

## **TANZANIA ANNEX IV. AREAS OF CONCERN**

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### **2. BIOPHYSICAL ENVIRONMENT**

#### **2.2 General description of the climate**

- Environmental variability and unpredictability particularly flooding and storm events

#### **2.3 Marine and coastal geology and geomorphology**

- The ecological and socio-economic impacts due to the problem of coastal erosion are increasingly becoming issues of major concern.
- Poor management of the shores due to lack of understanding of causative factors of the problem of coastal erosion and sustainable shore mitigation solutions
- Low density of hydrocarbon exploration drilling wells

#### **2.4 Fresh water resources and drainage, including rivers, estuaries, deltas and coastal lakes**

- Coastal environmental impacts due to increasing water abstraction through upstream irrigation and hydropower developments as well as the increasing degradation of the catchments due to landuse changes and livestock keeping.
- There is a general lack of information regarding the pattern of climate change.

#### **2.5 Physical Oceanography**

##### **2.5.1 Currents**

- Cyclonic eddies such as those which have been observed at the small island of Latham may be hazardous to fishers and navigators.

##### **2.5.2 Tidal regime and waves**

- Coastal erosion
- Storm surges
- Flooding
- Extreme waves
- Tsunamis

##### **2.5.3 Sea level change**

- Increase in shoreline erosion
- Inundation and displacement of wetlands and lowlands
- Increased vulnerability to coastal storm damage and flooding
- Saltwater intrusion into estuaries and freshwater aquifers
- Altered tidal ranges in rivers and bays
- Changes in sedimentation patterns
- Decreased light penetration to benthic organisms
- Increase in the heights of waves

##### **2.5.4 Ocean temperature**

- Coral bleaching

- Fish kills
- Loss of colour, and hence value in seaweeds

### **2.5.5 Salinity patterns**

- Salinity intrusion

### **2.5.6 Ocean-atmosphere interaction**

- Extreme events
- Ocean acidification
- Data availability

## **2.6 Chemical and Biological Oceanography**

### **2.6.1 Nutrients**

- Sewage pollution including microbial loads
- Untreated industrial effluents
- Agricultural run-off and organic wastes

### **2.6.2 Persistent organic / inorganic pollutants**

- Agrochemicals (pesticides, herbicides, insecticides)
- PCBs
- Heavy metals pollution
- Oil and gas industry

### **2.6.3 Primary production**

- dead zones
- harmful algal blooms (HABs)
- ocean acidification

### **2.6.4 Secondary production**

- trophic relationships

## **2.7 Coastal zone and Continental Shelf**

### **2.7.1 Description and extent of coastal and marine habitats**

- Coral bleaching
- Destructive fishing methods including dynamite fishing, IUU fishing, trawling, seine netting and over-fishing
- Coral mining
- Shell collection
- Wave action
- Seagrass clearing
- Urban expansion
- Boat anchoring

### **2.7.2 Productivity of the Coastal zone**

- Over harvesting,
- Unsustainable mangrove harvesting

- Pollution
- Sedimentation
- Ecosystem health
- Mangrove clearance for agriculture
- Construction of salt pans and coastal development.

## **2.8 Microfauna and meiofauna**

- Dead Zones
- Harmful algal blooms (red tide)
- Heavy and organic metal pollution
- Water level fluctuations (which may determine the diversity and abundance of micro- and meiofauna)
- Global warming (which may bring about the effect of temperature on the well being of micro- and meiofauna)
- Dredging (which will cause burial of resident fauna –predominant effect. The fate of buried fauna is important in terms of possible recolonisation of a beneficial use of site)
- Habitat instability arising from e.g., intense salinity fluctuations, infrequent tidal cover and water stress
- Physico-chemical parameters: vertical pH changes, vertical decreases in oxygen, vertical decreases in interstitial water content, vertical differences in organic matter
- Heavy storm surges, tsunamis, flooding, extreme waves
- Erosion, siltation and sedimentation
- Habitat destruction
- Acidification

