio Principe 10 Poor access to medias for the Kribi-Campo population Insufficient specialized structures on sensitization, Low finance, material, human resource capacity of local structures	Insufficient consciousness on the importance of the sensitization local population	MINEP (focal point), MINCOM, MINATD, etc.	Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime Convention on Biological Diversity (CBD)	Mitigated efficiency	Unsustainable management of coastal zone Ignorance of right and obligations by actors Poverty; unemployment Lack of initiatives
Weak support to association sector	Mutual fear between association sectors and the public and between members of the same association Ignorance of donors and other support structures by the associations	Lack of incentive measures within the sector	MINEP(focal point ), MINFOF, MINEPIA, MINEPAT	- Law relating to Environment Management -Law on Law n°90/053 of 19 December 1990 on creation and functioning of associations	To be improved	Fragility of associations Cameroon did not find way to fully benefit from support from international source attracted by this sector; Poor improvement of the population livelihoods

Issues	Immediate causes	Root causes	Competent institution	Legal framework to apply	Efficiency of the legal framework	Impacts
Lack of coordination between sectors	Multitude of actors and interests in the Kribi-Campo coastal area	Particular richness of the area	MINEP and other sectoral ministries	No texts or regulation	none	Lack of coordination Scattered actions Populations abandoned on their own Delay in the economic development
Low priority for coasts development	Lack of perception of the economic importance of coastal areas Insufficient knowledge on quantitative inventory of resources	Lack of specific policy on coastal management	MINEP (focal point), MINDEF, MINTRANS, MINEPIA	- Law relating to Environment Management - Law n°94/01 of 20 January 1994 on Forest, Wildlife and Fishing Regime - Cameroon vision to horizon 2035 - Abidjan Convention	Mitigated efficiency	Unsustainable management of coastal zone Delay in economic development Poverty
Insufficient and inadequate human resources	Lack of interest on integrated coastal management Loss of competencies Lack of professional training	Lack of guidance and incentive measures For studies related to coastal zone	MINEP (focal point), MINESUP, MINRESI, UNIDO, BM and other partners	PSFE	Mitigated efficiency	Loss of competencies Inertia of existing human resources Lack of achievement of target objectives Continuous degradation of the environment
Climate change	Increase of temperatures due to the increase of greenhouse gas in the atmosphere	Human activities Natural phenomenon	MINEP (focal point), MINFOF, MINADER, MINIMIDT, MINEPIA, MINEE, MINTRANS	-UN convention Framework on climate change -Convention on Biological Diversity -Convention on Desertification	Mitigated efficiency	-Conflict in resource management -degradation of the environment -No guaranty for food security -Obstacle to economic development efforts

#### 4.3.7. Coastal and marine resources management in the Kribi Campo Coastal Area

On the second day, new groups were constituted to work on resource management and biodiversity conservation issues. Results from these groups were discussed in the plenary and the following paragraphs are findings from working groups

##### 4.3.7.1. Fisheries

Fisheries activities in the Kribi Campo area have environmental, economical and social impacts as shown in table 16. Fisheries activities are linked with other activities such as sand and gravel mining and mangrove deforestation. Which causes reduction of marine coastal fauna, tourism development also has link with fisheries through organization of sport fishing. Proposed solutions to sustainable management of fisheries activities in the Kribi-Campo area. The fisheries sector in the Kribi Campo area key issues are: access to the resource, regulation and monitoring and control. Access to the resource is limited by lack of means to fishermen and conflicts between industrial fishing trawlers and artisanal fishermen. There is no respect of the legal framework in place and no local monitoring programme is set up. The following proposed actions should be taken:

- Study new fishing areas
- Monitoring and control of fishing techniques
- Methodological support to install DCP (Dispositif de Concentration de Poissons) in the Kribi area
- Training of local staff on monitoring and control and on fisheries statistics collection
- Training of local staff on DCP utilization

**TABLE 16: IMPACTS OF FISHING ACTIVITIES**

Level of impact	Nature of the impact	Causes of impacts	Management strategy response	Efficiency of the response
<b>Environmental</b>	Loss of marine and coastal fauna Loss of species such as marine turtles	Overfishing Use of bad fishing methods Non respect of law in force	Motorization of fishing canoes and use of DCP Interdiction of use of bad fishing methods	Adaptative response but not yet applied Adaptative applicable response
<b>Economical</b>	Increase of fishermen revenue Reduction of importation of fish products	Motorization of fishing canoes and use of new fishing techniques Increase in fish catch	No response	No response
<b>Social</b>	Increase food security Improvement of fishermen living conditions Conflict between fishermen on fishing zones	Continue increase in fish catch Lack of sensitization and cooperation between fishermen		

#### 4.3.7.2. Exploitation of threatened species of marine turtles

Kribi Campo coastal zone is one of the important zones in Central African Region with beaches where you can find marine turtles come and lay their eggs, particular in the Ebodje beach located at some 50 km from Kribi town and 25 km from Campo. Marine turtles are often caught accidentally or voluntary by local fishermen. Exploitation of marine turtle species for their meat for subsistence has environmental, economic and social impacts as represented in table 17. Marine turtle exploitation has strong link with tourism (marine turtle carapace is a tourism product). For fishermen, exploitation of marine turtle is means for additional revenue. This exploitation is also link with livestock as substitute in animal proteins.

**TABLE 17: IMPACTS OF EXPLOITATION OF MARINE TURTLE**

Marine turtles poaching	Nature of the impact	Causes of impacts	Management strategy response	Efficiency of the response
Environmental	Accelerated decrease of marine turtles Serious threat to stock renewable	Need for animal proteins not satisfied	Creation of a marine park Putting in place a monitoring programme	Ongoing Adaptative response
Economical	Preference to turtle meat Increase revenue by selling turtle meat	Turtle meat is cheaper than fish or cow meat	Information on tourism Creation of facilities to receive tourism	Ongoing Adaptative response
Social	Many youths are interested on marine turtles protection and need support from local institutions	Many youths end school at secondary or primary level and have no skills and are abandoned on their own	Training of guides Management of sites for ecotourism purpose with perspective of employment creation	Ongoing Adaptative response

#### **4.3.7.3. Tourism**

Tourism is one of major growing activities in the Kribi-Campo coastal area. In 2008, 23 600 tourists both national and international visited the area and in 2009 this number is 24 865. The total number of hotel rooms in the Kribi Campo zone is 1052 with 1208 beds in Kribi and 62 in Campo. This shows an unequally distribution since all hotels are concentrated in Kribi urban area; there are no classified hotels in Campo and surroundings. Infrastructures are inadequate and tend to tarnish the image or the beauty of the coastal landscape. The number of tourists is also increasing, but at the local level, benefits from tourist activity are very low and there are few jobs opportunities. Normally, tourism activity brings currency to the country and income to populations. Tourism has positive and negative impacts as shown in table 18. Positive impacts remain very weak and are not really been perceived by the majority of local populations. The development of tourism is linked to the improvement of roads and means of transport. Tourism is also linked to forest and sea. Forests constitute tourism potential for tourism; beach and biodiversity constitute high tourism potential in the Kribi-Campo area. Tourism activities are also linked with fishing/agriculture since tourism can stimulate local production because tourists have high purchase power compared to local people and often represent good customers for fishermen. Fish market can then become new way to promote local agricultural or fishing products. For sustainable tourism management in the Kribi Campo coastal zone the following actions are proposed:

- Development of local policy and a local master plan for tourism sector to be integrated in the national master plan. This plan should be validated at the local level and been implemented with reinforcement of capacity of local responsible structures
- Updating tourism regulation, development and elaboration of a local tourism code (emphasis should be giving to organization aspects of this sector) and reinforcement of the existing legislation
- For new tourism projects, an EIA should be compulsory. Design of tourism infrastructure should respect the landscape aesthetic
- Delimitation of areas to be national marine park or marine protected areas after evaluating their richness in biodiversity and their significance for functioning of the coastal ecosystems (e.g. fish spawning grounds)

**TABLE 18: POSITIVE AND NEGATIVE IMPACTS OF TOURISM ACTIVITIES IN THE KRIPI-CAMPO COASTAL AREA**

<b>Positive Possible impacts</b>	<b>Present local constraints</b>
Direct or indirect creation of employment	Tourism very localized and concentrated Lack of local initiatives
Stimulation of local production New market for local products	Lack of information and initiatives Consideration giving to importation products
Increase of local government revenue	Poor system of control
Diversification of training and profession	Low level of local training or less of training structures
Participation to management and valorization of the environment	Lack of information and synergies
<b>Negative impacts</b>	<b>Causes</b>
Inadequate hotel infrastructure tarnishing the beauty of the landscape of the area	Lack of Environmental Impact Assessment ('EIA) studies Lack of planification Non-application of legislation Poor control system
Pollution by dumping of solid and liquid waste without treatment	Lack of treatment facilities Lack of control and poor application of legislation
Growing Social and socio-cultural conflicts	Non-social integration of large structures (lack of contact, poor dialogue)
Degradation of sites, loss of biodiversity, over collecting of specimen of fauna and flora	Lack of information and sensitization Lack of control and application of legislation Lack of education of tourists Over visiting of one site

#### **4.3.7.4. Forest exploitation**

Presently the Kribi Campo area is characterized by tropical rain forest located in the hinterland from the Lokoundjé river to Campo. This area includes the two large scale agro-industrial companies (HEVECAM and SOCAPALM), the Campo Ma'an National Park and UFA (Unité Forestière d'Aménagement). Forest resource provide to the populations and forest industries: timber, wood for energy, wood as building materials, non-timber forest products. Forest also plays an important role on the equilibrium of climate and soil. Forest exploitation activity interacting with other sector such as agriculture, fishing (construction of canoes) transport, (wood used for bridge). Forest offers good site for tourism due to the high diversity of animals and plants species that can be found in the forest. Impacts of forestry activities are shown in table 19.

**TABLE 19: IMPACTS OF FORESTRY ACTIVITIES**

<b>Level of impact</b>	<b>Nature of impacts</b>	<b>Causes</b>	<b>Management response strategy</b>	<b>Efficiency of the strategy</b>
Environmental	Disappearance of endemic species and species associated with fauna and flora Degradation of habitats and ecosystems Sedimentation	Massive degradation Erosion	Study of impact of deforestation on sedimentation	Adaptative response not yet
Economical	Loss of soil fertility Agricultural hold	Massive deforestation and erosion	Study of economic impact Rational use of forest spaces Promotion of coastal tourism	Adaptative response
Social	Conflicts between local populations and : - forest exploiters - agro-industry companies - Campo Ma'an park management	See conflicts analysis	Responsibilize local population in forest management and recognition of user right	Ongoing adaptative strategy

#### **4.3.7.5. Biodiversity management in the Kribi Campo Coastal Area**

The Kribi Campo Coastal Area is a high value environment for biodiversity and one of the major protected areas, the Campo Ma'an National Park (PNCM) is located in this area. More than 1500 plants distributed in 640 genders and 141 families with more than 114 endemic species (Tchouto, 2004) have been inventoried in the park. 390 invertebrates (Halle & Pascal, 1992, Dounias, 1993), 122 reptiles, (Chirio, 2000), 302 birds (Languy & Demey, 2000, Anye et al., 2001, Yana et al. 2001, 80 species of mammals have been identified in the PNCM. The diversity of marine fish is comparable to that known in Cameroon coastal waters. More than 381 species have been recorded, with additional 70 species associated to brackish waters (Fish Base 2004). From the 6 regional species of marine turtles, 4 are known to occur in the study area, in particular at the Ebodje beach located south of Kribi from about 50km to Kribi. Marine mammals also present notably *Trichelus senegalensis* which appears at the Ntem estuary. Table 20 analyzes the biodiversity component within the Kribi Campo Coastal Area.

### **4.4. ENVIRONMENT AND SOCIO-ECONOMIC ASSESSMENT OF THE KRIBI-CAMPO COASTAL ZONE**

#### **4.4.1. Types of Environment**

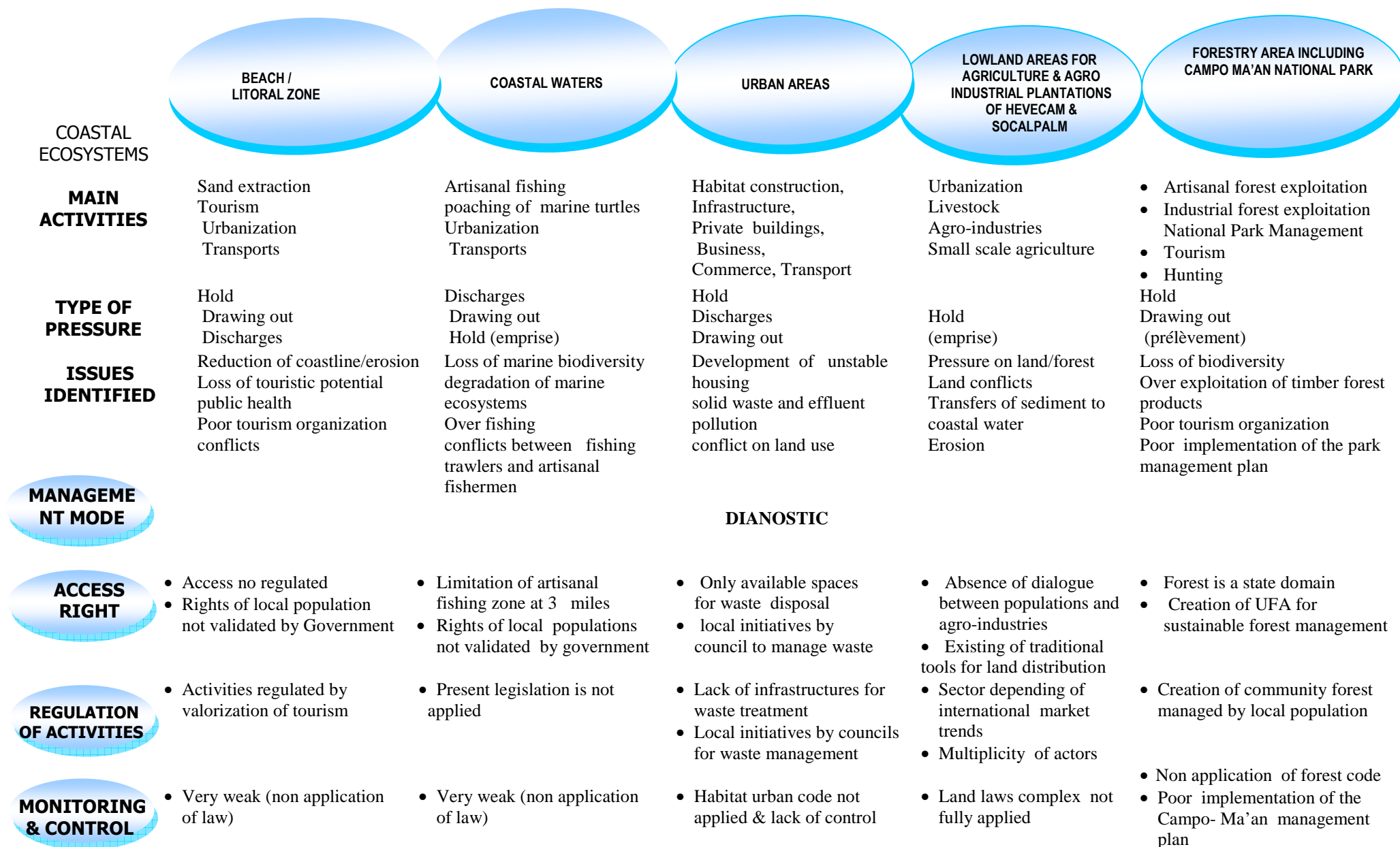
Finally the Kribi Campo coastal zone can be considered as an area constituted of 5 types of environments as illustrate in Figure 5:

- (i) Beach/littoral zone;
- (ii) Coastal waters;
- (iii) Urban areas;
- (iv) Lowland areas for small scale agriculture and agro-industrial plantations of HEVECAM and SOCAPALM and
- (v) Forestry area including Campo Ma'an National Park.

Figure 5 summaries key issues identified and analyzed: constraints, main activities and managing mode, access right, regulation, monitoring and control of activities.

**TABLE 20 ANALYSIS THE BIODIVERSITY COMPONENT WITHIN THE KRIBI CAMPO COASTAL AREA.**

Issues	Immediate causes	Root causes	State of knowledge	Stakeholders	Impacts	Key solutions or recommendations for sustainable management
Over exploitation of some species	Poaching within protected areas Non-respect of norm in fishing(mesh size, fishing period)	Lack of security and weak implication of local population in the management of protected areas Ignorance of the by local populations of the importance of protected areas Increased poverty of populations Demographic pressure Poor coordination between concern institutions Insufficient application of existing legislation	Weak knowledge on resource potential (lack of exhaustive inventory) Lack of experts in the various fields	MINEP, MINEPIA, MINTOUR, MINRESI agro-industrial companies, industrial companies Population	Disappearance of some species Particularly endemic species Destruction of mangroves Pressure on fisheries and timber forest resources	-Delimitation of protected areas boundaries -Put in place a structure/organ for participative resource management -Put in place a programme of restoration/reforestation
Inequitable sharing of revenue from resource exploitation with local populations	Insufficient legislation Insuffisance de la réglementation, Non taking in account interests of local populations	Ignorance of rights by the population	Convention of Biological Diversity ratified by Cameroon Government	MINEP, MINFOF, MINEPIA, MINRESI	Lack of incentives to the local populations for conservation Increased poverty of populations Depletion of resources	Elaboration of a legislation on equitable sharing of benefits from resources exploitation Implication of local population in resource management process
Degradation of the Environment	Non-respect of exploitation norms Unsustainable agricultural practices (creation of agro-industrial companies without taking in account biodiversity conservation aspects); Coastal pollution	Lack of planification Non-respect of environmental measures Poor control mechanism Lack of sensitization	Existing information and data are not taking in account  during policy formulation	MINEP, MINFOF, MINEPIA, MINRESI;ONG Industrial and agro-industrial companies Populations	Unsustainable development Loss of some species Loss of some cultural sites	Strict respect of e EIA
Uncontrolled urbanization	Uncontrol settlements Demographic pressure Insufficient legislation	Migration Rural exodus Attractive economic potential	existing urbanization plan but not respected	MINDAF, MINDUH MINEP	Unstable housing	Reinforcement of existing urban plan
Industrialization	Attraction by the beauty of coastal zone and access to sea Potential and attractive planned projects such as deep sea project	Strategic zone for economic development	existing urbanization plan but not respected	MINIMIDT, MINDAF, MINEP etc.	Pollution Degradation of Environment	Follow up EIA studies
Invasion of protected area by local populations	Demographic pressure Lack of implication of local population on park management	Lack of interest for local population on the existing of protected area	Plan d'aménagement existant mais non respecté	MINFOF, MINEP, MINDAF, MINATD	Social conflicts on protected areas resource utilization /use	Implication of local population on creation and management of protected areas Implication of local population in various management committees on protected areas
Invasive species	Introduction of some species by transport (commercial vessels)	Ignorance of legislation Non-respect of the existing legislation	Lack of studies on invasive exotic species	MINEP MINRESI, MINFOF;MINEPIA, MINADER,	Loss of biodiversity Loss of source of income	Sensitization of local populations Prevention, control and elimination of invasive species
Climate change	Global warming Industrial pollution Deforestation	Increase of temperature Increase sea level rise	Existing knowledge Local prevention measures are not put in place	MINEP, MINTRANS, MINFOF, etc.	Inundations , flooding and other natural disasters	Implementation of mission of the national climate change observatory Elaboration of a national Adaptation Action Plan (PANA)



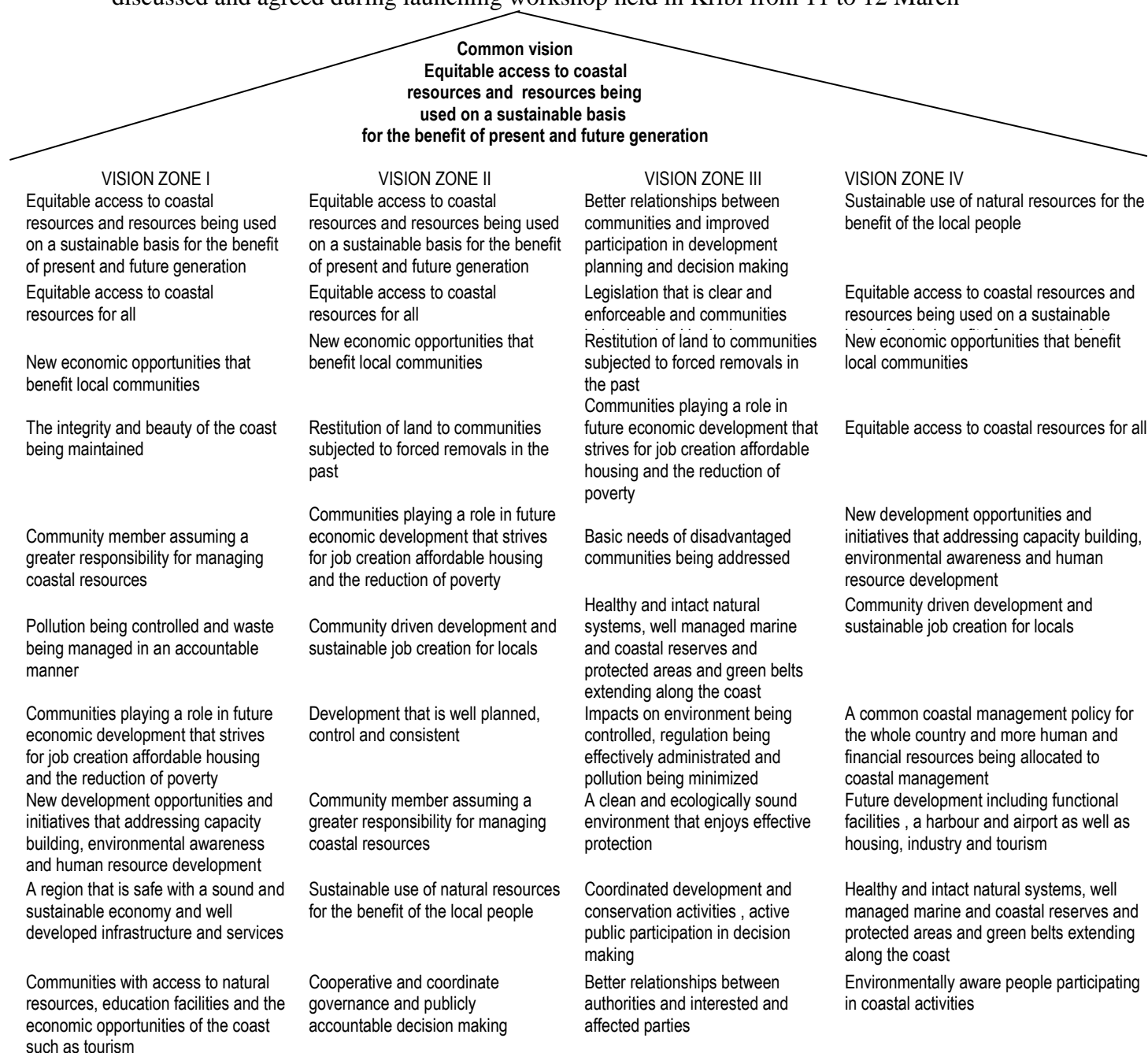
**FIGURE 5: ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT OF THE KRIBI – CAMPO COASTAL AREA**

# CHAPTER V

## VISION, ZONING AND PARTNERSHIP AGREEMENT FOR SUSTAINABLE MANAGEMENT OF THE KRIBI CAMPO COASTAL AREA IN CAMEROON

### 5.1. THE VISION

Figure 6 summarizes global vision and zonal vision of stakeholders for the Kribi Campo Coastal Area discussed and agreed during launching workshop held in Kribi from 11 to 12 March



**FIGURE 6: VISION OF LOCAL STAKEHOLDERS FOR THE ICAM OF KRIBI- CAMPO**

## 5.2. ZONING

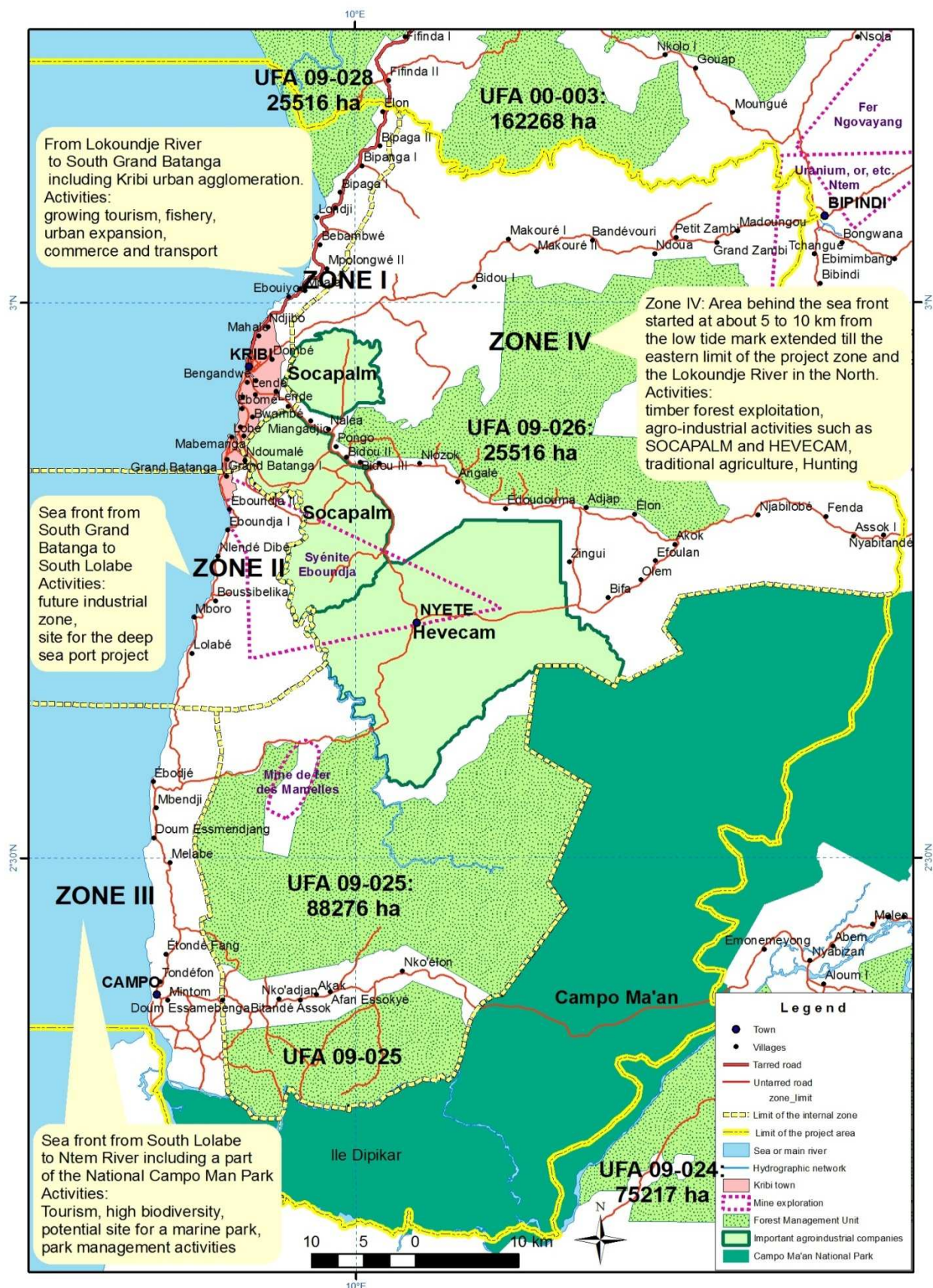
Recognising that different areas of the Kribi-Campo coastal zone can be managed for different purposes, a zoning system should be identified to facilitate more focused management and ensure the optimum allocation of scarce resources to priority areas. A system of flexible zoning and management patterns can accommodate a wide range of ecological, economic, social and cultural circumstances. Ideally zoning should be based on biological research, field surveys, feasibility studies and inventories of existing flora and fauna. Although these studies have not yet been completed, the following management zones are proposed on a preliminary basis (Figure 7)

Zone I: The sea front from river Lokoundjé to the north of Grand Batanga, including the EEZ, Kribi town and from low tide water mark to about 5 to 10 km hinterland; activities: growing tourism, fishing, urban development, commerce and transport

Zone II: From the South of Grand Batanga to the south of Lolabe including the EEZ, the site of deep sea port and from low tide water mark to about 5 to 10 km hinterland; activities: site of the future deep sea port project and mineral port for iron exportation ; fishing, tourism, crude oil exploitation.

Zone III: From the south of Lolabe to Campo (River Ntem) including the EEZ, the Campo Ma'an National park and characterized by high biodiversity; potential site for the future national marine park; activities are tourism, fishing, hunting

Zone IV: Behind the sea front including forest, SACAPALM and HEVECAM plantations and extended from about 5 to 10 Km from sea front to about 60 km hinterland; this zone includes SOCAPALM and HEVECAM plantations; UFA no 09-026 and UFA no 09-025 with 25,516 ha and 88,276 ha respectively; activities are traditional agriculture, agro-industrial activities, hunting, timber forest exploitation and NTF products



**FIGURE 7: ZONING SHOWING MAJOR SPECIFIC ZONES WITHIN THE KRIBI-CAMPO COASTAL AREA**

### **5.3. PARTNERSHIP AGREEMENT FOR SUSTAINABLE INTEGRATED COASTAL MANAGEMENT OF THE KIRIBI CAMPO AREA IN CAMEROON (S-ICM-KCAC)**

1. We the representatives of the local government technical ministries of the Ocean Division services (MINEP, MINTOUR, MINDAF, MINFOF, MINRESI, MINEPIA, MINEPAT, MINEPAT, MINDEF, MINDUH), the representative of the Senior Divisional Officer of Ocean Division, the representative of MEAO, COOPEL, , Mayors of Kribi 1, 2 and Lokoundjé, Mayors of Campo rural council, the representatives of Divisional officers of Campo, Nieté, Kribi 1, 2 and Lokoundjé, representatives of the civil society (NGOs, associations) representatives of private sector (SOCAPALM, HEVECAM, WIJMA), Guinea Current LME National Director, Various experts, representative of ENVI-REP Journalists, gathered together to establish implementation arrangement for the Sustainable Integrated Coastal Management for the Kribi-Campo Area in Cameroon (S-ICM-KCAC), building upon the foundation laid down in the meeting of the 11 and 12 March 2010. This forum adopted the principle of creating a Project Steering Committee with free designation of its members;
2. We recognize the importance and urgency of putting into effect recommendations of this meeting in order to sustain the resources provided by our ocean. In this regard, we consider our cooperation as an essential part of the national economic cooperation and integration;
3. Over the past decades, advocacy, political commitments and conservations efforts have been undertaken at national level. However, the environment of the Kribi-Campo coastal area continues to degrade at an increasing pace; one of the important concerns is the coastal erosion in central part of Kribi, in particular area located at the Lycée of Kribi, the degradation of mangrove ecosystem in the Kribi-Campo coastal area. To adopt the trend of further degradation and minimize both human and natural induced threats against our share resource base people's lives and properties are far more challenging than mere natural disaster response. Long term partnership for the implementation of the S-ICM-KCAC ;
4. We believe that participation in S-ICM-KCAC by all the stakeholders within their respective capacities and resources holds the key to confronting the challenges facing us. In the past, national arrangements have placed the responsibility for environmental and resource management primarily on government, with other users and beneficiaries of those resources functioning primarily as interested observers. The partnership approach encourage all stakeholders to work

together as complements of each other, to act dynamically and in a coordinated manner to bring into full play the role of each stakeholder within the framework of the S-ICM-KCAC;

5. We consider partnership as an effective mechanism to facilitate concerted actions in our common endeavor to implement the S-ICM-KCAC as it gives due consideration to the initiatives, shares responsibilities, desired outcomes, mutually supportive roles and the need to address disparities in capacity among the concerned stakeholders, including local government authorities, Non-Governmental Organizations (NGOs), the private sector, academic and scientific institutions, local communities and councils, financial institutions and donors agencies
6. In this context, we are committed to forging a long term stakeholder partnership for the implementation of S-ICM-KCAC. We encourage paradigm shifts in management concept and action from single sector or single purpose interventions to integrated actions, from crisis-driven response to long term capacity building efforts, and from planning to ground level implementation

#### **Priority targets for S-ICM-KCAC implementation**

7. We agree on and endeavor to achieve the following priority targets for the implementation of the S-ICM-KCAC
  - a) Mobilization of the necessary resources, capacities and services, as well as legal, financial and economic arrangement including the adoption of a running 5 years partnership programme and a production of a state of the Kribi-Campo coast report by 2015, building on the existing relevant national and local initiatives and programmes
  - b) Formulation and implementation of national policies and action plans for sustainable coastal development in order to develop and strengthen integrated coastal management at the local level
  - c) Implementation of the S-ICM-KCAC plan/programme in at least 50% by 2015 to achieve the sustainable development of coastal lands and waters and promote inter-institutional partnerships in ICAM capacity building

## **Local implementing mechanisms for the S-ICM-KCAC**

8. We are heartened to see tangible outcomes achieved by national programmes on building partnerships in the environment management for the S-ICM-KCAC. Other the past decade, through sectoral activities, government has put in place and extended on the ground coastal management
9. We have noted in particular that these efforts have led to, in many of programme sites the reduction of multiple conflicts, the improvement of environment quality, and the protection of endangered species such as marine turtles. Partnership will catalyze the concerted efforts by NGOs, local government technical ministries and authorities, concerned programmes in the development of the Kribi-Campo Area through the provision of technical guidance and assistance, as well as the promotion of sectoral and institutional cooperation. In addition, partnership has demonstrated itself as an effective collaborative mechanism in promoting development on the local and national level
10. We recognize partnership agreement as local coordinating mechanism for the implementation of S-ICM-KCAC plan and a mandated tool for collaborative, synergetic and responsible actions and the accomplishment of our individual commitments. For this purpose, we agree to adopt and implement within the framework of S-ICM-KCAC this partnership, particularly with regard to:
  - a) A local meeting to be held every year to serve as a vehicle for various stakeholders, partners to share knowledge and monitor the progress of S-ICM-KCAC Plan implementation;
  - b) The project directorate in MINEP and the Project Steering Committee, as well as the Regional Coordination Unit at the Guinea Current Commission in Accra will provide policies and operational guidance, as well as steer, and review the progress of S-ICM-KCAC implementation
11. Within the following three years, we will undertake the following actions:
  - a. Developing work plan, mobilizing resources and support and undertaking concrete measures and steps to achieve the priority actions as defined in the S-ICM-KCAC Plan document, based on our respective capacities and make the least use of local's intellectual capital for integrated management and sustainable uses of coastal and marine resources

and environment, through stakeholder participation and partnership, as well as scientific, technical and information support

- b. Enhancing our efforts on coastal and marine water pollutions reduction within the Kribi-Campo area, particularly for achieving sustainable access to safe drinking water and sanitation in pollution hotspots such as Ebome and Londji
- c. Establishing innovative financing mechanisms with a view to leveraging private sector investment and public-private sector partnerships in collaboration with interested financing institutions and other stakeholders
- d. Fostering collaboration, cooperation and partnership between S-ICM-KCAC project and other local and national programmes and initiatives in order to minimize duplication of efforts and enhance synergy among them
- e. Developing and strengthening local interagency, multi-sectoral and multidisciplinary mechanisms and processes for facilitating the implementation of the S-ICM-KCAC Plan, taking into account specific local concerns and needs
- f. Promoting public awareness and stakeholder involvement to ensure broad based participation in the S-ICM-KCAC Plan implementation at local level

**Adopted<sup>3</sup> at the stakeholder meeting held in Kribi on 11 to 12 March 2010**

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<sup>3</sup> *An operating mechanism for the partnership agreement is shown in annex 1*

# CHAPTER VI

## SECTORAL MANAGEMENT PLANS/OR PROGRAMMES WITHIN THE KRIBI CAMPO COSTAL AREA IN CAMEROON

### 6.1. INTRODUCTION

During the stakeholder consultation workshop held in Kribi from 11 to 12 March 2010 the following sectoral and cross sectoral issues were identified:

- **Sectoral issues:** i) degradation of coastal habitats, in particular coastal erosion; ii) Overexploitation of fisheries resources; iii) Overexploitation of wildlife resources and timber forest products; iv) Inadequate land use and planning and v) Poor organization of a growing tourism sector
- **Cross sectoral issues:** i) limited capacity of institutions and human resource; ii) Inoperational legal framework; iii) Weak support to association sector such as NGOs; iv) Poor development of rural activities; v) Marginalization of local communities; vi) Lack of coordination between sectors; vii) Low priority for coastal development ; viii) Climate change and ix) Conflicts

Integrated Coastal Zone Management is a process where we define many types of integration, e.g. integration across sector interests comprising utilization and protection, commercial and recreative interests (horizontal integration). The sectoral interests do often conflict and an integrated management approach supports the integration of various sectors driven interests into an overall development plan, which might require accepting trade-offs and make compromises. It is therefore necessary during this process to identify the development goals of each sector, with aim to bring the key stakeholders together to jointly discuss and agree the various development plans, and also jointly assess where sectoral development plan might have detrimental impacts on other sectors. The following paragraphs develop management plan or programme for the key sector or cross sector identified.

