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Analysis of marine environment protection law in Tanzania

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ANALYSIS OF MARINE ENVIRONMENT PROTECTION LAW IN TANZANIA

By

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no mateirals is included for which a degree has previously been confered on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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ABSTRACT

The polluting potential of wastes generated is a function of the volume of effluent discharged, their dilution in the receiving water, and their toxicity to marine life. The coastal pollution in Tanzania is no exception to this defined parameter of polluting potential. Most of the factories along the Tanzanian coast often discharge their wastes without treatment directly into the sea. This coupled with the rapidly growing human population and settlements in the coastal zone further exert pressure on the coastal resources. The current state of the Tanzanian marine pollution therefore, is a matter of concern.

The environmental challenges that Tanzania faces exist partly because its Government has not adequately taken into consideration the need for comprehensive environmental law and policy. The present policy lacks an assessment of costs that are imposed on the environment in the form of pollution, depletion of natural resources, destruction of ecological heritage and associated problems with human health. There is thus an inadequate legislative response tomarine pollution from both land and sea-based sources.

This study analizes the existing marine environment protection laws in Tanzania in the light of the above stated problems related to marine pollution. The main parameters that have been analysed are marine environmental pollution, loss of wildlife habitats, biodiversity and deterioration of aquatic systems; with respect to the role of the Government institutions in achieving a sustainable marine environmental policy.

Finally, conclusion and recommendations are made, to prevent, mitigate and minimise threats of marine pollution. A framework for environmental legislation is also proposed, and a legal mechanism suggested to be consistent with the tenets of environmental planning and management.

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LIST OF ABBREVIATIONS

CWA	Clean Water Act
DDT	Dichlorodiphenyltrichloroethane
DMI	Dar-es-Salaam Maritime Institute
DMTU	Dar-es- Salaam Maritime Training Unit
DOE	Department of Environment
DoE	Division of Environment
DPA	Deep water Port Act
EIA	Environmental Impact Assessment
EIS	Environmental Impact Studies
ESCAP	Economic and Social Commission for Asia and the Pacific
EMP	Environmental Monitoring Programme
FAO	Food and Agriculture Organisation
GBR	Great Barrier Reef
GBRMP	Great Barrier Reef Marine Park
GDP	Gross Domest Product
HCB	Hexachlorobenzene
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
MARPOL	International for the Prevention of Pollution from Ships
MFCMA	Magnuson Fishery Conservation Act
MIMP	Mafia Island Marine Park
MoTC	Ministry of Transport and Communications
MPRSA	Marine Protection Research and Sanctuaries Act
NEMC	National Environment Management Council
NOAA	National Oceanic and Atmospheric Administration
NORAD	Norwegian Agency for Development Co-operation
OPA	Oil Pollution Act
PCB	PolyChlorinatedBiphenyl
PSSA	Particularly Sensitive Sea Areas
QUANGO	Quasi- autonomous non-governmental organisation

RA	Refuse Act
SIDA	Swedish International Development Agency
SINOTASHIP	Joint Coastal Company, Tanzania and People's Republic of China
SOLAS	International Convention for the Safety of Life at Sea
STCW	International Convention on Standards of Training, Certification and Watch-keeping for Seafarers
STCW-F	International Convention on Standards of Training, Certification and Watch-keeping for Fishing Vessel Personnel
TACOSHILI	Tanzania Coastal Shipping Lines
TAPA	Trans-Alaska Pipeline Act
THA	Tanzania Harbours Authority
UK	United Kingdom
UNCED	United Nation Conference on Environment and Development
UNEP	United Nation Environment Program
US A	United States America
USCG	United States Coast Guard

CHAPTER ONE

INTRODUCTION

1.1 Geography

The United Republic of Tanzania consists of mainland, and the islands of Zanzibar and Pemba. Tanzania lies on the east coast of Africa, bordered by Uganda and Kenya to the north, by Rwanda, Burundi and Zaire to the west, and by Zambia, Malawi and Mozambique to the south[1]. Zanzibar and Pemba are in the Indian Ocean, about 40 km to the north of Dar es Salaam.

1.1.1 The Coastal Zone:

Tanzania's islands lie on a geographical continental shelf, including two main inhabitable islands, Zanzibar and Mafia. The geographical shelf is generally narrow, hardly extending more than two kilometres from the shoreline of the mainland except at three points, the continental shelf areas connecting Zanzibar and Mafia islands, and the chain of islets off Kilwa, where it extends to a maximum of 80 km. The geographical shelf is thus estimated to have an area of less than 1900 sq. km^2.