## **2.9 Macrofauna (state of biological knowledge)**

### **2.9.1 Invertebrates**

- There has been unsustainable harvesting of prawns. The major causes have been pressures in the context of open access harvesting and inadequate management techniques of these species.
- Most of the available data are from the industrial sector of the prawn fishery leaving out substantial quantities exploited by the small-scale operators in the fishery, underestimating the true catches and making management decisions more difficult.
- Unsustainable harvest of the lobster. The root causes have been pressures in the context of open access harvest for commercial artisanal species, as well as that the biology, sustainable off-take and management techniques of these species are inadequately understood and monitored.
- The growth of the lobster fishing industry in Tanzania is considered to be at its upper limit as the resource is fully exploited as substantiated by the South West Indian Ocean Fisheries Commission (SWIOFC) and is likely that it is overexploited. Field observations show that lobster sizes are on the decrease.
- Production and export data have revealed that catches of octopus are in decline which is attributed to overfishing stimulated by high prices of octopus in international markets
- Uncontrollable fishing effort. Octopus is a near-shore resource assemblage that is largely sedentary and therefore easy to catch especially during low tides.
- Destruction of breeding areas due to destructive fishing practices especially dynamiting of the corals.
- Unregulated fishing season in all but Marine Park areas, as harvesting takes place throughout the year with no time spared for breeding and recovery.

- The octopus fishery is mainly artisanal and landing sites are numerous, and as a result, direct monitoring of octopus catches and enforcement of many types of fishing rules is impractical.
- Currently, there is no management plan for the octopus fishery in Tanzania although there was a proposal in the review of the Fisheries Regulation (2005) to impose restrictions on allowable size, banning the fishing of undersized octopus (below 500 grams) in all Tanzanian marine water. However, the challenge is that the minimum size management measure does not guarantee the protection of octopus recruitment and the survival of an adequate number of breeding adults at the end of each fishing season. There is also no management plan to include the monitoring of landings by biologists and managers.
- There is an increase in knowledge especially in control and protection of coral reefs/breeding areas by villagers. The principles and ethics of co-management are well understood among the coastal fishing communities especially in Tanga and Mafia. The challenge is the reluctance of some fisher groups to accept the concept of fisheries co-management.
- The status of squids and cuttlefish is poorly known.
- The fisheries regulations vary between Mainland Tanzania and Zanzibar; for example, a ban prohibiting sea cucumber fishing was implemented in September 2006 on Mainland Tanzania but not on Zanzibar. The impacts of such regulations on the fishery are difficult to assess due to the lack of adequate monitoring of the catch during the period the ban is in force.
- Cross border transfers of sea cucumber from Tanga to Vanga in Kenya and from Mozambique to Mtwara in Tanzania complicate the export statistics. The need for generating up-to-date information on the status of the resources cannot be overemphasized.
- Over-harvesting; most of the curio shells are rare and threatened species
- Habitat destruction

### **2.9.2 Fish and fish resources**

- There is an increasing fishing pressure on the commercial fish stocks leading to species loss, reduced productivity and threatened ecosystem integrity. Despite the existing system of fisheries management through a licensing scheme, maximum catch is not regulated.
- The most productive fishing grounds; coral reefs, sea-grass beds and reef flats, experience very heavy fishing pressure and show signs of over-exploitation.
- Dynamite fishing has degraded much of the coral reef environment
- The operation of seine nets on the beaches or in open water around patch reefs damages the reefs and provides a catch consisting mainly of immature fish thus threatening the sustainability of the marine resources.