## **6.2. GOVERNMENT AND CAPACITY BUILDING: INSTITUTIONAL AND LEGAL DEVELOPMENT, AWARENESS, EDUCATION AND TRAINING WITHIN THE CONTEXT OF ICAM KRIBI-CAMPO ZONE**

### **6.2.1. Introduction and context**

The Rio de Janeiro World Summit on Environment and Sustainable Development of 1992 considered the issue of environmental governance as a base for the protection and sustainable use of natural and biological resources. In this light, one of the soft agreements adopted during that Conference was the Rio Principle 10 on “Public Participation” in Environmental Issues. The Access Initiative which was espoused by the Cameroon government aims at promoting the right of the public to effective participation in decision making in the environment sector, access by the public to information and access to justice in the environment field. The Ministry of the Environment and Nature Protection in collaboration with a coalition of national NGOs initiated a project of entitled TAI project, through which an evaluation of the existing system of public participation was carried out and the capacity of actors notably local communities and the civil society was built to enhance effective public participation in environmental issues.

The coastal zone of Cameroon harbours the richest part of the country in matters of natural resources endowment. Fisheries, minerals, forestry and wildlife, land and water resources are some of the numerous natural resources whose exploitation can either contribute to economic growth or create social conflicts which if not well manage, can create crisis and hindrance to economic development. Good governance can ensure effective participation by the population or public, access to information ,equitable benefit sharing, access to justice and capacity building, amongst the actors involved, thus instituting a sense of belonging and creating awareness for the sustainable management and use of the said resource. It has been noted that several practices which run contrary to good governance such as lack of accountability, transparency, democracy and effective justice, corruption are highly present in the natural resources management sector.

The African Forest Law and Governance Initiative (AFLEG) organised a conference in Cameroon in 2003 and the findings were that most of the local populations in areas where natural resources are highly exploited in African countries, always do not benefit fully from the profits made from the exploitation of such resources.

In the Kribi-Campo area, governance issues can be detected in the forest/wildlife sectors where forest exploitation concessionaries do not respect the rules stated in their exploitation licences of providing

social amenities to the population. The payment of forestry Returns and their distribution to the local populations is not done in an equitable manner. There is also considerable illegal logging going on due to poor law enforcement. There is high poaching in the protected areas as the local populations were not consulted and effectively involved in the creation and management of these areas. The *Pygmies* population (baka) is marginalised and not involved in effective decision making process or implementation in the natural resource sector whereas this population and the other local communities have played a key role as custodians of the forestry resources in this zone. Women and youth groups in the area have constantly complained of being marginalised or not being consulted during the conception and implementation of various projects.

Important genetic resources are being collected from the area and the traditional knowledge of the local communities is pirated by bio prospecting companies who develop such genetic and traditional knowledge into new foods, feeds, medicine, etc while those who contributed in safeguarding these resources from time immemorial get nothing in return. The fact that there is no specific legislation on ***Access to genetic resources and how benefits from such access and exploitation should be shared*** constitutes a loophole which is highly exploited by bio-pirates. The unsustainable harvesting of mangroves goes unabated. Bribery and corruption are very present in this sector while the lack of capacity for law enforcement is equally flagged as a weakness.

In the fishery sector, several factors including the lack of monitoring which allows foreign fishing vessels to carry out without fear, their activities in the Cameroon's territorial waters, lack of data on fishery landings and the illegal use of fishing nets which do not respect the legal dimensions are some of the factors which good governance has to reckon with.

Pollution by ships and from other land based sources has not been controlled and this has a serious impact on marine and aquatic life in the region. The quality and quantity of fishes and other marine and aquatic species in the region is a reflection of the types of activities undertaken in the sea or rivers.

In land use matters, elements of poor governance are found in the lack of planning and poor land attribution which leads to anarchy in the development of the area. The multiple purpose uses and high economic returns on coastal land use in the zone (agriculture, oil, sand and gravel extraction, Tourism/hotel industries, beaches and urbanisation) compete in land grabbing. An effective land use policy will ensure that adequate planning and attribution of land are done and that environmental impact assessments should be carried out before any development project is carried out on land in the

area. Landfills for waste management and treatment should be well protected to avoid pollution of surface and underground water sources.

There is no specific legal and policy framework for the management of coastal zones in Cameroon. Such a framework should be adopted with the active participation of all stakeholders, especially the pygmies, women and youth groups within the area. Implementation and law enforcement should be carried out without discrimination to ensure the coastal and marine environment is protected.

The creation of an Integrated Coastal Area Management Committee and the involvement of all the key stakeholders' elected Representatives (for decision making and implementing) will contribute to good governance. The Committee should hold regular meetings and provide guidance for development in all sectors within the area.

## **6.2.2. Capacity Building Areas Needs**

### **6.2.2.1. Research**

Improving on the research in coastal/marine resources is a key element in building the capacity for efficient management of the said resources. Several areas do lack scientific data such as species endemism, rate of depletion of key fishery resources, endangered species, migration and general inventory of the living resources within the zone, etc. Studying the impact of oil spills on the quality and quantity of fishery and other marine and aquatic species, the quality and quantity of aquatic/marine water, should be an important area for coastal and marine research.

### **6.2.2.2. Law Enforcement**

The lack of specific legislation on ICAM as well the weak enforcement of related legislation has contributed to several ills plaguing the coastal zone. Legal vacuums should also be filled by adopting new legislation in areas which lacked such measures. Adopting new laws or revising existing ones should be done through extensive involvement of all actors in the process.

There is also a dire need for training of trainers in addressing each sector specific needs. Special emphasis should be laid on the principles of good governance and the respect of human rights by law enforcement agents in sectors such as environmental control and inspections, forestry and wildlife officials, customs and marine control, fishery inspectors, etc.

#### ***6.2.2.3. Education and Information sharing***

Capacity building in coastal area management can be done through environmental education, and information of various stakeholders. Various tool kits could be produced by the competent administrations (MINSEC and MINEP), radio and tv, target group discussions and brochures. These could be distributed to schools, communities and other actors with the aim of sensitizing them on their rights to information, to participate in decision making and the access to justice in the environmental field. A website on integrated coastal area management where all pertinent information and activities are found should be instituted and persons trained in various field for data collection and management. This training should be short term and on the spot training. Programmes involving Exchange of Experts between GCLME member countries to foster transfer of knowledge and experience should be encouraged through funding.

#### ***6.2.2.4. Public awareness***

Public awareness creation in the coastal area is aimed at drawing the interest and support of various actors into coastal area management issues. There is need to build the capacity of policy makers, law makers, land developers, industrialists, local communities in understanding the importance of coastal ecosystems and the need to adopt and implement relevant policies, laws and programmes which can protect the degradation of coastal environment. Capacity building for awareness creation could be provided through workshops, short term training of trainers from both government and civil society groups. Simple information in brochures and books on coastal area resources and their importance can be produced and distributed to interested members of the public.

#### ***6.2.2.5. Monitoring***

Instituting an adequate monitoring and control system can contribute to the prevention and protection of the coastal and marine ecosystem from the impacts of certain phenomena. To enable the gathering of information on oil spills, illegal fishing by foreign fishing vessels, dumping of waste, sea level and wave rise, landslides and other dangerous activities in the coastal area, an efficient monitoring mechanism set in place can detect and enable actions to be taken in time to save life and biodiversity. The National Observatory for Climate Change created by the government needs to become operational. The local Councils, administrative Units and community groups should be trained and equipped in physical observation methods and sharing information which can be used as early warning by the government and the local populations to prevent or attenuate the impacts of disasters in coastal towns and villages.

#### **6.2.2.6. Empowerment (through alternative income generating projects)**

Since poverty has been underlined as the primordial cause of environmental degradation in coastal areas, this can only be addressed through the institution and implementation of concrete actions geared towards contributing to improving on the livelihoods of local communities and marginalised groups. This will through projects which generate alternative income, thus deterring the focus on the unsustainable exploitation of coastal/marine resources. Such projects can include empowerment through aquaculture and mariculture activities, community cooperatives, recruitment of local youths as park game guards, eco-guards, community police, etc.

#### **6.2.2.7. Funding**

The government should place as a priority funding on coastal ecosystem management and allocate state budgets to the relevant ministries and the Coordinating Committee instituted on ICAM. In fact, bilateral and multilateral funding in this area will depend on the attention the government places on counterpart funding. Local Councils and Industries located or likely to locate in the area should also be sensitized to avail funding for coastal area management as the advantages of their act will be ripened in the long run. Funding Mechanisms such as the GEF, the Multilateral Funds and others should be sought through projects which illustrate the participatory aspects of key stakeholders in management of various aspects of the coastal ecosystem. Funding should also include training of youth in coastal and marine sciences and support to research in coastal/marine ecosystems disciplines. Funding sources should include the following areas : mangrove protection, protected area management, pollution control and awareness creation, alternative income generating activities to local communities, preserving traditional and indigenous knowledge of local communities in coastal management; educational workshops on coastal management; involving youth in beach cleaning campaigns, etc. A donor's conference could be organised to showcase the activities, needs and projects tailored towards addressing the concerns of the local communities, youth, women, scientists and preserving the living resources of the coastal area in order to kindle donors' interests and attract corresponding funding.

### **6.3. CAMPO MA'AN NATIONAL PARK MANAGEMENT PROGRAMME**

#### **6.3.1. Introduction**

The National Park is an uninterrupted area whose fauna, flora, soil, subsoil, atmosphere, water and natural environments as a whole, are of special interest and should be preserved from any natural deterioration and protected against any human interference likely to alter their outlook, composition and evolution. Therefore, the park should benefit from an integral protection and only some conservation or research activities will only be authorized within the framework of the management

plan in accordance to the law. At the closed vicinity of the national park, a protected belt made of other land uses such as forest managements units will be established to mark a transition between the park and the peripheral zone where hunting, agricultural and others activities are freely carried out.

An *integral coastal protected area* should be created within the Kribi-Campo zone for the protection of endangered marine turtles and the remaining mangrove community. This protected area should include all those areas of utmost importance in maintaining the ecological integrity, the essential natural attributes and qualities of the environment over the long term. This zone should be free of human interference and should protect the coastal biodiversity and their unique habitats.

A peripheral land use zone will be established around villages which are largely dependent on resources within this area for their income and livelihood, and which have been adversely affected by the creation of the CMNP. This area should include farming, agro forestry, hunting, fishing, timber and NTFPs exploitation zones. In these areas, sound sustainable land use management practices should be promoted, sustainable rural development of the zone facilitated, local hunters provided with alternative livelihoods, sustainable exploitation of forest and wildlife resources promoted, all major new development subject to an EIA, and all existing development closely monitored.

Other land uses include:

- A *research area* set aside specifically for purposes of scientific research and monitoring (biodiversity, ecological and environmental monitoring).
- *Tourism and ecotourism zones* that include all those areas used primarily for the purposes of tourism, education and recreation. It should provide opportunities for public enjoyment through recreation and tourism, and promote environmental education and improve public awareness.
- A *community forestry zones* should be identified at the vicinity of some villages as an alternative for the creation of the CMNP and the integral coastal protected zone. In accordance to the forestry law, a forest of the non-permanent state forest can allocated to a village (or a group of villages) as a community forest under a management agreement between a village community and the service in charge of forestry. The management of such forest is based on its simple management plan and shall be the responsibility of the village community concerned, with the technical assistance of the service in charge of forestry. Incomes generated from the exploitation of such forest should be used for the development of the community concerned.

### 6.3.2. Management Programme

These specific objectives will be achieved through the following programmes:

- *Protection and surveillance*: establish an effective control system to protect the integrity of the CMNP, the coastal area and its peripheral zone;
- *Participative management and community development*: develop opportunities, capacities and institutions for local participation in the management of the CMNP, the coastal area and its surroundings;
- *Research and monitoring*: establish a management-oriented research and monitoring system so that the CMNP, the coastal area and surrounding areas are properly managed;
- *Administration and finance*: provide essential financial and administrative support for the effective management of the CMNP, the coastal area and its peripheral zones.

#### 6.3.2.1 Protection and Surveillance

The main goal of this program is to establish an effective control system to protect the biodiversity integrity of the Park, the coastal area and their surroundings. The protection programme will also involve the surveillance of the park and its support zone, and the sensitisation of all stakeholders.

##### a) Surveillance of the CMNP, the coastal area and their surroundings

The protection of the park, the coastal area and their surroundings will be done through regular and effective controls carried out by conservation game guards and the local MINFOF staff. During these controls, illegal forest and wildlife products will be seized and auctioned in accordance to the law. Poachers and illegal forest exploiters will be arrested, and the equipment used for hunting, fishing or exploitation seized. Some of the serious cases will be transferred to court for judgement. Specifically, this programme will help to:

- Organize and carry out regular effective forest controls on the field;
- Develop and implement an effective supervision strategy to verify patrol efforts and their effectiveness;
- Motivate and ameliorate the outputs of the game guards through the instauration of risk and encouragement incentives;
- Strengthen the human (recruitment, training) and logistic (equipment) capacities of the park conservation service;
- Promote and ensure the participation of all stakeholders concerned (local populations, NGOS, economic operators, local administration, elites, traditional and religious institutions, etc.);

- Provide support to Village Vigilante Groups. To improve levels of local participation in the management of the CMNP, provide local benefits and exploit local knowledge, it is recommended that game guards work closely with existing Village Vigilante Groups. After some basic training members of these groups could assist with anti-poaching patrols by game guards. The Village Vigilante Group would qualify for a proportion of bonuses paid for successful arrests/seizures;
- Demarcate the boundary of the national park on the field, as well as that of all other identified protected area in the Kribi-Campo coastal zone with the full involvement and participation of the local communities concerned;
- Survey and monitor all existing encroachment areas. To monitor these areas effectively a baseline survey is required to assess their size, location, activities and “ownership”. All current encroachment areas should be mapped. Regular monitoring patrols of all existing encroachment sites and all park and peripheral one villages are required.

#### b) Sensitization of all stakeholders

The success of the protection programme cannot be achieved without the full involvement and participation of the local populations and other stakeholders concerned. They include: local administration (MINIFOF, MINEP, territorial administration, justice, arm forces, mine, etc.), timber companies (WIJMA, SCIEB), agro industrial companies (HEVECAM, SOCAPALM); transport union, public decentralized institutions; community-based institutions and organization, small scale producers, private economic operators, universities and research centers, national non-governmental organizations and international institutions.

Sensitisation and conservation-education programmes are badly needed in the area to ease the way for immediate actions and to insure the long-term future of the CMNP and the coastal zone. It is required to create awareness among local people, to sensitize them on the far-reaching implication of ecological degradation, to explain the purpose of conservation and the reasons for creating reserve, and to encourage and secure their active and full participation in conservation activities. Local people need to learn more about the importance of plants as sources of useful products, about the serious threat of deforestation of the lowland rainforest and about the importance of preserving the park's genetic resources. In order to fulfil their educational role, the conservation service should carry out sensitization activities at all levels. Different approaches from signs, tours, exhibitions, video and slide shows, demonstrations, workshops, information and sensitisation campaigns can be adopted.

### **6.3.2.2 Participative management and community development**

The forestry policy is a testimony of the willingness of Cameroon government to enhance the involvement and participation of local populations in the sustainable management of forest and wildlife resources. These populations consequently should therefore be considered as unavoidable partners in this process. This innovation is intended to encourage the local populations to better manage and protect their forests. This policy is in addition reinforced by current governmental directives that stress on new political stakes such as the fight against poverty, decentralization and good governance, advocates the involvement of the populations in forest management and the sharing of revenue.

The participative management and community development programme will contribute to:

- To put in place mechanisms for the participative management of the park, the coastal area and their surroundings;
- To develop ecotourism, sustainable viable alternatives socioeconomic incomes generating activities with minimum impact on the environment;
- To promote the creation and sustainable management of community forests, as a compensation to the conservation of the national park.

The participation of Bakola/Bagyéli population (pygmy) to conservation initiatives and activities is a major task for the park management. They estranged from mainstream society due to weak institutional integration policies are involved in an unbalanced relationship with Bantu communities that do not recognize their rights on the forests, its resources and agricultural land. Around the agro industrial plantations, they are threatened by immigrants who have occupied their territories. Also there is a conflict with Campo Ma'an National Park because of misunderstanding on the definition of subsistence hunting (tolerated) and commercial hunting (forbidden). The predominance of community forest under the control of Bantu groups will accentuate insecurity of land tenure for the Bagyeli and consequently increase their vulnerability.

#### **a) Development and implementation of mechanisms for the participative management of the CMNP, the coastal area and their surroundings**

Many stakeholders can be considered as key stakeholders for the participative management of the CMNP and its peripheral zone. They include:

- Representatives of the MINFOF administration in charge of protected area management including the Park Conservation Service (Wildlife Direction, South Regional Delegation of Forestry and Wildlife and many other local MINFOF administration located at the vicinity of the park);

- Representatives of MINEP (South Regional Delegation, Divisional Delegation of Ocean, vallée du Ntem and many other local MINEP administration located at the vicinity of the park);
- Representatives of other local administrations (MINTOUR, MINEPAT, MINRESI, MINADER, MINEPIA, IRAD, MEAO, polices and gendarmes, military naval bases that are located at the vicinity of the park);
- Administrative, council, religious and political representatives (Governor, SDO, DO, Chief of District, mayors, members of parliament, etc.) found in the area;
- Community based organisation and NGOs located in the area;
- Representatives of the local populations (chiefs, notables, elites, etc.);
- Representatives of economic operators (HEVECAM, SOCAPALM, WIJMA, SCIEB);
- Representation of national and international conservation organisation acting in the area (WWF, SNV, FEDEC, PROTOMAC, GEM-CG, etc.).

Several measures should be taken to ensure the participation of all key stakeholders. They include:

- The creation of a joint Park Management Committee with representatives of all key stakeholders including the local populations and the Bakola/Bagyeli pygmy community;
- The negotiation of collaborative conventions with agro industrial, timber, mining and petroleum companies in order to ameliorate the compatibility between their activities and conservation imperatives;
- The creation of local natural resource management committee in order to promote the sustainable management of village lands;
- The development and implementation of communication strategy with the various stakeholders.

#### **b) Development of ecotourism and sustainable viable incomes generating activities**

The promotion of ecotourism and eco-development activities in the coastal area and the peripheral zone of the CMNP will contribute to the amelioration of living conditions and welfare of the local communities concerned. It will also help to increase the income generated from ecotourism by developing appropriate tourism infrastructure and actions in an ecologically sensitive and financially viable manner. Key actions will focus on:

- The inventory and management of principal tourist attractions in the national park, the coastal area and their surroundings;

- The identification and creation of guided nature ecotourism paths, the construction of an information centre and the training local guides;
- Financial and technical supports to local community development initiatives (creation of community forests, community hunting zones, community fishing zones, etc.);
- Financial and technical supports to community-based incomes generating activities;
- Financial and technical supports for the establishment of community-based infrastructures.

### **c) Creation and sustainable management of community forests**

The development of community forestry deals with facilitating access to forestry resources and their management by adapting the legal and institutional framework to the requirements of community management, by facilitating the acquisition and sustainable management of community forest, by supporting the communities in the management of their forest and wildlife resources with the technical assistance local authorities in charge of forestry.

## **6.3.3 Research and monitoring**

### ***6.3.3.1 Priority axes of research and monitoring***

As far as biological aspects is concerned, it is necessary to put in place permanent plots to follow up and monitor high conservation value species, and some resources of ecological and socioeconomic interests. These permanent plots will help to collect baseline scientific information that will be used for management orientations and decision taking.

With regards to socioeconomic aspects, the programme will focus on the study of population dynamics in villages found in the area, and the use of forest resources by the local communities. A particular attention will be paid to damages caused by wildlife on farm lands and the identification of realistic solutions.

The collection and analysis of physical and environmental data will be done with the technical assistance and collaboration of specialised national and international scientific institutions. Most of the physical, environmental and biological data will be collected by forest guards with the participation of resource persons from the local community.

### **6.3.3.2 Coordination of research and monitoring activities**

A scientific committee will be created for the coordination of research and monitoring activities. Its terms of reference will be as follow:

- Validate research and monitoring priorities;
- Control the scientific quality and the methods used for research;
- Ensure a better analysis, interpretation and implementation of research results;
- Organise the development of data bases.

With reference to articles 13 of the 1994 forestry law and 65 of the 1996 environmental law, the scientific committee will be made of 7 members of which 04 permanent representatives (MINFOF, MINEP, MINRESI and MINESUP), 02 experts (national and international per session depending of the issues) and the Conservator who is the secretary of the committee. Selection criteria for the member's designation should be based on academic and technical knowledge, experience and good mastery of the research topics. The research and monitoring unit is in charged for the preparation of the documents that will be treated by the committee and will assist the conservator to implement the scientific committee recommendations.

### ***6.3.3.3 Trans-frontier management***

The commitments taken by the Heads of State during the Yaoundé Summit were translated into action through the Plan d'Action d'Urgence, then later by the creation of COMIFAC. In order to promote this regional initiative, the creation of a Trans-Frontier Protected Area between the CMNP in Cameroon and the Rio de Campo National Park in Equatorial Guinea would significantly enhance the international status of the area, attract and secure international funding, improve the likelihood and provide better levels of mutual protection. The trans-frontier management programme will contribute to the conservation of biodiversity, the environmental protection and the sustainable management of the Campo-Ma'an/Rio del Campo Atlantic Equatorial Forest Eco-region. Efforts and means will be put together to:

- Have a good mastery of research problems, topics and priorities;
- Harmonize information and monitoring systems;
- Fight efficiently against poaching;
- Develop a common and join communication policy;
- Increase the capacity for securing funding.

Furthermore, this trans-frontier programme will contribute to the promotion of join partnership through the exchange of information, experiences and expertise.

### **6.3.4 Administration and finance**

The main objective of this programme is to provide essential financial and administrative support for the effective management of the CMNP, the coastal area and its peripheral zone. The key activities to be developed under this programme will be oriented towards:

- The structural reinforcement of the park conservation service;
- The recruitment/transfer of a good number of qualified staff;
- The logistic and equipment capacity for field intervention should be enhanced;
- The creation of a collaboration platform between conservation structures, the local communities and other local administrative structures.

#### ***6.3.4.1 Structural reinforcement of the park conservation service***

The conservation service will be effective and fully operational if it is subdivided into the following units:

- Administrative and finance unit;
- Protection unit;
- Research and monitoring unit;
- Eco-development and participative management unit;
- Ma'an, Akom II, Nieté, coastal zone sectors.

Each of these units or sectors will be managed by a chief of unit or a chief of sector. The terms of reference for each unit or sector are described below.

#### ***Protection unit***

- Develop and ensure the implementation of the surveillance and forest control strategy;
- Ensure the coordination of surveillance activities and the fight against poaching in the CMNP and its peripheral zone;
- Develop and implement the local population participation strategy for the protection of the park (surveillance committee, village committee, information and consultation);
- Organize and coordinate forest control activities for the fight against poaching.

#### ***Research and monitoring unit***

- Ensure the monitoring and evaluation of research activities;
- Collect and manage data gathered during research and monitoring activities;

- Synthesize the research and monitoring results in a form that can be used for sustainable management decisions;
- Train staff in data collection technique;
- Ensure the survival of species of high conservation value;
- Ensure the monitoring and evaluation of research topics prescribed in the management plan.

#### ***Eco-development and participative management unit***

- Organize village committees for the sustainable management of forest and wildlife resources;
- Inform and train the local populations on eco-development and participative management tools and techniques;
- Disseminate and share information with the local communities;
- Ensure the smooth collaboration between the conservation staff, the local populations and other stakeholders;
- Identify, develop and promote alternative incomes generating activities within members of the local communities;
- Manage and solve conflicts between the park, the local population and other stakeholders.

#### ***Administrative and finance unit***

- Take care of the administrative follow up of staff;
- Develop, budget and implement annual work plans using proper accounting procedures and systems;
- Assist the conservator in financial resource management.

#### ***Sector***

- Ensure the coordination of protection, eco-development, research and monitoring activities within the sector;
- Ensure the personnel management of the conservation service within the sector;
- Prepare and provide monthly progress reports of all sector's activities to the conservator.

### **6.4. FISHERIES MANAGEMENT PLAN**

#### **6.4.1. Introduction**

Fish production is estimated in Cameroon at 100,000 metric tons of which almost 80,000 tons is from the small scale fishery. The fishing industry employs more than 200,000 persons (65,000 directly and 135,000 indirectly). The country imports almost 100,000 Mt annually since early 1990 leading to a

deficit in fish products trade balance, estimated at 20 billion CFA. The contribution to food security is estimated at 15 kg/capita/annum, 5, 2% in the primary sector and 1, 1% of national GDP.

The policy objectives are: Improving production systems; restructuring the institutional framework; improving incentive measures; and sustainable management of natural resources. These are all geared towards poverty alleviation; satisfying the increasing demand for animal protein; ensuring the sustainability and performance of production systems and achieving integration to international and sub-regional markets.

Existing data of fishery production is very unreliable reasons amongst others being the lack of an efficient data collection system, difficult access to artisanal fishing camps; heavy post-harvest losses; inadequate system of control and surveillance of fishing activities; etc. Government efforts to resolve these problems have been limited. Major efforts are seen with the publication of the fisheries and forestry law in 1994 and the elaboration of project proposal for new fisheries law, the creation of institutions responsible for the management of the sector, an MCS unit but which is non-functional, financial and material assistance to fishers through MINEPIA, capacity building in the sector through MINRESI and MINEPIA, and the provision of basic social and institutional infrastructure. Fish production has been in the decline since 1990s. There is no management plan governing this sector. For rational exploitation of the resources a good management plan is a prerequisite and this includes amongst others, a ban on small size mesh nets, application of a By-catch Reduction device (BRD) and Turtle Exclusion Device (TEC) for industrial fisheries to avoid excessive catches of juveniles and catches of marine turtles, and monitoring and control of fishing activities.

#### **6.4.2. Over-view of the fishery sector within the Kribi-Campo area**

##### ***6.4.2.1. Description of fishing activities affecting the stock***

Fishing is mainly artisanal and industrial and takes place in the sea and open water bodies and along the coast such as creeks and mangroves and estuaries.

##### **a) Artisanal fishing**

There are 796 actors in the sector (table 21) and 1556 canoes in the region. 80%) of fishermen are Cameroonians, with the remainder from neighbouring countries Nigeria, Benin and Equatorial Guinea. The average percentage of Cameroonians operating in the artisanal fishery sector is 17.2%. It is therefore interesting for local authorities and businessmen to invest in the fishery sector in this area with the highest number of Cameroonian operating in the sector. In total 39 fishing camps and villages

are located in the Kribi-Campo coastal region. It is estimated that 76% operate using non-motorized canoes and 32% have motorised canoes (MINEPIA, 2010).

**TABLE 21: NUMBER OF ACTORS IN THE FISHERY SECTOR IN KRIBI-CAMPO ZONE**

Actors	Number	Cameroonians	Nigerian
Fishermen	226	92,04%	7,96%
Fish mongers	72	81,94%	18,06%
Assistant Fishermen	430	95,58%	4,42%
Fish processors	68	83,82%	16,18%
Total	796		

At landing sites located around Kribi (Mboamanga and Ngoye), fishermen go to sea for two-three days at a time. In more rural areas between Kribi and Campo they go daily with an average of two trips a day during peak season. Motorized canoes mainly operate from Kribi and allow fishermen to fish 20km offshore and along greater stretch along the coast. The number of gears and types based on the frame survey carried out in 2009 in this area are about 1206 distributed as follows:

- Bottom gillnet: 785
- Surface gillnet: 484
- Beach senne: 33
- Cast net: 62
- Hooks: 192
- Lines: 549
- Other: 1

These gears are used specifically for:

- The monofilament bonga gillnet or bonga chain (locally known as strong kanda net or strong kanda chain) mainly used to catch bonga and Sardinella;
- Hooks and line mainly to catch barracuda and marine catfish;
- Drift net used to catch pelagic fish (bonga, Sardinella, etc.);
- Encircling gill nets to catch bonga as target species;
- Beach seine (also known as drawing net or drawing chain) catches both pelagic and demersal fish in mostly coastal inshore sandy areas;
- Multifilament bottom set gillnets (locally known as pèsè or musobo net and musobo chain) used to catch mainly demersal fish (croakers, threadfins, soles, catfish, etc.).

Others include prawn traps, anchors, floaters and lines. Fishing activities take place year round. The peak season is usually from September to October to March–April. During July–August it is impossible to go out to sea as a result of rough seas.

The artisanal fishing boats comprise essentially:

- Small dugout canoes, 4–6 m long using hooks and lines to catch mainly catfish and threadfins. These small canoes carry 2 men; the medium-sized and planked canoes 7–8 m long which use set gillnets (100–300 m long, 3–9 m deep and with mesh size of 35–90 mm) to catch croakers, threadfins and other demersal fish, and also medium-sized and planked canoes, 8–10 m long which use Bonga monofilament gillnets (600–800 m long, 12–16 m deep with mesh size 40–45 mm) to catch Bonga. The Sardinella gillnets are usually 600–800 m long, 10–14 m deep and have a mesh size of 35–40 mm.
- Larger dugout or planked canoes used for fishing with encircling gill net for bonga. The net is usually 200–700 m long, 7–12m m deep and with a mesh size of about 38 mm.

#### **b) Industrial fishing**

The commercial fishery along the Cameroon coast and the study region uses trawlers which size vary in size from between 20–25 m and Gross Registered Tons (GRT) of 50–250. In each case, they practice side trawling with stretched mesh size net of generally 30 to 41 mm cod end. Two types are encountered: Shrimpers and Finfish trawlers.

- Shrimpers.
- the first includes vessels of generally 50–100 GRT, 345 horse power engine and 20–22 m long. This category of shrimpers utilizes trawl nets of 30 to 34 mm stretched mesh cod end. Because of their relative small size, they are able to move inshore for fishing practice.
- The second category of shrimpers are generally 25 m long, 100–250 GRT and moved by a 520 hp engine. They were made for distant fishing, but some boundary problems with Nigeria in March 1983 encouraged them to become confined within the Cameroon territorial waters.
- Finfish trawlers

There are two categories of trawlers. The first is usually 22 m long, 50–100 GRT and powered by an engine of 430–440 horsepower, their stretched mesh net in each case is 36–41 mm. The second category includes vessels generally larger, i.e., 27–31 m long 142–177 GRT and an engine of 600–650 horsepower.

These finfish trawlers fish within a depth range of 8-25 m, mainly in estuaries and especially in: Cameroon estuary; Sanaga river (8-22 m); Nyong river (8-15 m) and Rio-del-Rey (8-12 m).

#### **6.4.2.2. Faunal biodiversity**

##### **a) Fish, Crustaceans and Mollusks**

The diversity of marine fish in the study region is comparable to that known in Cameroon coastal waters. Some 381 species, with an additional 70 species recorded as being associated with brackish estuarine environments (Fish base, 2004). The main target species of fish comprise two major groups: Pelagics and Demersals (benthics) both accounting for about 63% and 19%, respectively of the total fishery exploitation; then Paneids (2%) and *Nematopalaemon hastatus* (16%). Crustacea species have so far been identified, 4 of which are of economic importance, namely: *Nematopalaemon hastatus*, *Parapaeneus atlantica*, *Penaeus notialis* and *Penaeus kerathurus*. Twenty-five species of molluscs with *Sphonaria mouret*, *Purpura collifera*, *Purpura yetus*, *Sepia officinalis*, *Mytilus tenuistratus*, *Crassostrea gasar* and *Crassostrea rufa* (Crosnier, 1964) of economic importance.

##### **b) Reptiles**

Of the 6 regional species of marine turtles, 4 are known to occur in this area: These include: the green turtles (*Chelonia mydas*), the hawksbill turtles (*Eretmochelys imbricate*) and the Olive ridley turtles (*Lepidochelys olivacea*) all belonging to the family Cheloniidae; then the Leatherback turtle (*Dermochelys coriacea*) of the family Dermochelidae (WWF, 2005).

##### **c) Mammals**

Cetaceans do exist in the marine waters of south Gabon (see table 2). There have been no observations in the study area which shears boundaries with Gabon in the north. However, it is likely that these mammals occur occasionally in the study region. Present also is the West African manatee *Trichechus senegalensis*

#### **6.4.2.3. Biology of key fish species**

The key species of this area are *Ethmalosa fimbriata* (bonga), *Sardinella maderensis* (sardine) and the croakers (*Pseudotolithus spp.*).