Most of the shore line is characterised by beaches with very fine white sands, though in some areas the shoreline consists of cliffs. The beaches on the mainland and islands of Zanzibar and Pemba are potential resource for the development of the tourist industry. Hotel and resort expansion, coupled with the indiscriminate collection of shells and coral heads for the tourist industry, poses a danger to marine habitats. The coast also includes areas of marine reserves, including developed coral reefs, but these are broken by extensive growths of mangrove, particularly near the mouths of the larger rivers. Finally, the inland coastal zones which is characterised

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[1] See appendix 1
[2] FAO 1979

by thick coastal forests and farm land. There are about 77 coastal forests, and 39 of these have been Gazetted as national forest reserves.[1]

1.1.2 Marine sector

Tanzania is one of nineteen maritime countries bordering the Indian Ocean. It is located on the western Indian Ocean and has a coastline of approximately 800 km extending from 39° 12' E , 4° 38' S at the northern border with Kenya to 40° 30 'E 10° 30 'S at the border with Mozambique. The East African Shipping Line having collapsed when the East African Community was dissolved in 1977, a national shipping line, the Tanzania Coastal Shipping Line (TACOSHILI), was set up. This is now facing financial problems and Tanzania has set up a Joint Shipping Company (SINOTASHIP) with the People's Republic of China.

1.2 Economy

1.2.1 Mining and Industry

Tanzania is rich in mineral resources, and its mining industry is an important contributor to the country's GDP. Its mineral resources include diamonds and other gemstones, gold, salt, phosphates, coal, gypsum, kaolin and tin, all of which are exploited. There are also reserves of nickel, soda ash, iron ore, uranium and natural gas. The extraction/exploration of all these minerals can lead to pollution of the marine environment. Drilling rigs when installed for the extraction process can also destroy the sea bed, coral reef and marine life. Finally, loading, export of gas, oil, and transport from one Tanzanian port to another can also threaten the marine ecosystem in case of accident/spillage and explosion.

Currently there are about six offshore operating oil platforms such as Tanganyika Oil Company, Antrim Resources of Calgary Canada, Canop International Resource Ventures, Tullow Oil, Ocelot, and Trans Canada. There were

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[1] Stubblefield, L. K. (ed) 1994 Management Summaries for 25 Coastal Forests in Tanzania Technical Report No. 12 (ISBN 0960-2437)

several pollution incidents in 1972, such as there was a gas explosion fire within the project area; in December 1996 there was a minor oil spill from a pipe used to transfer oil from ships to shore, and from the refinery near Dar-es-Salaam Port.

Since the port authority had no contingency plan and no other authority was required to be alerted of the incident, this spill was not cleaned up. The author was informed of the incident by the employee of the Tanzania Harbours Authority (THA) but no data was provided to her concerning the amount of oil spilt, except that a considerable area of the beach and coastline was polluted. Due to lack of a proper and effective contingency plan, qualified personnel to respond to oil spills and effective response equipment, five personnel sent to clean up the oil died in the operation. Despite this there is still no contingency plan.

1.2.2 Agriculture

Tanzania is dependent on its agriculture. Agricultural activities also pollute the marine environment through the fertilisers and pesticides used on the crops. The low level of economic development dictates the use of cheap pesticides for example commonly DDT, Aldrin, Endrin and HCB. During the rainy season the run-off from the agricultural area takes the nutrients as well as the pesticides to the sea through creeks and rivers. Due to lack of expertise and facilities, the level of concentration of the pesticides, the run-off from pesticides and the load of suspended materials in the river and estuaries have not been evaluated in Tanzania.[1]

1.3 Threats to the Marine Environment in Tanzanian Waters

The current state of the Tanzanian environment is a matter of concern. Among other major problems nationally is environmental pollution, loss of wildlife habitats and biodiversity and deterioration of aquatic systems. It is nationally appreciated that, pollution of coastal waters, in towns and country side is affecting the health of many people, and has lowered the productivity of the environment. The

[1] Ngoile M.A.K,1982 Environmental concerns

loss of habitat is threatening the national heritage and creating an uncertain future for the tourist industry and the productivity of coastal and marine waters is threatened by pollution and poor management. There are a number of major threats to the Tanzania Marine environment:

1.3.1 Population Pressure and Sewage Discharges

In 1996 Tanzania had an estimated population of 27 million people, incorporating 120 ethnic groups. The highest population densities, reaching over 250 per square kilometre occur in the fertile lower slopes of Kilimanjaro and on the shore of Lake Nyasa. Most other upland areas have relatively high densities, especially in the area of south Lake Victoria.