### **2.9.3 Mammals**

- There have been reported incidences of unexpected Dolphin deaths in Zanzibar. The cause(s) of the deaths is/are yet to be established.
- Dugong is one of the most endangered species on the African continent and is on the IUCN Red list (IUCN 2000). It is almost extinct in Tanzania, threatened by degradation of its main habitat; sea grass beds and killed for its meat and oil.
- The main threats to dugongs in Tanzania are accidental capture in gillnets, seagrass damage from trawlers and seine nets, disturbance from boat traffic, dynamite fishing and offshore gas and oil extraction activities, and coastal development

#### **2.9.4 Reptiles**

- Some of the most important causes of turtle mortality in Tanzania include artisanal or subsistence fishing using gillnets, incidental capture by prawn trawls, coastal development (particularly due to the increase in tourism), human disturbances and light pollution on nesting beaches (by tourists, seasonal fisher camps), pollution (including sewage, chemical pollutants, plastic and macro debris) and egg collection and hunting of nesting and foraging turtles.
- Although Tanzania has 11 coastal protected areas and legislation in place that provides protection to turtles, poor law enforcement is hampering the effective protection of sea turtles.
- Crocodiles are considered to be not friendly by people inhabiting in crocodile areas and hence do not win sympathy for their conservation.

#### **2.9.5 Birds**

- Loss of bird habitats emanating from unsustainable human activities threatens the existence of the Tanzanian avifauna.
- The Indian crow is known to be feeding ferociously on eggs of other bird species thus threatening indigenous populations and their continued existence.

#### **2.9.6 Exotic and Invasive Species**

- The existing National Fisheries Policy Statements does not explicitly address Invasive Species. They only implicitly addressed in the strategies for Coastal Area Management as follows: Promote multidisciplinary research in support of coastal area management in particular on its environmental, biological economic, social, legal and institutional aspects.” and “Promote the creation of awareness of the need for protection and management of coastal resources and the participation in the management process by those affected.”

### **2.10 Long term predicted atmospheric changes**

- Lack of knowledge
- Poor models
- Data availability (expensive to collect)

## **3. HUMAN ENVIRONMENT**

### **3.1 Coastal and island populations – current status and trends**

- Pollution
- Accessibility (hospitals, markets) - lack of infrastructure (see infrastructure section)
- Population pressure
- Resource degradation
- Increased unplanned settlement
- Crime

### **3.2 Sites of religious or cultural significance**

- Accessibility
- Cultural erosion through loss of appreciation of the importance of cultural sites, social and cultural interaction
- Physical erosion of culturally important sites
- Economic pressures

### 3.3 Human health

- Malnutrition
- Education – literacy levels
- Disease
- Access to potable water
- Access to health services

### 3.4 Infrastructure

- Lack of investment / poor maintenance
- Level of education
- Deforestation
- Pollution