- *Ethmalos fimbriata* (Bonga): It is the most important clupeid species in the coastal inshore waters. This species rarely goes below 20 m. It is more euryhaline than the flat Sardinella and it is found in estuaries, the sea, lagoons and also in places liable to have a variation in salinity. Its biology and migrations seem small in extent and are limited to estuaries and the adjacent coastal areas (Longhurst, 1960, Djama, 1992) and Salzen (1958). The species migrate into and

out of the estuaries following seasonal changes in salinity as well as with the abundance of plankton in the estuaries during the dry season. Bonga tends to be more abundant in the estuaries during November-April. Its migration is possibly due to spawning and feeding needs. The seasonal fishery for bonga varies according to its migration route. Juveniles are definitely more abundant in rivers and in estuaries whereas the young spawners and adults can be found both in estuaries and at sea.

- *Sardinella* spp. (Sardine): It is a coastal species, euryhaline, most often found to be abundant near the outlet of water courses. It prefers warmer waters with a temperature above 25°C and seems to avoid waters that are not clear. It is not very abundant in areas without upwelling where the warm and low saline superficial layer is permanently present as in the Bight of Biafra.
- Sciaenidae: Croakers and drums are important sciaenid species in the study area. This fish species group is primarily marine but also occurs seasonally in brackish water areas. Most of the species inhabit sandy and muddy bottoms in areas with large river flows. Longhurst (1969) gives a useful synopsis of biological data on West African croakers.
- Bobo croaker (*Pseudotolithus (Fonticulus) elongatus*): *Pseudotolithus (Fonticulus) elongatus* prefers surroundings that are less saline. In fact, commercial concentrations correspond to the great estuaries where the species can be caught in large quantities in certain seasons. Bobo croaker inhabits mud bottoms in coastal waters up to 50 m depth but also enters estuaries and coastal lagoons. This species, with a maximum length of about 45 cm, moves further offshore to spawn during the rainy season. It is jointly harvested by the artisanal and industrial fleets. It can be caught with bottom trawls, gillnets, beach-seines and longlines; and is a target species of bottom set gillnets and also trawlers.
- Longneck croaker (*Pseudotolithus (Pseudotolithus) typus*): *Pseudotolithus (Pseudotolithus) typus* grows to a larger size than *Pseudotolithus elongatus*. It attains a maximum length (L<sub>∞</sub>) of 100 cm; and fish of 50 cm length are common in the catch. It is the most important commercial sciaenid species for the Cameroonian trawl fishery. *Pseudotolithus (Pseudotolithus) typus* inhabits mud and sandy bottoms up to a depth of 150 m but is more abundant in waters of less than 60 cm and temperatures above 18°C. It also occurs in estuaries. Hence, it is fished by longlines. *Pseudotolithus typus* is a target species of the trawlers.

#### **6.4.2.4. Research and Assessments**

Fisheries research is poorly developed in the region due to absence of scientific and technical research staff. The only research station in the area CERECOMA is deprived of scientific staff and a research laboratory. However, through efforts of the national and regional institutions some research have been carried out in the study area geared towards pollution and assessment of fish stocks. It is estimated that fish production in the area is 1 600-3000tons annually (CSIR, 2002) and this has decreased significantly to about 2000tons annually (MINEPIA, pers comm. 2010). This amount caught by fishermen depends on the type of gear used, the time of the year and the number of trips made. Quantities caught vary between 3-8kg /day using rudimentary fishing gears and up to 120kg /day using speed boats and more sophisticated equipment. With marine industrial fishing it is difficult to estimate but generally trends over the coastline show a decline over the past years from 9000tons in 2000 to about 6000tons in 2009. About 9 assessment surveys have been carried out by foreign research vessels in the Cameroon waters including the study area on the potential of the fisheries resources since the 1960's. These include: -the survey with the research vessel Ombango (1962-1963); the Guinean trawling survey ( GTS) ( 1963-1964); the survey with research vessel Fiolent ( 1976); the surveys with Dr Fridjof Nansen 1981; Dr Fridjof Nansen (2004; 2005; 2006).

##### **- The Guinean trawling survey (GTS):**

Longhurst (1965), prior to the GT survey in 1963-1964 pointed out the influence of *depth* and the *nature of the sea floor* together with the clear cut *effect of the thermocline* in the Gulf of Guinea where two rather similar assemblage occur: -one in estuaries and the other in the continental shelf and both dominated by the family of the scianidae (the Sciaenid community, muddy or sandy-muddy habitat); - two groups of species appearing above (3) and below (4) the thermocline, both of them dominated by the family of the Sparidae, Sparid community/sandy habitat); -An assemblage of deep forms below the break of slope of the continental shelf (continental slope community muddy and sandy or sandy-muddy habitat); -a deeper assemblage (5), occurring at the upper continental slope or deep shelf (deep shelf community). The standing crop was estimated at 28519 tons of demersal fish for 4753 nm<sup>2</sup>.

##### **- The Research vessel Ombango ( Crosnier,1964)**

In this survey, the shelf was divided into three main zones according to hydrographic conditions: (1) 0-20m, high temperature / low salinity; (2) 20- 50 m intermediate or thermocline zone; (3) 50- 90 m high salinity and low temperature.

##### **- The Guinean trawling survey (William, 1969)**

The survey found 21 695 tons of demersal fish and 4500 in terms of pelagic for the 2717 nm<sup>2</sup> covered.

- **The soviet R/V Fiolent (Robertson, 1977)**

This survey examined the fisheries resources potential of the Eastern Atlantic from latitude 4° N to 17° S, and depth range from 20-1000 m. Fish densities decreased remarkably during the dry season in most areas ( probably due to migrations into shallow waters for reproduction as many are described to spawn during the hot season. The surface covered was 2500 nm<sup>2</sup> and found 2, 6 tons / nm<sup>2</sup> for demersal and 6.4 tons/nm<sup>2</sup> for pelagic fishes. 6500 tons of demersal and 16 000 for pelagic fish were found within 5 m and 6 m depth above the sea floor.

- **The R/V Dr. Fridjof Nansen ( Stromme et al., 1983).**

In August 1981, the survey was conducted from Togo to Congo between 50 to 2000 m depth. The continental shelves area covered was 2115 nm<sup>2</sup>. The biomass found was 190 000 tons of pelagic fishes and 117 000 of demersal. Most of species represented for the demersal are the Sparids, the Ariommidae, the Centracanthidae (*Spicara alta*). For the pelagic, the Clupeids (*sardinella maderensis*) and Scombrids (*Scomberomus tritor*) are the most common and the total biomass was estimated at 100 000 tons for both pelagic and demersal.

- **The R/V Dr Fridjof Nansen (2004-2005 - 2006).**

These surveys have been conducted during the same period from June to July, (rainy season). The main objectives are: (i) to map the distribution and estimate acoustic abundance of the main pelagic species/group in the region;- (ii) describe the distribution, composition and estimate the abundance of the main demersal species on the shelf by a swept-area trawl programme; (iii) to collect phytoplankton and zooplankton samples and species identification; (iv) to map the general hydrographic regime by using a CTD-sounder to monitor the temperature, salinity and oxygen at bottom trawl stations and on hydrographical transects; (v) on-the-job training of local scientists in the main survey routines.

The hydro-acoustic survey of Cameroon covered the shelf from the border to Nigeria with Equatorial Guinea and to 20 m bottom depth on the Cameroon coast. The survey does not cover the fish resources at < 20 m depth. A variety of coastal pelagic species exist, but during the three surveys in 2004, 2005 and 2006, no single species have been singled out with particularly high density. Biomass estimated during these cruises are summarized in table 22

**TABLE 22. SUMMARY OF BIOMASS ESTIMATES FOR THE MAIN SPECIES GROUP (2004-2006).**

Species group	Year	Cameroon	Average Length size
<i>Sardinella</i>	2006	-	Between 12.1 – 15.5 cm for <i>S. maderensis</i> and 21 cm for <i>S. aurita</i>
	2005	5 000	
	2004	11 000	
P1 ( <i>Ilisha Africana</i> )	2006	6 000	Average size 11 cm.
	2005	7 000	
	2004	2 000	
P2 ( Carangids, Scombrids, Barracudas and Hairtails)	2006	13 000	Average length size 23 cm.
	2005	30 000	
	2004	14 000	
<i>Horse mackerel</i>			

*Notice: In 2006, only very scattered low concentrations of Sardinella maderensis and no S. aurita was observed along the coast of Cameroon.*

Also, SNH and some offshore oil companies have carried out EIA studies in this area. These include the works CSIR (2002) in the Ebodjé area, SNH/HYDRAC/E & D consulting (2009) on environmental assessments etc. Some studies have been carried out in the area on marine turtles.

#### **6.4.2.5. Prospect for 2010 – 2015**

Prospects for 2010 2015 are mainly centred around improving on fish production and reducing post-harvest losses. Following this a series of measures are being put in place to combat IUU, regulate fishing, improve on the lifestyle of fishers (credit facilities), make accessible improved ovens to fish smokers etc.

### **6.4.3. Institutional and legal instruments for the management of the fisheries sector**

#### **6.4.3.1. Institutional framework**

The fishery of this area like the Cameroon fisheries is “open access” and very poorly managed. The administrative and technical supervision of fishing activities in the area is carried out by the following institutions:

- The merchant marine authorities: regulatory authorities and responsible for the settlement of disputes
- The divisional delegate of MINEPIA: Inspection authority for fish products at the market and for health and veterinary control
- The maritime and Small scale Fishing development Authority (MIDEPECAM): Provision of technical guidance and logistical support to small scale fishermen
- The navy: Law enforcement and protection of the coastline

- The Ministry of Scientific Research and Innovation (MINRESI) which was also reorganised in 2005 and has a mandate to define the country policy in terms of scientific research, it includes the Institute of Agricultural Research for Development (IRAD),

In addition a range of stakeholders are involved in this industry comprising: -Fishermen -Boat owners, Patrons (business operators who invest capital into the purchase of fishing gears or into the fishing unit), Women who process (smoke and dry, and sell fish), Canoe builders, Motor mechanics and equipment suppliers.

#### ***6.4.3.2.Key legal instruments***

Even though there are many gaps in the fisheries legislation, existing regulations are hardly implemented viz: relative to mesh size, species size, fishing zones, licensing etc. The artisanal fishermen too use very small mesh size nets and fish in shallow inshore areas, estuaries and lagoons, which are spawning and nursery areas of many species with impunity. The trawlers and shrimpers also use very small mesh sizes resulting to abundant by-catches and juveniles which contribute to impoverish the productivity of fish stocks. Also, the traditional fishing grounds for finfish trawlers which is supposed to be at least 3.2 km coastal sector is not respected leading to conflict between the artisanal and industrial fishery. Proper management of this fishery will guarantee its recovery and sustainable exploitation.

In Cameroon, Law n° 94/01 of January 1994 lays down Forest, Fauna and Fishery regimes and defines access conditions to a fishery. The Cameroon fishery, is suffering from various constraints such as the lack of management plan for different fishing grounds; poor statistic data collection and monitoring, control and surveillance body; relative poor human resources, poor aquaculture development. The current fishing policy gears toward;-modernize the production systems; improvement of the institutional framework and incentives; and sustainable management of fish resources.

The existing legislation presents many gaps including amongst others:

- Absence of regulations related to by-catch and discards including the use of selective devices like BRDs and TEDs);
- The limits for fishing for industrial vessels and artisanal boats are poorly defined (3 nautical mile limit) which causes conflict between these 2 sectors;
- Penalties on infringements related to fishing laws are not heavy enough to deter further infringements;

- Control and unauthorized transfer of fishing licenses and permits is not well elucidated (e.g. the procedure for the application for, and acquisition of, industrial fishing licenses has many serious irregularities).
- For information and documents submitted by the applicant, the law has no power to sanction false declarations; Issues related to foreign boats (entry, exit, declaration and landing of catches) are not mentioned. Foreign boat entry and exit are currently not detected and their catches are not declared but landed abroad.
- Problems related to the MCS of fishing activities are not elucidated. Also, there is no mention of the potential and methods for co-management of the resource.
- There is no reference to effective participation of stakeholders in management and of co-management,

For these reasons, under the FAO/TCM/2907(A) Project on “Appui à la révision du cadre juridique des pêche et de l’aquaculture au Cameroun” an “avant-projet de Loi portant régime de la pêche et de l’aquaculture” was proposed (FAO, 2005). The new text proposed is designed to provide some solutions to these crucial problems. For example:

According to this new legislation, the following management measures are proposed:

- i) The zone of activity for artisanal fishing is increased from 3 to 5nm and trawling is to be banned within this area;
- ii) Provision is made for the protection of mangroves and inter-tidal species and the creation of MPAs where fishing is banned or strictly regulated;
- iv) Proposition for the reinforcement of co-management and the creation of a consultative management committee for fisheries and aquaculture which has a role to develop management plans for the fisheries sector;
- v) Prohibits the sale of fishing licenses and the erasure, or camouflaging of the name, letters and numbers on fishing vessels;
- vi) Obliges foreign vessels to notify their entry and exit into and out of Cameroon waters, declare their landings and land all catches in Cameroon;
- viii) Proposes heavy fines for defaulters of the law; increased control on licenses and on unauthorized transfer of fishing licenses and permits; reinforcement of surveillance activities; enlargement of surveillance network agents; and the provision of specific regulations for the application of BRDs, TEDs and transceivers on all vessels before licensing.

The level of compliance with fisheries regulations is very poor. This is a result of many reasons including:

- i) The recent Fisheries Law (Law No. 94/01 of 20 January 1994) and its text of application have not been fully explained to the stakeholders;
- ii) The poor MCS system in place;
- iii) Lack of Fisheries Inspectors trained specifically for applying the regulations;
- iv) Sanctioning offenders has been very difficult and in some cases impossible. Yet sanctioning offenders would be a good way to increase the awareness of stakeholders to the regulations;
- v) Absence of specific programs to educate and motivate stakeholders regarding fisheries regulations;
- vi) The dominance of foreign fishers in the fishing population (e.g only 17% Cameroonians in the artisanal sector) makes it difficult to ensure that the foreigners apply the regulations of the nation where they operate

#### 6.4.4. Problems identification

Table 23 presents fisheries sector problem analysis matrix for the Kribi-Campo coastal area

**TABLE 23 FISHERIES MATRIX PROBLEMS WITHIN THE KRIBI CAMPO AREA**

Problem	Causes	Effects	Present solution
1/ Fluctuations in availability of fish and fishery products	- Utilization inappropriate fishing gears and methods - Fishing in nurseries areas nurseries	- Decrease of fish production - Food poisoning and illness through the use of chemical for fishing	- Human capacity reinforcement for BRD and TED application - Revision of legislation on fisheries - Destruction of suspected fishes by MINEPIA
3/ Important post harvest losses	-Utilization of traditional oven - Lack of adequate infrastructure and conservation techniques	- Decrease of fish production - Poverty	- Sensitization on the use of improve ovens - installation of improved oven in fishing villages
4/ Habitat degradation	- Dumping of petroleum waste from refinery, and other coastal industries - Dumping of domestic waste - Mangrove deforestation	- Decrease of fish production	- Research EIA studies
<b>Social</b>			
5/ Conflict between artisanal and industrial fishing	- Destruction of artisanal fishing nets and fish juveniles by Chinese fishing vessel	- Decrease of fish production - Poverty - Abandon of fishing by some fishermen	- A text from MINEPIA prohibited the use of caw trawl
7/Poor knowledge on fishing	- Lack of training	-Irrational exploitation of resources	- Restrict training
8/ Lack of Adequate Data for Predictive Modelling	Insufficient research on fish stocks Inadequate finances Insufficient man power in fisheries sciences	Irrational exploitation of stocks Reduced production	
9/ Inability to Secure Financing	Insufficient micro finance organizations Absence of socio-economic groups		MINEPIA loans
10/Theft of fishing material	Absence of security system	poverty	-
11/ HIV/AIDS in fishing community	High risk behaviour of fishers Presence of sex workers Easy access to cash	Loss of manpower in fishing Decreased production	FAO studies KAP PPSAC initiative on Atlantic coast

## 6.4.5. Current management measures

### 6.4.5.1. Review of legal definitions and terms related fishing

The fisheries regulation since 1984 has been accompanied by a series of decrees governing activities in the Livestock, Fisheries and Animal Husbandry sectors (Douffisa, 2007). The current marine fisheries licensing and fishing regulations which impact on shrimp trawling, its by-catch and discard include amongst others:

- i) Delineation of a 3 nm non-trawling zone which places restrictions on trawling in the sea essentially to protect nursery grounds from indiscriminate fishing. It is also to protect the artisanal fishermen who operate within the zone, as well as to reduce conflict between them and trawler operators;
- ii) The cod-end mesh size specification of 50mm stretched, for any shrimp trawl net is in place to promote the sustainability of inshore trawl fisheries through rational exploitation. (Decree no. 002/MINEPIA of 1<sup>st</sup> October, 2001);
- iii) Prohibition of fishing in sensitive sites (estuaries, bays etc.) and fishing of juveniles (Decree No. 95/413/PM of 20<sup>th</sup> June 1995). This is intended to guarantee sustainability of the resources;
- iv) Prohibition of trans-shipment at sea of catch/by-catch. The immediate purpose is to encourage vessels to bring all catches back to the home port, to increase the supply of fish to the domestic market. (Decree no. 002/MINEPIA of 1<sup>st</sup> October, 2001);
- v) Regulation concerning a minimum size of fish for sale to discourage the catching of under-sized fish and ensure the use of the legal mesh size in the code. For instance, there is a ban on fishing, purchase, sales, transport and usage of target fish and shrimp smaller than the following lengths/weights: *Sardinella* (19cm), *P. typus* and *P. senegalensis* (25cm), Soles (22cm) and shrimps (less or equal to 11gms)(Decree no. 002/MINEPIA of 1<sup>st</sup> October, 2001);
- vi) Prohibition of pair trawling - to protect the juvenile fish and biodiversity in fishing grounds, especially those which also happen to be nursery grounds (Decree no. 0025/MINEPIA/DIRPEC/SDEPIA/SP);
- vii) Provisions for closed seasons corresponding to the reproductive period, growth of juvenile species or groups of target species. This is done by restricting or stopping fishing effort at key times and locations (Decree no. 002/MINEPIA of 1<sup>st</sup> October, 2001).

- ix) Installing mechanisms for the Monitoring, Control and Surveillance (MCS) of fishing activities for industrial vessels fishing in Cameroon waters (Decision N0. 024/MINEPIA of 15<sup>th</sup> February, 2006).

#### **6.4.5.2.Licensing schemes**

The conditions for this approval include (among others) the submission of the file, with relevant documents, to the fisheries administration. The types of fishing licenses noted are: i) fish licenses, ii) shrimp/crustacean licenses and iii) Tuna licenses. Fishing permits are grouped to 4 categories:

- A permits for semi-industrial fishing,
- B permits for sports fishing,
- C permits artisanal fishing, and
- D permits for scientific fishing.

The licensing scheme for industrial fishing involves a payment fee (GRT x 10 000 Fcfa for shrimp trawlers and GRTx 5000 Fcfa for fish trawlers), and installation of a transceiver on board the vessel. There is a vessel inspection before licensing by the competent ministries. This scheme is valid only for vessels less than 250 GRT. Licenses are obligatory and issued for only one type of fishing and are valid for 1 budgetary year (Decree No. 95/413/PM of 20<sup>th</sup> June 1995). Renewal of licenses is required 2 months before expiration. This decree bans the licensing of vessels to carry out both shrimp and fish trawling activities within same year. For the small scale fishery permit, payment is 3000 Fcfa/year and 50,000 Fcfa for the semi-industrial fishery.

#### **6.4.5.3.Effort control and closures, MPAs**

The fisheries sector in Cameroon has neither a fisheries management plan nor any limitation of fishing effort. Decree no. 002/MINEPIA of 1<sup>st</sup> October, 2001 on the modalities of the protection of fisheries resources bans fishing on all sensitive sites, notably nursery habitats and refuge areas. It gives provisions for closed seasons corresponding to the reproductive period, growth of juvenile species or groups of target species through:

- Restrictions of fishing zones,
- Reducing effort,
- Total arrest of fishing activities.

But neither defines the seasons nor articulates specific effort control measures. Decree no. 0025/MINEPIA/DIRPEC/SDEPIA/SP bans pair trawling within Cameroon territorial waters and authorizes the creation of MPAs where fishing is either banned or strictly regulated. Though mentioned in the regulation, closed seasons and MPA's are absent in Cameroon and have not been practically defined for many reasons, including administrative and scientific ones (e.g. there is poor

knowledge about the biology of the species, etc). Researchers need to intensify research in order that concrete decisions are taken based on sound scientific knowledge and evidence.

#### **6.4.5.4. Gear regulations to improve species and size selectivity**

To improve species and size selectivity, regulations on coded mesh sizes have been fixed at 70mm for industrial trawlers and 50mm for deep sea and coastal shrimpers (Decree no. 002/MINEPIA of 1<sup>st</sup> October, 2001). But these regulations are not respected due to an absence of control measures (most shrimpers use gears with mesh sizes between 30mm to 42mm). As mentioned earlier, this decree also bans the fishing, purchase, sales transport and usage of the following lengths or weights:

- *Sardinella spp* (19cm),
- *P. typus* and *P. senegalensis* (25cm),
- Soles (22cm),
- Shrimps (less or equal to 11gms).

#### **6.4.5.5. By-catch reduction measures**

There is no regulation on by catch and discarding and no functional mechanism to reduce by catch and discards. However, there has been training of stakeholders on BRDs and TEDs through the FAO global project Number UNEP GF/2731-02-4469 & GF/4030-02-04 FAO EP/GLO/201/GEF, on “*Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of By-catch Reduction Technologies and Change of Management (the REBYC-project)*” (Njifonjou, 2002). Other measures involve the revision of fisheries laws to include BRDs/TEDs, and the increase of the zone restricted for artisanal fishers from 3 to 5nm. Also, improvements in Monitoring, Control and Surveillance (MCS) is in progress: transceivers have been installed in most vessels, a few flyboats are now available for MCS, training of agents has been done and control is ongoing using small vessels.

#### **6.4.5.6. Review of MCS systems in place for trawl fisheries, including the use of VMS**

In Cameroon’s maritime fishery, the common tools of management are controlling mesh sizes, minimum sizes for some species, prohibition of some gears and limiting access to the coastal zone by industrial vessels to protect vulnerable coastal resources (especially juvenile fish) and reducing conflict between the artisanal and industrial sectors. Cameroon does not yet have the capacity to limit authorized access to the resources for both the industrial and artisanal sectors). This has transformed our coastal resources into a *de facto* regime of “open access”.

Decision n° 024/MINEPIA of 15 February 2006, provides the modalities for MCS in the fisheries sector. Following this decision, a control brigade for fishing activities has been set up in DIRPEC. It is the BCSAP (Brigade de Contrôle et de Surveillance des Activités de Pêche) that has the task to put in

place an MCS system for Cameroon. The VMS satellite system in place is the ARGOS system. In 2007, 70 transceivers were installed on industrial fishing vessels which were being followed to some extent. During this period some stakeholders who violated the 3 nautical mile limit were brought to order. Presently, BCSAP and its decentralized services have limited means to execute its mission because it lacks a coastal command centre, a limited number of operational tools or sufficient finances. Methods for collecting the data necessary for an efficient monitoring and control system are practically non-existent. It is therefore necessary to develop and put in place tools to guarantee monitoring and effective control. In light of the above, the fisheries administration decided to acquire smaller vessels to reinforce the ARGOS system. Today, most boats have transceivers and the installation of transceivers has become a prerequisite for the issue of licenses. Recently, MCS has begun using these small boats.

#### **6.4.5.7. Interactions of coastal trawl fisheries with prohibited, protected and threatened species**

A regulation bans the capture, sale and detention of protected species (Law no. 94/01 of 20 January. 1994) and fishing in all restricted zones as defined by the administration. Finfish and non-fish species caught as by-catch in Cameroon coastal marine waters sometimes include threatened or endangered species (WWF, 2005, IUCN, 1995). Fish families most affected are: the sharks: Family Lamnidae (*Carcharodon spp.*), Family Carchahinidae (*Carcharhinus limbatus*), Family Centrophoridae; Saw fishes: Pristidae (*Pristis spp.*), Groupers (Family Serranidae: *Epinephelus itajara*) and Family Syngnathidae (*Hippocampus hippocampus*). Non-fish species occasionally occurring in bycatches include turtles: Chelonidae (*Chelonia mydas*, *Eretmochelys imbricate*, *Lepidochelys olivacea*, *Dermochelys coriacea*). These turtles are normally used for food and their shells for ornamental purposes. No interaction has yet been reported with endangered mammals like the West African Manatee (*Trichechus senegalensis*) nor for cetaceans. The installation of BRDs and TEDs on shrimp trawl nets is a requirement to protect these species.

#### **6.4.6. Setting goals and objectives for the Kribi-Campo fisheries management**

##### **6.4.6.1. General management objectives**

Nearly all fishing grounds are occupied by several different fish species that are fished by several different types of fishing gear and fishing vessels. These fish and fisheries may interact with each other in various ways. “Technical interactions” between fishing gears exist wherever two or more gears and/or vessels operate within the same space, or catch fish from the same stocks of one or more species of fish. “Biological interactions” between fish species are essentially independent of the fishery (although they may be affected by the results of increased mortality) and include predator/prey

relationships and competition for food, habitats or space. In setting goals for the Kribi-Campo multispecies fisheries, managers should also be aware that prolonged fishing at unsustainable levels can result in catch compositions shifting from large, slower turnover, more valuable species to smaller, faster turnover, less valuable species. This effect, known as “fishing down the food chain” (Pauly *et al.*, 1998 in Steven J. & Smith, W.2002), occurs due to both economic and biological factors

The Code of Conduct for Responsible Fisheries was ratified on 31 October 1995 at the FAO conference. This Code sets out principles and international standards of behaviour for responsible practices with a view to ensure the effective conservation. Also, Berkes *et al.* (2001 in Steven J. & Smith, W.2002) propose data collection methods for small scale and co-managed fisheries, suggesting the greater use of traditional ecological knowledge and participatory appraisals

#### **6.4.6.2. Overall goal**

The goal of the Kribi-Campo Fisheries Management Plan (FMP) is a management strategy for fishery that allows maximum harvest while protecting the stock from overfishing on a continuing basis.

#### **6.4.6.3. Specific goals**

- Goal 1: To Contribute to achieving a lasting balance between fisheries resources and their exploitation
- Goal 2. To improve on technical conditions of fish processing and marketing
- Goal 3: To improve on beach access road and landing site infrastructure
- Goal 4. To reduce degradation of the marine and coastal environment
- Goal 5: Reduce conflict between artisanal and industrial fishing
- Goal 6. Improve on fisheries law and reinforce capacity of institutional and legal framework

#### **6.4.7. Fisheries Management Plan for the Kribi-Campo Coastal Area**

Key elements of the Fisheries Action Plan for the Kribi Campo Coastal Area in Cameroon are presented in table 24

**TABLE 24: FISHERIES ACTION PLAN FOR THE KRIPI CAMPO COASTAL AREA**

<b>Goal D1: Contribute to achieving a lasting balance between fisheries resources and their exploitation</b>						
<b>Objectives</b>	<b>Action</b>	<b>Lead organization</b>	<b>Who needs to commit</b>	<b>Time frame (medium, long-term)</b>	<b>Financial aspects (x 1000FCFA)</b>	<b>Observations</b>
1.1.Promote Gear restriction	<ol style="list-style-type: none"> <li>1. Survey of fishing gear(number and size)</li> <li>2. Set fish size and mesh size limits for all target species</li> <li>3. Implement BRD and TED</li> <li>4. Time and area closure</li> </ol>	MINEPIA	MINEFI MINRESI Pêcheurs	Medium term	100 000	In legislation only for some species but not applied
1.2.Institutionalize Quota	<ol style="list-style-type: none"> <li>1. Form socio-professional groups</li> <li>2. Institute Individual quotas (IQs)or group quotas</li> <li>3. – Monitor and control catches</li> </ol>	MINEPIA	MINEFI MINRESI Pêcheurs	Long term	25 000	Absent in legislation
1.3.Establish area and seasonal closure	<ol style="list-style-type: none"> <li>1. Survey of sensitive habitat</li> <li>2. Evaluate gonad maturation studies for target species</li> <li>3. Implement closed area/seasons</li> <li>4. Provide access to IGA</li> <li>5. Create marine reserves</li> <li>6. – Reinforce monitoring and control</li> </ol>	MINEPIA	MINRESI MINEFI MINADER MINEF Pêcheurs	Long-term	150 000	Mentioned in legislation but not defined
1.4.Establish biological monitoring programs	<ol style="list-style-type: none"> <li>1. Implement Fishery-Independent Monitoring (data on larvae )</li> <li>2. Fishery-dependent Monitoring (stock assessment: data on catch and effort, biological data, CPUE, MSY etc. and economic monitoring)).</li> <li>3. Implement habitat monitoring (pollution, deforestation etc.)</li> </ol>	MINRESI	MINEPIA MINEFI MINEPAT Pêcheurs	Medium term	75 000	Programme existing but requires reinforcement financially and manpower
1.5.Limit access	<ol style="list-style-type: none"> <li>1. Create fishing groups</li> <li>2. Institute user right measures (access and withdrawal rights) (e.g. through restricted licensing and territorial use rights (TURFs)</li> </ol>	MINEPIA	MINRESI MINEFI MINEPAT Pêcheurs	Long term	45 000	No measures yet. The fishery is open access presently
1.6. Strengthen MCS	<ol style="list-style-type: none"> <li>1. Build capacity building on VMS</li> <li>2. Training, Sensitize and involve fishers in monitoring</li> <li>3. Make operational existing satellite-based Vessel Monitoring System</li> </ol>	MINEPIA	MINRESI/MINDEF MINTRANS MINEPAT/Pêcheurs	Short term	120 000	VMS system existing but not functional
1.7.Regulate fishing effort	<ol style="list-style-type: none"> <li>1. Institute closed area and closed seasons,</li> <li>2. Reinforce monitoring</li> <li>3. create IGAs</li> </ol>	MINEPIA	MINRESI/MINEPAT Pêcheurs	Medium term	95000	To be implemented from legislation

1.8.Promote co-management	<ol style="list-style-type: none"> <li>1. Identify stakeholders in the fishery sector</li> <li>2. Establish appropriate co-management strategies</li> <li>3. Build capacity on co-management</li> <li>4. Provide technical support, credit, marketing assistance</li> <li>5. and, critically, enabling legislation</li> </ol>	MINEPIA	MINRESI MINEFI MINEPAT Pêcheurs	Long-term	110 000	Absence of this system
<b>Goal D 2: To improve on technical conditions of fish processing and marketing</b>						
2.1.Promote Capacity building and vulgarize existing technologies	<ol style="list-style-type: none"> <li>1. Survey of existing processing and marketing</li> <li>2. Create socio-professional groups</li> <li>3. Sensitize and train on improved handling and processing and packaging technologies (chorkor ovens etc.)</li> <li>4. Vulgarize improved technology (chorkor ovens, ice boxes etc.)</li> <li>5. Train on marketing of fresh and smoked products</li> </ol>	MINRESI	MINEPIA MINPLADAT Pêcheurs	Short-term	85000	IRAD has improved oven technology and local ice containers and provides training
<b>Goal D3: Improve status of beach access road and landing site infrastructure</b>						
3.1.Sensitization and fund sourcing	<ol style="list-style-type: none"> <li>1. Survey of existing roads and infrastructure</li> <li>2. Sensitize decision makers on need for improved infrastructure (ice plants, etc.)</li> <li>3. Seek national and international funding</li> </ol>	MINEPAT	MINTRANS MINEPIA Pêcheurs	Medium term	250 000	Road infrastructure is very bad in the project area
<b>Goal D 4: To reduce degradation of the marine and coastal environment</b>						
4.1.Control the discharge of pollutants and exploitation of coastal and marine resources	<ol style="list-style-type: none"> <li>1. Survey of existing sources of pollution</li> <li>2. Technical control of waste discharges</li> <li>3. Make obligatory EIA</li> <li>4. Assessment of level of pollution</li> <li>5. Implement the use of clean technology</li> <li>6. Survey of degraded areas</li> <li>7. Rehabilitation of degraded area</li> <li>8. Install monitoring measures</li> </ol>	MINEP	MINRESI MINEPAT MINEPIA Pêcheurs	Medium term	300 000	Many offshore oil and gas exploration and exploitation companies in area Also agro-plantation
<b>Goal D5: Reduce conflict between artisanal and industrial fishing</b>						
5.1.Reinforcement of MCs	<ol style="list-style-type: none"> <li>1. Revision of fisheries law</li> <li>2. Make operational existing MCS</li> <li>3. Inflict heavy punishment on defaulters</li> </ol>	MINEPIA	MINRESI MINDEF MINT/Pêcheurs	Short term	45 000	MCS in place but lack of equipment and staff
<b>Goal D6: Improve on fisheries Law and intervention capacity reinforced for staff</b>						
6.1.Improve on and implement the existing fisheries legislation	<ol style="list-style-type: none"> <li>1. Review present law and identify all gaps</li> <li>2. Put in place a mechanism for elaboration of new law</li> <li>3. Create mechanism in charge of problems related to fisheries</li> <li>4. Train and sensitize stakeholders on fisheries laws</li> </ol>	MINEPIA	MINRESI MINEP Pêcheurs	medium term	15 000	Project for new law in place requires completion

## **6.5. TOURISM MANAGEMENT WITHIN THE KRIBI CAMPO COASTAL AREA**

### **6.5.1. Introduction**

Tourism is the fastest growing sector in the Kribi Campo Coastal Area and is one of major growing activities in the area. The sector is characterized by two main categories: the powerful tourism operators and the small scale tourism initiatives. In 2008, 23 600 tourists both national and international visited the area and in 2009 this number is 24 865. The total number of hotel rooms in the Kribi Campo zone is 1052 with 1208 beds in Kribi and 62 in Campo. This shows an unequally distribution since all hotels are concentrated in Kribi urban area. There are no classified hotels in Campo and surroundings. Infrastructures are inadequate and tend to tarnish the image or the beauty of the coastal landscape. Although the number of tourists is increasing, benefits from tourist activity are very low and there are few jobs opportunities at the local level. Tourism has positive impact in the area, it remains very weak and are not really been perceived by the majority of local populations.

### **6.5.2 Institutional and legal framework for sustainable tourism management**

Table 25 summaries the keys institutions involved of the tourism sector management in Cameroon.

Cameroon has developed much legislations on tourism and is signatory of many international conventions or agreement related to tourism management. The government effort to promote sustainable tourism management is reflected in:

- xvi) Law no 99/006 of April 14<sup>th</sup> 1998 on tourism activity and the decree of application no 99/443/PM of March 25<sup>th</sup> 1999 defines the creation of a National Technical Commission in charge of authorizing new tourism facilities. It gives the possibility in article 49 to create a Communal Tourism Agency.
- xvii) Law no 94/01 of January 1994 on forests, wildlife and fishing defining natural parks and reserves. In article 30 on communal forests, this law gives the possibilities to local councils to apply for a land certificate on a forest whose objectives and limits are defined. This important measure is a precious tool for local councils facing the challenge of reducing pressure on land in order to plan future facilities without constraints.