The coastal plain and islands are also highly populated. Population increase has resulted in unplanned expansion of suburbs in urban areas. The impact on the marine environment resulting from the expansion is associated with lack of sanitation. These areas lack amenities for proper handling of human waste, which in coastal towns is disposed of untreated directly to the sea. For instance, the already great population in Dar-es- Salaam is expanding, resulting in unplanned construction of buildings and industries within the city. Most of the city's population use soak-away pits and septic tanks, and severe problems occur during the rainy seasons because these pits and tanks become flooded and overflow. All the sewage from the city centre is in any event discharged into the sea untreated. The other sewered areas of the capital are connected to stabilisation ponds before discharge into the nearest local water course.

The disposal of sewage in other coastal urban areas is no better or worse than that in Dar-es-Salaam. Sewer systems, if they exist, serve only town centres. The collection of sludge is infrequent, and overflows empty into the surface water drainage systems posing great health hazards. Due to poor sanitary standards in urban areas, the local receiving water bodies are heavily polluted.

1.3.2 Mining and Industrial Pollution

In Tanzania, industrial pollution is not (yet) as pronounced as in developed countries. The problem of industrial wastes grow with improved economical conditions and consequent expansion of the industrial sector. This problem may be possible to control if preventive and protective measures are taken. Tanzania's industrial sector consists of numerous small industries, processing mainly agricultural produce. Most of them are located in the main towns, with Dar-es-Salaam accounting for more than half of the industries.

These industries produce a wide variety of effluents. The composition of each effluent and the effects on the environment are specific for each industry. Tanzania has very limited expertise and facilities for the treatment of industrial wastes. The industries located along the coast discharge their effluents in to sea, or creeks and streams that eventually drain into the sea.

The most obvious case of industrial pollution is the Msimbazi River in Dar-es-Salaam, which receives large amounts of untreated or insufficiently treated wastes from industries, in addition to the already overloaded state of domestic sewage effluents. The Msimbazi is heavily polluted by noxious effluents, which include dyes and strong alkalis from textile factories, oils and tars from heavy vehicle depots and power stations, organic wastes from breweries and meat plants, various other industrial wastes, such as heavy metals, PCBs, cyanide, pesticides, herbicides, and detergents.

Mining activities can also potentially affect the marine environment as follows: the process of extraction of minerals from the sea bed including coral reefs can either destroy the seabed or disturb the marine life existing in the area; mixtures of mud/sediments and sea water resulting from extraction processes can destroy fishing grounds, or kill marine life; coastal erosion caused by mining and the sediments from that erosion flowing into the sea, including harmful nutrients, preventing light passing through the water thus, hampering photosynthesis by sea

grasses and weeds and affecting current flows. It may also erode beaches which will affect tourism, including potential ecotourism.

Drill fluids together with the drill cuttings is discharged into the surrounding waters. Drilling fluids can be dispersed in detectable quantities from the drilling site depending on the strength and direction of currents. Drilling fluids along the offshore waters on Tanzania are dispersed in a northward direction because of the prevailing currents. Drilling fluids affect the burrowing behaviour, food detection capabilities, moulting frequency, rate of respiration and growth rates of larval, juvenile and adult crustaceans.[1]

The concentration of suspended matter and dispersal pattern of turbid water are controlled by the size distribution of suspended particles and the current activity.[2] Upon settling, the previously suspended particles can reduce the available shelter and food supply of bottom-feeding organisms, interfere with filter-feeder, silt over spawning beds, and cause other adverse effects. Filter-feeding organisms, such as the oyster, remove food particles from the water and reject sediments and other debris. The increased particles in the bottom waters, may over-load the oyster' processing system and result in wide-spread destruction of oyster beds.[3] The remarkable ability of the sea to cleanse itself is most apparent in near shore areas, where land runoff carries heavy metals, pesticides, and other potentially harmful substances. Most of these substances are rapidly incorporated into the sediments, where they become enriched as a result of accumulation over many years. Drilling poses threat to this detoxification process. The consequences realising these substances to the water column over a short period of time by mechanically disturbing the sediments can vary from biological stimulation by nutrients to toxicity from poisons.[4] While it is acknowledged that well blowouts can cause severe

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[1] Derby Cupuzzo 1984 (as cited by Ngoile M. A. K.)