## 4. COASTAL LIVELIHOODS

### 4.1 Small-Scale Fisheries

<p><b>Strengths</b></p> <p><b><u>Fisheries Resources</u></b></p> <ul style="list-style-type: none"> <li>• Fish as a source of food</li> <li>• Managed by co-management</li> </ul> <p><b><u>Fishing</u></b></p> <ul style="list-style-type: none"> <li>• Presence of resident fishers</li> <li>• High demand for fish</li> <li>• Catch Assessment survey (monitoring)</li> </ul> <p><b><u>Social Aspects</u></b></p> <ul style="list-style-type: none"> <li>• Introduction of Beach Management Units</li> <li>• Infrastructure development – construction of modern landing sites</li> </ul> <p><b><u>Financial Services</u></b></p> <ul style="list-style-type: none"> <li>• Only MACEMP and WWF involved in the supply of micro finance services such as saving and credit to the fishing communities</li> <li>• Existence of development finance institutions operating in relation to fisheries (TASAF, etc)</li> </ul>	<p><b>Weaknesses</b></p> <p><b><u>Fisheries Resources</u></b></p> <ul style="list-style-type: none"> <li>• Open access fishery</li> <li>• Illegal fishing practices and lack of knowledge on their effects</li> <li>• Poor involvement in planning and implementation of issues related to fisheries management at local levels</li> </ul> <p><b><u>Fishing</u></b></p> <ul style="list-style-type: none"> <li>• Lack of reliable credit facilities</li> <li>• Fishing efforts concentrated in critical habitats</li> <li>• Artisanal fleet characteristics inadequate to the open sea/offshore fishing (EEZ)</li> <li>• Weak fishing and processing modern technologies</li> <li>• Lack of fishers organization/association</li> <li>• Inadequate assistance from the government</li> <li>• High taxes (export license, royalty)</li> <li>• Inexistence of support infrastructures to the commercialization</li> <li>• Illegal fishing and the use of dynamite fishing</li> </ul> <p><b><u>Social Aspects</u></b></p> <ul style="list-style-type: none"> <li>• Strengthening of BMU's in fishing communities</li> <li>• Fishing is heritage by family level</li> <li>• In capacity for solving conflicts in connection with new and more aggressive developments</li> <li>• Inaccessible /Incapacity to lead with the required conditions to saving and credits</li> </ul>
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<p><b><u>Processing Industry</u></b></p> <ul style="list-style-type: none"> <li>Existence of valuable fishing resources (fin fish, prawns, lobsters, crabs and shrimps)</li> </ul> <p><b><u>Policy and Governance</u></b></p> <ul style="list-style-type: none"> <li>Good knowledge of the fisheries sector</li> <li>Good cooperation between institutions</li> <li>Existence of plan and strategies for the fisheries development</li> <li>Existence of Fisheries policy and its Regulations</li> </ul> <p><b><u>Management</u></b></p> <ul style="list-style-type: none"> <li>Management systems in place</li> </ul>	<ul style="list-style-type: none"> <li>Existence of poverty in the fishing communities and poor food security in the surrounding areas</li> </ul> <p><b><u>Financial Services</u></b></p> <ul style="list-style-type: none"> <li>Low number of financial institutions and outreach limited</li> <li>Financial services focused on fish factories, companies etc</li> <li>Complex and limited access to credit facility institutions especially on the artisanal fisheries</li> </ul> <p><b><u>Processing Industry</u></b></p> <ul style="list-style-type: none"> <li>Limited knowledge of good processing practices</li> <li>Lack of innovation to develop value added products</li> <li>Limited capacity to make investments on equipment</li> <li>Limited role in the value chain of fisheries products, particularly those which could be exported with great value added</li> </ul> <p><b><u>Policy and Governance</u></b></p> <ul style="list-style-type: none"> <li>Deficient surveillance</li> <li>Lack of sufficiently detailed and timely statistical information to make possible the definition of even more relevant development plans</li> <li>Insufficient human resources and means</li> <li>Limited surveillance of artisanal fisheries</li> </ul> <p><b><u>Management</u></b></p> <ul style="list-style-type: none"> <li>Insufficient capacity to assess the fisheries resources base and all the fisheries with the greatest economic and social importance</li> <li>Poor functional coordination in the sector, particularly between the fisheries management and development promotion sub-systems, and between these and the policy body</li> </ul>
<p><b>Opportunities</b></p> <p><b><u>Fisheries Resources</u></b></p> <ul style="list-style-type: none"> <li>Availability of biodiversity resources with high commercial value</li> <li>Aquaculture potential</li> </ul>	<p><b>Threats</b></p> <p><b><u>Fisheries Resources</u></b></p> <ul style="list-style-type: none"> <li>Environmental degradation</li> <li>Habitat destruction</li> </ul> <p><b><u>Fishing</u></b></p>