- xviii) The National Environmental Management Plan (NEMP) adopted in 1996 which identified coastal and marine areas as fragile ecological region which need an integral protection through sustainable management of its resources.

**TABLE 25. SUMMARY OF KEY INSTITUTIONS INVOLVED IN TOURISM MANAGEMENT**

<b>Institutions/organisation/organs/ministries</b>	<b>Main role and responsibility in sustainable development</b>
<b>Institution</b>	
Presidency	Promulgating the laws enacted by parliament. Through decrees, he regulate government policies relating to coastal management, sets up and organizes administrative structures with well-defined roles in marine and coastal area management
National Assembly	Ratifies international conventions and treaties on coastal issues to which Cameroon is a signatory
<b>Coordinating organs</b>	
i. The Interministerial Committee for Environment (ICE)	-Ensures and coordinates the involvement of all ministries in the management of the coastal and marine environment and its resources
ii. The National Environment and Sustainable Development Advisory Committee	Provides an appropriate platform for effective participatory approach to coastal and marine area management
iii. Tourism National Council	Under the tutelage of Prime Minister, it assure the coordination between various administrations involved with tourism activities with aim to facilitate synergies of actions for sustainable tourism development; these ministries are: MINFOF, MINEP, MINEPAT, MINFIB, MINREX, MINT, MINTP, MINDEF, DGSN
<b>Key Ministries</b>	
i. Ministry of Tourism (MINTOUR)	Elaboration of the national tourism policy
ii. Ministry of Environment and Nature Protection (MINEP)	Elaborate and develop environmental policy, legislation, programmes and strategies. Management and coordination of activities related to environment. Mandated to supervise environmental impact assessment studies
iii. Ministry of Forest and Wildlife(MINFOF)	In charge of the elaboration, implementation and evaluation of national policy on forest and wildlife; coordinates management and conservation of forests of the national domain
iv. Ministry of Economy, Plan and Territorial Development (MINEPAT)	In charge of elaborating government general framework for medium and long term development plans, preparing investment plans and promoting public investments, coordinating all projects dealing with planning at local, national levels
v. Ministry of Water and Energy (MINMEE)	Coordinates the national policy of production, transport and distribution of water and power
vi. Ministry of Land and Landed Property Affairs (MINDAF)	Conception, implementation and evaluation of land property policy, manages the national land and proposes land use framework, protects the public and private lands and conceives cadastral plans, delivers land certificates
vii. viii)Ministry of Urban Development and Housing (MINUDH)	In charge of improvement of habitat condition and occupation of land, conservation of landed property and natural ecosystems, elaboration and execution of land ownership urbanization and housing policy, ensures waste disposal management in town
viii. Ministry of Transport (MINTRANS)	Coordinates development activities related to land, sea and air transportation
ix. Ministry of Finance and Budget (MINFIB)	Collects taxes, prepare overall framework for national budget execution
x.	
xi. Ministry of Communication (MINCOM)	Facilitation and dissemination of information on issues related to coastal development
xii. Ministry of External Relation (MINREX)	In charge of international conventions, treaties and protocols on the environment and development including marine and coastal areas

### **6.5.3. Problem identification**

During the stakeholder workshop, the following root causes were identified for tourism:

- Construction of hotels and related facilities are not well planned and have not followed the rules of urban master development plan and did not respect regulations in force with regard to hotel building;
- Limited and inadequate infrastructure (roads, electricity, water, communication and accommodation facilities);
- The local community derive little benefits from tourism activities;
- Most of hotels are concentrated in Kribi urban area;
- No system of control and organization of this sector are in place;
- Tourism activities are poorly organized;
- Tourism attractions are poorly developed;
- There no information centre and limited advertisement on tourism potential in the area;
- There is no tourism code and a system of planning tourism infrastructure construction at local level.
- Lack of professionalism within the sector

### **6.5.4. Tourism management within the Kribi Campo coastal area**

The sustainable tourism management in the Kribi Campo coastal zone will help to increase the income from ecotourism by developing appropriate tourist infrastructure and actions in an ecologically sensitive and financially viable manner. In order to insure this, the following actions are proposed:

- Development of local policy and a local master plan for tourism sector to be integrated in the national master plan;
- Marketing, publicity and visitor information to be carried out during international trade fair;
- Development of infrastructure.

#### ***6.5.4.1. Development of a local policy and master plan for tourism sector***

*Develop a strategy for the long-term management of tourism and ecotourism in the area.* The strategy should include options such as leasing tourism operations or individual camps to an NGO or to a tour company. The master plan should be validated at the local level and been implemented with reinforcement of capacity of local responsible structures.

*Ensure that the area is fully integrated within national and regional tourism strategies.* To boost tourism numbers, the Kribi Campo coastal zone must be fully integrated within regional and national tourism strategies. Information on the area should be provided at all the main hotels in Kribi, Limbe, Douala and Yaoundé.

*Maintain close and effective contact with the Ministry of Tourism.*

The relationship should be revived and greater involvement by MINTOUR in the provision of tourism services should be encouraged.

*Inventory and management of principal tourist attractions in the national park, the coastal area and their surroundings*

An inventory of all tourism attraction along the beaches, the coast, in the Campo Ma'an national park and its surroundings should be done. Existing tourism attractions and activities should be maintained. A number of locally-available sites and activities could be developed for tourism. Tourist activities such as boat and canoe tours, sport fishing, bird watching, guided tours in the national park, water falls, mangroves etc. can also be developed.

#### **6.5.4.2. Marketing, Publicity and visitor information**

*Produce brochures, fact sheets and other items that will enhance visitor appreciation of the tourist potentials and attractions of the area for distribution and sale*

A well-produced high-quality brochure including information on maps, itineraries, keys protected large mammals, birds, plant species, touristic attractions and facilities is required together with a fact sheets that provide information on accommodation, camps, fees, porters and a map of key features. Checklists of mammals, birds, keys plant species and attractive vegetation types should also be made available.

*Regularly update relevant websites with accurate information*

Many tourists use the internet to access information concerning tourist destinations. It is important therefore that websites at WWF-CPO, MINFOF and MINTOUR are updated regularly and contain relevant information for prospective visitors. The project should also investigate the possibility of establishing its own independent website.

*Develop links with private tour operators and travel agents*

To provide better publicity for the area and boost tourism numbers and revenue increased involvement by private tour operators and travel agents, both national and international, is recommended.

#### *Target the expatriate tourist market*

This group represents an important potential tourism market and should be targeted.

#### *Promote the tourism potentials of the area using regional and national media*

To raise the awareness of area as a tourist destination, greater use of national and regional media services is recommended.

#### *Establish and develop a Tourist Information Centre*

A Tourist Information Centre should be created in Kribi and equipped with a website, video, slide projector, video and digital camera to function as a venue for visiting school children, students and other interested parties. Basic information concerning opening hours, accommodation and available restaurants, fees and services should be prominently displayed outside the building. It should be able to provide regular talks, lectures and slide-shows to explain the importance of biodiversity conservation and sustainable management of natural resources in the area. The existing Kribi-Campo Inter council Office should be operational

#### *Development of ecotourism and sustainable viable incomes generating activities*

This will help to increase the income generated from ecotourism and highlight the potential benefits of ecotourism to local villages. More emphasis should be attached to increasing the benefits of tourism to the people. If local people are to participate effectively in tourism, a campaign to raise levels of awareness is required. Many tourists visiting the area wish to purchase a reminder of their visit and local handicrafts are often preferred. Traditional handicrafts produced in the area should be made available for sale at the Tourist Information Centre and other tourist attraction sites. Furthermore, there is a need to train local guides and to provide financial and technical supports to local community development initiatives.

#### **6.5.4.3.      *Development of infrastructure***

Existing infrastructures should be maintained and sustained. Tourist observation areas, rainforest trails, hiking trails, loop trails and campsites should be established in the national park and at the Lobe, Bongola in the Dipikar Island and at the Memve'ele water falls. Other wildlife viewing infrastructure and rainforest viewing trails and campsites should be established in Campo, Mont d'Elephant and Massif des Mamelles in the national park. Some coastal forest area situated at the periphery of the park can be dedicated to sport hunting.

Main goals, objectives and actions to address root causes identified are presented in table 26.

**TABLE 26 TOURISM ACTION PLAN FOR THE KRIBI CAMPO COASTAL AREA**

Objective	Action	Lead organization	Who needs to commit	Time frame	Financial aspects (x 1000FCFA) For 5 years	Observations
<b>Goal F1: To ensure a sustainable tourism management in the Kribi Campo coastal area in order to increase income from tourism activities by developing appropriate tourist infrastructure and actions in an ecologically sensitive and financially viable manner.</b>						
1.1 Develop a local policy and a master plan for tourism sector	1. Develop a strategy for the long-term management of tourism and ecotourism in the area 2 Coordinate tourism and ecotourism activities 3 Inventory and management of principal tourist attractions in the national park, the coastal area and their surroundings 5. Elaboration of a strategy to more involving local marginalized population such as pygmies	MINTOUR	MINEP; MINFOF MINEPAT; MINMEE MINLLPA; MINUDH MINTRANS MINFIB; MINCOM MINREX; Authorities; Municipalities NGOs; Local communities	Long term Long term Short term	50 000	Develop partnership with Local council and hire of consultants
1.2 Develop and implement an effective marketing strategy in order to increase incomes and jobs opportunities	1 Produce brochures, fact sheets and other items that will enhance visitor appreciation of the tourist potentials and attractions 2 Develop links with private tour operators and travel agents 3 Establish and develop a Tourist Information Centre 4 Develop and promote ecotourism and sustainable viable incomes generating tourism activities 5. Development and valorisation of tourist sites 6. Promote the tourism potentials of the area using regional and national media 7. Identify and vulgarize best sustainable tourism practices	MINTOUR	MINEP; MINFOF MINPAT; MINMEE MINTRANS MINFIB; MINCOM MINREX; Authorities Municipalities NGOs; Local communities	Short term Short term Short term Long term Long term Long term	100 000	Hire of consultants and involvement of private sector
1.3 Develop appropriate touristic infrastructures, human capacity and amenities	1 Improve the quality of existing infrastructures 2 Develop and establish new infrastructures such as art craft and cultural centres, tourist observation areas, rainforest trails, hiking trails, loop trails, campsites wildlife viewing and sport hunting infrastructure 3 Ensure the improvement of road, water and electricity facilities 4. Enforcement of human capacity within the sector and identify needs	MINTOUR	MINEP; MINPAT MINTRANS MINFIB; MINCOM MINREX; Authorities Municipalities; NGOs Local communities MINFOF; MINMEE	Long term Short term Long term	200 000	Develop partnership with local council

## **6.6. POLLUTIONS**

### **6.6.1. Introduction**

Pollution is a major issue in the Kribi Campo Coastal Area due to the fact that there are two large agro industrial companies (HEVECAM and SOCAPALM) in this zone and also due to the fact that the Kribi region hosts the terminal of Chad Cameroon pipeline with an installation in Cameroon coastal waters of floating tank to receive crude oil from the Republic of Chad, there is also a production petroleum platform located at Ebome near Kribi operated by PERENCO company. This has led to a high risk of pollution by hydrocarbons and other sources in the area. In this area many development projects are planned to take place such the deep sea port project at Grand Batanga, the mineral port at Lolabe, located at 25 km south Kribi for the exportation of iron mineral, the gas plant by Cameroon government and the electricity company AES SONEL at Mpolongwé and Bipaga near Kribi. All these activities placed the Kribi Campo coastal zone amongst hotspot points for pollution within the littoral zone.

### **6.6.2. Pollution management in Cameroon**

#### ***6.6.2.1. Institutional framework for pollution management***

Table 27 summarizes key institutions involved in pollution management. Apart these government institutions there is a National Hydrocarbon Company which is a para-public institution created by the government to manage hydrocarbon sector in the country

#### ***6.6.2.2. Legal framework for pollution management***

Cameroon has developed several legislations on pollution and is signatory of many international conventions or agreement related to pollution management

**TABLE 27 SUMMARY OF KEY INSTITUTIONS INVOLVED IN POLLUTION MANAGEMENT IN CAMEROON**

<b>Institutions/organisation/ organs/ministries</b>	<b>Main role and responsibility in sustainable development</b>
1) Presidency	Promulgating the laws enacted by parliament. Through decrees, he regulate government policies relating to coastal management, sets up and organizes administrative structures with well-defined roles in marine and coastal area management
2) National Assembly	Ratifies international conventions and treaties on coastal issues to which Cameroon is a signatory
<b>Coordinating organs</b>	
3) The Interministerial Committee for Environment (ICE)	-Ensures and coordinates the involvement of all ministries in the management of the coastal and marine environment and its resources
4) The National Environment and Sustainable Development Advisory Committee	Provides an appropriate platform for effective participatory approach to coastal and marine area management
5) The National Environmental and Sustainable Development Fund (NESDF)	Set up by the environment framework law of 1996; it is a funding structure for the implementation of the National Environmental Management Plan (NEMP)
<b>Key Ministries</b>	
6) Ministry of Environment and Nature Protection	Main government ministry in charge of pollution monitoring, management and coordination of activities related to environment Coordination of Interministerial/multisectoral committees established within MINEP on policy issues related to environmental protection
7) Ministry of Economy, Plan and Territorial Development (MINEPAT)	In charge of elaborating government general framework for medium and long term development plans, preparing investment plans and promoting public investments, coordinating all projects dealing with planning at local, national levels
8) Ministry of Water and Energy (MINMEE)	Coordinates the national policy of production, transport and distribution of water and power
9) Ministry of Urban Development and Housing	In charge of improvement of habitat condition and occupation of land, conservation of landed property and natural ecosystems, elaboration and execution of land ownership urbanization and housing policy, ensures waste disposal management in town
10) Ministry of Scientific Research and Innovation (MINRESI)	In charge of the implementation of government policy on scientific research and innovation through operational research structures
11) Ministry of Transport (MINTRANS)	Coordinates development activities related to land, sea and air transportation, pollution monitoring and surveillance at sea
12) Ministry of Mine, Industrial and Technologic Development (MINMIDT)	In charge of implementation of government policy on mining, industrial and technologic development; monitoring and surveillance of coastal and marine water with regard to pollution
13) Others: ONGs and associations	Sensitization

**a) National regulations related to pollution management**

- Environmental framework law n° 96/12 of August 5, 1996 on environmental management. This Law is a guide to implement the Environmental Management Plan (NEMP) adopted in April 1996 and which is under review. This law enumerates the principle of precaution, of pollutant-pay, of responsibility, of participation and of subsidiary.
- The National Environmental Management Plan (NEMP) adopted in 1996 which identified coastal and marine areas as fragile ecological region which need an integral protection through sustainable management of its resources. For coastal and marine zone, the NEMP adopts the following strategy on pollution:

- prevention and control for pollution (land based and marine based);
- Law no 94/01 of January 1994 on forests, wildlife and fishing
- Law no 96/14 of 05<sup>th</sup> August 1996 regulating transport by pipeline through national territory of liquid or gas hydrocarbons from neighbouring countries
- Law no 98/005 of 14<sup>th</sup> April 1998 on Water Regime

This law regulating environmental management principles and public health protection directly link with water regime; it insists on:

- Protection of water against pollutants
  - Preservation of water resources and the quality of water for human consumption
  - Sanctions from non-respect of the provision of this law
- 
- Law no 64-LF-3 of 6<sup>th</sup> April 1964 on mineral substances regime with application decree no 68/DF-224 of 6<sup>th</sup> April 1964
  - Law no 89/027 of 29<sup>th</sup> December 1989 on toxic and dangerous wastes
  - Law no 98/021 of 24<sup>th</sup> of December 1998 on the organization of port sector and application decrees, organizing and creating autonomous ports of Douala, Limbe, Kribi and Garoua
  - Decree n°94/259/PM of 31 May 1994 creating the National Consultative Commission for Environment and Sustainable Development (CNCEDD)
  - Decree n°1999/780/PM of 11 October 1999 modifying and completing provisions related to article 3 of Decree n°94/259/PM of May 31, 1994
  - Decree no 2005/0577/PM of 23<sup>rd</sup> February 2005 fixing modalities for carrying out environmental impact studies
  - Decree n° 2001/162/PM of May 8, 2001 fixing the modalities of the designation of staff for surveillance and control of water quality
  - Decree n° 2001/163/ PM of May 8, 2001 regulating the protection around surface water source and ground water
  - Decree n° 2001/164/ PM of May 8, 2001 precising the modalities of the protection of surface and ground water against pollution
  - Decree n°77/528 of December 1977 regulating storage and distribution of petroleum products

Implementation of these instruments has been hampered or delayed by several factors such as:

- Incomplete legal framework
- Inadequate legal texts
- Gaps on regulatory instruments
- Lack of adequate logistic to apply laws
- Weak human and financial capacity
- Insufficient international support

**b) International agreement related to pollution management**

Despite the multitude and various national legislations on pollution management , Cameroon government is party of several agreement/conventions related to pollution, notably:

- The Abidjan Convention, 1981 on cooperation and protection of marine and coastal environment in West and Central African Region Central
- International Convention on Civil Liability for damage due to pollution, Bruxelles, 1969
- International Convention on Intervention at high sea in case of accident causing hydrocarbon pollution, Bruxelles, 1969
- International convention for safety of human life at sea , London 1974
- United Nations Convention on the Law of the Sea, Montego Bay, 1982
- International Convention on the prevention of marine pollution from ships, MARPOL 73/78
- International convention on preparation, fight and cooperation on pollution by hydrocarbons, ORPC, 1990
- International convention on liability for damage due to hydrocarbon pollution , CLC 1969
- United Nations Convention on climate change , Rio 1992
- United Nations Convention on Biological Diversity, Rio 1992
- RAMSAR Convention on Wetland

**6.6.3. Problem identification**

During the stakeholder workshop held in Kribi from 11 to 12 March 2010, the following root causes were identified for pollutions:

- Lack of adequate waste treatment plant
- Non respect of regulation
- Increase of industrialization and use of inadequate technologies

- Lack of education and awareness on the risk of pollution
- Lack of political will
- Non-compliance to international agreement
- Absence of public facilities on beaches such as toilets, waste collecting system
- Non respect of MARPOL Convention (absence of reception facilities in Ports, dumping of waste at sea by ships)

#### **6.6.4. Pollution management within the Kribi Campo area**

Previous studies identified in the Kribi Campo area a wide variety of point and non-point source pollutants and wastes enter the coastal ecosystems largely through water ways. This has adverse effects on coastal and marine ecosystems and human health. Despite of numeral regulations and institutions put in place by the government there is no efficient control, few fragmented control cannot ensure effective pollution management. Coastal activities should be planned and managed to ensure that pollution and waste do not compromise opportunities for sustainable coastal development. Main goals, objectives and actions to address root causes identified presented in table 28

**TABLE 28 POLLUTION ACTION PLAN FOR THE KRIBI CAMPO COASTAL AREA**

Objectives	Action	Lead organization	Who needs to commit	Time frame	Financial aspects (x 1000FCFA) For 5 years	Observations
<b>Goal B1: To implement pollution control and waste management measures in order to prevent, minimize and control harmful discharges into the coastal environment</b>						
1.1. Prevent discharge of all land based point and diffuse sources to end up in coastal ecosystem	<ol style="list-style-type: none"> <li>1. Monitor waste discharge into the coastal environment</li> <li>2. Document and give annual statement on quantity and quality of waste</li> <li>3. Coordinate pollution control activities</li> <li>4. Encourage treatment of pollution discharges at sources</li> <li>5. Create economic incentives to promote waste minimization, re-use and recycling</li> <li>6. Establish cooperative arrangement between port authorities and local municipalities</li> </ol>	MINEP	MINEPIA MINT MINIMIDT MINMEE, SNH, Port authorities, municipalities, NGOs	Long term  Short term Long term  Long term  Short term  Short term	<b>100 000</b>	Report preparation, field work, equipment
1.2. Prevent marine pollutants and waste products from ship operation and maintenance into coastal waters	<ol style="list-style-type: none"> <li>1. Implement international protocol and agreements to which Cameroon is a party</li> <li>2. Control of discharge of hazardous, toxic waste substances, ballast water from ship (ship board waste) and waste products from ship maintenance such as abrasive blasting material, paint removers</li> </ol>	MINEP	MINT; NGOs MINIMIDT MINMEE, SNH, Port authorities, municipalities	Short term Long term	<b>25 000</b>	Visit and control of ships
1.3. Implement adequate and effective anticipatory and reactive measures to reduce adverse effects of human-induced coastal pollution disasters and hazards	<ol style="list-style-type: none"> <li>1. Develop and update a local disaster contingency plan and identify key roles and responsibilities</li> <li>2. Oblige high pollution risk industries to have an emergency plan and code of conduct</li> <li>3. Establish a cost clean up and rehabilitation and penalties imposed on polluters</li> </ol>	MINEP	MINATD MINT; NGOs MINIMIDT MINMEE, SNH, Port authorities, municipalities	Long term  Short term  Short term	<b>100 000</b>	Meetings, technical work to identify risk area, mapping work etc
<b>Goal B.2. To manage polluting activities to ensure that they have minimal adverse impact on the health of coastal communities and coastal environment</b>						
2.1. Implement pollution control and waste management measures	<ol style="list-style-type: none"> <li>1. Establish a waste discharge permits system</li> <li>2. Establish relevant indicators for the monitoring of the pollution status of sensitive ecosystems</li> </ol>	MINEP	MINIMIDT MINMEE, SNH, Port authorities, municipalities	Short term  Short term	<b>50 000</b>	Elaboration of standards; hire of consultants

## **6.7. MANGROVE, COASTAL FOREST AND WILDLIFE MANAGEMENT WITHIN THE KRIBI-CAMPO COASTAL AREA**

### **6.7.1. Introduction**

The Kribi Campo Coastal zone is part of the Campo Ma'an National Park (PNCM) area which is known for its high conservation value and its rich biodiversity. The site is unique combining many vegetation types with species of high conservation priorities such as endemic, rare, new and threatened plant species. More than 1500 plants belonging to 640 genera and 141 families with more than 114 endemic species, 390 invertebrates, 122 reptiles, 302 birds and 80 species of mammals have been identified in the PNCM and its surroundings. The diversity of marine fish is comparable to that known in Cameroon coastal waters. More than 381 species have been recorded, with additional 70 species associated to brackish waters.

In the study area, mangrove ecosystems are not well developed and are mainly located along the Nyong, Lokoundjé and the Ntem river estuaries. These mangroves are nurseries areas for many fish species. From the 6 species of marine turtles, 4 are known to occur in the study area, in particular at the Ebodje beach located south of Kribi from about 50km to Kribi.

### **6.7.2 Institutional and legal framework for sustainable management of mangrove, coastal forest and wildlife in the Kribi Campo coastal area**

Key institutions involved in mangrove, coastal forest and wildlife management in Cameroon are summarized in table 29

Cameroon effort to conserve and ensure the sustainable management of its coastal and marine environment is reflected in:

- The National Environmental Management Plan (NEMP) adopted in 1996 which identified coastal and marine areas as fragile ecological region which need an integral protection through sustainable management of its resources.

**TABLE 29 SUMMARY OF KEY INSTITUTIONS INVOLVED IN THE SUSTAINABLE MANAGEMENT OF MANGROVE, COASTAL FOREST AND WILDLIFE IN KRIBI-CAMPO AREA IN CAMEROON**

<b>Institutions/organisation/organs/ministries</b>	<b>Main role and responsibility in sustainable development</b>
<b>a) Institution</b>	
Presidency	Promulgating the laws enacted by parliament. Through decrees, he regulate government policies relating to coastal management, sets up and organizes administrative structures with well-defined roles in marine and coastal area management
National Assembly	Ratifies international conventions and treaties on coastal issues to which Cameroon is a signatory
<b>b)Coordinating organs</b>	
i. The Interministerial Committee for Environment (ICE)	-Ensures and coordinates the involvement of all ministries in the management of the coastal and marine environment and its resources
ii. The National Environment and Sustainable Development Advisory Committee	Provides an appropriate platform for effective participatory approach to coastal and marine area management
iii. The Forest Environment Sectoral Programme	Dedicated to the coherent integrated development of forest, fauna and environment; is in charge of the management of protected areas through implementation of their management plans
iv. The National Environmental and Sustainable Development Fund (NESDF)	Set up by the environment framework law of 1996; it is a funding structure for the implementation of the National Environmental Management Plan (NEMP)
v. Cameroon Mangrove Network	Promote policies that have impact on collective actions related to conservation and restoration of mangrove ecosystems
<b>b) Key Ministries</b>	
i. Ministry of Environment and Nature Protection (MINEP)	Management and coordination of activities related to environment Coordination of Interministerial/multisectoral committees established within MINEP on policy issues related to environmental protection
ii. Ministry of Forest and Wildlife (MINFOF)	In charge of the elaboration, implementation and evaluation of national policy on forest and wildlife; coordinates management and conservation of forests of the national domain
iii. Ministry of Agriculture and Rural Development (MINADER )	Elaboration and implementation of government policy in the agricultural and rural development sector
iv. Ministry of Economy, Plan and Territorial Development (MINEPAT)	In charge of elaborating government general framework for medium and long term development plans, preparing investment plans and promoting public investments, coordinating all projects dealing with planning at local, national levels
v. Ministry of Water and Energy (MINMEE)	Coordinates the national policy of production, transport and distribution of water and power
vi. Ministry of Livestock, Fisheries and Animal Husbandry (MINEPIA)	Ensures management, conservation and development of fisheries and livestock
vii. Ministry of Land and Landed Property Affairs	Conception, implementation and evaluation of land property policy, manages the national land and proposes land use framework, protects the public and private lands and conceives cadastral plans, delivers land certificates
viii) Ministry of Urban Development and Housing	In charge of improvement of habitat condition and occupation of land, conservation of landed property and natural ecosystems, elaboration and execution of land ownership urbanization and housing policy, ensures waste disposal management in town
viii. Ministry of Scientific Research and Innovation (MINRESI)	In charge of the implementation of government policy on scientific research and innovation through operational research structures
ix. Ministry of Transport (MINTRANS)	Coordinates development activities related to land, sea and air transportation
x. Ministry of Finance and Budget (MINFIB)	Collects taxes, prepare overall framework for national budget execution
xi. Ministry of Tourism (MINTOUR)	Elaboration of the national tourism policy
xii. Ministry of Public Work (MINTP)	Prepares plans and follow up construction of key infrastructures related to public work
xiii. Ministry of Defence (MINDEF)	Assures safety over the national territory, in coastal and marine area through the marine national
xiv. Ministry of Communication (MINCOM)	Facilitation and dissemination of information on issues related to coastal development
xv. Ministry of External Relation (MINREX)	In charge of international conventions, treaties and protocols on the environment and development including marine and coastal areas
xvi) Ministry of Mine, Industrial and Technologic Development (MINMIDT)	In charge of implementation of government policy on mining, industrial and technologic development

- Law no 96/12 of 5<sup>th</sup> August 1996 on Environmental Framework. This law contains mechanisms for reinforcement, guiding principles, national policy and strategic measures, guidelines for

sectoral and cross cutting management with regard to coastal environment protection, coastal resources management and sustainable development. The environmental framework law develops pertinent mechanisms on environmental impact assessment (chapter 1); classified establishments (section 2); protection of receptors environments (chapter 3), inland waters and flooding planes (article 25), protection of the coast and marine waters (section 3), protection of soil and sub-soil (section 4).

- Law no 94/01 of January 1994 on forests, wildlife and fishing defining natural parks and reserves. In article 30 on communal forests, this law gives the possibilities to local councils to apply for a land certificate on a forest whose objectives and limits are defined. This important measure is a precious tool for local councils facing the challenge of reducing pressure on land in order to plan future facilities without constraints.
- Decree no 2005/0577/PM of 23<sup>rd</sup> February 2005 fixing modalities for carrying out environmental impact studies.
- Decision no 6069/MINTP of 8<sup>th</sup> March 2005 fixing different category of operations which the realization is submitted to the environmental impact study.

Cameroon is a signatory to and member of major international conventions relating to sustainable forest management, biodiversity conservation and environmental protection, amongst which the most characteristics are:

- Convention on the conservation of natural resource and nature (Algiers, 1968);
- Convention on the protection of cultural and natural heritage (Paris, 1972);
- Convention on the international trade in endangered species of wildlife flora and fauna (CITES Washington, March 1973);
- African Timber Organization (ATO - Bangui, 1974);
- Cooperation agreement of countries of Central Africa relating to the conservation of wild fauna (Libreville, April 1983);
- International agreement on tropical timber (Vienna, 1983);
- Vienna Convention on the protection of the ozone layer (Vienna, March 1985);
- Convention on climate change (June, 1992);
- Convention on biological diversity (Paris, October 1994);
- Convention on the Conservation of Migratory Species of Wildlife (ratified in 1981);
- African Convention on the Conservation of Nature and Natural resources (ratified in 1978);

- Convention concerning the protection of world cultural and natural patrimony (ratified in 1983);
- The United Nations Convention on the Law of the Sea (ratified in 1985);
- The Montreal Protocol on substances that deplete the Ozone layer (ratified in 1989);
- The Framework Convention on Climate Change (ratified in 1994);
- United Nations Convention to Combat Desertification in those countries experiencing serious Drought and/or Desertification, particularly in Africa (ratified in 1994);
- UNESCO Convention on Man and the Biosphere (MAB 1971) and World Heritage;
- Convention for Co-operation in the Protection and Development of the Marine and Coastal Ecosystem;
- The Convention to Combat Desertification (ratified in 1997).

Implementation of these instruments has been hampered or delayed by several factors such as:

- Incomplete legal framework;
- Inadequate legal texts;
- Gaps on regulatory instruments;
- Lack of adequate logistic to apply laws;
- Weak human and financial capacity;
- Insufficient international support.

The following groups of stakeholders are involved in biodiversity conservation and the management of forest and wildlife resources in the area:

- Governmental agencies;
- Public decentralized institutions;
- Community-based institutions and organizations;
- Local communities;
- Small scale producers;
- The formal private sector;
- Universities and research centers;
- National non-governmental organizations;
- International institutions.

### **6.7.3. Problem identification**

Despite the rich biodiversity of the area, local pressure is increasing and there are several activities that are carried out with varying ecological impacts on the forest ecosystem and its wildlife populations. These include:

- Agricultural activities that include large scale agro industrial activities, shifting, slash and burn agriculture;
- Overexploitation of timbers and non-timber forest products;
- Overexploitation of wildlife resources (illegal hunting and poaching of threatened and protected species );
- Overexploitation of fishery resources;
- Exploitation of threatened species of marine turtles;
- Degradation of forest, vegetation communities and fragile ecosystems;
- Degradation of coastal habitat/coastal erosion.

#### **6.7.4 Sustainable management of mangrove, coastal forest and wildlife within the Kribi Campo area**

The sustainable management of mangrove, coastal forest and wildlife in the area will be achieved through four main goals:

- To ensure the sustainable management and conservation of mangrove, coastal forest resources and wildlife;
- To protect and control exploitation of wildlife, mangrove and forestry resources;
- To carry out research and monitoring;
- To promote participative management and community development.

##### **6.7.4.1. *Ensure the sustainable management and conservation of mangrove, coastal forest resources and wildlife***

Keys protection areas should be identified along the coastal and forest zone, and set aside:

- For conservation, management and propagation of wildlife and for the protection and management of fragile habitats and ecosystems. In these areas, hunting will be forbidden, except by authorization of MINFOF as part of duly approved management plans;
- As production forest for the sustainable exploitation of timber species and non timber forest products. In these forest, customary rights relating to hunting, fishing and harvesting therein shall be controlled;
- As mangrove sanctuary for full protection of mangrove communities and ecosystems. Any activity leading to the destruction of these plants communities is forbidden;
- As hunting zone where hunting activities are authorized and carried out in accordance with hunting regulations.

All these conservation key priority areas should be demarcated with a management plan. They should represent all distinct natural communities found in the area and help to conserve the ecological and evolutionary processes that sustains populations and creates biodiversity.

#### ***6.7.4.2. Protect and control the exploitation of wildlife, mangrove and forestry resources***

An effective control system should be developed and implemented in the area in order to ensure the sustainable management of forest resources and protect the biodiversity integrity of the mangroves, the coastal area, the national park and its peripheral zone. This will involve the regular surveillance of these areas and the sensitisation of the local communities and all stakeholders concerned. In order to ensure an effective protection of biodiversity in the park, the coastal area and the mangrove communities the following actions are proposed:

- Conservation game guards and local MINFOF staff should organize and carry out regular effective forest controls on the field;
- Increase the number of existing conservation game guards and control posts in the area;
- Organised regular sensitisation meetings with the local communities and others stakeholders concerned in order to educate and sensitise them on the importance of biodiversity conservation and the need of their protection;
- Strengthen the human (recruitment, training, financial motivation through incentives) and logistic (equipment) capacities of the park conservation service;
- Put in place an equipped, trained and functional Village Vigilante Groups to assist the conservation game guards and the local MINFOF staff during field controls and sensitisation meetings. This will help to improve the level of local participation in the sustainable management and protection of biodiversity in the area.

#### ***6.7.4.3. Carry out research and monitoring***

In order to ensure a better management of the mangrove, coastal forest and wildlife in the area, there is an urgent need to:

- Establish permanent plots and wildlife monitoring transects in order to study and monitor high conservation value wildlife and plant species (endangered, threatened, endemic species), and some resources of ecological and socioeconomic interests. These permanent plots will help to collect baseline scientific information that will be used for management orientations and decision taking;
- Carry out regular wildlife, botanical, ecological, socioeconomic surveys in order to collect additional data for a better management of the area;
- Organise the development of sound data bases for an effective management and utilisation of existing information;
- Create an operational scientific committee for the coordination of research and monitoring activities. This committee will validate research and monitoring priorities, control the scientific

quality and the methods used for research, and ensure a better analysis, interpretation and implementation of research results;

**6.7.4.4. *Promote participative management and community development.***

Such program will help to put in place mechanisms for the participative management of the park, the coastal area and their surroundings, and to develop sustainable viable alternatives socioeconomic incomes generating activities with minimum impact on the environment. This can be achieved through creation and sustainable management of community forests. The development these community forests will enhance the involvement and participation of local populations in the sustainable management of forest and wildlife resources with the technical assistance local authorities in charge of forestry.

Main goals, objectives and actions to address root causes identified are presented in table 30.