[2] Innman and Bagnold, 1963 Littoral process. In: The Sea. Hill, M.N., ed. Vol.3, Interscience, pp 520-553

[3] Robert M.O., 1977 An assessment of the Environmental Impact of Mining on the Continental Shelf. Marine Mining Vol. 1 No. 1/2

[4] Cronin et al, 1969 as cited by Robert M.O

pollution problems, these events are extremely rare. Experience has shown that the danger of marine pollution from petroleum hydrocarbons is much greater from damaged tankers.[1]

1.3.3 Shipping

Tanzania has three major ports, Dar es Salaam, Mtwara and Tanga. All are government-owned. Dar-es-Salaam is the main port, the dominant industrial centre, and the focus of government and commercial activities. The major development activities currently being undertaken for the port of Dar-es-Salaam include the construction of dry-docking facilities and expansion of the harbour, as well as dredging. Dredging destroys the benthic communities at both the sites of dredging and dumping.

Effective prevention of pollution in port waters is of the highest priority because of the damage which pollution incidents can pose to the operation of the ports. It is generally known that efforts made to prevent pollution are worth much more than any measures which may be taken to deal with the aftermath of a pollution incident. The major threat of pollution in ports arises from the operation of tankers, although significant pollution may be caused by general cargo vessels and container carriers as well as other floating craft in the port area.

Oil transportation from the Middle East to Europe and America through the Suez Canal and around the Cape of Good Hope, accounts for the high concentration of oil and oil products and high frequency of sightings of oil slicks in the Indian Ocean. The tankers which transport oil to countries in the East African Region contribute to the oil discharges into the sea, during cleaning operations and engine room operations. Oil pollution of the Tanzanian coastline is heaviest during the South- West monsoons, which push the oil onshore. Accompanying currents in the Indian Ocean also have the effect of driving the oil towards the East African coast, particularly to Tanzania.

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[1] Archer, A. 1970 Sub sea minerals and environment. New Scientists, Vol. 48 (728) pp 273-372

Tanzania's coastal waters are also polluted by marine traffic, especially oil tankers sailing in close proximity particularly to the south coast, posing a high risk of marine pollution from collisions, stranding and other marine accidents. Such pollution can threaten beach amenities, sea-birds, marine life in the intertidal zones and fisheries, with subsequent loss of revenue and protein sources.

1.3.4 Dynamite Fishing

Dynamite fishing[1] is conducted along the coral reefs. This is because coral reefs are highly productive ecosystems which support a great diversity of plant and animal life, including fish. Although the impact of one blast of dynamite affects a very small area compared to the great expanse of reefs along the coast of Tanzania, the continued blastings that have been taking place, daily, over a period of many years have resulted in almost total destruction of some reefs and serious damage to many others.

The explosions cause total destruction of corals and other associated plant and animal life found in the vicinity of the blasts. The effects of this practice are long -lasting; it takes many years for the affected ecosystems to recover. It may take 25-50 years for a destroyed reef to regenerate and it may never, in fact, return to its original state. A dynamite blast also instantly kills all fish within a 15-20 m radius, by rupturing their internal organs. It also kills most of the invertebrates and plankton, as well as the eggs and larvae of a variety of marine life.

Besides the direct effects of the blasts, there are also indirect effects which are subtle, perhaps sometimes almost undetectable, but which should not be disregarded. The blasts cause suspension of particles in the water resulting in turbidity and eventual sedimentation. Suspended particles may be carried away from the site of the blast by ocean currents, causing negative impacts in adjacent areas. Turbidity and sedimentation are critical factors which affect several types of organism in

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[1] Wagner G. A Coast Zapped by Explosives : How dynamite Fishing affects the Marine Environment: http://www.intafrica.com/express/ July 20, 1997.

different ways. Particles suspended in the water, or settling out of the water, clog the feeding mechanisms of suspension-feeding or filter-feeding organisms. Organisms affected in this manner include a variety of shelled organisms, such as mussels and oysters, polychaetes (sea worms), corals, sea anemones, sponges, and barnacles. Sedimentation also affects the respiration of many organisms and causes suffocation. Moreover, a covering of loose sediment, which would under normal circumstances consist of a clean, hard substratum, prevents the settlement and establishment of the larvae of many types of organism. With each blast of dynamite, suitable microhabitats available to support marine organisms are reduced, which subsequently reduces the density and diversity of living things. Dynamite fishing can thus cause almost total destruction of an ecosystem[1] .

When a reef community is destroyed, the ecological successions that follow cannot be expected to replicate the initial development of the community. When corals die, their surface is rapidly colonised by benthic algae. These algae are inimical to coral regrowth. The severe effects of dynamite fishing on marine habitats and associated resources demand that strong and co-operative action is taken immediately.