<p><b><u>Fishing</u></b></p> <ul style="list-style-type: none"> <li>• Renewable fisheries resources</li> <li>• Existence of potential market</li> </ul> <ul style="list-style-type: none"> <li>• Favourable policy and legislation to the development of small-scale fisheries</li> <li>• Institutions that work in benefit of the small-scale fisheries (especially of the artisanal fisheries)</li> </ul> <p><b><u>Social Aspects</u></b></p> <ul style="list-style-type: none"> <li>• Favourable policy and legislation to the development of small-scale fisheries</li> </ul> <p><b><u>Processing Industry</u></b></p> <ul style="list-style-type: none"> <li>• Demand for fish products particularly for those with value added</li> </ul> <p><b><u>Policy and Governance</u></b></p> <ul style="list-style-type: none"> <li>• Favourable policy and legislation to the development of small-scale fisheries</li> <li>• Integration on the process of decentralized planning</li> <li>• International partners</li> </ul> <p><b><u>Management</u></b></p> <ul style="list-style-type: none"> <li>• Introduction of co-management</li> </ul>	<ul style="list-style-type: none"> <li>• Use of dynamite in fishing activities</li> <li>• High fishing pressure</li> <li>• Increase of fishing effort</li> <li>• HIV/AIDS prevalence.</li> </ul> <ul style="list-style-type: none"> <li>• Lack of alternative income generating strategies</li> </ul> <p><b><u>Social Aspects</u></b></p> <ul style="list-style-type: none"> <li>• High pressure on the resources (poverty and lack of alternatives)</li> <li>• Variability of the fishing activity</li> <li>• Vulnerability to natural adversities</li> <li>• Vulnerability and high levels of HIV/AIDS</li> </ul> <p><b><u>Processing Industry</u></b></p> <ul style="list-style-type: none"> <li>• Competitiveness with external industries</li> </ul> <p><b><u>Policy and Governance</u></b></p> <ul style="list-style-type: none"> <li>• Dependence on external financing aids</li> </ul> <p><b><u>Management</u></b></p> <ul style="list-style-type: none"> <li>• Insufficient control of access to fishing</li> <li>• Ineffective control of fishing capacity leading to excess fishing effort</li> <li>• Insufficient enforcement</li> </ul>
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## 4.2 Tourism



<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• The coast is near to or within attractive and vibrant cities/towns and villages allowing the areas to benefit from hard and soft infrastructure.</li> <li>• Presence of long coastline of about 800 km, in addition to offshore islands with a myriad of ecosystems ranging from natural sand beaches to flora and fauna.</li> <li>• Presence of Laws and Regulations such as Marine Parks and Reserves Act 29 of 1994, Fisheries Act 7 of 2003 which involve local communities to protect the coastal resources.</li> <li>• Indigenous communities proudly maintain their traditional cultures, contributing to the tourism product</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Low levels of local entrepreneurship and investment in tourism products and services</li> <li>• Low level of tourists due to inadequate and appealing visitor attractions.</li> <li>• Lack of appropriate hotel and restaurant facilities for international clientele</li> <li>• Relatively weak national plans and strategies to diversify tourism products from wildlife based to coastal tourism based</li> <li>• Lack of confidence by the private sector to invest in the area due to poor infrastructure such as access roads to the coastal areas</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Presence of world renowned attractions such as Kilwa Kisiwani and Songo Mnara declared under UNESCO as World Heritage Sites</li> <li>• Infrastructure improvement such as the newly completed power project; in the Lindi and Mtwara coastal towns and the Dar es Salaam – Mtwara Road</li> <li>• Major port and airport development in the pipeline in Mafia which is likely to have tremendous improvement on accessibility</li> <li>• Increasing conservation support from Donors such as World Bank, NORAD, and WWF etc.</li> <li>• Availability of policy documents such as the Integrated Tourism Master Plan supporting the development of coastal tourism in Tanzania</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• The impacts of climate change threatening region's low-lying coastal areas and marine ecosystems, water resources, terrestrial ecosystems and human settlements and coastal infrastructure<sup>i</sup></li> <li>• Urbanization pressures - Increasing populations (human demands often conflict with conservation measures, putting pressure on government conservation efforts</li> <li>• Increased land rush and unplanned tourism development leading to ribbon development and denying local people access to the beach resources</li> <li>• Large-scale erosion, oil pollution, damaged coral reefs, and ruined mangrove swamps, pollution from fertilizers and threats to precious marine animals as the major environmental problems in the region (UNEP, 1981)</li> <li>• Over fishing (pressure from commercial fishing)</li> </ul>