**TABLE 30 ACTION PLAN FOR THE SUSTAINABLE MANAGEMENT OF MANGROVE, COASTAL FOREST AND WILDLIFE WITHIN THE KRIBI-CAMPO AREA**

Objective	Action	Lead organization	Who needs to commit	Time frame	Financial aspects (x 1000FCFA) For 5 years	Observations
<b>Goal 1:</b> To ensure the sustainable management and conservation of mangrove, coastal forest resources and wildlife within the Kribi Campo area						
1.1 Create and establish key conservation priority areas	1 Elaborate a land use plan and map showing key conservation priority areas 2 Create and establish key conservation areas with the participation of the local community for the propagation of wildlife, protection and management of fragile habitats and ecosystems. 3 Create and establish a mangrove sanctuary for full protection of mangrove communities and ecosystems Produce a management plan for each of the identified conservation area	MINFOF	MINEP; MINTOUR MINPAT; MINADER MINLLPA; MINUDH MINRESI; MINFIB MINCOM Authorities Municipalities NGOs; Local communities	Short term  Long term  Long term	100 000	Hire of consultants
1.2 Protect and control the exploitation of wildlife, mangrove and forestry resources	1 Develop a strategy for an effective and efficient control system 2 Reinforce the MINFOF and conservation game guards control facilities and capacity 3 Organise and put in place an equipped, trained and functional Village Vigilante Groups 4 Carry out sensitisation and environmental education activities	MINFOF	MINEP; MINTOUR MINPAT; MINADER MINDEF; MINUDH MINEPIA; MINFIB MINCOM; Authorities Municipalities NGOs; Local communities	Short term  Short term  Short term  Long term	100 000	Organization of training and sensitization campaign
1.3 Carry out research and monitoring activities	1 Establish permanent plots and wildlife monitoring transects in order to study and monitor high conservation value wildlife and plant species 2 Carry out regular wildlife, botanical, ecological, socioeconomic surveys 3 Develop and establish sound data bases for the effective management and utilisation of existing information	MINFOF	MINEP; MINRESI MINTOUR; MINPAT; MINMEE; MINLLPA; MINUDH; MINADER MINEPIA; MINFIB MINCOM; Authorities Municipalities; NGOs; Local communities	Long term  Short term  Long term	75 000	Field work, hire consultants
1.4 Promote participative management and community development	1 Develop and put in place mechanisms for the participative management of the park, the coastal area and their surroundings 2 Promote the creation and sustainable management of community forest 3. Promote income generated activities with aim to sustainable use mangrove resources	MINFOF	MINEP; MINTOUR MINPAT; MINMEE MINADER; MINEPIA MINDEF; MINUDH MINTRANS; MINFIB; Authorities; Municipalities; NGOs; Local communities	Short term Long term	50 000	Organization of meetings, training and sensitization on the importance of park management issues

## **6.8. CLIMATE CHANGE, RISK AND NATURAL HAZARD MANAGEMENT**

### **6.8.1. Introduction**

The Cameroon coastal zone is exposed to natural risk such as volcano eruption, toxic gas emission, flooding, land slide and tornados, erosion. Kribi Campo area is specifically exposed to coastal erosion, flooding, land slide and tornados. Coastal erosion is prone in the area and leads to degradation of the coast including beaches and infrastructure and is always accelerated by human activities such as beach sand mining, and by the global warming (accelerate sea level rise). In the Kribi Campo area, there is poor planning and control of settlements along the coast

### **6.8.2. Institutional and legal framework**

#### ***6.8.2.1. National Institutional framework***

In Cameroon the main government ministry in charge of natural risk management is the ministry of Territorial Administration and Decentralization (MINATD) through its Department of Civil Protection

Other institutions include:

- The Ministry of Environment and Nature protection
- Ministry of Economic and Plan and Territorial Development
- The Ministry of Public Health (MINSANTE)
- The National Civil protection Council (CNPC)
- The National Risk Observatory (ONR)
- The National Programme for Prevention and Disaster Management (PNPCGR)
- The Institute of Geological and Mining Research (IRGM)
- The national Institute of Cartography (INC)
- The Cameroon Red Cross (CRC)
- The Service of Emergency Medical Assistance (SAMU)
- National Corps of Military Pioneer (CNSP)
- International Federation of Red Cross and Red Croissant (FICR)
- High Commissariat of Refugees (HCR)
- United Nations Development Programme (PNUD)
- World Health Organization (WHO)

### **6.8.2.2. National Legal framework**

There exist few texts or regulations on risk management in Cameroon, notably:

- Law n°86/016 of December 1986 reorganizing civil protection
- Decree n° 98/031 of March 9, 1998 organizing emergency plans and help in case of disaster
- Decree n° 2004/099 of April 2004 reorganizing the MINATD
- Presidential Instruction n° 02/CAB/PR of January 18, 1968 on the safety and protection of civil property

### **6.8.3. Natural risk management**

The Cameroon government has put in place a strategy coordinated by MINATD based on three issues:

- i) Before the disaster: promote prevention by informing the public, sensitizing and educating the population
- ii) During the disaster: implement the contingency/emergency plan established
- iii) After the disaster: implement rehabilitation measures and support to victims

Table 31 presents natural risk management within the Kribi Campo coastal area in Cameroon

**TABLE 31 NATURAL RISK MANAGEMENT WITHIN THE KRIBI CAMPO COASTAL AREA**

Objectives	Action	Lead organization	Who needs to commit	Time frame	Financial aspects (x 1000FCFA) For 5 years	Observations
<b>GOAL G1</b> To plan and manage coastal development so as to avoid increasing the incidence and severity of Natural hazards and to avoid exposure of people, property and economic activities to significant risk from coastal dynamic processes						
1. Establish a coastal development which minimize risk from natural hazards	1. Protect buffer zone 2. Control activities which lead to disturbance of natural drainage patterns 3. Identify and manage areas prone to high risk from dynamic processes such as coastal erosion 4. Remove or relocate fixed structures located in hazardous areas 5. Discourage extension or restoration of structure located in hazardous areas 6. Develop a precautionary risk averse approach Guide decision-making	MINEP	MINATD MINEPAT MINEP MINTP MINDAF MINDUH MUNICIPALIT IES	Short term  Long term  Short term Short term Short term Long term	<b>100 000</b>	MINEP is the lead organization when environmental protection and planning is concerned and MINATD is a lead in case of disaster
2. Take into account potential consequences of climate change and associated sea level rise in all planning and development	1. Adopt appropriate preventive measures 2. Monitor impact of climate change on coastal structures and sensitive ecosystems such as estuaries, mangrove 3. Carry out public awareness on climate change implications in coastal areas	MINEP	MINATD MINEPAT MINEP MINTP MINDAF MINDUH MUNICIPALIT IES MINFOF MINRESI	Long term  Long term  Short term	50 000	Hire of consultants

## **6.9. COASTAL DEVELOPMENT AND LAND USE PLANNING**

### **6.9.1. Introduction**

The availability of land in the Kribi Campo Coastal Area varies following the location; for example, around Kribi, 1.02ha of land per habitant for agriculture purpose and at Campo this figure is about 17.2. The critical issue with regard to land management is observed at Nieté (about 40km to Kribi town) in the vicinity of the huge agro-industrial plantation of rubber where there is less than 0.5 ha per habitant for land for agriculture (MEAO, 2003). Given the situation that at the national level, there is 0.45ha of land per habitant, the Kribi Campo coastal zone is not the worse situation when land availability for agriculture is concerned

The problem here is conflict for land users in the area and Uncontrol settlement. The crisis of land ownership in the Kribi Campo area started in the urban areas and is now spreading to rural areas. From Kribi town to Grand Batanga toward the south and from Kribi to Londji toward the north, all plots are sold and people built within the 50m between the high level tide mark and the land, construction within the 50m zone is prohibited by law, but this regulation is not respected. Uncontrolled occupation of space leads to:

- Reduction of agricultural land for local people
- Anarchic occupation of the sea front
- Multiple land disputes or conflicts
- Occupation of the public domain in violation of regulations
- Selling of public national domain in violation of regulations
- Non-respect of the 50m where investment or construction is prohibited

Therefore, good planning of development and land use in the Kribi Campo coastal is a key issue for its sustainable management

### **6.9.2. Institutional and legal instruments**

#### ***6.9.2.1. Institutions for land use management***

- Ministry of Land and Landed Affairs

In Cameroon, the main government institutions for land management is the ministry of Land and Landed Property Affairs which is in charge of conception, implementation and evaluation of land policies , management of the national land and proposes land use framework, protects the public and private land by issuing land certificate to individual or to companies; it also conceives cadastral plan

- Ministry of Urban Development and Housing

The main mission of this ministry is to improve habitat conditions and occupation of land in town areas, conserve landed property and natural ecosystems, elaborates and executes land ownership urbanization and housing; ensure waste disposal management in towns

- Ministry of Economy, Plan and Territorial Development (MINEPAT)

In charge of elaborating government general framework for medium and long term development plans, preparing investment plans and promoting public investments, coordinating all projects dealing with planning at local, national levels

- Ministry of Public Work (MINTP)

Prepares plans and follow up construction of key infrastructures related to public work; It is also in charge of the protection and conservation of national patrimonies with regards to port and road construction, maritime construction such as petroleum platforms

- Ministry of Territorial Administration and Decentralization (MINATD)

This ministry is in charge of the implementation of government policy on territorial organization, civil protection, and the organization of local communities

- MAETUR

MAETUR (Mission d'Aménagement et d'Etudes des Terrains Urbains) is a national company whose mission is to acquire divide up and sell plots at reasonable price so that people with low income can access to land in town areas. In the Kribi Campo area, MAETUR has acquired a housing estate at Bwambe Beach (3km from the central town of Kribi on the Kribi Campo road) where 385 plots were all sold some 6 years ago. Today, less than 20 of these plots are built. This operation of MAETUR failed because it did not favor poor people or mid-size income citizens as stated by MAETUR mission. Rich people bought these plots and kept them for future business which they will be sold higher

#### ***6.8.2.2. National legislations for land management***

In Cameroon the following legislations were set up for land management

- Law n° 80/22 of 14 July 1980 on repression against those who did not respect land and landed property
- Decree n° 74/2 of 06 July 1974 fixing land regime
- Decree n°81/298 of 23 July 1981 organizing the MAEL (Mission d'Aménagement et d'Etudes du Littoral)
- Decree n°72/233 of 17 July 1972 creating MAEL

### **6.9.3. Problem identification**

These regulations are obsolete and need to be reviewed and adapted to the present situation. The absence of a comprehensive land use planning strategy in the Kribi Campo area has been clearly identified in previous studies and during the stakeholder workshop held in Kribi from 11 to 12 March 2010. Root causes for inadequate land use and planning were: scarcity of land, lack of land security and urban development plan, low management capacity, non-application of land law, lack of control, lack of awareness on land issue, insufficient or incomplete legal framework,

A variety of development plans and initiatives are carried out in the area both by public and private sectors and address issues from poor infrastructure to amenities, inappropriate resources use, investment opportunity, housing development, recreational improvement. None of these however manage to reach meaningful levels of implementation due to not being placed within an effective implementation framework. Zoning and specifications containing in local plans should include village level participation in community planning. The goal is to establish a system that allows policy to flow freely from national level to the community level and vice versa

### **6.9.4. Coastal development and land use management plan for the Kribi Campo Coastal Area**

The coastal development and land use management within the Kribi Campo area is presented in table 32

**TABLE 32 COASTAL DEVELOPMENT AND LAND USE MANAGEMENT WITHIN THE KRIBI CAMPO AREA**

Objectives	Action	Lead organization	Who needs to commit	Time frame	Financial aspects (x 1000FCFA) For 5 years	Observations
<b>Goal C1 To promote the biodiversity, vitality and long term viability of coastal economies giving preference to these that are endemic to the coast</b>						
1.1 Promote long term development potential of Kribi-Campo coastal area	<ol style="list-style-type: none"> <li>1. Protect and enhance characteristics and qualities that provide the lifestyle opportunities with aim to encourage appropriate local economic development</li> <li>2. Develop opportunities that increase local job prospects through promotion of small, medium and micro enterprise</li> <li>3. Provide the necessary infrastructure, services and amenities required for the long term development of coastal localities</li> <li>4. Enhance rights, ecological and social responsibility</li> </ol>	Local municipalities	MINATD; MINEPAT MINEP; MINTP MINDAF MINDUH MINFOF MINRESI MINTOUR	Long term  Short term  Long term  Long term	200 000	Field work; hire of consultants
1.2. Provide adequate and accessible public facilities at appropriate coastal locations	<ol style="list-style-type: none"> <li>1.Improve public facilities</li> <li>2. Minimize adverse impacts on coastal ecosystems</li> <li>3. Promote sustainable financing mechanisms</li> <li>4. Promote public –private partnership</li> </ol>	Local municipalities	MINATD; MINEPAT MINEP; MINTP MINDAF; MINDUH.MINFOF; MINRESI; MINTOUR		150 000	Establish partnership with coastal council
<b>Goal C2. To alleviate coastal poverty through proactive coastal development initiatives that generate sustainable livelihood options</b>						
2.1.Identifiy opportunities that seek to eliminate coastal poverty	<ol style="list-style-type: none"> <li>1. Encourage coastal development proposals that address coastal poverty</li> <li>2. Diversify economic opportunities for poor coastal communities</li> <li>3. Promote food security in poor marginalized coastal communities</li> </ol>	MINEPIA	MINEP;MINFOF MINADER;MINRESI PRIVATE SECTOR MUNICIPALITIES	Long term  Short term  Long term	50 000	Hire consultants
<b>Goal 3 To maintain an appropriate balance between built, rural and wilderness coastal areas</b>						
3.1. Promote nodal development to sustain economic potential and protect the aesthetic, amenity, cultural and ecological value	<ol style="list-style-type: none"> <li>1. Introduce creative mechanisms to prevent the negative impacts of sprawl of ribbon development</li> </ol>	MINDUH	MINEP; MINFOF MINADER;MINTOUR; MINDAF;HOTEL OWNERS;MINATD; MINATD MUNICIPALITIES	Long term	50 000	Develop partnership with local council and ministry of urban development

Objectives	Action	Lead organization	Who needs to commit	Time frame	Financial aspects (x 1000FCFA) For 5 years	Observations
3.2. Identify areas of high agricultural and commercial forestry potential	1. Protect and sustainable manage potential agricultural and commercial forestry land	MINDUH	MINEP; MINFOF MINADER MINTOUR; MINDAF HOLTEL OWNERS MUNICIPALITIES	Long term	40 000	Develop partnership with ministry of agriculture and rural development
3.3. Identify and promote distinctively coastal development opportunities	1. Integrate coastal planning efforts into existing local planning and development framework	MINDUH	MINEP,; MINFOF MINADER; MINATD MINTOUR; MINDAF HOLTEL OWNERS	Short term	50 000	Hire of consultants, partnership with local council
3.4. Design new structures in undeveloped areas in a manner that retain their visual beauty	1. Introduce mechanisms and incentives to reward property owners who retain the visual beauty and natural characteristics of the coast 2. Maintain landscape value as an asset	MINDUH	MINEP, MINFOF MINADER; MINATD MINTOUR; MINDAF HOLTEL OWNERS MUNICIPALITIES	Short term Long term	50 000	Hire of consultants, partnership with local council
<b>Goal C4. To design and manage coastal settlements to be in harmony with local aesthetic, amenity, biophysical and cultural opportunities and constraints</b>						
4.1 Design and built form of coastal settlements in harmony with the characteristics of the locality	1. Integrate aesthetic and visual consideration into planning 2. Establish a buffer zone between the shore and physical development 3. Design coastal settlements to promote a sense of community where possible 4. Promote local architectural styles and the use of local material and labor 5. Setting major roads back to the sea shore and to orienting minor roads perpendicular to the sea shore at suitable locations 6. Upgrade informal coastal settlements in order to improve quality of life of coastal communities 7. Manage and protect historical coastal settlements	MINDUH	MINEP, MINFOF MINADER MINTOUR MINDAF HOLTEL OWNERS MINATD MUNICIPALITIE	Long term Short term Long term Long term Short term Short term Long term	150 000	Hire of consultants, partnership with local council
4.2 Promote and enhance the socio-economic benefits of the coastal setting and the diversity	1. Control and minimize clearance of indigenous vegetation 2. Rehabilitate and replace degraded vegetation 3. Manage pedestrian and vehicle access to the coast during peak activity period 4. Promote local community involvement in coastal management	MINDUH	MINEP; MINFOF MINADER MINTOUR; MINDAF HOLTEL OWNERS MINATD MUNICIPALITIE	Long term Short term Long term Long term	100 000	Hire of a socio economist and develop partnership with local council

## **6.10. CONFLICT MANAGEMENT WITHIN THE KRIBI CAMPO AREA**

### **6.10.1. Context and rationale**

In the last few years with the growth of the coastal population, there has been increasing conflicts amongst users regarding the coastal space occupation and the use of coastal and marine resources along the Kribi-Campo coastal area. Conflict amongst resource users continues to be an issue within the Kribi Campo Area, especially between industrial fishing trawlers and artisanal fishermen, local population and agro-industrial companies, pygmies and local population for land use. These conflicts are aggravated because parties in conflict did not have the same power for action, and some do not understand some natural processes or are ignorant of existing regulatory framework.

### **6.10.2. Expected results**

Within this action plan, the Kribi-Campo Area will have to:

- Carry out zonation of the area to cater to a multiple activities and avoid conflict among users and uses
- Promote high level public involvement where ever possible in decision making with regards to Kribi Coastal Zone management
- Create and demarcated recreational areas, trap fishing areas, boating roads;
- Increase surveillance and monitoring of activities occurring along the Kribi Campo Coast
- Review the current institutional arrangements of the Kribi-Campo Zone
- Provide a forum for addressing negotiation and when necessary adjudicating disputes through a transparent process along the Kribi –Campo Zone

### **6.10.3. Priority actions for conflict management**

Table 33 proposed a management plan of conflicts within the Kribi Campo coastal area

**TABLE 33 PRIORITY ACTIONS FOR CONFLICT MANAGEMENT WITHIN THE KRIBI CAMPO AREA**

Priority action	Suggest lead	Partners	Timeframe	Financial aspects	Observations
<b>Goal 1: Develop and implement conflict resolution mechanisms to addressing the increasing conflict amongst resource users and uses in the Kribi Campo coastal zone</b>					
Priority Action 1.1: Carry out zonation of the area to cater to a multiple activities and avoid conflict among users and uses	MINDAF	MINRESI, MINEP, MINFOF, MINEE MINADER	Short term	15 000	Hire consultants
Priority action 1. 2: Promote high level public involvement where ever possible in decision making with regards to Kribi Coastal Zone Management	MINATD	NGO, MINEP	Short term	15 000	Organization of sensitization workshop
Priority Action 1.3: Create and demarcated recreational areas, trap fishing areas, boating roads	MINEPIA	MINEP, MINEPIA MINRESI MINFOF,	Short term	50 000	Hire consultants
Priority action 1.4: Increase surveillance and monitoring of activities occurring along the Kribi Campo Coast	MINATD MINDEF	MINRESI MINFOF, MINEP, MINDAF	Short term	10 000	Train surveillance personnel
Priority action 1.5: Review the current institutional arrangements of the Kribi-Campo Zone	MINATD	MINEP MINEPIA MINRESI	Short term	5 000	Hire of consultants
Priority action 1.6: Provide a forum for addressing negotiation and when necessary adjudicating disputes through a transparent process along the Kribi–Campo Zone	Local council	NGO; MINEP; MINFOF	Long term	25 000	Organization of a local forum

## **6.11. BIODIVERSITY MANAGEMENT WITHIN THE KRIBI-CAMPO COASTAL AREA**

### **6.11.1. Introduction**

The Republic of Cameroon which is situated between latitudes 2° and 13° N and between longitudes 8° and 16° E. It has an area of 475 450 sq. km, bounded to the South by Equatorial Guinea, Gabon and Congo, to the North by Chad, to the East by Central African Republic and to the West by the Federal Republic of Nigeria and the Atlantic Ocean had an estimated total population in 2003 at 16 million inhabitants and a growth rate of 2.5% per annum. The country has a long coastal line and terrestrial frontier borders. Cameroon's unique geographic situation places the country under six ecosystems which also impact on the country's climate condition, making Cameroon to be nicknamed "Africa in miniature". Administratively, Cameroon is divided into 10 Regions, each having a governor at its head, who at the same time represents the Head of State and each of the Ministers in administrative and political matters. Each Region is composed of several Divisions with Senior Divisional Officers in charged. Divisions are equally broken down into sub-divisions. Subdivisions are comprised of Councils which according to the law on decentralisation have legal and financial autonomy. Councils are comprised of local elected officials for the management of the affairs of their respective municipalities. Kribi Coastal area falls within the Ocean Division in the South Region of Cameroon.

In 2002, the government of Cameroon, in respect of its international engagements towards the Convention on Biological diversity ratified in 1994, adopted its National Biodiversity Strategy and Action Plan (NBSAP). This plan which classified the country into six ecological zones for the purpose of managing and conserving in a sustainable manner the country's biological wealth for the benefit of present and future generations, adopted the ecosystem approach to biodiversity conservation and management. Following this policy document, the ecosystems brought into the spotlight were:

- The marine and coastal ecosystem which covers the littoral part of the country (a distance of over 402km composed of the ocean, including creeks, estuaries, mangroves, and the vast coastline. It is globally divided into continental shelf, mangroves and coastal area.
- The Equatorial Dense Forest Ecosystem which covers the area between the coastal zone and is composed of the ever green humid forest,
- The savannah ecosystem constituting of shrubs and high grasslands;
- The mountain ecosystem covering all the mountainous areas of the country,
- The internal waters ecosystem covering all lakes, rivers, streams, springs, aquifers, brackish water, and other wetlands not included in the marine and coastal zone, etc.

- The sahelian ecosystem which comprises the area extending towards the Sahara desert with low rainfall and characterized by heavy deforestation, scanty grasslands, Rocky Mountains and desertification.

The NBSAP identified the problems specific to each ecosystem and priority actions to be taken to redress those problems. This document was proposed for revision in 2006 but not much progress was achieved due to several factors. The Kribi–Campo coastal area falls within the marine and coastal ecosystem of Cameroon. This area is endowed with immeasurable biological wealth but expose to over-exploitation of the various components of these resources, prone to attract industrial development due to its proximity to the sea, population increase due to migration, and lack of implementation of laws and regulations due to limited coordination to ensure adequate management of the natural resources.

The Kribi-Campo coastal area of Cameroon forms an integral part of the GCLME. The boundaries of the GCLME as described by its Strategic Action Programme (SAP) are as follows:

- a. Geographically, the GCLME extends from approximately 12 degrees north to 16 degrees south latitude and variously from 20 degrees west to 12 degrees east longitude.
- b. Oceanographically, the GCLME extends in the North-South direction from the intense upwelling area of the Guinea Current south to the northern seasonal limit of the Benguela Current. In the East-West direction includes the drainage basins of the major rivers seaward to the Guinea Current front delimiting the Guinea Current from the open ocean waters.

Without prejudice to the preceding paragraph, the GCLME area includes the Exclusive Economic Zones (EEZ) and coastal habitats of the sixteen member countries and such areas outside national jurisdiction that fall within the boundaries above.

#### **6.11.2. Collaboration and Expanded Cooperation**

The Member countries of GCLME have a history of cooperation both at the economic and environmental spheres such as the Economic Community of West African States (ECOWAS), CEMAC, South African Development and Economic Community (SADEC), COMIFAC, etc. The implementation of several other sectoral policies and plans do have direct impact on the Kribi coastal area. These include but are not limited to the Poverty Reduction Strategy Document (DSRP), the Strategy for the Rural Development, the Plan for the management of the Kribi-Campo Area, the National Forestry Management Plan, the Fisheries Strategy as well as the National Environment Management Plan (NEMP) for Cameroon.

### **6.11.3. The NBSAP identification for the Kribi Campo Coastal Area**

The Cameroon NBSAP identified the following priority actions for the marine and coastal ecosystem of Cameroon:

- Sustainable management of fisheries and other living marine resources;
- Protection of mangrove habitat,
- Prevention of pollution (from land based and sea based sources).

### **6.11.4. International legal instruments with direct impact on the conservation and sustainable use of biodiversity in the Kribi Campo Coastal Area**

The following conventions (many of which have been ratified by the government of Cameroon), do have a direct impact on the ICAM of Kribi Campo. There are:

- The Convention on Biological diversity; 1992 and its Protocol – the Cartagena protocol on Trans boundary movement of Living Modified Organisms;
- The Ramsar convention on Wetlands, 1971
- The Convention on Migratory species (Bonn 1979),
- The Convention on Trade in Endangered species(Washington 1972);
- The UN Framework Convention on Climate Change; 1992
- The United Nations Convention on the Law of the Sea;
- the Abidjan Convention on Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region and Protocol concerning Cooperation in Combating Pollution in Cases of Emergency (1981),
- African Convention on Conservation of Nature and Natural Resources (Algiers 1968),
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and other matter (1972),
- International Convention for the Prevention of Pollution from ships (MARPOL 73/78),
- Convention on the control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel Convention 1989),
- Article 39 of the Lome IV Convention relating to the international movement of hazardous wastes and radioactive wastes (1989),
- International Convention on Oil Pollution Preparedness, Response, and Cooperation (OPRC 90),
- Convention on Fisheries Cooperation among African States Bordering the Atlantic Ocean (1991),

- Convention on the Ban of the Import into Africa and the Control of trans boundary Movement and Management of Hazardous wastes within Africa (Bamako 1991) which allow for the establishment of regional agreements which may be equal to or stronger than its own provisions,
- The Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-based Activities (1995),
- Convention on Degradation by Persistent Organic Pollutants (POPs) (2001),
- The United Nations Agreement on Straddling and Highly Migratory Fish Stocks (1995),
- The FAO Code of Conduct for Responsible Fisheries (1995);
- Convention concerning the Protection of the World Cultural and Natural Heritage (UNESCO) 1982;
- The Vienna convention on the protection of the Ozone layer and its Montreal Protocol on substances that deplete the Ozone Layer;
- The Convention on Ballast Water

Most of the conventions cited above have been translated into national policies, legislations and implementation texts such as the national environment management plan, the National forestry action Plan, the programme for the environment and forest sectors; the Strategy for the Development of the Rural sector; the National Biodiversity Strategy and Action Plan; the Framework law on the environment; the Forestry, Wildlife and Fishery Law; the bio safety law; and the national seed law with their corresponding implementation Decrees.

Other regional cooperation initiatives whose actions have direct impact on the resources of the area are:

- Fisheries Committee for the Eastern Central Atlantic (CECAF);
- Regional Fisheries Committee for the Gulf of Guinea (COREP);
- Forestry Commission of Central Africa (COMIFAC);
- Programme for Integrated Management of Marine and Coastal Resources (GIRMAC);
- Regional Programme for the Conservation of the Coastal and Marine zones of West Africa (PRCM);
- New Partnership for Africa's Development (NEPAD) Environment Initiative;
- The Lakes Chad and Niger Basins Commissions;
- and NGOs and CBOs which contribute directly towards the integrated management of the area.

#### **6.11.5. Institutional Arrangements:**

In addition to the international and sub-regional Institutions emanating from the multilateral environmental agreements mentioned above, there are government ministries, private sectors companies

and other actors whose actions contribute either positively or negatively in influencing the management of biodiversity in the Kribi Campo, notably:

MINEP; MINEPIA, MINRESI, MINFOF, MINADER, MINDIC, MINTRANS, MINIMINT, MINCOM, MINFI, MINEPAT, MINEE, MINTOUR; International organisations of the United Nations system such as GEF, FAO, AfDB, WORLD BANK, UNDP through programmes such as the PSFE, PRECESSE, Mangrove Programme, International NGOs like IUCN, WWF CARPO; BIRDLIFE INTERNATIONAL; SNV; Private sector Organisations: HEVECAM, SOCAPALM, COTCO, KRIBI DEEP SEAPORT AUTHORITY, Timber logging companies as WIJMA; La Société Forestière de Campo; CBO; Artisanal fishing associations; Village Development Associations, Women and Youth Groups, Traditional Chiefs Associations, Village Development Associations; Oil .exploitation companies

#### **6.11.6. Problem Identification**

During a stakeholders consultation workshop held within the framework of the ICAM in Kribi, in March 2010, the following were identified by participants as the main environmental problems:

- Unsustainable exploitation of natural and biological resources in the area (fisheries, mangroves, other forestry and wildlife), etc.
- Inequitable sharing of benefits derived from the access to natural and biological resources and their exploitation;
- Environmental degradation due to uncontrolled natural resources exploitation;
- Soil erosion and pollution from land based sources;
- Unplanned urbanisation,
- Industrialisation,
- Invasion of protected areas by local populations;
- Invasive alien species;
- Climate change threats.
- Cross-cutting problems included:
  - Multiplicity of actors and lack of coordination amongst them;
  - Poor development of local communities and their marginalisation
  - Inadequate implementation of existing legislation ,
  - Inadequate human resources and brain drain,
  - Lack of sensitization and information of stakeholders on the real value of the biological wealth of the area,

- Lack of a national integrated marine and coastal area management framework;
- Lack of inventory of the natural and biological resources of the area.

For the purpose of the preparation of a Priority Action Plan for biodiversity management within the Kribi-Campo coastal area in Cameroon, the following terms need to be clarified in order to facilitate understanding and implementation:

**Global target:** desired outcome/result to be achieved within a specific timeframe. These should be measurable and achievable;

**Priority action**= major action that must be implemented and will contribute significantly to achieving the target. It answers the questions “What must we do to achieve this target?”

It should be noted that the deadline for achieving each target is 2015. The priority action plan is estimated to be fully implemented within a five years’ timeframe.

**Actors:** In implementing the PA, actors are classified into two main categories: key or main actors and then partners. The Table below identifies the priority action, the key actor or Suggested Lead, who needs to commit i.e. the supporting partners,

**Initiative= Organisation instrumental to the realisation of the action** as these sometimes are subjected to frequent institutional changes especially the case of government institutions.

#### **6.11.7. Action Plan for biodiversity management in the Kribi-Campo Coastal Area**

The priority action plan is broken down into six main goals and corresponding targets and several actions (Table 34). The key actors and support partners are highlighted (not in an exhaustive manner) while the timeframe for commencement of activities under priority actions is indicated. Other initiatives or organisations with roles or missions directly contributing to realisation of the actions are listed. Indication of existing endeavours and programmes being implemented or in the pipeline which could enhance the implementation of the Action plan are highlighted under the column observation.

**TABLE 34: PRIORITY ACTION PLAN FOR BIODIVERSITY MANAGEMENT WITHIN THE KRIBI-CAMPO COASTAL AREA IN CAMEROON**

Action	Suggest lead	Who needs to commit	Time frame	Financial aspects	Observation
<b>Goal 1 Goal 1: Promote the conservation of marine and coastal ecosystems, habitats and biomes including their living resources</b>					
<b>Target 1: At least 50% of areas of particular importance to biodiversity are protected</b>					
Priority Action 1.1: Create marine protected areas and freshwater protected areas in coastal ecosystems to enhance spawning grounds and other vulnerable areas in marine and coastal habitats;	MINFOF	MINRESI, MINEP, MINFOF, MINEE	2011	50 000	Action falls within framework of GCLME SAP. The PSFE programme also has funding from multilateral sources for this action plan under the component on biodiversity conservation.
Priority action 1. 2: Restore threatened species of fish, shrimps, molluscs, sea grass, (marine fauna and flora) etc. through mariculture and aquaculture;	MINRESI	MINEPIA MINEP	2012	25 000	Replenishing of depleted stock of fisheries species is an activity which can contribute to the conservation of endangered species of fishery resources
Priority Action 1.3: Cooperate with neighbouring countries to create marine protected areas in zones beyond national jurisdiction to improve Trans boundary resources management	MINEPIA/ MINFOF	MINEP MINRESI	2010-2012	15 000	Action falls within framework of SAP of GCLME, the CBD programme of work on protection of marine AND COASTAL biodiversity and the programme of the UNCLOS.
Priority action 1.4: Develop sustainable alternative technologies to redress mangrove habitat destruction	MINEP /MINFOF	MINRESI MINPROFF MINEE	2010-2011	50 000	FAO is already implementing a GEF funding for mangrove in the marine and coastal region for Cameroon. Ramsar convention also support work on mangroves as a habitat for wild birds.
Priority action 1.5: Involve local populations in the Management of existing terrestrial protected areas and marine protected areas;	MINFOF	MINEP; MINATD MINEPIA MINRESI	2010	40 000	Action falls within the CBD now on Protected Areas, as well as the IUCN programme for Peoples, Protected areas for sustainable livelihoods.
Priority action 1.6: Create through participative consultative process terrestrial protected areas with co-management by local communities;	MINFOF	MINEP; MINADER MINEPIA	2011	50 000	GEF funding available through the CBD process for governments to increase protected areas in consultation with ILCs;
Priority Action 1.7: Establish appropriate access mechanisms to marine and coastal genetic resources and their fair and equitable sharing of benefits with local populations	MINEP	MINFOF; MINREX MINRESI; MINADER; MINEPIA MINEPAT;	2011	20 000	EXISTING GEF/SWISS and German Governments support for ABS FOR CAMEROON OF 530.000USD MINEP to institute a national policy and legislation on Access and benefit sharing to genetic resources
Priority action 1.8: Substantially reduce land based and sea based sources of pollution and their impact on marine and coastal biodiversity/ecosystem;	MINEP /MINEE	MINCOM; MINADER, MINIMINT MINSMSE	2010	20 000	Enforcement of compliance with Environmental impact assessment (EIA) PROCEDURES
Priority action 1.9: Enforce compliance of national legislations and international/sub regional agreements in the area of biodiversity	MINEP	MINFOF; MINEPIA MINRESI; MINADER	2011	10 000	UNEP PROVIDES SUPPORT FOR THE implementation of MEAS
Priority action 1.10: Carry out an exhaustive inventory of fisheries species, mangrove and other plant species, their endemism and level of threats.	MINEPIA/ MINFOF	MINRESI MINEP	2012	10 000	Global Taxonomic Initiative under the CBD encourages the training of taxonomists and promotes inventories by governments
<b>Goal 2: Promote and restore sustainable use of natural/biological resources</b>					
<b>Target 2: Rate of loss and degradation of natural habitats/biological resources decreased by half</b>					
Priority Action 2.1. : Enhance and maintain capacity of					The health of marine and coastal ecosystems constitutes