1.3.5 Other indiscriminate and destructive forms of fishing

Other methods of fishing together with gear used by fisherman e.g. types of nets, and vessels of unlimited operational range constitute a threat to fish stock and other marine ecosystems. Seine encircle the selected reef during fishing (because of its nature), and the fish stock is disturbed by breaking the coral heads. As the fish try to escape, they get caught in the seine. This is a destructive form of fishing which not only damages reefs but also produces a by-catch of mainly immature fish, which threatens fish stocks. Several commercial and semi-commercial fishing companies exploiting the marine fish stocks. The numbers of licensed vessels are now about 20.

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[1] Wagner G. A Coast Zapped by Explosives: How dynamite Fishing affects the Marine Environment: http://www.intafrica.com/express/ July 20, 1997

The trawler operations are concentrated in waters less than 20 metres deep to avoid destruction of other marine life and protect immature fish. The annual catch is estimated to be more than 500 tonnes of fish. These grounds therefore sustain a high fishing pressure and steps to monitor the status of the stock in these areas are necessary.

1.3.6 Tanzania Maritime and Environment Protection Legislation

The present Tanzania's maritime legislation was enacted either during colonial times or shortly after independence. Most of it is out-dated and needs to be reviewed and, if necessary, reformed.

Analysis of Tanzanian national legislation on marine environmental protection also reveals inadequacies and shortcomings. There is no legislation specifically to cater for the protection of the environment, be it land, air or water. Instead there are pieces of legislation which address environmental issues. These include the Merchant Shipping Act,[1] Fisheries Act,[2] National Environment Management Act,[3] Tanzania Harbours Authority Act,[4] Territorial Sea and Exclusive Economic Zone Act,[5] Dar es Salaam Maritime Institute Act,[6] Marine Parks and Reserves Act,[7] Mining Act,[8] and Petroleum (Exploration and Production) Act.[9]

When some of the legislation was enacted, the level of technology regarding maritime activities in Tanzania and environment protection awareness was low. So, some important issues were not taken into consideration when drafting this legislation. The development of technology in the shipping industry warrants a review of this legislation with the aim of reforming, amending, repealing and if

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[1] Law No. 43 of 1967
[2] Law No. 6 of 1970
[3] Law N. 19 of 1983
[4] Law No. 12 of 1977
[5] Law No. 3 of 1989
[6] Law No. 22 of 1991
[7] Law No. 29 of 1994
[8] Law No. 17 of 1979
[9] Law No. 27 of 1980

possible consolidating it, to make it more suitable for the prevailing level of technological developments and economic changes.

1.4. Aims and Objectives of the Study

The aim of this study is to review the national legislation related to environmental protection of the coastal waters, with a view to assessing its adequacy, suggesting reforms where necessary and, if possible, consolidation.

In doing so, the study will

- examine the problems facing Tanzanian government institutions dealing with marine activities in relation to marine environmental protection;
- make a comparative analysis between the marine environmental laws of Tanzania and the relevant legal regimes of selected progressive countries; and
- take into account Tanzania's sustainable development needs.

1.5. Scope of the Study

For simplicity and convenience, my research was restricted to Tanzania's mainland, thus excluding Tanzania's islands although some of the legislation addresses both the mainland the islands, e.g. the Merchant Shipping Act.

CHAPTER TWO

REVIEW OF EXISTING NATIONAL LEGISLATION RELATED TO MARINE ACTIVITIES.

2.1 Historical Background

In the pre-colonial period, the level of development of marine activities was very low compared to that of other maritime nations in the world. During that time, the type of vessels which plied the waters adjacent to the seaboard of the western Indian Ocean were not such as to pose any ecological danger to marine ecosystems. So there was no need to enact laws to govern these types of vessels or to provide for marine environmental protection.

At the end of the First World War, Tanzania was placed under a League of Nations Mandate, with the United Kingdom as Administering Power. In 1920; therefore, Tanzania received British laws. All Imperial laws passed by the British Parliament were also applicable in Tanzania.

2.1.1. Merchant Shipping Laws.

With regard to the maritime sector, the applicable law was the British Merchant Shipping Act of 1894. After Tanzania became independent, its new Parliament started enacting its own laws and amended and repealed some Merchant Shipping Act provisions, which were no longer considered suitable. In 1967, Parliament enacted an Act of its own to make provisions for the control, regulation and orderly development of merchant shipping. This was, and still is, the basic statute by which maritime affairs in Tanzania are regulated. This statute was derived

from, and in fact superseded, the East African Merchant Shipping Act of 1966, which in turn was derived from the British Merchant Shipping Act of 1894.