### 4.3 Mariculture

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• High quality seawater</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Extension capacity at the Aquaculture</li> </ul>
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<ul style="list-style-type: none"> <li>• Research support capacity at TAFIRI, IMS and FAST</li> <li>• Aquaculture Division (MLFD) are keen to support the development of the sector</li> <li>• Large areas of intertidal lagoon and mud flats that are suitable for seaweed farming and pond culture respectively</li> <li>• High number of potential candidate species</li> <li>• Presence of established NGOs with mariculture experience</li> <li>• Credible aquaculture development strategy</li> </ul>	<p>Division</p> <ul style="list-style-type: none"> <li>• Absence of fin-fish culture capacity and hatchery facilities</li> <li>• Lack of private sector involvement in the sector (the exception being the prawn and seaweed industries)</li> <li>• Lack of environmental monitoring facilities and procedures</li> <li>• Lack of culture technologies for some potential culture species</li> <li>• Lack of aquafeed production capacity / poor quality farm-made feeds</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Development of species specific guidelines</li> <li>• Development of demonstration projects and improved extension networks</li> <li>• Potential diversification into novel species</li> <li>• Greater NGO involvement</li> <li>• Providing support to develop a sector plan</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Poor environmental management oversight</li> <li>• Potential overexploitation and unsustainable harvesting of juveniles for culture</li> <li>• Governance constraints</li> <li>• Theft and vandalism</li> </ul>

#### 4.4 Agriculture and Forestry

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Subsistence agriculture supporting coastal livelihoods (e.g. crop farming, cashews, coconuts, non-timber forest products/resources such as molluscs supporting food security)</li> <li>• Coastal forests (especially mangroves) providing wide range of useful resources (e.g. fuelwood, timber for charcoal production, boat building and woodcarvings, medicines, bee products etc.)</li> <li>• Some recognition in the literature of the importance of coastal agriculture and forestry in livelihoods of coastal communities (i.e. it is not just all about fishing), but whether or how to support development for subsistence only or more ambitiously is not clear (see Weaknesses)</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Ongoing forest depletion weakening the natural resource base (from timber harvesting and destruction for agriculture as well as soil erosion etc.)</li> <li>• Lack of information on local community resource management structures and strength of local community capacity to sustainably manage agricultural and forestry resources – much emphasis in the literature on fisheries management and participatory management of marine resource with less regard to other vital livelihood resources in coastal areas</li> <li>• Agriculture relatively small-scale in coastal areas so limited opportunities for developing exports, similarly for forestry the main markets for both timber and non-timber forest products likely to remain internal and probably local (e.g. boat-building for local fishing industry, woodcarvings to sell to tourists at beach hotels etc.) with corresponding limited scope for agriculture or forestry to drive development and income generation substantially in the coastal zones, and therefore likely less interest from donors, Government and projects to support these activities if they are deemed likely to remain predominantly subsistence</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Participatory forest management strategies and projects promise more success in sustainable development of these coastal resources, with scope for community involvement and capacity growth which can crossover into improved management of coastal natural resources more generally</li> <li>• Potential for funding for community development and capacity building through World Bank project and WWF EACFE project (see further information in projects list, section 10 below)</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Forest depletion and overall resource degradation requires sound implementation of Government adaptation policies and fulfilment of the PRSP but capacity and funding may not be sufficient to achieve this in a fast enough time scale</li> <li>• Fisheries and marine resources may continue to be prioritised in coastal development efforts, while population growth puts increasing pressure on agricultural and forest resources for subsistence (food)</li> <li>• Impact of ongoing Government land tenure reforms on coastal land resources also not yet clear but could lead to increasing privatisation with detrimental effects on community-accessed resources such as mangrove forests</li> </ul>