Action	Suggest lead	Who needs to commit	Time frame	Financial aspects	Observation
marine and coastal ecosystems to deliver goods and services	MINEP	MINEP	2012	10 000	a programme of the CBD
Priority Action 2.2.: Develop processes for and undertake valuation of natural resources and their economic significance and use the information in decision making;	MINEPAT	MINEP MINFOF	2012	20 000	VARIOUS related conventions in the area do have provisions for natural resources valuations
Priority Action 2.3: Establish control mechanism for natural/biological resources exploitation;	MINEP	MINEP; MINEPIA, MINFOF; MINADER MINMINDT	2011	10 000	SUPPORT OF THE UNCLOS, CBD AND ABIDJAN CONVENTIONS IS ASSURED
Priority action 2.4: Identify soil erosion and pollution from land based sources;	MINEP	MINEE;MINADER MINEPIA;MINMINT	2010	10 000	
Priority action 2.5: Enforce Environmental impact assessment and remedial measures/standards in marine and coastal ecosystems	MINEP	MNEE; MINSANTE MINMINT; MINFOF MINADER	2011	10 000	ICAM PILOT STEERING COMMITTEE TO BE FULLY INVOLVED AND WORK WITH OIL EXPLOITATION COMPANIES
Priority action 2.6: Institute stakeholder consultative forum/organ on natural resource management in the framework of IMCAM	MINEP	ICAM PILOT STEERING COMMITTEE	2010	20 000	Action falls within mandate of SAP FOR GCLME and other Multilateral environment agreements
Priority action 2.7: promote ecotourism activities for sustainable development	MINTOUR	MINEP MINFOF	2010	30 000	The existing organisational chart of MINTOUR provides for this mission to be attained
<b>Goal 3: Control threats from Invasive alien species</b>					
<b>Target3: Pathways for major potential alien invasive species controlled</b>					
Priority action 3.1: Identify potential IAS and their major pathways;	MINEP	MINRESI	2011	10 000	GEF/UNEP FINANCIAL ASSISTANCE AVAILABLE THROUGH GEF 4
Priority action 3.2: Involve indigenous and local communities in the identification, prevention, control and eradication of IAS;	MINEP	ICAM PILOT SC	2011	20 000	Organization of workshops
Priority action 3.3: Develop and implement management plans for IAS	MINEP	MINFOF; MINRESI MINFOF; MINEPIA	2011	30 000	UNEP/GEF FUNDING TO CAMEROON GOVERNMENT AVAILABLE SUPPORTED BY FAO AND IUCN
<b>Goal 4: Address challenges to coastal and marine biodiversity from climate change;</b>					
<b>Target 4: Maintain and enhance resilience of the components of biodiversity to adapt to climate change;</b>					
Priority Action 4.1: Institute a monitoring and observatory system for data collection and analysis of biological or physical hazards linked to climate change;	MINEP	MINRESI;MINFOF MINTRANSP MINEPIA; MINADER	2010	20 000	IMMINENT IMPLEMENTATION OF THE DECREE CREATING THE CLIMATE CHANGE OBSERVATORY
Priority action 4.2: Design adaptive integrated marine and coastal area management programmes that respond to environmental change as early warning systems for coastal/marine hazard.	MINEP	MINRESI MINTRANSP	2011	10 000	ICAM PILOT SC TO IGNITE PROCESS
<b>Goal 5: Raise general awareness of all stakeholders on the implementation of ICAM</b>					
<b>Target 5: By 2015, all major stakeholders notably indigenous and local communities are sensitized on the importance of ICAM</b>					
Priority action 5.1: Train major stakeholders in ICAM to enhance their capacity in participation in ICAM and community development;	PILOT SC	MINEP; MINFOF MINRESI; MINEPIA MINADER; MINATD	2012	10 000	ADOPTION OF THE NATIONAL ACTION PLAN FOR KRIBI-CAMPO WILL IGNITE THIS ACTION

Action	Suggest lead	Who needs to commit	Time frame	Financial aspects	Observation
Priority action 5.2: Provide information to relevant stakeholders (ILCs, women and youth groups, NGOs, CBOs....) on the potential of natural/biological resources availability and its sustainable use;	MINEP/PIL OT SC	MINMINT;MINATD;MINFOF;MINAD;MINRESI; MINEE	2011	10 000	THIS ACTION IS PARAMOUNT TO ACHIEVING OTHER PRIORITY ACTIONS IN THE AREA
Priority Action 5.3: Sensitize Decision makers and key institutions on the importance of marine and coastal biodiversity and threats posed by uncoordinated policy actions;	MINEP	MINEPIA; MINRESI MINFOF; MINADER MINTOUR	2010	10 000	Pilot SC TO PARTICIPATE ACTIVELY IN REALISING THIS ACTION
Priority action 5.4: Institute a media and other programmes including tools for public awareness on IMCAM programmes	PILOT SC	MINEP;MINEPIA MINRESI;MINFOF MINADER; MINTOUR	2011	5 000	The existence of IUCN radio environment is a strong support towards the realisation of this action
Priority action 5.5: Create twinning programmes with internal and external partners, organisations, academic and research institutions	PILOT SC	COUNCILS MINEP; MINRESI MINFOF; MINEPIA	2011	5 000	
Priority action 5.6: Create public awareness on climate change impact on biodiversity and adaptation programmes;	MINEP	MINFOF; MINADER MINRESI; MINMINT MINEE	2011	15 000	THE FUNCTIONING OF THE NATIONAL OBSERVATORY ON CLIMATE CHANGE WILL ENHANCE THE SPEEDY REALISATION OF THIS ACTION
<b>Goal 6: Capacity building for actors in management of ICAM is enhanced</b>					
<b>Target 6: The capacity of all actors involved in ICAM is significantly enhanced.</b>					
Priority action 6.1: Train a considerable number of experts on ICAM through short term in-country workshops or in collaboration with external partners (taxonomists, experts in marine biodiversity, fisheries, protected area managers, etc.	PILOT SC	MINRESI;MINESUP MINEP;MINFOF MINADER	2012	30 000	Pilot SC TO CONTACT SEVERAL DONORS INCLUDING WORLD BANK within the framework of the PRECESSE PROGRAMME TO SUPPORT THE ENVIRONMENT, ADB, AND OTHER MULTILATERAL DONORS
Priority action 6.2: Provide adequate material and financial support to institutions and other stakeholders involved in ICAM in Kribi-Campo Area	MINEP	MINFOF;MINRESI MINADER;MINEPIA	2012	50 000	Funding to be harnessed from the GEF through FAO or UNEP and UNDP
Priority action 6.3: Provide funding to pilot projects related to ICAM;	PILOT SC	MINEP;MINFOF MINRESI;MINADER MINEPIA	2011	100 000	PROJECTS TO BE COMMUNITY DEMAND-DRIVEN AND ADDRESSING SPECIFIC ENVIRONMENT/SOCIO-ECONOMIC PROBLEMS
Priority action 6.1.4: Provide additional funding resources to projects to promote activities focusing on marginalised populations (pygmies) and gender sensitivity;	PILOT SC	MINAS; MINEP MINTOUR MINEPIA; MINADER	2011	20 000	ORGANIZATION OF FORUM FOR MARGINALIZE POPULATION
Priority action 6.5: Support through GEF funding (to the steering Committee of the Kribi Campo ICAM) to ensure implementation of the national plan as well as participation in the GCLME SAP	MINEP	PILOT SC; MINFOF MINRESI; MINADER MINEPIA	2011	20 000	CONSULTATIVE PROCESS TO BE COORFINATED BY MINEP IN COLLABORATION WITH PILOT SC

## 6.12. MICRO-PROJECTS

### 6.12.1. Conditions and Evaluation criteria

During the stakeholder participative workshop held in Kribi from 11 to 12 March 2010, all stakeholders were requested to submit micro project proposals based on potential areas for micro-projects identified during this workshop. After the workshop, information meeting was held between ENVI-REP staff and stakeholders with aim to agree with the micro-project guidelines to be used. Stakeholders were advised to use the UNDP/PMF/FEM guidelines; French Version (Annex III) was distributed to participants willing to submit a project proposal.

ENVI-REP received up to date 10 micro-project proposals which were evaluated by each member of the Steering Committee. Criteria for evaluation are giving in table 35. All micro-projects are writing in French language since in the project area, all stakeholders are French speaking, this will then easier implementation. The final project document will be both in French and English.

**TABLE 35: CRITERIA FOR MICRO-PROJECT PROPOSALS EVALUATION**

Code	Project item	Marks
01	Presentation sheet	1
02	Summary	1
03	Brief description of the organization submitting the proposal	1
04	Place where the project will be implemented	1
05	Link of the project with GEF /ICAM Operational area	1
06	Justification of the project	10
07	Expected results and performance indicators	10
08	Project activities	10
09	Conditions of success/risk factors	10
10	Sustainability strategy	10
11	Strategy for the vulgarization of the results	10
12	Strategy for resource mobilization and co-financing	10
13	Project logical framework	10
14	Project budget (UNIDO contribution 5000\$ maximum per project	5
Total		100

### 6.12.2. Selection of micro-Projects

From the 10 micro-projects received, 5 were selected during the Project Steering Committee held in Kribi on July 9, 2010 and which report is shown below:

Kribi, le 16 JUL 2010

**Compte rendu de la réunion du comité de pilotage du Projet Gestion Intégrée de la Zone Côtière (ICAM) KRIBI CAMPO**

Le Comité de Pilotage du Projet Gestion Intégrée de la Zone Côtière (ICAM) KRIBI CAMPO a tenu sa réunion de sélection des Projets le 09 Juillet 2010 dans la salle de Conférence du CERECOMA sous la présidence de Monsieur NDOBO Kuntz Placide, représentant de Monsieur le Préfet du Département de l'Océan, Président dudit Comité. Etaient présents les membres inscrits sur la fiche en annexe.

Le Président a ouvert les travaux à 09 heures 15 minutes avant de présenter le Comité, objet de la Décision N°00077/D/MINEP/SG/DNGEM-CG/AP du 08 Juin 2010 portant création, organisation et fonctionnement du Comité de Pilotage du Projet de « Mise en œuvre de la Gestion Intégrée de la Zone Côtière Kribi Campo » dans le cadre du Projet « Grand Ecosystème Marin du Courant de Guinée (GEM-CG) ».

Par la suite, il a passé la parole au coordonnateur du Projet, le Dr Jean FOLACK pour expliquer les modalités pratiques de la séance de travail. L'orateur a d'abord présenté par Retro-projecteur, le Projet avant de clarifier les modalités de validation des notations des membres. L'on s'est ainsi attardé sur le cas d'un promoteur de Projet en même temps membre du Comité, et à l'unanimité le Comité a décidé de ne pas prendre en compte sa grille de notation.

Sous le contrôle du coordonnateur du Projet, le tableau ci-dessous a été élaboré et les notations reportées pour donner le résultat ci-après :

ORGANISATION	MOUHA MA DOU	GIC LOUAN GA	WOPA	EMA	GIC PRESPI	AQUA SOL/ OPED	ACBM	PROM O CAME ROUN	SI TO U KRI	COOP. E.C KIENKE
PROJETS	Studio Photo	Fab maté Riel Pêche	Culture Champig	Gestion déchets	Volaille / Piscicul	Pdtion crevettes	Impact Pêche	Dvloment Tourisme	Rest tourisme	Création fond crédit
1. MINRESI	36	60	63	45	67	70	64	50	60	57
2 REP Chef Tr	38	47	92,5	96	77,5	96	90	85	55	40,5
3. MINEP	35	65	55	60	75	70	50	40	45	30
4. MINTOUR	49	63	71	43	71	76	52	69,5	55,5	64,75
5. MINEPIA	65	58,75	71,25	56	75	59,75	55,75	65,5	55,5	64,75
6. Rep Mairies kbil	53	70	76	62	65	65	45	54	55	69
7. MEAO	0	62,5	47	53	56,5	82,5	43	56	40,5	59
8. Prefecture	58,75	61,75	55,5	58,75	57,75	85,8	50,75	63,5	58	64
9. MINDAF	20	43	55	77	85	97	72	40	72	50
10. MINEPAT	73,75	68,5	77	55,25	57	94,5	70	63,5	60	60
11. MINFOF	46	56	68	71,5	50,5	69	68	64	67	73
12. WIJMA	absent	absent	absent	absent	absent	absent	absent	absent	abse	absent
13. SOCA PALM	absent	absent	absent	absent	absent	absent	absent	absent	abse	absent
14. Rep S/ Préfet LKDJE	40	50	90	80	65	95	80	93	70	50
TOTAL	514.5	705.5	821.25	757.5	802.25	970.55	740.50	744	701	696.75
MOYENNE	42.87	58.79	68.43	63.12	66.85	80.87	61.71	62	58.41	58.06

Par conséquent, les Projets ci-après ont été retenus :

ORGANISATION	AQUASOL/OPED	WOPA	GIC PRESPI	EMA	PROMO CAMEROUN
PROJETS	<i>Production des Crevettes</i>	<i>Culture des Champignons</i>	<i>Volaille et Pisciculture</i>	<i>Gestion des Déchets</i>	<i>Développement Tourisme</i>
MOYENNE	80.87	68.43	66.85	63.12	62
RANG	1 <sup>er</sup>	2 <sup>e</sup>	3 <sup>e</sup>	4 <sup>e</sup>	5 <sup>e</sup>

L'ordre du jour épuisé, la séance a été levée à 13 heures par le mot de fin du Président de séance.

LE SECRETAIRE  
  
 MINKO M. EBOTOM GERARD

LE PRESIDENT  
  
 Nkoko Kuntz Placide  
 Administrateur Civil



### 6.12.3. Implementation of micro projects selected

#### 6.12.3.1. Introduction

These micro-projects selected will aim to provide tangible examples of the success that an integrated coastal management can have in achieving sustainable coastal development within the Kribi Campo coastal area. Other aims of local demonstration micro-projects in the medium term will be to:

- foster shared responsibility between government, the private sector and civil society;
- test alternative solutions to problems and hereby inform future policy;
- build institutions and capacity to implement the policy at the local level;
- build the profile of coastal issues nationally and to contribute to job creation, poverty alleviation and economic development in the Kribi coastal zone.

The five micro-projects selected by the Project Steering Committee fulfill aims listed above, notably:

- (i) the creation of a family unit of shrimp production,
- ii) pisciculture associated with poultry,
- iii) the vulgarization of the mushroom cultivation,
- iv) the project on waste oil collection and management
- v) the tourism project

The tourism project will contribute to booster the growing but poor organized tourism sector in the area. The project on waste oil management will be a good example for waste oil management in the area where oil pollution is dominant with the petroleum pipeline terminal and oil production platform of the

PERENCO Company, many motors taxi using oil. It is also important to mention that projects (i) and (ii) fall within the government strategy with regard to fisheries sector which is to promote coastal, marine and inland aquaculture with aim to balance the deficit in marine and coastal fish products and provide other sources of fish protein to the local population. The full detail of each project document of the five micro-projects selected by the Project Steering Committee is presented in annex IV

#### 6.12.3.2. Results from the implementation of micro-projects

##### **Project 1. Establishment of a pilot unit, familial type for the cultivation of marine shrimp *Penaeus notialis* (Gambas) with aim to vulgarize its breeding in coastal zone**

This project is executed by AQUASOL (Aquaculture and Solidarity) a private NGO specialized in shrimps cultivation and working in collaboration with the Specialized Research Centre for Marine Ecosystems (CERECOMA), operational structure of the Institute of Agricultural Research for Development (IRAD).


<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>- Promote shrimp cultivation at familial scale in coastal areas</li> <li>- Built a pilot familial unit for shrimp cultivation</li> <li>- Train local coastal farmers on shrimp cultivation</li> <li>- Create a path for shrimp cultivation in coastal zone</li> </ul>	 <p>Figure 1. Commercial size of <i>Penaeus notialis</i></p>
<p><b>Main activities and results</b></p> <p>i) <b>Production of larvae (Photo2) and juveniles (Photo3)</b></p>	



Photo 2 Production of larvae



Photo 3 production of juveniles

**ii) Preparation of feeding materials:**

the material is made with a pipe including a mesh size of about 100µm and a weight is used to bring the material at the bottom of the pond since animal are benthic organisms (Photo 4)



Photo 4. feeding materials/equipment

**iii) Preparation of feed:**

feed is prepared with fish flower(38%); maize flower (20%) soja flower (13%) groundnut oilcake(13%) cassava flower (10%), mineral elements(1,2%), vitamins (0,8%), soja oil(4%). Photo 5 shows different stages of feed preparation



Photo 5: stages of feeding preparation

**iv) Shrimp production**

Shrimp growing is carried out within artificial ponds made with ciment blocs covered with plastic (Photo 6). After four months we will obtain commercial size of shrimps which is about 20g. Each pond contains about

3000 juveniles shrimps; after 4 months these will produced about 60,000 g about 60kg per ponds ; mortality rate: about 20%; total net production 60kg-12kg=48kg per pond per months started at the month five for 8 months per year. Production is made in a series of ponds to maintain monthly harvesting. Total production per pond: 48kg x8=384kg. Shrimps are sold at 5000 FCFA /kg; 384x5000 FCFA=1,920 000 annually



Photo 6 Pond building for shrimp breeding

### **Sustainability:**

- The nature of the project itself favors the continuation of activities at the end of UNIDO financing since it is on line with local needs of activities to be promoted;
- Options here are to capitalize techniques and local practices and improve them and organize a local commercial network of shrimp market.
- Money gains from UNIDO will be re-used to finance future activities

### **Economic and social impacts:**

- Vulgarization of shrimp breeding within the Cameroon coastal communities with possible extension in other coastal communities of the Guinea Large Marine Ecosystem countries
- Domestication of *Penaeus notialis* specie and improvement of its breeding performances and familial revenue in coastal communities
- Establishment of a new path of animal production in coastal area which reduces importation of fish products

### **Problems and recommendations**

The main problem here is the electricity supply which is not regular. Due to this problem, all the larvae produced were sent to IRAD Station Batoke for growth. Basin built outside will be used as a family unit for shrimp production when electricity problem will be solved. The monitoring team also advised the IRAD/AQUASOL to record data and documents the project and makes a feasibility study for the functioning of a shrimp production unit at the family scale and also for a commercial business purpose.

## Project 2. Support to Vulgarization of mushroom culture in the Ocean Division

This project is executed by the NGO “Women Promotion and Assistance” (WOPA) which mission is to support rural women

### Objectives

- Built a pilot mushroom house in Kribi
- Acquisition of materials and products for practical demonstration during training workshop
- Organize in Kribi a training workshop for about 30 women from interest groups on mushroom cultivation
- Distribute subvention to about 15 groups of interest
- Produce alternative sources of protein in coastal zone
- Use of neglected renewable resource
- Create alternative income activities
- Empowerment of women: Support local women in villages located in the Ocean division
- Promote alternative and cheap protein production in coastal zone

### Activities and results

- Building of a mushroom house in Kribi for pilot production and training purpose (Photo 7)
- Organization of a training workshop in Kribi on November 25, 2010 (Photos 8, 9 and 10)
- Distribution of mushroom seed, materials and funds to women groups from various coastal villages
- Production of mushroom after three weeks (Photos 11 and 12)



Photo 7. Mushroom house



Photo 8. The Divisional Officer of Kribi delivering his opening speech at the training workshop on mushroom cultivation, Kribi 25 November 2010



Photo 9 Family picture mushroom training workshop



Photo10. Participants in Practice during training workshop in Kribi, 25 November 2010



Photo 11. mushroom seed planted during training workshop on November 25, 2010



Photo 12. On December 16, after three weeks, mushroom is produced and can be sold in local market



Photo13. Participants received mushroom seed and financial support to carry out their own project in their home base

## Mushroom production

10 kg of mushroom were produced between 16 and 22 December and a total of 40kg per month is expected. A kg is sold at 1,500 FCFA; total income is 1,500 FCFA x 40kg=60,000 for one month. Expenditure for production material such as seeds, maize, pocket for about 27,500 FCFA; net benefit is 60,000-27,500=32,500 FCFA

## Sustainability

- Each participant trained received support and will create his own business
- Income from sells will be reinvested for future production
- Each beneficiary group accept to sponsor other women with aim to maintain project activities in his site
- Each group is encourage to create a saving with income from sells

## Economic and social impacts:

- Request from restaurants
- Demands for training from the south west and littoral regions
- Training activities were largely presented through national television
- Jobs creation



- Improvement of revenues of coastal communities
- Reduction of poverty for vulnerable women groups
- Promotion of women enterprenariat in the Kribi Campo coastal area
- Full adhesion and adoption of the project because mushroom cultivation is technically very easy

### Problems and recommendations

The problem facing by the project are the availability of seeds since they have to go to Yaoundé before getting the raw material which help to prepare the substratum. If means are available they will produce the maize on site and this will help them produce and prepare the substratum. The Executive Secretary, Dr Donkor requested that all the activities should be well documented and feasibility study be done to take the project at the commercial scale

### Project 3: Establishment of a breeding associating poultry and fish

This project is executed by a Common Initiative Group named PRESPI which headquarter is based in Kribi and the project site at Lende, 5 km from Kribi central town.

<p>Objectives</p> <ul style="list-style-type: none"> <li>• Promote fish culture associating poultry breeding in coastal zone</li> <li>• Sensitize local population to valorize their immediate environment</li> <li>• Improve livelihoods for 20 families living in Lende, locality situated near Kribi</li> <li>• Increase protein production in coastal communities</li> </ul>	 <p>Photo 14. Poultry house built on top a fish pond</p>
<p>Activities and results</p> <ul style="list-style-type: none"> <li>• Building of a poultry house located on top a fish pond (Photo 13)</li> <li>• Purchase of fingerlings of fish and chick</li> <li>• Growth of chick and feeding of fish with waste feeding from poultry (Figure 14)</li> <li>• Create a path of poultry market within the Kribi area</li> </ul>	 <p>Photo15. Three weeks old chicken</p>

### Sustainability

- Investment from the UNIDO funding will help to continue the project at the end of UNIDO financing
- Money gains from selling of chicken and fishes will be regularly used to renew the stock of fingerlings and chick

## Economic and social impacts of the project

- The project has created enthusiasm around Lende and many families with similar environment request us to help put the same business in their compound;
- Significant increase of revenue and other protein sources in coastal communities which protein sources are usually fishes

## Problems and recommendations

The main problem facing by the promoter of this project is the fact that he is not the owner of the ponds. He is planned to get his own ponds in future. The team noticed that the quality of the pond water was very poor and it was advised to the responsible of the project to monitor water quality parameters; he should liaise with the responsible for the project on shrimp's production to develop synergies and mutual assistance. It was also requested that the project should be well documented and feasibility study should be done.

## Project 4: project on waste oil collection and management

This project was executed by the NGO E.M.A.

### Objectives

- Reduce waste oil dumped on soil and gutter by motor garage in Kribi
- Put in place a collecting and follow up system of waste oil
- Build a storage and treatment station
- Create a database on waste oil
- Sensitized motor garage owners on waste oil management



Photo 16 motor taxi in Kribi town are numerous

### Activities and results

- A collecting system using bicycles and plastic containers was put in place
- A treatment and storage station was built
- About 500l of waste oil were collected during Two months
- Negotiation with BOCOM which is a petroleum distributor failed and we successfully negotiated with forestry companies (Wjisma) using chain saw and which recycling 97% of waste oil
- more than 30 motor garage owners in Kribi were sensitized



Photo 18 Storage station



Photo 17 collecting system using bicycles and plastic containers

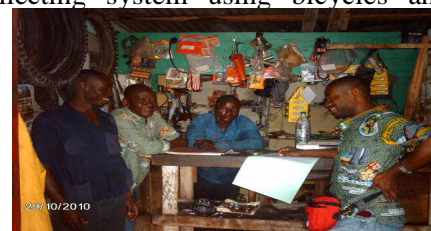


Photo 19 Sensitization activity in a motor garage

## **Sustainability**

- Infrastructure put in place will be used to continue implement the project,
- Waste collected will be sold to BOCOM which accepted a minimum quantity collected of 2000liters before buying; this money will be reinvested to the project

## **Economic and social impact**

- More than 100 persons were sensitized on waste oil management and risk caused to the environment notably: soil and water ways pollution
- Garage owners will improve their revenue by reselling waste oil collected
- Job creation

## **Problems and recommendations**

The promoter main problem is to get a partner who accepts to receive waste oil collected. Presently this issue fails since negotiation with BOCOM did not work. Giving the waste oil collected to sawyers is another way to pollute forest ecosystems; so this way of doing is not proper. The monitoring team advises the ONG EMA to negotiate with a station distributing petroleum products to receive waste collected by EMA. This should be done with the support of the MINEP delegate of the Ocean Division

The second problem is the techniques of testing the efficiency of the method of treatment of contaminated soils using various plants; no laboratory analysis is done. The monitoring team advises EMA to analyze the two samples of soil (one treated and other not treated) to evaluate the quantity of fat, hydrocarbons and heavy metals. Samples were sent for analysis to the soil laboratory of the University of Dschang and analysis fees were supported by ENVIREP Cameroon. Table 36 shows results from laboratory analysis of soil samples. Out of 10 parameters of pollution analyzed, method of treatment used by the NGO EMA is efficient only for three of them: Nitrogen, Zinc and lead. This method is not efficient and is not recommended

**TABLE 36 LABORATORY RESULTS OF SOIL SAMPLES ANALYSED**

N°	Parameters	1 Treated sample	2 Untreated sample	Reference mg/kg	Observations
1	<i>pH</i>	5,14	5,22	-	Not significant difference
2	<i>Conductivité µS/cm</i>	49	44	-	<b>Treatment slightly increases conductivity</b>
3	<i>Azote Kjeldahl (mg/kg)</i>	8,50	13,50	1,0-2,0	<b>Treatment causes reduction of nitrogen concentration</b>
4	<i>Arsenic (mg/kg)</i>	0,05	0,08	0,5	Not significant difference compared to reference value
5	<i>Cobalt (mg/kg)</i>	0,10	0,12	2-5	Not significant difference compared to reference value
6	<i>Zinc (mg/kg)</i>	2,23	5,47	2-5,0	<b>Reduction of Zinc concentration by half but untreated sample is slightly at the same range with reference</b>
7	<i>Plomb (mg/kg)</i>	1,8	3,51	2,0	<b>Significant reduction on treatment sample</b>
8	<i>Vanadium (mg/kg)</i>	-	-	-	
9	<i>Nickel (mg/kg)</i>	1,42	1,78	10,0	Not significant difference compared to reference value
10	<i>Arsenic (mg/kg)</i>	0,97	1,02	1-2	Not significant difference compared to reference value
11	<i>Cadmium (mg/kg)</i>	0,88	1,12	2,0	Not significant difference compared to reference value
12	<i>Mercure total (mg/kg)</i>	Tr*	0,02	0,05	Not significant difference compared to reference value
13	<i>Hydrocarbures totaux (mg/kg)</i>	4,40	5,15	5,0-10,0	Not significant difference compared to reference value

### Project 5: project on promotion of sustainable tourism within the Kribi-Campo area

This project was implemented by PROMO Cameroun an NGO based in Kribi

#### Objectives

- Receive various visitors/tourists in a clean environment
- Sensitize local population and tourists to conserve beaches clean
- Sensitize local population on uncontrolled exploitation of sand in beaches
- Present local handicraft products to tourists
- Improve revenue of local artisans



Photo 21. Tourists enjoying clean beach



Photo 20 sign board indicated the project implementation



Photo 22. Exhibition site during construction

#### Activities and results

- Fabrication and installation of banners (Photo 23)
- Organization of a cleaning campaign

- Distribution of cleaning material such as bags (photo 24)
- Collecting of waste (Photo 25)
- Sensitization of local population to keep beaches clean with aim to improve beach tourism quality
- Sensitization of local population to uncontrolled sand beach exploitation which lead to coastal erosion and tourism activities reduction
- Distribution of materials such as tee shirts for motivation
- Exhibition during local trade fare and selling of materials made by local artisans (Photo 26)



Photo 23. Installation of banner:  
Kribi clean town



Photo 24. Young people ready to start  
cleaning activities



Photo 25. collecting of waste

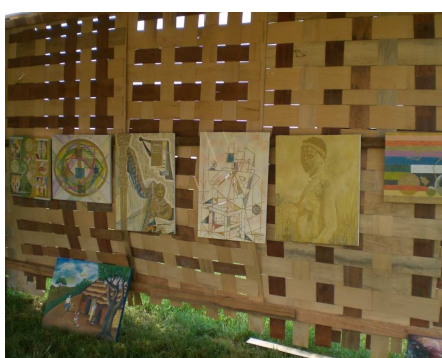


Photo 26 Exhibition materials made by local artisans

## Sustainability

- Fund from this activity will be reinvested in the next year activities
- Many companies were sensitized and have committed themselves to next year activities

## Economic and social impact

- Improvement of revenue of local handicraft
- Full involvement and commitment of local chiefs
- Full involvement and adoption of the project by youths

## Problems and recommendations

The report produced by the NGO PROMO and sent to ENVI-REP was no satisfactory as showing in table 37 evaluating the implementation of this project. The monitoring team advised the promoter of the tourism project to liaise with the project on tourism coast in which demonstrative sites for Cameroon are located in the Kribi area

**TABLE 37 EVALUATION OF THE MICRO PROJECT ON SUSTAINABLE COASTAL TOURISME**

N°	Planned activities	Level of execution	Observations
1	Tournament of Beach soccer	nul	Not executed
2	Gastronomic and cultural trade fare Production of local artistes Traditional dance groups Presentation of the best local dishes	nul	Not executed
3	Presentation of handicraft products by local artisans	10%	Exposition of 3 artistes out of a potential of 50 artistes

### 6.12.4. Lessons learned from the implementation of micro-projects

From the implementation of the micro-projects which list is mentioned above, the following lessons can be learned:

- Poor capacity organization of local communities or institutions is a big handicap for coastal development; capacity building is likely to be required at all levels
- Partnership between government institution and private sector can be a guaranty for success, based on the example of IRAD and AQUASOL. Clear lines of responsibility for maintenance defined between government and community
- For the selection of projects, driven approaches are desirable; it gives beneficiaries the opportunity to select from a menu of activities. A standard package may be a starting point, but the express needs of beneficiaries should modify it
- Revolving fund is seen by most project beneficiaries as the most important benefit received

- Selection of projects should not only be based on project presentation; investigation should be made on project presenter, its capacity to carry out activities outlined in the project document. The case of the NGO E.M.A which submitted a very good project on waste oil from car and motor management in Kribi town felt to execute the project. He received 60% of fund as other NGOs but disappeared and until date no progress report has been made available. In the subcontract signed between E.M.A and ENVI-REP Cameroon (annex VI) the first progress report was to be delivered on November 30, 2010.
- Sustainability of the project cessation funding lead to a drastic reduction of activities implemented with a resulting deterioration in management. Sustainability of micro-projects is questionable. Efficiency and sustainability require adoption of good management practices, particularly adequate auditing and appropriate training. Sustainability can be relied on creation of village extension workers which is a major contributor to the project success, but careful plans are needed to ensure post-project sustainability. Example is giving with the mushroom cultivation project that trained women in various community group of interest. These women will need on-going support, their status needs to be clearly established and their role must be in some way able to provide income
- Synergies between activities should be seen in combination. This is demonstrated by the project on shrimps culture and the one dealing with poultry associated to fish culture (pisciculture)
- Standardized approaches are needed to target the beneficiaries of each micro-project
- The opportunity for local organizations (NGOs, CBOs etc.) to evolve in their function should be provided. The possibility that a Community based Organization (CBO) may develop into a small medium size enterprise should be recognized
- Project design that relies on sub-contractors such as NGOs executing present micro-projects with ENVI-REP Cameroon to deliver services should consider the possibility that identifying suitable subcontractor may be difficult, and /or that significant capacity building may be necessary. Commonly, suitable organizations already have their own well established programmes and procedures and are reluctant to take on “non-core” function or adopt different procedures
- Project must be identified through a truly representative and participatory process; community equity must be present, not just as paid labor
- Mobilization of community savings is required and women are better micro-credit managers
- Resources use, plans, codes of conduct must be developed in truly representative and participatory process and include all user stakeholders
- Plan and policies need regular dissemination

- Rewards for efficient implementations
- Effective participatory democratic and open forums
- Skilled community facilitators required to assist beneficiaries
- Adequate and transparent control over funding, implementation process and quality of end product
- Transparent management and accounting systems and published annual audits
- Training and technology transfer are better achieved “in situ”

# CHAPTER VII

## INTEGRATED COASTAL MANAGEMENT PLAN FOR THE KIRIBI CAMPO AREA IN CAMEROON

### 7.1. INTRODUCTION

The Kribi –Campo coastal area is a diverse environment as described in the previous chapters. An integrated coastal Zone Management (ICZM) plan goes much further than other plans that have relevance to the coast and brings all decision makers together to resolve issues ensuring integration between existing policies and plans. It is recognized that many different organizations and agencies can make a difference to the long term management of the zone and aim to gain commitment from these to a common vision. It is recognized that existing plans and strategies are already relevant to the Kribi Campo area such as the Campo Ma'an Park Management Plan, the MEAO Development Plan of the Ocean Division. It is not the intention to re-invent the wheel, but to ensure that all existing plans with relevance to the sustainable development of the Kribi–Campo coastal area are integrated to one Action Plan. The plan covers all sectors identified during stakeholders consultation workshop organized in Kribi from 11 to 12 March 2010

For the most part, development in the Kribi-Campo Coastal area been characterized as unplanned and/or poorly controlled. This approach towards development has resulted in a wide range of problems including: erosion, deforestation, overfishing, overexploitation of coastal forestry resources, deterioration of water quality, degradation of coastal resources, environment and habitats, . The lack of appropriate land use and zoning plans have resulted in ad hoc development, evident in the Kribi area where more than half of the population of the area has settled

The Cameroon government adopted the National Environment Management Plan (NEMP) in 1996, and which makes provisions for the development of coastal and marine areas and obligatory the Environmental Impact Assessment (EIA) for all development projects to be undertaken in coastal and marine areas, create MEAO for planning development of the Ocean Division where the Kribi-Campo area is located. The success of the implementation of Integrated Coastal Area Management for this zone will be dependent on simultaneous adoption/or implementation of related policies and programmes

The overall objective of the Integrated Coastal Management of the Kribi Campo area is: **To conserve and promote sustainable use of existing resources within the Kribi-Campo Coastal Area of Cameroon for improvement of the quality of the environment and of the livelihoods of the coastal population**

## **7.2. THE INTEGRATED COASTAL MANAGEMENT PLAN (ICAM PLAN)**

### **7.2.1. The ICAM Plan and the National Action Plan for Coastal Zone Management (NAP)**

The ICAM Plan is part of the National Action Plan (NAP) for coastal and marine zones management in Cameroon; it is why the ICAM plan was validated as an annex to the NAP document. In fact, actions formulated in the ICAM Plan covers in detail all sectors developed in the NAP document and will be a key pilot document to implement the NAP. Actions described and developed in the ICAM plan for the Kribi Campo area will be replicated in other areas of the coast where possible during NAP implementation. Sectoral management plans have been proposed in the ICAM Plan and not in the NAP; efficient implementation of the NAP will need to use these sectoral plans. The NAP is a strategic document for the sustainable management of the coastal and marine zone. The ICAM plan is a demonstrative tool to show how a selected site of the coast can be sustainable managed by applying an integrated approach during NAP implementation.

### **7.2.2. Key elements of the ICAM Plan**

Key elements of the ICAM plan are analysed and presented in table 38. Based on priorities identified in the NAP document, the ICAM components are prioritized from A to G and presented in table 38. A is high priority and G is low priority. Implementation will start with high priorities components. In fact, during the NAP prioritization process, the following issues were prioritized: water quality, depletion of fisheries resources, loss of ecosystem integrity due to destruction of habitats, non mastering of coastal population growth which is linked to poor coastal development, land use and planning, coastal erosion etc. This prioritization was also based on recommendation giving during donor round table organized in Yaoundé in the 5<sup>th</sup> of April 2011. The government component is a cross issue one and implementation of each component activities can involve or apply government aspects

### **7.2.3. National Co-funding to implement the ICAM Plan**

Since last year MINEP has included in his investment budget fund to implement some activities which are in the ICAM plan; for example, MINEP started mangrove regeneration project last year; in 2010, MINEP spent more than 50 000 USD for mangrove protection and this amount is expected to double in 2011. Also ENVI-REP has to organize a national donor conference to seek for funding partners for the ICAM Plan; this is the next assignment and main output for the fourth progress report.