After the dissolution of the East African Community, the Tanzania Harbours Authority Act 1977 replaced the East African Harbours Corporation Act 1966 and created the Tanzania Harbours Authority in order to develop, improve, maintain, operate and regulate Tanzanian harbours.

Prior to 1979, there was no maritime training institute in Tanzania, despite its ratification of the International Convention on Standards of Training, Certification and Watchkeeping for seafarers (STCW 78), in 1979. With the establishment of Tanzania Coastal Shipping Lines (TACOSHILI), a training unit was needed for their crews. In 1979, this training unit evolved into the Dar es Salaam Maritime Institute, which was given a mandate by the Parliament under the Dar es Salaam Maritime Institute Act 1991.

2.1.2 Environmental Law

Since the 1960s, there have been many advances in scientific knowledge concerning the properties and effects of marine contaminants and improvements in technology for hazard assessment and monitoring. While the degree of scientific progress is encouraging, wider availability of environmental information has led to a divergence of opinions regarding the correct approach to environmental management.

As the development of technology gave great impetus to maritime fishing, the Parliament enacted the Fisheries Act of 1970,[1] which repealed and replaced the existing Fisheries Ordinance and made provision for the protection, conservation, development, regulation and control of fisheries, aquatic flora and the products thereof. In 1983, the Government of Tanzania established a National Environment Management Council. The National Environment Management Act of 1983,[2] provides that the Council is to advise the Government on all matters relating to the

[1] Law No. 6 of 1970
[2] Law No. 19 of 1983

environment, formulate policy on environmental management, make proposals for legislation on environmental matters and recommendations on its implementation by the Government.

The Council has, *inter alia*, advised the Government on the implementation of the 1982 UN Law of the Sea Convention. The legislation provided by the Territorial Sea and Exclusive Economic Zone Act of 1989[1] established the territorial sea and exclusive economic zone of the Republic and for the exercise of sovereign rights in the latter for the exploration, exploitation, conservation and management of marine resources.

Finally, in 1994, the Parliament enacted the Marine Parks and Reserve Unit Act,[2] to provide for the establishment, management and monitoring of marine parks and reserves and to establish a Park and Marine Reserve Unit. This is established specifically for conservation of marine parks and prevention of pollution to the parks and reserves. However, this Act is not adequately implemented, since no regulations have been made to effectively implement the prohibitions stipulated in the primary law on the preservation, conservation and protection of marine life.

2.2 Present legislation

Tanzania has the following pieces of primary and secondary legislation which affects marine environmental management. These legislation are discussed below.

2.2.1 The Merchant Shipping Act 1967

This Act is still the leading legislation on maritime activities in Tanzania with a strong emphasis on the shipping industry. Since matters related to maritime affairs are not provided for in the list of union matters under the national Constitution, the Act is hardly applied in Zanzibar. The Merchant Shipping (Amendment) Act, 1980, makes section 78, 81A of the Act, (dealing with the certification of officers)

[1] Law No. 3 of 1989
[2] Law No. 29 of 1994

applicable beyond the coastal waters of Tanzania. The author feels that for the safety of human life and protection of the marine environment, there is need for amendments to ensure that certificates will be issued to the officers who are qualified on both navigational and marine environmental protection skills.

The Act is divided into ten parts, providing respectively for the registration and licensing of ships' manning by certified officers and the grants of certificates of competency, rights of seamen; passenger ships; safety requirements; wrecks; salvage and investigations into shipping causalities; limitation of liability of ship owners; legal proceedings; and pollution at sea.

The Act gives the minister responsible for Communications and Transport general superintendancy power in all matters relating to merchant shipping.[1] This power has been misused by the minister's failure to effectively exercise his power and as a result the shipping department has done little to establish provisions relating to marine environmental protection. The department has neither qualified nor sufficient personnel to carry out matters pertaining to marine environmental protection. The Act has undergone a few amendments, but have not reflected the substantial changes in the shipping industry since 1967.

Further, the Act empowers the minister to make safety regulations to be observed by all Tanzanian ships. Such regulations may relate to matters ranging from the construction and inspection of hulls, machinery and equipment standards, manning and stability for data to be supplied to the master. Apart from Merchant Shipping (Certification of Marine officers) Regulations which, deal with certification only, no other subsidiary regulations have been put in place to facilitate the implementation of this Act.

