

# **The Protection, Management and Development of the Marine and Coastal Environment of Ghana**

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## ***Abstract***

*The marine and coastal resources of Ghana exist within a very fragile ecosystem. Current development trends and pressures exerted on these resources are steadily degrading the components of this fragile ecosystem. Landward, the area includes lagoons, marshes, estuarine swamps together with the intervening interfluvial areas. Seaward, the boundary is determined as the limit of Exclusive Economic Zone (200 nautical miles).*

*The area is richly endowed with important resources for the promotion of tourism, fishery, industry and mining. The lagoon, estuary and delta ecosystems provide suitable environments for shellfish and fish breeding, as well as feeding, roosting and resting sites for local and migratory birds and marine turtles. The coast supports mangroves, which are an important source of fuel-wood to local communities.*

*The beaches, cliffs, lagoons, wildlife, cultural and historical sites and coastal landscape also provide an immense potential for tourism development. In addition, salt, deposits of limestone, silica, feldspar and other minerals have been identified within the coastal belt. There is also the possibility for hydrocarbons, for which prospecting is being undertaken. Furthermore, copra production is also an important economic activity along the coastal belt.*

*The coastal and marine ecosystem is under threat from a variety of man's actions which include:*

- 1. Increases in urbanisation caused by migration and high rates of population growth.*
- 2. Greater infrastructure along the coast, industrialisation and heightened economic activities*
- 3. Provision of transportation facilities including extensive road networks, rail, air and water.*
- 4. Siting of two main seaports at Tema and Takoradi which handle most of Ghana's imports and exports respectively.*

*This paper outlines the various mechanisms currently in place to protect Ghana's coastal and marine ecosystem.*

# 1. INTRODUCTION

The coastal and marine zone of Ghana has been defined to include the 200 nautical mile limit which was claimed in 1977 [Territorial Waters and Continental Shelf Act 1973 as amended by the Territorial Waters and Continental Shelf Amendment Decree 1977]. The coastline of Ghana stretches for approximately 550km. It is generally a low lying area, not more than 200m above sea level and has a narrow continental shelf extending outwards to between 25 and 35km except off Cape Coast and Saltpond where it reaches up to 80km.

Ly (1980) describes the following characteristics features of the Ghanaian coast;

- a. West of Cape Three Points: a flat and wide beach, backed by coastal lagoons, marks this coast. Wave height is generally low.
- b. Between Cape Three Points and Tema: this aspect is of an embayed coast of rock headlands and sandbars or spits enclosing coastal lagoons. The surf zone is a medium to high-energy environment with wave heights often exceeding 1 metre. The south-westerly prevailing winds cause oblique wave approach to the shoreline, which generates an eastward littoral sediment transport.
- c. East of Tema: the shoreline is sandy and is characterised by the eroding Volta delta. Wave and sediment dynamics are similar to those between Cape Three Points and Tema.. It is known that rocky shores and rocky reefs are restricted to the area between Axim and Tema. It is also known that the rocky shores support a wide range of organisms in the intertidal zone.

The vegetation types of the coastal zone from east to west and reflecting the rainfall gradient are coastal shrub and savanna to Winneba, Southern marginal forest to the east of Sekondi, dry semi-deciduous and moist semi-deciduous forest to the east of Cape Three points estuary and wet evergreen forest in the extreme southwest of the country

The zone is well endowed with natural resources, which are exploited by different sectors of the economy. The major primary activity of the zone is fishing. Other activities of economic importance that occur in the zone are agriculture, transportation, salt production, oil and gas exploration, sand and stone winning, recreational and industrial developments. The zone is also known to be important internationally, for the provision of feeding, roosting and nesting sites for thousands of birds especially migratory species. The coastal zone is also currently used for the disposal of industrial and municipal wastes, an activity that is being given urgent attention. Ghana's coastal zone represents about 6.5% of the land area of the country, yet houses 25% of the nation's population.

This small strip of land now hosts about 80% of the industrial establishments in Ghana. Environmental degradation of coastal areas has been identified as a key issue in Ghana's Environmental Action Plan. Poverty in the coastal area is also extensive. Coupled with ailing human health, rapid urbanization, the poverty and environmental degradation potentially contribute to a vicious circle that inhibits human development.