**TABLE 38 INTEGRATED COASTAL MANAGEMENT PLAN (ICAM PLAN) FOR THE KRIBI-CAMPO AREA IN CAMEROON**

<b>COMPONENT A: FISHERIES RESOURCES MANAGEMENT</b>						
<b>Goal A1: Contribute to achieving a lasting balance between fisheries resources and their exploitation</b>						
<b>Objectives</b>	<b>Action</b>	<b>Lead organization</b>	<b>Who needs to commit</b>	<b>Time frame*</b>	<b>Financial aspects (x 1000FCFA) For 5 years</b>	<b>Observations</b>
1.1.Promote Gear restriction	1. Survey of fishing gear (number and size) 2. Set fish size and mesh size limits for all target species 3. Implement BRD and TED 4. Time and area closure	MINEPIA	MINEFI MINRESI MINEP MINATD	Short term	50 000	In legislation only for some species but not applied
1.2.Institutionalize Quota	1. Form socio-professional groups 2. Institute Individual quotas (IQs) or group quotas 3. - Monitor and control catches	MINEPIA	MINFIB MINRESI	Long term Short term	25 000	Absent in legislation
1.3.Establish area and seasonal closure	1. Survey of sensitive habitat 2. Evaluate gonad maturation studies for target species 3. Implement closed area/seasons 4. Provide access to IGA 5. Create marine reserves 6. - Reinforce monitoring and control	MINEPIA	MINRESI MINFIB MINADER MINEP	Long-term	75 000	Mentioned in legislation but not defined
1.4.Establish biological monitoring programs	1. Implement Fishery-Independent Monitoring (data on larvae ) 2. Fishery-dependent Monitoring (stock assessment: data on catch and effort, biological data, CPUE, MSY etc. and economic monitoring)).	MINRESI	MINEPIA MINFIB MINEPAT MINEP	Medium term	50 000	Programme existing but requires reinforcement financially and manpower
1.5.Limit access	1. Create fishing groups 2. Institute user right measures (access and withdrawal rights) (e.g. through restricted licensing and territorial use rights (TURFs)	MINEPIA	MINRESI MINFIB MINPLADAT	Long term	15 000	No measures yet. The fishery is open access presently
1.6. Strengthen MCS	1. Build capacity building on VMS 2. Training, Sensitize and involve fishers in monitoring 3. Make operational existing satellite-based Vessel Monitoring System	MINEPIA	MINRESI MINDEF MINTRANS MINEPAT MINT	Short term	60 000	VMS system existing but not functional
1.7.Regulate fishing effort	1. Institute closed area and closed seasons, 2. Reinforce monitoring 3. Create IGAs	MINEPIA	MINRESI MINEPAT	Medium term	30 000	To be implemented from legislation

1.8.Promote co-management	<ol style="list-style-type: none"> <li>1. Identify stakeholders in the fishery sector</li> <li>2. Establish appropriate co-management strategies</li> <li>3. Build capacity on co-management</li> <li>4. Provide technical support, credit, marketing assistance</li> <li>5. and, critically, enabling legislation</li> </ol>	MINEPIA	MINRESI MINEFI MINEPAT NGOs	Long-term	75 000	Absence of this system
<b>Goal A2: To improve on technical conditions of fish processing and marketing</b>						
2.1.Promote Capacity building and vulgarize existing technologies	<ol style="list-style-type: none"> <li>1. Survey of existing processing and marketing</li> <li>2. Create socio-professional groups</li> <li>3. Sensitize and train on improved handling and processing and packaging technologies (chorkor ovens etc.)</li> <li>4. Vulgarize improved technology (chorkor ovens, ice boxes etc.)</li> <li>5. Train on marketing of fresh and smoked products</li> </ol>	MINRESI	MINEPIA MINEPAT NGOs	short-term	50 000	IRAD has improved oven technology and local ice containers and provides training
<b>COMPONENT B: COASTAL DEVELOPMENT AND LAND USE PLANNING</b>						
<b>Goal B1 To promote the biodiversity, vitality and long term viability of coastal economies giving preference to these that are endemic to the coast</b>						
1.1 Promote long term development potential of Kribi-Campo coastal area	<ol style="list-style-type: none"> <li>1. Protect and enhance characteristics and qualities that provide the lifestyle opportunities with aim to encourage appropriate local economic development</li> <li>2. Develop opportunities that increase local job prospects through promotion of small, medium and micro enterprise</li> <li>3. Provide the necessary infrastructure, services and amenities required for the long term development of coastal localities</li> <li>4. Enhance rights, ecological and social responsibility</li> </ol>	Local municipalities	MINATD; MINEPAT MINEP; MINTP MINDAF; MINDUH MINFOF; MINRESI MINTOUR; PRIVATE SECTORS	Short term  Short term  Long term  Long term	200 000	Field work; hire of consultants
1.2. Provide adequate and accessible public facilities at appropriate coastal locations	<ol style="list-style-type: none"> <li>1.Improve public facilities</li> <li>2. Minimize adverse impacts on coastal ecosystems</li> <li>3. Promote sustainable financing mechanisms</li> <li>4. Promote public –private partnership</li> <li>5. Improve status of beach access road and landing site infrastructure</li> </ol>	Local municipalities	MINATD; MINEPAT MINEP; MINTP MINDAF; MINDUH MINFOF; MINRESI MINTOUR	Short term  Long term Short term Long term	150 000	Establish partnership with coastal council

<b>Goal B2. To alleviate coastal poverty through proactive coastal development initiatives that generate sustainable livelihood options</b>						
2.1. Identify opportunities that seek to eliminate coastal poverty	1. Encourage coastal development proposals that address coastal poverty 2. Diversify economic opportunities for poor coastal communities 3. Promote food security in poor marginalized coastal communities	<b>MINEPIA</b>	MINEP; MINFOF MINADER MINRESI PRIVATE SECTOR MUNICIPALITIES	Long term  Short term Short term	<b>50 000</b>	Hire of consultants
<b>Goal B3 To maintain an appropriate balance between built, rural and wilderness coastal areas</b>						
3.1. Promote nodal development to sustain economic potential and protect the aesthetic, amenity, cultural and ecological value	1. Introduce creative mechanisms to prevent the negative impacts of sprawl of ribbon development	<b>MINDUH</b>	MINEP; MINFOF MINADER/ MINATD MINTOUR; MINDAF HOTEL OWNERS MINATD; MUNICIPALITIES	<b>Short term</b>	<b>50 000</b>	Develop partnership with local council and ministry of urban development
3.2. Identify areas of high agricultural commercial and forestry potential	1. Protect and sustainable manage potential agricultural and commercial forestry land	<b>MINDUH</b>	MINEP; MINFOF MINADER; MINTOUR; MINDAF; HOTEL OWNERS MUNICIPALITIES	Long term	<b>50 000</b>	Develop partnership with ministry of agriculture and rural development
3.3. Identify and promote distinctively coastal development opportunities	1. Integrate coastal planning efforts into existing local planning and development framework	<b>MINDUH</b>	MINEP.; MINFOF MINADER; MINATD MINTOUR; MINDAF HOTEL OWNERS	Short term	<b>50 000</b>	Hire of consultants, partnership with local council
3.4. Design new structures in undeveloped areas in a manner that retain their visual beauty	1. Introduce mechanisms and incentives to reward property owners who retain the visual beauty and natural characteristics of the coast 2. Maintain landscape value as an asset	<b>MINDUH</b>	MINEP, MINFOF MINADER; MINATD; MINT OUR MINDAF; MINDUH HOTEL OWNERS MUNICIPALITIES	Short term  Long term	<b>50 000</b>	Hire of consultants, partnership with local council
<b>Goal B4. To design and manage coastal settlements to be in harmony with local aesthetic, amenity, biophysical and cultural opportunities and constraints</b>						
4.1 Design and built form of coastal settlements in harmony with the characteristics of the locality	1. Integrate aesthetic and visual consideration into planning 2. Establish a buffer zone between the shore and physical development 3. Design coastal settlements to promote a sense of community where possible 4. Promote local architectural styles and the use of local material and labor 5. Setting major roads back to the sea shore and to orienting minor roads perpendicular to the sea shore at suitable locations 6. Upgrade informal coastal settlements in order to improve quality of life of coastal communities 7. Manage and protect historical coastal settlements	<b>MINDUH</b>	MINEP; MINFOF MINADER MINTOUR MINDAF HOTEL OWNERS MINATD MUNICIPALITIE MINDUH	Long term  Short term  Long term  Long term  Short term Short term Long term	<b>150 000</b>	Hire of consultants, partnership with local council

4.2 Promote and enhance the socio-economic benefits of the coastal setting and the diversity	<ol style="list-style-type: none"> <li>1. Control and minimize clearance of indigenous vegetation</li> <li>2. Rehabilitate and replace degraded vegetation</li> <li>3. Manage pedestrian and vehicle access to the coast during peak activity period</li> <li>4. Promote local community involvement in coastal management</li> </ol>	<b>MINDUH</b>	MINEP; MINFOF MINADER MINTOUR; MINDAF HOLTEL OWNERS MINATD MUNICIPALITIE	Long term  Short term Short term Long term	<b>100 000</b>	Hire of a socio economist and develop partnership with local council
<b>COMPONENT C: POLLUTION CONTROL AND WASTE MANAGEMENT</b>						
<b>Goal C1: To implement pollution control and waste management measures in order to prevent, minimize and control harmful discharges into the coastal environment</b>						
1.1. Prevent discharge of all land based point and diffuse sources to end up in coastal ecosystem	<ol style="list-style-type: none"> <li>1. Monitor waste discharge into the coastal environment</li> <li>2. Document and give annual statement on quantity and quality of waste</li> <li>3. Coordinate pollution control activities</li> <li>4. Encourage treatment of pollution discharges at sources</li> <li>5. Create economic incentives to promote waste minimization, re-use and recycling</li> <li>6. Establish cooperative arrangement between port authorities and local municipalities</li> </ol>	<b>MINEP</b>	MINEPIA MINT;MINIMIDT MINMEE, SNH, PORT AUTHORITIES; PRIVATE SECTORS MUNICIPALITIES NGOS; MINATD	Long term  Long term  Short term Short term	<b>100 000</b>	Report preparation, field work, equipment
1.2.Prevent marine pollutants and waste products from ship operation and maintenance into coastal waters	<ol style="list-style-type: none"> <li>1. Implement international protocol and agreements to which Cameroon is a party</li> <li>2. Control of discharge of hazardous, toxic waste substances, ballast water from ship (ship board waste)and waste products from ship maintenance such as abrasive blasting material, paint removers</li> </ol>	<b>MINEP</b>	MINT;MINIMIDT MINMEE, SNH, PORT AUTHORITIES, MUNICIPALITIES PRIVATE SECTORS NGOS	Short term  Long term	<b>25 000</b>	<b>Visit and control of ships</b>
1.3Implement adequate and effective anticipatory and reactive measures to reduce adverse effects of human-induced coastal pollution disasters and hazards	<ol style="list-style-type: none"> <li>1. Develop and update a local disaster contingency plan and identify key roles and responsibilities</li> <li>2. Oblige high pollution risk industries to have an emergency plan and code of conduct</li> <li>3. Establish a cost clean up and rehabilitation and penalties imposed on polluters</li> </ol>	<b>MINEP</b>	MINATD;MINT MINIMIDT MINMEE, SNH, PORT AUTHORITIES, MUNICIPALITIES NGOS; PRIVATE SECTORS	Short term  Short term <b>Short term</b>	<b>100 000</b>	Meetings, technical work to identify risk area, mapping work etc
1.4. Control the discharge of pollutants to coastal and marine environment	<ol style="list-style-type: none"> <li>1. Survey of existing sources of pollution and assess their level</li> <li>2. Technical control of waste discharges</li> <li>3. Make obligatory EIA</li> <li>4. Implement the use of clean technology</li> <li>5. Establish a pollution monitoring system</li> <li>6. Rehabilitation of degraded area</li> </ol>	<b>MINEP</b>	MINRESI MINEPAT MINEPIA MINT	Short term  Long term Long term Long term Long term Short term	<b>150 000</b>	Many offshore oil and gas exploration and exploitation companies in area Also agro-plantation

<b>Goal C2. To manage polluting activities to ensure that they have minimal adverse impact on the health of coastal communities and coastal environment</b>						
2.1. Implement pollution control and waste management measures	2.1.1. Establish a waste discharge permits system 2.1.2. Establish relevant indicators for the monitoring of the pollution status of sensitive ecosystems	MINEP	MINIMIDT; NGOs MINMEE; SNH, PORT AUTHORITIES; PRIVATE SECTORS; MUNICIPALITIES;	Short term Short term	50 000	Elaboration of standards; hire of consultants
<b>COMPONENT D: MANAGEMENT OF MANGROVE, COASTAL FOREST AND WILDLIFE WITHIN THE KRIBI CAMPO AREA</b>						
<b>Goal D1: To ensure the sustainable management and conservation of mangrove, coastal forest resources and wildlife within the Kribi Campo area</b>						
1.1 Create and establish key conservation priority areas	1. Elaborate a land use plan and map showing key conservation priority areas 2. Create and establish key conservation areas with the participation of the local community for the propagation of wildlife, protection and management of fragile habitats and ecosystems. 3. Create and establish a mangrove sanctuary for full protection of mangrove communities and ecosystems 4. Produce a management plan for each of the identified conservation area	MINFOF	MINEP; INTOUR MINPAT; MINADER MINLLPA; MINUDH MINRESI; MINFIB MINCOM; AUTHORITIES MUNICIPALITIES; NGOS; LOCAL COMMUNITIES	Short term Long term Long term  Long term	100 000	Hire of consultants
1.2 Protect and control the exploitation of wildlife, mangrove and forestry resources	1. Develop a strategy for an effective and efficient control system 2. Reinforce the MINFOF and conservation game guards control facilities and capacity 3. Organise and put in place an equipped, trained and functional Village Vigilante Groups 4. Carry out sensitisation and environmental education activities	MINFOF	MINEP; MINTOUR; NGOS MINPAT; MINADER MINDEF; MINUDH MINEPIA; MINFIB MINCOM; AUTHORITIES MUNICIPALITIES LOCAL COMMUNITIES	Short term Short term Short term	100 000	Organization of training and sensitization campaign
1.3 Carry out research and monitoring activities	1. Establish permanent plots and wildlife monitoring transects in order to study and monitor high conservation value wildlife and plant species 2. Carry out regular wildlife, botanical, ecological, socioeconomic surveys 3. Development and establish sound data bases for the effective management and utilisation of existing information	MINFOF	MINEP; MINRESI; NGOS; MINTOUR; MINPAT; MINMEE; MINLLPA; MINUDH; MINADER MINEPIA; MINFIB MINCOM; UTHORITIES MUNICIPALITIES; COMMUNITIES	Long term Short term Long term	75 000	Field work, hire consultants
1.4 Promote participative management and community development	1. Develop and put in place mechanisms for the participative management of the park, the coastal area and their surroundings 2. Promote the creation and sustainable management of community forest	MINFOF	MINEP; MINTOUR; NGOS; MINPAT; MINMEE; MINFIB; MINADER; MINEPIA; MINDEF; INUDHMINTRANS; COMMUNITIES MUNICIPALITIES;	Short term   Long term	50 000	Organization of meetings, training and sensitization on the importance of park management issues

## COMPONENT E :TOURISM MANAGEMENT

**Goal E1: To ensure a sustainable tourism management in the Kribi Campo coastal area in order to increase income from tourism activities by developing appropriate tourist infrastructure and actions in an ecologically sensitive and financially viable manner.**

1.1 Develop a local policy and a master plan for tourism sector	1 Develop a strategy for the long-term management of tourism and ecotourism in the area 2 Coordinate tourism and ecotourism activities 3 Inventory and management of principal tourist attractions in the national park, the coastal area and their surroundings	MINTOUR	MINEP; MINFOF; NGOS MINEPAT; MINMEE; MINLLPA; MINUDH MINTRANS; MINFIB; MINCOM; MINREX; AUTHORITIES; COMMUNITIES MUNICIPALITIES; LOCAL	Long term Long term Short term	50 000	Develop partnership with Local council and hire of consultants
1.2 Develop and implement an effective marketing strategy in order to increase incomes and jobs opportunities	1 Produce brochures, fact sheets and other items that will enhance visitor appreciation of the tourist potentials and attractions 2 Develop links with private tour operators and travel agents 3 Establish and develop a Tourist Information Centre 4 Develop and promote ecotourism and sustainable viable incomes generating tourism activities 5. Development and Valorization of tourist sites 6. Promote the tourism potentials of the area using regional and national media 7. Promote Cameroon image overseas and create facilities for visa entry to Cameroon	MINTOUR	MINEP; MINFOF MINPAT; MINMEE MINTRANS MINFIB; MINCOM MINREX; AUTHORITIES MUNICIPALITIES NGOS; LOCAL COMMUNITIES	Short term Short term Short term Long term Long term Long term	100 000	Hire of consultants and involvement of private sector
1.3 Develop appropriate touristic infrastructures and amenities	1 Improve the quality of existing infrastructures 2 Develop and establish new infrastructures such as art craft and cultural centres, tourist observation areas, rainforest trails, hiking trails, loop trails, campsites wildlife viewing and sport hunting infrastructure 3 Ensure the improvement of road, water and electricity facilities	MINTOUR	MINFOF;MINMEE MINEP; MINPAT;MINTRANS;MINFIB; MINCOM; MINREX; NGOS AUTHORITIES MUNICIPALITIES; LOCAL COMMUNITIES	Long term Short term Long term	200 000	Develop partnership with local council

## COMPONENT F NATURAL RISK MANAGEMENT WITHIN THE KRIBI CAMPO AREA

**GOAL F1 To plan and manage coastal development so as to avoid increasing the incidence and severity of Natural hazards and to avoid exposure of people, property and economic activities to significant risk from coastal dynamic processes**

1.1. Establish a coastal development which minimize risk from natural hazards	<ol style="list-style-type: none"> <li>1. Protect buffer zone</li> <li>2. Control activities which lead to disturbance of natural drainage patters</li> <li>3. Identify and manage areas prone to high risk from dynamic processes such as coastal erosion</li> <li>4. Remove or relocate fixed structures located in hazardous areas</li> <li>5. Discourage extension or restoration of structure located in hazardous areas</li> <li>6. Develop a precautionary risk averse approach Guide decision-making</li> </ol>	<b>MINEP</b>	MINATD MINEPAT MINEP MINTP MINDAF MINDUH MUNICIPALITIES	Short term  Long term  Short term  Short term  Long term	<b>100 000</b>	MINEP is the lead organization when environmental protection and planning is concerned and MINATD is a lead in case of disaster
2.2. Take into account potential consequences of climate change and associated sea level rise in all planning and development	<ol style="list-style-type: none"> <li>1. Adopt appropriate preventive measures</li> <li>2. Monitor impact of climate change on coastal structures and sensitive ecosystems such as estuaries, mangrove</li> <li>3. Carry out public awareness on climate change implications in coastal areas</li> </ol>	<b>MINEP</b>	MINATD; MINEPAT MINEP; MINTP MINDAF;MINDUH MUNICIPALITIES MINFOF; MINRESI	Long term  Long term  Long term	50 000	Hire of consultants

## Component G: Governance and capacity building

**Goal G1: To ensure meaningful public participation and to promote partnerships between government private sector and civil society in order to foster co-responsibility in coastal management**

A1.1Promote meaningful public participation in all planning and management efforts undertaking in the Kribi Campo area	<ol style="list-style-type: none"> <li>1. Promote an open, facilitative and inclusive, transparency public participation process</li> <li>2. Involve disadvantaged communities and groups (e.g.; women, pygmies) in coastal actions</li> <li>3. Promote traditional knowledge</li> </ol>	<b>MINEP</b>	MINEPAT; MINFOF; MINEPIA; MINEPIA MINDAF; MINDUH MINATD ; MINTP; MINT; MINTOUR ; MINFIB ; NGOS MUNICIPALITIES ;	Long term  Long term  Short term	<b>50 000</b>	Main actions are meeting and talks
A.1.2 Develop partnerships between government, civil society, private sector in coastal management	<ol style="list-style-type: none"> <li>1. develop public awareness on the need of partnership</li> <li>2. Encourage community –generated projects and actions</li> <li>3. Explore alternative mechanisms for partnership ranging from co-management to public private partnerships</li> </ol>	<b>MINEPAT</b>	MINEP; MINFOF; MINEPIA; MINDAF; MINDUH;MINATD ; NGOS;MINTP; MINT MINTOUR ; MINFIB ; MUNICIPALITIES ;	Short term  Short term  Long term	<b>50 000</b>	Meetings and training
A.1.3 Develop and encourage co-responsibility	<ol style="list-style-type: none"> <li>1. Develop a public awareness programme on the sense of responsibility</li> <li>2. Establish a system in which the cost remedying damaged or degraded coastal habitats be borne by those responsible for such actions</li> </ol>	<b>MINEP</b>	MINFOF; MINEPIA; MINDAF; MINDUH MINATD ; MINTP; MINT ; GOS;MINTOUR;MINFIB; MUNICIPALITIES ;	Long term  Short term	<b>50 000</b>	Feasibility studies and workshops, consultancies

<b>Goal G2: To promote public awareness about the coast and educate and train coastal stakeholders to ensure more effective coastal planning and management</b>						
A.2.1 Develop and implement a public coastal awareness programme	1. Enhance public awareness on the value and the importance of maintaining its diversity, health and productivity	<b>MINCOM</b>	MINEP; MINFOF; MINTP MINEPIA; MINDAF; MINDUH; MINATD MINT; INTOUR; MINFIB; MUNICIPALITIES; NGOs	Short term	<b>50 000</b>	Consultancies work and workshops
A.2.2 Develop and implement education and training programme for all stakeholders	1. Include coastal management topics in Curriculum 2. Provide basic training opportunities designed to promote practical on the ground skills development 3. Develop dialogue with all stakeholders education and training efforts	<b>MINEP</b>	MINFOF; MINEPIA; MINDAF; MINDUH MINATD; MINTP; MINT MINTOUR ; MINFIB MUNICIPALITIES ; NGOs ; MINEB	Long term  Short term  Short term	<b>50 000</b>	Consultancies to develop programme ;workshop to present programme, elaboration of implementation mechanisms
<b>Goal G3: To promote a cooperative, coordinated and integrated coastal planning and management approach</b>						
3.1. Take in account in all planning and management efforts the interrelationships between the land, sea and air and between coastal ecosystems and human users	1. adopt risk-averse and precautionary approach under conditions of uncertainty 2. Enhance rights for economic development through ecological and social responsibilities	<b>MINEPAT</b>	MINEP; MINFOF; NGOs MINEPIA; MINEPIA MINDAF;MINDUH; INC MINATD; MINTP; MINT; MINTOUR; MINFIB ; MUNICIPALITIES ;	Long term  Long term	<b>25 000</b>	Sensitization and information Workshops and training of coastal managers
3.2. Provide adequate financial support and suitable trained and experienced personnel and appropriate equipment for coastal planning and management	1. Provide adequate finances on and ongoing basis 2. Ensure that government institutions with sectoral responsibilities fulfill them 3. Investigate sustainable financial mechanisms 4. Develop and implement a coastal capacity building programme to ensure that coastal management staff acquire the knowledge skills to carry out their responsibility effectively	<b>MINEPAT</b>	MINEP; MINFOF; MINFIB MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT;MINTOUR MUNICIPALITIES ; NGOs	Long term  Short term  Short term Short term	<b>150 000</b>	Consultancies to develop the programme, suitable financial mechanisms ,meetings with potential donors
3.3. Promote proactive and effective self-regulation and collective responsibility through combination of regulation and economic instruments	1. Promote coastal management styles that are flexible, learning oriented and cost effective 2. Draw lessons from traditional management practices 3. Establish a system in which incentives and penalties are in proportion to possible consequences of coastal activities	<b>MINEP</b>	MINEPAT; MINFOF; MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT MINTOUR ; MINFIB MUNICIPALITIES ; NGOs	Long term  Short term Short term	<b>150 000</b>	Reviewed coastal legislation, meetings, concertation,
3.4. Establish institutional arrangements which promote dialogue, cooperation , coordination and integration	1. Coordinate and integrate all coastal management activities 2. Establish alliances between state organs on an issue by issue basis in order to improve dialogue, cooperative, coordination and integration 3. Update where necessary legal and regulatory procedures and provisions	<b>MINEP</b>	MINEPAT; MINFOF; MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT ; NGOs MINTOUR ; MINFIB MUNICIPALITIES	Long term  Short term  Short term	<b>50 000</b>	Meetings and sensitization to create or establish alliance

3.5.Resolve conflicts in a collaborative, problem solving, consensus building manner	<ol style="list-style-type: none"> <li>1. Establish appropriate institutional arrangements to resolve coastal conflicts</li> <li>2. Promote accessible, voluntary, fair and time and cost efficient conflict resolution procedures</li> <li>3. Encourage independent and impartial third parties for assisting in resolving coastal conflicts</li> <li>4. Encourage arbitration when consensus-based conflict resolution mechanisms fail</li> </ol>	<b>MINATD</b>	MINEP; MINFOF; MINTP; MINEPIA; MINDAF MINDUH; MINATD MINT ; MINTOUR ; MINFIB ; MINEPAT ; NGOs ;MUNICIPALITIES	Short term  Short term  Long term  Long term	<b>50 000</b>	Hire of consultants, dissemination of regulatory documents on conflict and organization of sensitization workshop
3.6.Design an effective and accessible information system	<ol style="list-style-type: none"> <li>1. Develop a user-friendly cost-effective local information system to aid coastal stakeholders and make provisions to ensure that all stakeholders have access to information</li> </ol>	<b>MINCOM</b>	MINEP; MINFOF; MINFIB MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT ; MINEPAT MINTOUR ; NGOs MUNICIPALITIES ;	Short term	<b>100 000</b>	Equipment and training of personnel
<b>Goal G4: To conduct coastal planning and management activities in a manner that promotes learning through continuous research, monitoring, review and adaptation</b>						
4.1. Develop and implement a dedicated coastal management initiatives and adapted through a process of continuous research, monitoring, review and adaptation	<ol style="list-style-type: none"> <li>1. Develop and implement, monitored and reviewed a dedicated coastal management initiatives</li> <li>2. Regularly update legislation</li> <li>3. Prepare management guidelines and performance standards to assist the implementation of the policy</li> <li>4. Promote adaptive management and learning approach</li> <li>5. Develop and support a research programme in order to promote better coastal management</li> <li>6. Establish a monitoring programme to assess the extent to which the policy is consistently and effectively implemented</li> <li>7. Publish regularly a report on the state of the cost</li> </ol>	<b>MINEPAT</b>	MINEP; MINFOF; MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT MINTOUR MINFIB ; INC MUNICIPALITIES NGOS ; MINRESI	Short term  Short term  Short term  Long term  Long term  Long term Long term	<b>200 000</b>	Surveys, fieldwork on data collection, preparation of guidelines etc
4.2.Promote strategic, focused and practicable coastal planning and management activities	<ol style="list-style-type: none"> <li>1. Make provision to ensure adequate and sustainable financing for coastal management activities</li> <li>2. Establish and implement local demonstrative projects to demonstrate the effectiveness of integrated coastal management and to investigate the practical implementation</li> <li>3. Initially focus efforts on a limited number of priority coastal issues and phase new coastal management activities in over time</li> </ol>	<b>MINEPAT</b>	MINEP; MINFOF; MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT MINTOUR MINFIB ; MUNICIPALITIES NGOs	Long term  Short term  Short term	<b>150 000</b>	Hire of consultants, partnership with local council

<b>Goal G5: To fulfill international and trans-boundary responsibilities</b>						
5.1. Enter into and fulfill international conventions, protocols and agreements related to coastal management and that Cameroon is party	<ol style="list-style-type: none"> <li>1. Ratify coastal planning and management conventions, protocols and agreements relevant to Cameroon</li> <li>2. Investigate possible benefits of Cameroon's participation in initiatives such as United Nations Regional Seas Programme</li> </ol>	<b>MINEP</b>	MINFOF; MINEPIA; MINT MINDAF; MINREX; NGOs MINDUH; MINATD; MINTP MINTOUR ; MINFIB ; MINEPAT MUNICIPALITIES	<b>Short term</b>  <b>Short term</b>	<b>15 000</b>	<b>travel and inter cooperation</b>
5.2. Develop cordial relations with Equatorial Guinea whose activities affect diversity of ecosystems, notably within the management of the Campo Ma'an National park	<ol style="list-style-type: none"> <li>1. Establish and maintain cordial relations with Equatorial Guinea to promote consistency in coastal management efforts</li> <li>2. Develop a mechanism for experiences sharing with other coastal African countries and international organizations involved in coastal planning</li> <li>3. Promote exchange on technology, monitoring and research amongst the international coastal research and management community</li> </ol>	<b>MINREX</b>	MINEP; MINFOF; MINEPIA; MINDAF MINDUH; MINATD MINTP; MINT MINTOUR ; MINFIB ; MINEPAT ; NGOs MUNICIPALITIES	Long term  Short term  Long term	<b>50 000</b>	<b>Travels and meetings</b>

\*Short term here means actions that can be undertaken within a period between 0 and 5 years and which is not necessarily a continuous action. Long term means continuous actions which can last more than 10 years and medium term for actions between 5 and 10 years. Costs are estimated based on some previous experiences and will be more precise during stakeholder workshop to approve the plan

### **7.3. VALIDATION REPORT OF THE ICAM KIRIBI CAMPO DOCUMENT**

The national workshop for the validation of the ICAM Kribi-Campo document and the National Action Plan (NAP) for the Cameroon coastal zone management took place at “Hotel la Residence Jully” in Kribi from 22<sup>nd</sup> to 23<sup>rd</sup> of November 2010 (Annex V). This workshop was previously planned to last one day, but due to the fact that two documents were submitted (NAP and ICAM) for validation, one additional day financed by MINEP and ENVI-REP Cameroon was necessary to complete the assignment.

**The meeting was presided over by the Senior Divisional Officer for the Ocean who was representing his Excellency, Mr. HELLE Pierre, Minister of Environment and Nature Protection (MINEP), assisted by the Government Delegate of the Kribi Urban Council; participants comprised, representatives from all the sectoral ministries composing the Interministerial Committee, based in Yaoundé, local services of various ministries, members of the civil society, local councils, private sector and traditional rulers. All the participants were invited by the Ministry of Environment and Nature Protection (MINEP) who lead the Interministerial Committee. It is therefore clear that the ICAM Plan was approved by the members of the Interministerial Committee and also by civil society representatives, local traditional ruler representatives and local representatives of sectoral ministries. The MINEP voluntary extended the approval of the ICAM Plan to local people and civil society which gives more weight to the document and this will also facilitate implementation on the field.**

The final communiqué was as follows:

On the 22<sup>nd</sup> and 23<sup>rd</sup> of November, 2010, a national workshop was held to validate the National Action Plan for coastal and marine zones management and the Integrated Coastal Area Management (ICAM) document for the Kribi-Campo zone within the framework of the Guinea Current Large Marine Ecosystem (GC-LME) Project. The workshop was attended by personnel from the central and external services of MINEP, representatives of other sectoral ministries, universities lecturers and research institutions, members of the civil society, private sector and traditional ruler representatives.

The workshop activities were organized in four sessions:

1. Opening ceremony
2. Presentations and discussions
3. Group work
4. Reading of the final communiqué

In his opening speech, the Senior Divisional Officer presented the history of the GC-LME Project, its various phases, implemented, ongoing and future actions.

In perspective, he announced the organization of a donor conference toward the third week of February 2011 of which the main objective will be the presentation of the portfolio of projects containing major concerns on management of coastal and marine areas within member states of the GC-LME, and the mobilization of external funds from multi and bilateral donors for the execution of these projects

He also highlighted the objectives of the present workshop as follows:

- To review project ideas within the NAP and proposition of other projects based on the guidelines of GEF, in particular GEF priorities
- To validate the NAP document and the ICAM Plan for the Kribi-Campo zone

Finally, he encouraged all stakeholders to participate actively in order to produce an appropriate document for the sustainable management of our coastal zone.

After, the Senior Divisional Officer's Speech, the workshop started with presentation of programme by Dr Wassouni Amadou, national Director, GC-LME Project.

This programme started with two presentations viz:

- 1) Presentation of the GC-LME Project by Mr. Mboufack Collins Bruno, GC-LME national programme assistant
- 2) Presentation of the NAP and ICAM Kribi-Campo documents by Dr Jean Folack, national coordinator for NAP elaboration and President of ENVI-REP Cameroon which is implemented the ICAM demonstrative project in Cameroon

These presentations were followed by discussions and workshop participants were divided into five working groups:

Group 1: Elaboration of project sheets on socio-economic and cultural aspects

Group 2: Elaboration of project sheets on environmental aspects

Group 3: Vision, objectives, strategies, principles and approaches for NAP

Group 4: Implementing strategies of NAP: monitoring and evaluation mechanisms, performance indicators, periodicity and actors

Group 5: Analysis of sectoral management Plans and the ICAM document

After, presentations and discussion by the different groups, the following recommendations resulted:

- i) That the NAP vision be given more clarification;
- ii) A detailed project proposal be elaborated to provide detailed and useful information for the elaboration of project sheets,
- iii) In-depth diagnosis be made to acquire clear indicators for the Bakassi project,
- iv) Contact be made with other actors executing projects in the Bakassi area for acquisition of baseline data
- v) A business plan for the NAP be elaborated and
- vi) NAP centres be created.

At the end of the workshop, documents presented by the consultant were amended and adopted in plenary on condition that observations made above be integrated.

**Made in Kribi, 23<sup>rd</sup> of November 2010**

**The participants**

## **7.4. REPORT ON THE WORKSHOP ORGANIZED TO PRESENT THE ICAM PLAN TO SUPPORTING INSTITUTIONS AND DONORS.**

### **7.4.1. Introduction and context**

The government of Cameroon, represented by the Ministry of the Environment and Nature Protection (MINEP), within the framework of meeting its international commitments taken within several multilateral environment agreements-MEAs notably Rio Agenda 21, the CBD, the Abidjan Convention and the implementation of the Strategic Action Plan of the Guinea Current Large Marine Ecosystem Project, adopted an Integrated Coastal Area Management (ICAM) Plan for Kribi-Campo as its demonstrative pilot project.

A consultant from the Organization ENVI-REP Cameroon was commissioned to carry out the specific assignment of producing the draft ICAM Plan for the zone as per terms of Reference drawn up by the UNIDO procurement service in connection with the regional Director of the GCLME project. The United Nations Industrial Development Organisation (UNIDO) supported the project with funding from the Global Environment Facility (GEF).

The process of adopting the plan was consultative, based on the ecosystem approach and brought together several stakeholders including women's Groups and Civil society organisations as well as industry representatives and sectoral administrations. Three consultative workshops were organised in various areas targeting different categories of stakeholders, culminating in the adoption of 07 components of identified problems which constituted priority issues to be addressed for an efficient management of the invaluable but dwindling resources of the Kribi Campo area. During these workshops, documents carrying information about the rich resources of the area and the problems impacting on the living environment were distributed to the participants. The validated Plan can therefore be qualified as an agreement between the Government and the other relevant stakeholders to manage in an efficient manner through a concerted shared global vision, the resources of the coastal and marine area in question.