Section 230 empowers the minister to make regulations in relation to goods, articles or materials to be carried on board ships which are designated 'dangerous goods;' the method of packing and stowing; the quantities that may be carried; the place or places within the ship where they may be; the marking of packages or

[1] Section 197 Law No. 43 of 1967

containers and other precautions to be taken. It further provides for powers of inspection to determine compliance with the provisions of regulations. These regulations are not yet made, but the purpose of these regulations is to ensure proper and safe shipment of dangerous cargoes in a manner that also protects the marine environment. However, these are national standards and the author will argue that there is a need to ratify SOLAS 74, to incorporate it into Tanzania laws and to implement it in order to be able to meet the accepted international standards.

Part IX of the Act[1] deals with the pollution of the sea by oil discharged from any ship into harbours or into the sea within 100 nautical miles of the coast of the United Republic. The Act further provides that, if any oil or oily mixture is discharged from any Tanzanian ship into the sea within 100 miles of any land, the owner or master of such ship is guilty of an offence and is liable to a fine not exceeding Tshs. ten thousand (10,000) equivalent to US$16,260 (at 1997 exchange rates).[2] This amount imposed is very low, especially when compared to the clean-up costs if a spill occurs.

2.2.2 The Tanzania Harbours Authority Act 1977

The Tanzania Harbours Authority (THA) has power under a set of regulations made by the minister responsible for Communication and Transport,[3] to promote THA objectives, which are:

- to provide facilities related to the harbour and provide harbour services and services ancillary thereto;
- to develop, move, maintain, operate and regulate harbours;
- consign goods on behalf of the other person to any place either within or outside the country.[4]

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[1] Section 309 (2)
[2] See Appendix 2
[3] Section 6 (2)
[4] Section 6 (1)

2.2.2.1 Tanzania Harbours Regulations of 1991[1]

Part VIII of these regulations provides for the control of dangerous goods and explosives. A master or agent is obliged under this Part to give notice of dangerous or inflammable goods on board within twenty four hours.[2] A master should give notice of loading and unloading explosive goods to the port authority informing it of the nature and quality of such explosives.[3] In addition such goods may not be loaded into any ship without prior permission from the port authority.[4]

The minister responsible for Communication and Transport has power under Regulation 230, to make sub-regulations as to dangerous goods which should prescribe:

(a) the method of packing and stowing such goods;

(b) the quality of such goods which may be carried in any ship;

(c) the place or places within a ship where they may be carried;

(d) the marking that is to be placed on any package or container in which goods may be placed for shipment, and

(e) the precautions that shall be taken with respect to the carriage of such goods and the power of inspection to determine compliance with the provision of such regulations.

If some of the regulations[5] were implemented, ports in one way or another could ensure a high degree of marine environmental protection of Tanzanian coastal waters, but they are not implemented.

In addition, the Regulations provide that all dangerous goods must be properly marked in accordance with the IMO's International Maritime Dangerous Goods (I.M.D.G) Code.[6] Where goods are not so marked the master of the ship

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[1] GN 413 of 1991
[2] Fourth schedule of regulations
[3] Section 132
[4] Ibid
[5] GN No. 413 of 19
[6] Regulation 166 (2)

carrying such goods is subject to a penalty of US$ 15,000 for such breach or Tshs. 40,000 equivalent to (US$ 65,040) for each subsequent breach.[1] In addition, all or any part of the explosive in respect of which the offence has been committed are forfeit.[2] The main fine at least is enough to deter a master from violating the law, but the author feels that additional money of Tshs. 40,000 for each subsequent breach is not enough, and there is a need to increase the amount. This is because, if these goods are not properly marked, the risk is very high of contaminating goods with which they are incompatible; some of them are highly dangerous if mixed and might cause fires resulting in a danger to life and a risk of pollution.

Regulation 165 of the Tanzania Harbours Regulations provides for rules to be made under the eighth schedule to the Tanzania Harbours Regulations. Under the eighth schedule, oily ballast or bilge water from any vessel is forbidden to be discharge within harbour limits.[3] Any discharge or leakage of oil of any description or of oily water within harbour limits is a contravention of this Rule, and the master of an offending vessel is liable upon conviction, to a fine not exceeding Tshs 600,000, equivalent to US$ 475,609, or imprisonment for a term not exceeding seven years, or both. These provisions seem good and relevant, but the ports have no oily waste reception facilities. So there is need for these ports to install adequate reception facilities. The author was informed by THA Legal Corporation's Secretary that no officer is made specifically responsible at any port for ensuring that ships calling there are not discharging oily water or slops into the sea, even within harbour limits. Again enforcement is a problem and also lack of equipment.