Seven main environmental issues are identified for the marine and coastal environment theme. These are domestic sanitation, fisheries degradation, wetland & mangrove degradation, industrial pollution of water resources in the coastal zone, coastal erosion, Biodiversity loss and aquatic weed encroachment. Five of these are considered as priority

areas. They include domestic sanitation, fisheries degradation, wetland & mangrove degradation, industrial pollution of water resources in the coastal zone and coastal erosion.

The present strength of the Ghanaian economy is derived principally from export earnings in agriculture, mining and forestry. Domestic industries and services provide employment opportunities for coastal populations growing at the rate of 3% per year. Over 60% of industries are located in the zone.

The marine environment is characterised by two seasonal upwellings. A major upwelling, which occurs from either late June or early July to late September or early October, and a minor upwelling, which occurs between January and March.

The upwelling is known to have considerable influence on both the local and sub-regional fisheries. Although the origin and mechanism of the upwelling is still not clear, different proposals have been put forward to explain the origin and mechanism of the coastal upwelling off the coast of Ghana but none is sufficiently conclusive to be accepted by most oceanographers.

The position and dynamics of the upwelling are variable. The upwelling influences the migratory patterns of pelagic fishes and is linked with the marine fish catch in Ghana (Armah and Amlalo, 1998).

## **2. ENVIRONMENTAL-RELATED CONVENTIONS**

Environmentally related conventions ratified by Ghana include:

- International Convention for the Prevention of Pollution of the sea by Oil: 21 October 1962
- Convention on the Africa Migratory Locust: 25 May 1962
- Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water: 5<sup>th</sup> August 1963
- International Convention for the Conservation of Atlantic Tunas: 4 May 1966
- Africa Convention on the Conservation of Nature and Natural Resources: 15 September 1968
- International Convention on Civil Liability for Oil Pollution Damage: 29 November 1969
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties
- Convention on Wetlands of International Importance, Especially as Waterfowl Habitats: 2 February 1971
- Treaty and Prohibition of the Emplacement of Nuclear Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof: 11 January 1971
- International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage: 18<sup>th</sup> December, 1971
- Convention Concerning the Protection of World Cultural and Natural Heritage: 16 November 1972
- Convention on International Trade on Endangered Species of Wild Fauna and For a: 3 March 1973

- Convention on the Military or Any other Hostile Use of the Environmental Modification Techniques: 10 December 1976
- Convention on the Conservation of Migratory Species of Wild Animals: 23 June 1979
- Convention for the Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region,1981(Abidjan Convention)
- United Nation Convention on the Law of the Sea: 10 December 1982
- Montreal Protocol on Substances that Deplete the Ozone Layer: 24 July 1989
- Convention to Combat Drought and Desertification
- Framework Convention on Climate Change: June 1992
- Convention on Biological Diversity,1992

### **3. POLICIES**

A number of Environmental related Policies exist in Ghana however there is no specific policy on the coastal zone. These include:

- The National Environment Policy
- National Wetlands Policy
- Agricultural Policy
- Tourism Development Policy
- Land Management Policy
- National Health Policy
- Energy Policy
- Minerals Policy
- Wildlife Conservation Policy

The main thrust and orientation of national policies on the protection, management and development of the marine and coastal environment is pivoted on the following three major areas:

- Integrated coastal zone management and sustainable development
- Marine environmental protection, both from land-based activities and from sea-based activities; and
- Sustainable use and conservation of marine living resources (both of the high seas and under national jurisdiction)

For the above three issue areas, the important and definite steps including plans have been pursued to ensure the realization of prudent management of the marine and coastal environment. These include:

- Coastal Zone Management Indicative Plan, 1990
- National Environmental Action Plan, 1994
- Draft Integrated Coastal Zone Plan, 1998
- Coastal Zone Profile of Ghana 1998
- National Oil Spill Contingency Plan with specific reference to the marine environment, 2002
- Environmental sensitivity map of the coastal areas of Ghana, 1999 and 2004

## 4. REGULATIONS

Though several legislations exist on coastal protection and sustainable development, there is no omnibus legislation on the environment. Legislations relating to the area include the following:

- Beaches Obstruction Ordinance, 1897 (Cap 240)
- The Mineral and Mining Law, 1986 (PNDC 153)
- Rivers Ordinance, 1903 (Cap 226)
- Land Planning and Soil Conservation Ordinance No 32 of 1953 as Amended by the Land Planning and Soil Conservation (Amendment) Act, 1957 (No. 35 of 1957)
- Maritime Zones (Delimitation) Law 1986 (PNDCL 159) urban planning and development
- Town and Country Planning Ordinance (Cap 84)
- Wild Animals Preservation Act, Act 235 1964
- The Towns Ordinance (Cap 86)
- National Building Regulations 1996 (LI 1630)
- Volta River Development Act, 1961
- Fisheries Act 2002, Act 625
- Fisheries Law, 1991 (PNDC 256)
- Fisheries (Amended) Regulations, 1977 and 1984