#### 4.5 Energy

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Government is committed to energy issues and is willing to develop domestic resources, including oil and gas fields and biofuels</li> <li>• Interest of investors to start projects in Tanzania</li> <li>• Availability of land</li> <li>• Involvement of NGOs and international organisations in coastal zone management</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Unclear petroleum regulation regarding standards</li> <li>• Inconsistent EIA framework</li> <li>• Financial, operational and human resources limitations do not permit adequate management, enforcement and monitoring, particularly at lower levels of Government</li> <li>• Large scale biofuel projects already implemented without clear and consistent framework</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Oil and gas sector development could generate employment</li> <li>• Oil and gas activities are implemented by large companies generally engaged in corporate social responsibility</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Increase in oil operations (drilling, exploitation, transport, processing, storage, etc) will increase oil spill risks.</li> <li>• Inappropriate development of agrofuels projects could be a threat to food security and rural livelihoods</li> </ul>

#### 4.6 Ports and Coastal Transport

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Relatively stable and socially concerned government.</li> <li>• Extensive agricultural potential, production growing as the result of more open economy.</li> <li>• Excellent port locations for potential development</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Ineffective government services.</li> <li>• Corruption and lack of controls.</li> <li>• Inadequate communication and transport in large areas of the country.</li> <li>• Government ownership and involvement in transport</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Development of the Mtwara Corridor and the southern region based on opening of coal and iron-ore mines.</li> <li>• Opportunities to redevelop Tanga into a deepsea port.</li> <li>• Further modernisation of Dar-es Salaam and enhancement of the road and rail corridor to increase throughput and business opportunities on the coast.</li> <li>• Sustainable development of agriculture along the coast could improve living conditions; this requires long term structured management approach</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Failure of manufacturing economy to compete with imports from the East.</li> <li>• Lack of training institutions and skills deficiencies for sustainability of port and transport operations</li> </ul>

#### 4.7 Coastal Mining

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• The government supports the development of mining.</li> <li>• Involvement of NGOs, and international organisations for the coastal zone management</li> <li>• Strong mining and environmental regulations and policy.</li> <li>• Tanzania is very advanced in term of ICZM and has produced a White Paper</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Many informal mining activities especially in coral mining.</li> <li>• Lack of inter-institutional co-ordination for environmental management</li> <li>• Financial, operational and human resources limitations do not permit adequate management, enforcement and monitoring especially at lower levels of Government</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Development of new cement works in coastal communities (Lindi Cement)</li> <li>• Employment for local workers and SMEs</li> <li>• Greater NGO involvement.</li> <li>• Good investment incentives</li> <li>• Providing support to develop a sector plan.</li> <li>• Signatory of the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (The "Nairobi Convention", 1985)</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• The populations on the coastal zone of Tanzania are poor and underemployed. Coral mining is viewed as an acceptable revenue source</li> </ul>

## 6. PLANNING AND MANAGEMENT

### 6.1 National Disaster Management Plans

- Coordination between agencies
- Awareness and communication of plans
- Implementation of the plan (when the event happens, institutions aren't prepared to implement measures)
- Land use planning
- ALERT network for tsunami/related seismic early warning, government policies

### 6.2 Environmental Sensitivity Mapping

- Lack of sensitivity maps
- Lack of awareness about oil spill and associated problems
- Spatial data availability and scale
- Poor collaborations among different institutions and organizations

### 6.3 Coastal Management/Development Plans

- Lack of coordination between agencies
- Rapid coastal population growth
- Population grows faster than the plan
- Socio-economic problems due to coastal development.

## **6.4 Areas under special management**

- Poaching activities
- Coastal development
- conflict between users
- Insufficient education and awareness of the value of managed areas.

## **6.5 Monitoring, Control and Surveillance**

- Policy issues
  - Inadequate enforcement of regulations,
  - Economic issues – how much can be spent?
  - Regional cooperation
  - Availability of resources (manpower etc, patrol vessels),
  - Lack of communication with policy makers who understand the value of the resource, so government spending on MCS systems is not easy,
  - Permits are issued for quotas but there is no monitoring of catches.
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