Under its mission the consultant ENVIREP has to organize a round table/donor conference to inform, sensitize and harness the interest of partners in the area and in the plan, through renewed additional financing commitments in the form of micro-projects or priority activities which will go along way to address the problems identified in the 08 components of the ICAM Plan.

The Donor Roundtable on the financing of activities within the Integrated Management Plan of the Coastal Area of Kribi-Campo in Cameroon was then organised by the Ministry of Environment and Nature Protection (MINEP), with the technical support of ENVI-REP Cameroon, a non Governmental

Organisation and the financial support of the United Nations Industrial Development Organisation (UNIDO). This round table meeting took place in Yaoundé at Hotel AZUR on the 5<sup>th</sup> of April 2011. The programme is attached as annex VI. This meeting was attended by main local supporting institutions. List of participants is attached as annex VII. The objectives of this round table were to:

- i) Sensitize supporting institutions and interested on the key issues of the ICAM Plan Kribi-Campo and microprojects
- ii) Identify and get implication of institutions and donors which are willing to support and accompane the government to finance activities of the ICAM Plan
- iii) Harmonize intervention of variours stakeholders which operate in the area and develop synergies

**Expected results from this meeting are:**

- i) All potential partners are sentitized on the key issues of the ICAM Plan Kribi-Campo and on all microprojects presented
- ii) Partners show their interest and accept to joint the government for the financing and implementation of the ICAM Plan activities
- iii) Synergies are established between partners which intervene in this area

#### **7.4.2. Methodology**

Invitation letters signed by the Ministry of Environment and Nature Protection (MINEP) were distributed by ENVI-REP staff who met personally partners with short presentation of the documents included in the invitation (i.e. a CD ROOM containing the electronic copy of the third report, a hard copy of the ICAM summary report, an interest sheet to be filled by the partner and the programme of the meeting). Documents were distributed 10 days before the meeting

#### **7.4.3. The meeting**

##### **7.4.3.1. Opening Ceremony**

The meeting was opened by H.E. Akwa Kum Mbong Patrick, Permanent Secretary for the Ministry of the Environment and Nature Protection. In his opening remarks, he extended the apologies of the Minister of the Environment and Nature Protection H.E Hele Pierre who would have loved to chair the meeting personally, but who had just returned that morning from an official trip to the Far North Region. He recalled the Conference objective and the importance of the coastal areas of Cameroon to the local populations, the national economy through the multi-resources provided and its contribution to ecosystem

services. He said despite this vital role played by the said ecosystem, there is a general trend of the rapid degradation of its resources notably fisheries. He pointed out that most of the threats were caused by man induced factors and natural disasters. . He highlighted some of the threats posed by climate change and global warming on this particular ecosystem and the effects on local populations, the national economy and the environment. He stressed that if adequate targeted measures are not taken by the government in collaboration with local communities, with the timely support of other partners, most of the resources of the coastal areas will be extinct and the environment degraded forever. It was in this vein that the government of Cameroon, through a consultative process, adopted an integrated management plan for the management of the Kribi-Campo coastal area ecosystem. This plan while being a concerted shared vision (with eight components) highlighted the specific problems to be addressed, which needed the financial and technical support of the international community for the implementation of the activities therein – thus the rationale for the present Roundtable. He concluded by thanking all the partners present and hoped that others who had been invited and could not be present, will be able to send in their inputs, especially through the enclosed forms which had earlier on been distributed. The speech of the MINEP SG on the official Opening of the Roundtable is contained in Annex VIII. The official opening ceremony ended with a group photograph of participants and a coffee break.

#### **7.4.3.2. *Contents of Roundtable Discussions:***

The Roundtable discussions resumed at 11 am moderated by Mrs Mary Fosi Mbantenkhu, a Consultant. Participants carried out a self-introduction exercise indication the organisations/administrations they represented. Two keynote presentations were made by Mr. Mboufack Collins (GCLME National Project Assistant ) and Dr. Jean Folack (lead Consultant from ENVI-REP Cameroon), the Organization which elaborated the draft document. These two presentations highlighted the historical context of the ICAM Planning in relationship to the GCLME and the Abidjan Conventions as well as the process through which the strategy was adopted. The participatory and ecosystem approach guided the consultations and the production of the outcomes which were encapsulated within 08 components of the Plan.

The activities to be implemented within the Plan were to be financed in terms of micro-projects and priority actions for the well-being of the local populations, taking into account the attainment of the millennium development goals (MDGs). The historical setting traced the concept of coastal and marine protection from the Rio Earth Summit and precisely Agenda 21 (chapter 17) and the Convention on Biological Diversity adopted during that Summit and the World Summit on Sustainable Development of 2002 in Johannesburg. At the national level, reference was made to the National Environment Management Plan (NEMP)(1996) and the framework Law on the environment (1996) which all identified the protection of coastal and marine ecosystems as a priority. Several programmes had been undertaken

both at the national and regional levels (GC-LME). The GC-LME Project places primary focus on the priority problems and issues identified by the 16 GC-LME countries that have led to unsustainable fisheries and use of other marine resources, as well as the degradation of marine and coastal ecosystems by human activities.

The United Nations system had been fully involved in the process coordinated by UNIDO with the financial support of the Global Environment Facility (GEF) within the core area of International waters. The adoption of an integrated management plan for coastal areas had as objective to manage in an efficient manner through a global and concerted vision, the dwindling natural living resources of the coastal area of Kribi-Campo coastal and marine zone. The major challenges faced in this area are the serious environmental and economic threats caused by over exploitation of fishery resources, pollution and impacts of demographic pressure. The Plan focused on improving on the living conditions of the populations of these areas, protecting the environment, thus ensuring sustainable development.

The presenters recalled that after the Douala meeting which brought together various donors on the financing of the SAP of the whole Coastal and marine ecosystem of GC-LME in general, the Yaoundé meeting followed suit and focused on the financing of the ICAM Kribi-Campo in particular because of the high level of concentration of economic activities and pressure caused by the high population density in the area. The Yaounde Roundtable brought together various partners involved in this important ecosystem to indicate their respective interests and allocated resources for the funding of micro-projects proposed and priority activities of the 8 components of the ICAM Plan. After the presentations, a question and answer session followed which enabled the partners present to seek clarification on some of the components of the document (which had earlier been distributed a week prior to the meeting).

#### **7.4.3.3. *Partners engagement***

The third and last session of the Roundtable dealt with the engagements taken by the participating partners who expressed their organizations' preference in terms of the priority areas in the Integrated Coastal Area Management and protection of the Kribi-Campo. Each Organisation's commitments were contained in filled forms (provided by the Lead Consultant) and the summary verbally presented during the Roundtable. The original forms filled by each partner are summarized in Annex IX entitled "Donors' Interest Areas". Table 39 summarizes the areas of interest as indicated by each partner.

#### **7.4.3.4. *Recommendations:***

**The following recommendations were made by the partners at the Roundtable:**

- i) Micro projects which are funded or which need additional funding for completion should make a request to UNDP Yaoundé for the small grant programme
- ii) The MEAO Management Plan of the Ocean Division should take in consideration characteristics of Zoning of the Kribi-Campo area ICAM Plan

#### **7.4.3.5. Closing Ceremony**

While closing the Event, Director Essou of the Ministry of the Environment and Nature Protection congratulated the participants for the high level of their inputs which was a clear illustration of the keen interest attached by various sectors on the ICAM of Cameroon in general and Kribi-Campo in particular. He invited those organisations which had not yet expressed their interests to do so before the end of the current week so as to enable the coordinating Administration to wrap up this vital process and ensure implementation of the Plan. He hailed the long standing spirit of collaboration and cooperation existing between MINEP, the other Administrations and Partner Organisations which bore such resounding results like the engagements currently undertaken towards implementing the Plan. He wished participants a safe journey back to their respective destinations.

A launch offered by ENVIREP at 2.30 pm in honour of the participants served as a part of the closing ceremony marking the historical Roundtable on the financing of the projects inscribed within the Kribi Campo ICAM Plan.

**TABLE 39 DONORS' INTEREST AREAS**

Organization/ Institution	Name and function	Address (Tél, Fax, Email)	Domains of interest	Observations
National Hydrocarbons Company (SNH)/ Pipeline Monitoring and Steering Committee (CPSP)	MINKENG Samuel, Chief of Environment Section	P.O.Box 955 Yaoundé Tel: 237 77506474 Email: <a href="mailto:minkengsam@yahoo.fr">minkengsam@yahoo.fr</a>	Management of pollutions from hydrocarbons	
			a)Implementation of the oil spill Contingency Plan	Ongoing
			b)Socio-economic study of fisheries communities along the Cameroon coast (from Bakassi to Campo)	implemented
			c)Elaboration of a monitoring programme of marine waters quality	Ongoing
			d)Elaboration of a programme of mangrove vitality monitoring	Ongoing
			e)Creation of Centres to fight against pollutions from hydrocarbons in Kribi and Limbe	Ongoing
Ministry of Tourism (MINTOUR)	BILACK GARKA Armand Blaise Technical Adviser N°2	Tel : 237 77345228 237 22221295 Email : <a href="mailto:bilackgar@yahoo.fr">bilackgar@yahoo.fr</a>	Management of the tourism sector	
			Governance and capacity building	
			Development of ecotourism in coastal and marine areas	Cost of the project : two million FCFA
IUCN	REMI JIAGHO Programme Assistant	Tel: 237 99 760659 Email: <a href="mailto:remi.jiagho@iucn.org">remi.jiagho@iucn.org</a>	Management of Mangrove, coastal forest and wildlife	Initiatives in perspective to be implemented by IUCN
			Coastal development planning and land use	
Kribi Urban Council	HAPI de Nguimba Representing the Government Delegate of the Kribi Urban Council	Tel: 237 96660241 Email: <a href="mailto:denguimba@gmail.com">denguimba@gmail.com</a>	Management of new markets and motor parks	Acquisition of land reserve
			development of social houses in new areas	Acquisition of land reserve
			Drainage plan of Kribi streets	Partnership between Kribi Urban Council and UNDP
			Preparation of management plans of undesirable quarters	Reorganization of roads from the council budget
Ministry of Economy Planification and Territorial Development (MINEPAT)	LIBAM Dieudonné Christian Chief of Service	Tel: 237 77787249 Email: <a href="mailto:libamchristian@yahoo.fr">libamchristian@yahoo.fr</a>	Coastal Development, Planification and Land Use	
			Management of natural risks in the Kribi-Campo area	
			Creation of a unit for the manufacturing of fishing materials at Londji beach (micro project)	To be financed through UNDP small grant programme
Ministry of Livestock, Fisheries and Animal Husbandry (MINEPIA)	MOUTE Abdoulaye Chargé d'Etudes	Tel:237 99728664 Email: <a href="mailto:moutea@yahoo.fr">moutea@yahoo.fr</a>	Fisheries management	Existing project on fisheries survey financed by World Bank

# CHAPTER VIII

## ELABORATION OF MONITORING AND EVALUATION (ME) INDICATORS

### 8.1. INTRODUCTION AND DEFINITION

#### 8.1.1. Definitions

An indicator is quantitative or qualitative statements that can be used to describe existing situations and measure changes or trends over time. It is a measure or observed parameter that provides information about a system. It is supposed to make certain phenomena perceptible that are not, at least not immediately detectable. This means that an indicator has a significance extending beyond what is directly obtained from observations. Indicators provide an extremely useful way to improve communication, transparency, effectiveness and accountability. They are tools that help make clear assessments of and comparisons between management measures through time. They also can be used to simplify the description of the extent to which the objectives for the management programme are being achieved. Finally, an indicator defines the performance standard that when reached represents achievement of an objective

Effective Monitoring and Evaluation (M & E) is increasingly recognized as an indispensable tool in project or programme management. If done well, an M & E plan and the indicators developed as part of it serve both as a corrective function during the project cycle, enabling timely adjustments, and as a guide to structuring future projects more effectively.

For the Kribi-Campo Area, we built the indicator spreadsheet based on the 7 components of the Integrated Coastal Management Plan which includes the following indicator types:

- i) **Government Indicators** which measure the performance of project components (i.e. status of planning and implementation) as well as the progress and quality of interventions and of the ICZM governance process itself
- ii) **Ecological Indicators** which reflect trends in the state of the environment. They are descriptive in nature if they describe the state of environment in relation to a particular issue (i.e. loss of biodiversity, overfishing). They become performance indicators if they compare actual conditions with targeted ecological conditions

- iii) ***Socio-economic Indicators*** which reflect the state of human component of coastal and marine ecosystems (i.e. economic activity) and are an essential element in the development of ICZM plans. They help measure the extent to which ICZM is successful in managing human pressures in a way that results not only in an improved natural environment, but also in improved quality of life in coastal areas, as well as in sustainable socio-economic benefits

The use of these indicators will reveal the degree to which implementation of ICZM process can be correlated with a more sustainable coast. The indicators measuring progress in achieving sustainable development of the coast will in turn feed back to give policy makers an indication of the need for further action in ICZM

### **8.1.2. The role of indicators in monitoring**

In the GEF context, monitoring is the continuous or periodic process of collecting and analyzing data to measure the performance of a project or activity (GEF, 2002). As an integral and continuing part of the project management, it provides managers and stakeholders with regular feedback on implementation and progress towards the attainment of global environmental objectives. Monitoring enables management to take appropriate corrective action in project design or implementation as the case may be, to achieve desired results. Finally, it can also help to determine whether a project continues to be relevant. Effective monitoring requires:

- Baseline data
- Indicators of performance and related measurements
- Activities such as field visits
- Stakeholder consultations
- Regular reporting
- Feedback mechanism for management decision making

For the Kribi Campo area, the following three types of monitoring indicators are developed.

- Driver/process indicators
- Pressure/Stress indicators
- State/status indicators
- Impact indicators
- Response indicators

### **8.1.3. The role of indicators in evaluation**

Evaluation is a systematic and independent assessment of ongoing or completed projects or programmes, along with their design, implementation and results, which aim to determine the relevance of objectives, development efficiency, effectiveness, impact and sustainability. In practice, evaluation is used by managers to improve their own performance (adaptive management), as well as for reporting (accountability) or as lessons learned to improve future planning. The following types of evaluations are undertaken:

- Interim evaluation during implementation as a first review of process, a projection of likely impact and a mean to identify necessary adjustments to accomplish the indicators established for success
- Mid-term review (MTR) constitutes such an evaluation and adjustment tool
- Terminal evaluations are conducted at the end of the project cycle; they determine project impacts, sustainability of the impacts and contributions to global environmental benefits and the trans-boundary water improvements in the GEF context

Information on which evaluation is based could come from many sources, but monitoring (observation) has a particularly important contribution in providing the basic data that should underpin the evaluation. In this regard, indicators provide a useful tool to identify, prioritize and quantify objectives, monitor their achievement, evaluate the programme and ultimately adjust it.

### **8.1.4. Characteristics of good indicators**

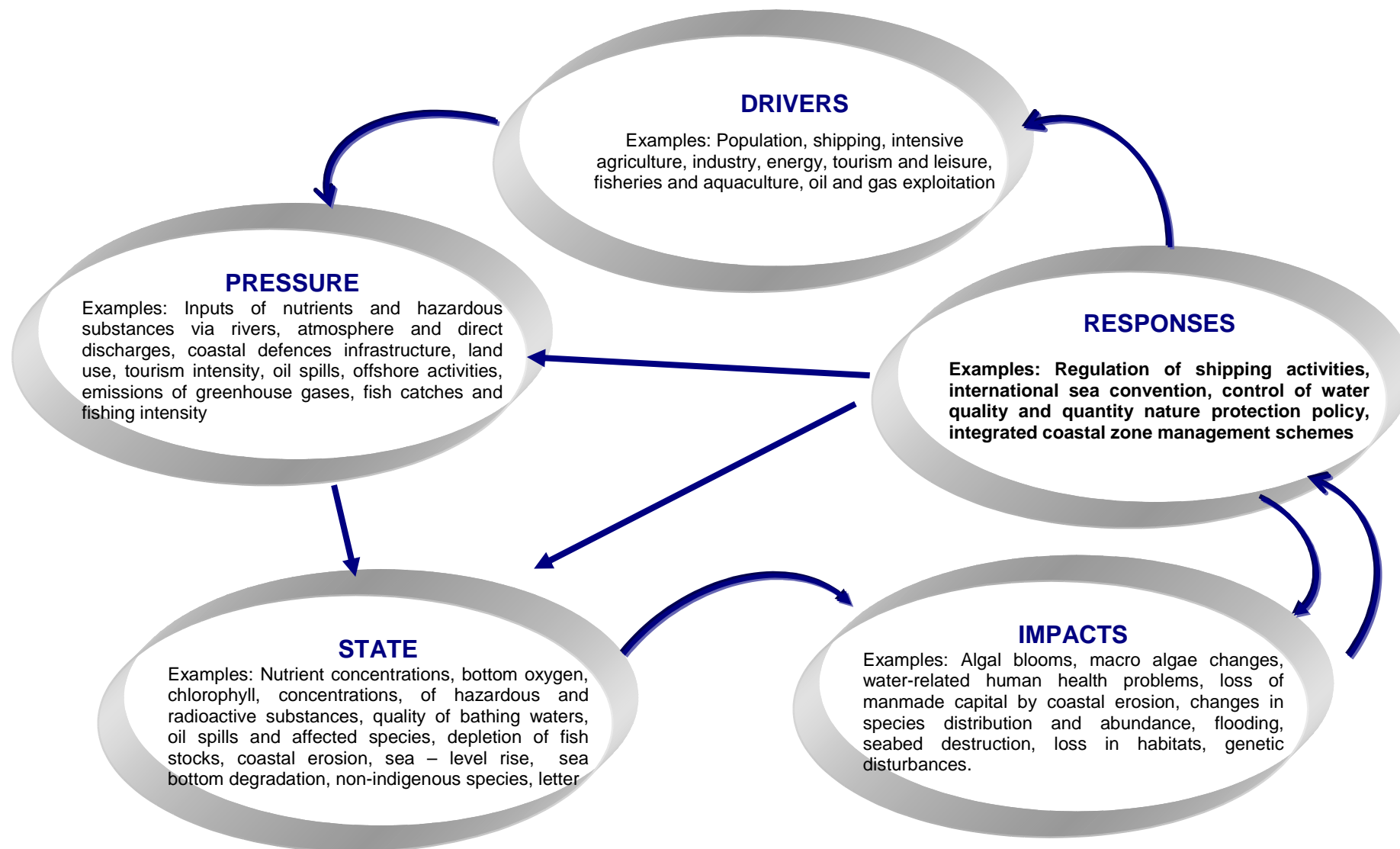
From the scientific purpose effective indicators should have the following characteristics:

- i) Readily measurable: on the time scale need to support management, using existing instruments, monitoring programmes and available analytical tools. They should have a well established confidence limit, and their signal should be distinguishable from background noise
- ii) Cost effective: indicators should be cost-effective since monitoring resources are usually limited
- iii) Concrete: indicators that are directly observable and measurable (rather than those reflecting abstract properties) are desirable because they are more readily interpretable and accepted by diverse stakeholders groups
- iv) Interpretable: indicators should reflect properties of concern to stakeholders ; their meaning should be understood by as wide a range of stakeholders as possible

- v) Ground on scientific theory: indicators should be based on well-accepted scientific theory, rather than on inadequately defined or poorly validated theoretical links
- vi) Sensitive: indicators should to changes in the properties being monitored (e.g., able to detect trends in the properties or impacts);
- vii) Responsive: indicators should be able to measure the effects of management actions so as to provide rapid and reliable feedback on the consequences of management actions;
- viii) Specific: indicators should respond to the properties they are intended to measure rather than to other factors, i.e., it should be possible to distinguish the effects of other factors from the observed responses

#### **8.1.5. Frameworks for evaluating ICZM Programmes/projects**

Among the frameworks often used for monitoring/evaluating ICZM programmes is the Driver-Pressure-State-Impact-Response (DPSIR) as illustrated in Figure 8 (EEA,1998), DSR (United Nations and World Bank, 2001) or PSR (OECD, 1993) frameworks and associated indicators. For the Kribi Campo area DPSIR approach will be used to analyse linkages among socio-economic trends, ecological phenomena and governance/institutional responses; for example an environmental indicator can be measure by a socio-economic parameter e.g. sea level rise as indicator can be measured by a socio-economic parameter such as economic value of loss from sea level rise impacts. About 74 indicators have been identified for monitoring and evaluation of the Integrated Coastal Management (ICM) of the Kribi Campo Area in Cameroon and are classed in three types in table 40: Governance indicators (G), ecological or environmental indicators (E) and socio-economic indicators (SE).



**FIGURE 8: EXAMPLE OF DPSIR FRAMEWORK APPLIED TO THE MARINE ENVIRONMENT (EEA, 2000)**

**TABLE 40. INDICATORS SPREAD SHEET FOR THE ICZM OF THE KRIBI-CAMPO AREA IN CAMEROON**

(D=Drivers; P=Pressure; S=State; I=Impacts; R= Response); G=Governance indicator; E=ecological or environmental indicator and SE=socio-economic indicators

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
FISHERIES RESOURCES MANAGEMENT									
A1. Contribute to achieving a lasting balance between fisheries resources and their exploitation	E1	Stock and fish landing	State of the main fish stocks by species and landing site						- Monitoring - Sampling
			Landing and fish mortality by species						Monitoring - Sampling
			Recruitment and spawning stock biomass per species						-Field collection
			Statistic data on catches and efforts						-Field collection
			Determination of MSY						-Field collection and analysis
			Value of landing by species						-Field collection and analysis
	E2	Gear restriction	Number of surveys on fishing gear per year						-Surveys
			Fish size mesh size limits of target species						-Field surveys
			Number of BRD and TED implemented per year						-Interviews - Surveys
	E3	Use of quota	Number of groups quota created per year and per fishing type						-Interviews - Surveys
			Level of control on quota application						-Interviews - Surveys
	E4	Fishing closing area or season	Identification of sensitive areas						Field surveys
			Identification of closing seasons						Field surveys
			Recruitment for target species						Field collection and analysis
			Number of monitoring and control teams per year and per fishing area						-Surveys -Interviews -Documents review
	E5	Access to the resource	Level of licensing per year and per type of fishing						-Surveys -Documents review
			Application of TURFs						-Surveys -Documents review
	E6	Monitoring, Control and Surveillance (MCS)	Number of staff working effectively in MCS per year						-Surveys -Documents review -Interviews
			Level of satellite based vessels operational						-Field observations

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
									-Documents review -Interviews
	G7	Regulation	Existing of closed area and closed season						- Interviews - Surveys - Documents review
A2. To improve on technical conditions of fish processing and marketing	SE8	Processing and Marketing	Number of existing and new processing and marketing						Interviews - Surveys - Documents review
	E9	Packaging	Level of application of improved packaging and storage						Interviews - Surveys - Documents review
	G10	Fish technology processing and handle	Level of training on fish handle						Interviews - Surveys - Documents review
			Level of vulgarisation of improve technology on fish processing or handle						-Interviews - Surveys - Documents review
COASTAL DEVELOPMENT AND LAND USE PLANNING									
B1.To promote the biodiversity, vitality and long term viability of coastal economies giving preference to these that are endemic to the coast	SE11	Total economic value	Exploitation of resources (living and non living)						-Document review
			Non consumption uses (shipping, tourism and ecotourism)						-Databases -Interviews
			Management and administration costs						-Surveys
	SE12	Pattern of sectoral employment	Full time, partial time or seasonal employment time per sector						-Document review -Databases
			Value added per sector						-Document review -Surveys
B2.To alleviate coastal poverty through proactive development initiatives that generate sustainable livelihood options	SE13	Coastal opportunities	Number of opportunities						Surveys
			Increase in employment opportunities						
	G14	Coastal planning	Level of integration of coastal planning efforts into existing local planning and development framework						-Document review -Surveys -Interviews
	SE15	Level of social cohesion	Social exclusion index per zone						Document review -Surveys
	SE16	Household prosperity	Increase in average household income						-Data bases
			Percentage of the population with higher education						-Interviews
			Ratio of first to second and holiday homes						
	E17	Loss of cultural diversity	Number and value of local products carrying local label						-Document review -Surveys

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
B3.To maintain an appropriate balance between built, rural and wilderness coastal areas	E18	Efficient management of designated sites	Rate of losses or damages on protected areas						-Data bases -Interviews
	SE19	Legal protected areas	Protected areas for conservation of nature, landscape						
	E20	Aesthetic, amenity, cultural and ecological value	Mechanisms to prevent negative impact						
			Mechanism to reward property owners who respect visual beauty						
			Percentage of landscape maintain as asset						
	SE21	Demand for property on the coast	Size density and proportion of the population living on the coast						Field surveys -Document review -Databases -Interviews
			Value of the residential property						
	E22	Area of built up land	Percentage of built up land by distance from the coastline						
	SE23	Rate of development of previously undeveloped land	Area converted from non developed to developed land uses						
	SE24	Land taken up by intense agriculture	Proportion of agriculture land farmed intensively						
	E25	Pressure for coastal and marine recreation	Number of berths and moorings for recreational boating						
B4. To design and manage coastal settlements to be in harmony with local aesthetic, amenity, biophysical and cultural opportunities and constraints	SE26	Naturels, human and economic assets at risk	Number of persons living in risk areas						-Field surveys -Document review -Databases -Interviews
			Protected spaces located at risk zones						
			Value of economic assets located at risk zones						
	E27	Protection of coastal heritage sites and resources	Number and type of cultural heritage resources						-Cultural heritage registers -aerial surveys -Field work
			Number cultural heritage sites						
			Percentage of cultural heritage sites or resources protected						
			Use of cultural heritage resources						
	E28	Amount of semi natural habitat	Area of semi natural habitat						-Surveys -Document review
	E29	Area of land and sea protected by statutory designation	Area protected for nature conservation, landscape and heritage						
	E30	Effective management of designated sites	Rate of loss of or damage to protected areas						-Surveys -Document review
	E31	Change in significant coastal and marine habitats and species	Status and trend of specified habitats and species						-Surveys -Document review -Field works
			Number of species per habitat type						
			Number of Red List coastal area species						

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques		
				D	P	S	I	R			
POLLUTION CONTROL AND WASTE MANAGEMENT											
C1.To implement pollution control and waste management measures in order to prevent, minimize and control harmful discharges into the coastal environment	E32	Quality of coastal waste	Volume of waste per surface unit of the coast						-Monitoring programmes -Surveys		
	E33	Quality of marine waste	Volume of waste per ship								
	E34	Quality of coastal waters	Eutrophication parameters								
			Pollutants and contaminants								
	E35	Production of domestic waste	Volume of domestic waste per household								
	E36	Uncontrolled landfill	Number of uncontrolled landfill								
E37	Amount of coastal and marine litter	Volume of litter collected per given length of shoreline									
C2.To manage polluting activities to ensure that they have minimal adverse impact on the health of coastal communities and coastal environment	E38	Quality of bathing waters	Percentage of bathing waters conform to standard						-Monitoring programmes -Document review -Surveys -Field works -Laboratory analysis		
	E39	Diseases and illness	Faecal coliform counts								
			Days of beach closure								
			Extend of contaminated species								
			Extend of contaminated water								
			Seafood vectored illnesses								
	E40	Pollutant and introduction	Percentage of population served by waste water treatment						-Monitoring programmes -Document review -Surveys -Databases -Intervieww		
			Volume, number and type of point source discharges								
			Non point source nutrient loading(e.g. fertilizer use)								
			Discharged nutrients and sediment								
			Quantity of litter and debris per surface unit of beach								
	E41	Emission of greenhouse gas	Volume of greenhouse gas per year						-Monitoring programmes -Interviews -Surveys		
			E42	Level of hydrocarbon pollution	Number and volume of accidental oil spills						
					Number of observed oil slicks						
			E43	Concentration of nutrient in coastal waters	Riverine and land inputs of nitrogen and phosphorus in inshore waters						

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
D.MANAGEMENT OF MANGROVE, COASTAL FOREST AND WILDLIFE									
D1. To ensure the sustainable management and conservation of mangrove, coastal forest resources and wildlife	E44	Rate of mangrove degradation	Area degraded per year						-Monitoring programmes -Document review -Databases -Interviews -Surveys -Field work
	E45	Rate of forest degradation	Area cleared per year						
	E46	Rate of mangrove or forest regeneration	Area generated per year						
	E47	Clearing of forest for cropland	Area cleared per year and per household						
	E48	Forest biomass exploitation	Volume of timber extracted per year						
	E49	Forest vegetation cover	Surface area cover with forest						
	E50	Rate of forest fragmentation	Density of roads in the forest						-Document review -Field surveys
	E51	Contribution of wildlife as source of protein	Percentage of animals captured						-monitoring programmes -Field surveys
			Number of animals captured per hunter and per week						Monitoring programmes -Field surveys -Interviews
	E52	Protected area and level of control	Number of protected areas						-Monitoring programmes
			Number of game guards per protected areas						-Field surveys -Document review
	G53	Reform in legislation	Number of laws and regulations enacted per year						
E.TOURISM MANAGEMENT									
E1.To ensure sustainable tourism management in order to increase income from tourism activities by developing appropriate tourism infrastructure and actions in an ecological sensitive and financially viable manner	SE54	Intensity of tourism	Number of overnight stays in tourist accommodation						-Document review -Databases
			Income from coastal tourism						-Interviews
			Occupancy rate of bed places						-Surveys
	SE55	Rate of tourism facilities developed	Proportion of beds						Document review
			Number of hotels and restaurants						-Databases -Interviews -Surveys
	SE56	Sustainable tourism	Number of ecotourism accommodations						-Document review
			Number of overnight stays to number of residents						-Databases
			Number of ecotourism sites created						-Interviews -Surveys

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
F. NATURAL AND RISK MANAGEMENT									
F1.To plan and manage coastal development so as to avoid increasing the incidence and severity of natural hazards and to avoid exposure of people, property and economic activities to significant risk from coastal dynamic processes	SE57	Human pressure on habitat	Land use: land cover patterns and composition						-Monitoring programmes -Document review -Databases -Interviews
			Population density						
			High impact fishing gear/practices						
			Dumping and dredged material						
			Volume of economic assets within an at “risk” zone						
	E58	Erosion and sedimentation	Number of people living within an at “risk “ zone						-Monitoring programmes -Document review - Field surveys
			Length of the coast developed						
			Length of the coast submitted to erosion						
			Rate of erosion or sedimentation						
			Area and volume of sediments						
	E59	Sea level rise, Weather and disaster	Number of days of extreme events						-Monitoring programmes -Databases -Data analysis -Field observation -Surveys -Document review
			Rise of sea level relative to land						
			Economic value of loss from marine weather related events						
			Lives lost from weather and marine disasters						
			Length of protected and defended coastline						
	SE60	Population dynamics	Degree of public access						-Document review -Databases -Surveys
			Marine attachment						
			Resident and total population						
G.GOVERNANCE AND CAPACITY BUILDING									
G1. To ensure meaningful public participation and promote partnerships between government, private sector and civil society in order to foster co-responsibility in coastal zone	G61	Stakeholder participation	Level of stakeholder participation						-Interviews -Surveys -Document review
			Level of stakeholder satisfaction with participation and with ICZM outcomes						
	G62	NGO and CBO activity	Existence and characteristics of NGOs and community organizations active in ICZM						-Document review -Interviews
			Level of activity of NGOs and community organizations active in ICZM						
	G63	Conflict resolution mechanism	Agreed procedures and mechanisms for conflict resolution						-Document and record review -Interviews -Surveys
			Changes in the proportion of conflicts successfully mitigated, resolved or prevented						
			Overall change in the number of conflicts						

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
G2. To promote public awareness about the coast and educate and train coastal stakeholders to ensure more effective coastal planning and management	G64	Education and training	Education and training programmes incorporating ICZM						-Document review -Databases -Interviews -Surveys
			People having completed educational and training programmes in ICZM						
			Employment of people with education and training in ICZM						
	G65	Technology	Availability of ICZM enabling and supporting technology at an acceptable cost						
			Level of coordination of ICZM enabling and supporting technology						
G3. To promote a cooperative, coordinated and integrated coastal planning and management approach	G66	Coordinating mechanism	Existence and functioning of a coordinating mechanism for ICZM						-Document review (e.g. meeting records) -Interviews with ICZM managers and members
			Outcomes of the coordination process						
	G67	Active management	Level of implementation of ICZM plans, actions and projects, including infrastructure building						Document review -Interviews -Surveys
			Procedures, legal tools and monitoring and sanctioning applied for enforcement of ICZM						
	G68	Economic instruments	Availability of economic instruments, including environmental quality certifications, in conjunction with regulatory instruments						-Document review -Databases -Interviews -Surveys
			Level of implementation and enforcement of economic instruments						
	G69	Legislation	Existence of legislation on coastal and marine resources						-Document review -Interviews with ICZM managers and other experts -Surveys
			Adequacy of the ICZM legislation						
	G4. To conduct coastal planning and management activities in manner that promotes learning through continuous research, monitoring, review and adaptation	G70	Traditional knowledge, innovations and practices	Status and trends in linguistic diversity and speakers of indigenous languages					
Recognition/existence of traditional land and water tenure of indigenous and local communities									
Land and waters co-management by indigenous and local communities									
Trends in establishment and effective implementation of favourable government policies and programmes to preserve traditional knowledge, innovations and practices									
Access to traditional coastal and marine resources rights									

Goals	Code	Indicator	Measurement	Types of focus					Collection techniques
				D	P	S	I	R	
	G71	Inputs from scientific research	Trends in the manifestation of traditional knowledge						-Document review -Interviews
			Existence of research and scientific publications						
			Completion of a diagnostic assessment that identifies root causes of coastal degradation and establishes priority for interventions						
			Existence and dissemination of a state of the coast report						
			Existence of functioning of a science advisory body						
			Media events related to coastal issues						
			Existence and operation of routine monitoring of the environment						
	G72	Monitoring and evaluation	diagnostic assessment into ICZM						Document and record review
			Existence of an operational monitoring and evaluation system with related indicators						
			Consideration of results in ICZM initiatives						
G5. To fulfil international and trans-boundary responsibilities	G73	International conventions, agreements and protocols	Adjustments made to ICZM initiatives						-Document review -Surveys
			Level of ratification of international regulations						
			Number of national acts related to international regulations						
	G74	Relationship with Equatorial Guinea	Rate of country participation to conference of party (COP)						-Document review -Surveys
			Rate of bilateral meetings						
			Level of implication in joint projects on coastal management						
			Number of joint projects elaborated on coastal zone issues						

## **8.2. WAY FORWARD**

The Integrated Coastal Area Management is a dynamic and participative process, then needed to be regularly updated .This project serves as sample for the entire countries of the GCLME region and will help to apply good practices in term of sustainable coastal management. The project should be replicated in other areas within the GCLME countries; it will help to built second generation of Projects /programmes in the GCLME region

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