The sustainable use and conservation of marine resources are encouraged through legislation, regulations, education and awareness creation programmes as well as the enforcement of existing regulations and legislation

The legal framework for coastal zones issues and management in the country are contained in the following documents

- The 1992 constitution
- EPA Act, 1994 (Act 490)
- Environmental Assessment Regulations, 1999 (LI 1652)
- Local Government Act, 1993 (Act 462)
- Environmental Standards and Guidelines

In addition, there are other specific legal frameworks, which include:

- a) The legal framework for Ecosystem Protection, which are:
  - Wild Animals Preservation Act 1961 (Act 43)
  - Wildlife Conservation Regulations 1971 (LI685)
  - Wild Reserves Regulations 1971 (LI 740)
  - The Wetland Management (Ramsar sites) Regulation, 1999
  - Oil in Navigable Waters Act, 1964 (Act 235)
- b) The legal framework for Fisheries Resources, which are:
  - Fisheries Law 1971 (PNDCL 256)
  - Fisheries Act 2000
- c) The legal framework for Oil and Gas Industry
  - Petroleum (Exploration and production) Law 1984 (PNDCL 84)

- Mineral (Offshore) Regulations 1963 (LI 257)
  - Mineral (Oil and Gas) Regulations 1963 (LI 256)
  - Oil and Mining Regulations, 1957 (LI 221)
- d) The legal framework for Tourism Promotion (including coastal tourism)
- Ghana investment Promotion Centre Act 1994 (Act 478)
  - Companies Code 1963 (Act 179)
  - Free Zone Act 1995 (Act 504)
  - Ghana Tourism Board
  - Ghana Commission on Culture

## **5. ACTIVITIES OF CONCERN TO THE CONVENTION**

Over the years, several activities have been undertaken which are of concern to the Convention. These include:

- Ghana Environmental Resource Management Project in Coastal Wetlands Management Component
- Gulf of Guinea Large Marine Ecosystem Project
- Fisheries Sub-sector Capacity Building Project
- Establishment of a Protected Wetland Ecosystem on the coast
- Development and Implementation of Oil Spill Contingency Plan
- Monitoring of fish stock levels and associated oceanographic parameters
- Institution of a programme of Monitoring, Compliance and Surveillance of the marine environment
- Development of industrial pollution standards
- Development of University course on Coastal Zone Management
- Increased public education on sound coastal and marine environmental practices

## **6. RELEVANT INSTITUTIONS**

With regards to protection, management and development of the marine and coastal environment, the following ministries and agencies have been identified as key stakeholders:

- Ministry of Environment, Science and Technology
- The Environmental Protection Agency
- Ministry of Tourism and the Modernisation of the Capital City
- Ministry of Local Government and Rural Development
- Ministry of Ports and Harbours
- District Assemblies
- Ghana Ports and Harbours Authority
- Hydrological Services Department
- Ministry of Food and Agriculture
- Ghana Tourist Board
- Ghana Investment Promotion Centre
- Fisheries Commission Ministry of trade, Industries and PSI
- Ministry of Lands, Forestry and Mines
- Ministry of Energy

- Ministry of Health
- Ministry of Education, Youth and Sports
- Ministry of Defence
- Ghana Navy
- Non-Governmental Organisations (Resource & Environmental Development Organisation, Friends of the Earth, Green Earth, Wildlife Society, Ricerca e Cooperazione), Centre for African Wetlands.
- Ghana National Petroleum Corporation
- Volta River Authority
- Geological Survey Department
- Forestry Commission (Forestry and Wildlife Division)
- Traditional Rulers and their analogous ministry and laws
- Ministry of Works and Housing
- Ministry of Roads and Transport
- National Development Planning Commission
- Council for Scientific and Industrial Research
- Universities and Research Institutions
- Ghana Meteorological Agency; and
- Town and country Planning Department
- Water Resources Commission

## **7. PARTNERSHIPS**

Few formal partnerships exist. Support for coastal conservation activities have been received from the private sector as well as from Government. Some financial institutions have supported NGOs in marine conservation activities.

Regional and sub-regional collaboration efforts occur at various levels albeit sectoral in many respects. Some to a large extent seem to be paper agreement with little financial inputs from the partners involved. Not much impact has been gained on issues relating to the management of the Gulf of Guinea by the science and technology unit of the ECOWAS. The bilateral arrangements between Ghana and Cote d'Ivoire in the management and data sharing of straddling Sardinella stocks exist and on-going. The sub-regional initiatives like WACAF and the GOG-LME have made tremendous strides in the area. The emerging partnership within the NEPAD framework among the coastal states of Africa on marine and coastal management is also promising in this regard.

### **7.1 Technical and financial support**

The country has enjoyed enormous technical support in the form of training, research and project implementation from national, bilateral and multi-lateral sources.

Financing of activities in the sector is primarily supported from the national budget. However, donor support from both bilateral and multilateral sources has also been obtained for specific programmes, such as the World Bank sponsored Fisheries Sub-sector Capacity Building Project; UNOPS sponsored Environmental Sensitivity Map for Coastal Areas, The Ghana Coastal Wetland Project of the World Bank, UNEP's WACAF Programmes,

and The Darwin Marine Biodiversity of West Africa Project by DFID implemented by the University of Ghana.

## **8. ACTIVITIES**

Activities undertaken in the country of importance to the marine and coastal area are outlined in the following sections.

### **8.1 Environment-related activities**

- Ecological Baseline studies of Korle Lagoon (1990-2000). This was carried out to satisfy EIA requirement and as a result pollution status of the lagoon was established.
- Lower Volta Mangrove Project (1996-1998). The objective is to ensure sustainable management of mangrove stands and as such baseline information was documented.
- Save the Seashore Birds Project (1985-1995). This was to protect the seashore birds and as a result conservation awareness of seashore birds was achieved.
- Ghana coastal wetlands management project (1996-1999). In this, management of the five coastal wetlands designated as Ramsar Site was put in place
- Darwin Marine Biodiversity of West Africa Project. It is a training project in marine biodiversity assessment.

### **8.2 Coastal area management**

- Climate and vulnerability and adaptation assessment on water resources, agriculture and the coastal zone Projects. (1997-1999). The projects assessed the vulnerability of the coastal zone to climate change.
- Coastal area management plan for Princess Town (1998-2000), which aimed at providing a plan for the management of Princess Town.
- Keta Sea Defence Project Work (2000-2004). The project aimed at protecting the Keta and its environs from the episodes of erosion faced in the area and also to ensure improvement in environmental and socio-economic conditions at Keta and its immediate surroundings.

### **8.3 Regional Programmes**

- Gulf of Guinea Large Marine Ecosystems Project (1996-1999). The project developed an effective approach to prevent and control pollution in the Gulf of Guinea and conserve its biodiversity. As a result, regional institutional capacities were strengthened and also a coastal zone management profile and plans produced.
- UNEP WACAF Projects 1 & 2. This aims at institutionalising and coordination of national contingency plans, monitoring of pollution in the marine environment and control of coastal erosion.

### **8.4 Other major programmes**

Other programmes and activities in place for the marine and coastal environments are the following.

- Ghana Environmental Resources Management Project in Coastal Wetlands Management Component
- Fisheries sub-sector Capacity Building Project
- Establishment of a Protected Wetland Ecosystem on the coast
- Development and Implementation of Oil Spill Contingency Plan

## **9. ONGOING PROJECTS**

Ghana is currently implementing several projects in the marine and coastal area. Some of these projects are linked to developmental projects for which impact assessments are required under the Environmental Assessment Regulations of 1999. Some of the projects are large scale in nature with extensive baseline and monitoring studies like the Keta Sea Defence Project and the West Africa Gas Pipeline project. Others are projects being implemented under the auspices of the United Nations agencies and non-governmental organisations include:

- Combating Living Resource Depletion and Coastal Area Degradation in the Guinea Current LME through Ecosystem-based Regional Actions.
- Amansuri Conservation and Integrated Development Project (ACID)
- Danida Water and Sanitation Sector Programme II: Support to Integrated Water Resources Management (IWRM) Component (2004-2008):The Densu Basin aspect of the IWRM component.
- Reduction of Environmental Impact from coastal tourism.

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- Ghana Wildlife Society
- Department of Fisheries and Oceanography, University of Ghana
- Ricerca e Cooperazione, Ghana

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