2.2.3 The Dar-es-Salaam Maritime Institute Act 1991

This Maritime Institute started as the Dar-es- Salaam Maritime Training Unit (DMTU) with technical support from the Norwegian Agency for Development

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[1] Regulation 166 (29
[2] Regulation 162
[3] Rule 14

Co-operation (NORAD). In 1989, the name was changed to Dar-es-Salaam Maritime Institute (DMI) upon the realisation that the institute had sufficiently developed to be able to serve all the needs of the shipping industry in Tanzania. The Act provides for the functions, management and control of an independent quasi-autonomous non-governmental organisation "QUANGO" (with its own board of governors) operating under the Ministry of Communications and Transport.[1]

The mission of DMI is to train marine engineers and navigators for the merchant marine, up to class III level of competency. The Institute is also responsible for offering up-grading and refresher courses to seafarers already employed in the Tanzanian shipping industry, as well as pre-sea training of all sea-farers in fire fighting, survival techniques and first aid.

2.2.4 The Fisheries Act 1970

The Fisheries Act[2] was enacted to regulate Tanzania's fisheries, and require licensing and registration of fishing vessels. Vessels wishing to fish stocks considered to be endangered must be specifically licensed for that purpose. It is an offence under section 25 of the Act to fish those stocks without a licence. This section was set as a conservation measures to achieve the maximum sustainable yield from those stocks. Since there is illegal fishing by Tanzanian trawlers, there is a need to enforce this law and put in place more stringent measures against illegal fishing by imposing heavy fines as a deterrent.

Fishing methods are regulated under the Fisheries Principal Regulations.[3] The minister also has powers under the Act to make regulations regarding fish catches, including limiting the capture of certain species and juvenile fish and providing for the protection of spawning areas.[4]

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[1] Section 5
[2] Law No. 6 of 1970
[3] GN No. 317 of 1989
[4] Section 7 & Regulation 28 of the Fisheries Principal Regulations 1989

Penalties for offences are set out in Part V of the Act. The contravention of any regulation made under section 7 of the Act, is an offence. The fine in respect of such offence is a maximum penalty of Tshs. (500,000) (equivalent to US$ 813.08). The same maximum penalty may be imposed where any subsidiary legislation made under the Act makes no provision for penalties.[1]

2.2.4.1 The Fisheries Principal Regulations

The Fisheries Principal Regulations of 1989 provide that all fishing vessels should be kept in a seaworthy condition.[2] Safety at sea cannot be discussed in isolation from marine environmental protection, because failure to ensure the safety of fishing vessels may result in pollution in case of accident or collision. Any person who contravenes the provisions of this regulation or fails or refuses to comply with any requirement stated is guilty of an offence.[3] This section is not complete because it does not spell out specifically the amount of fine to be imposed.

2.2.4.2 The Fisheries (Marine Reserves) Regulations.[4]

These regulations provides for the protection of areas designated as marine reserves, as follows:

> "No person shall, within the boundaries of a Marine Reserve, carry on or permit or cause to be carried on any operation involving dredging, excavating, drilling or filling of any kind or use or permit or cause to be used any equipment, machinery or equipment normally used for dredging, drilling or excavating or deposit, construct or install any such machinery or equipment."[5]

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[1] Section 8 as amended by Written Law (Miscellaneous Amendments) Act 1994
[2] Regulation 12 (1)
[3] Regulation 12
[4] GN No. 137 of 1975
[5] Regulation 7

These areas were designated to ensure conservation of fish and the control and monitoring of pollution from the listed activities.

The regulation provides further for the preservation of living organisms as follows:

> "No person shall dig any hole within a Marine Reserve or in any other way damage or impair any natural habitat or underwater scene within a Marine Reserve."[1]

In addition no person may swim, wade, dive or use any diving equipment within a Marine Reserve except for any purpose connected with scientific study, unless specifically authorised by the Director of Fisheries.[2]

2.2.4.3 The Fisheries (Prohibition of Use of Specified Vessels or Tools) Regulations[3]

These provide that, with effect from March 1994, no person should, except as provided for under the regulations, use or cause to be used for fishing in Tanzanian territorial waters any of the vessels or tools specified under Schedule II to the Regulations, which are:

(i) a fishing trawler of the following characteristics:

-length overall above 25.0 metres

-Gross Registered Tonnage above 150 (150grt)

-main Engine Brake Horse Power (BHP) above 500 and

(ii) Fishing net or seine type of fishing[4]

The idea is to preserve and protect stocks of fish in territorial waters by not allowing larger trawlers to fish. Large trawlers can fish indiscriminately and because of their size disturb other marine life on the sea bed and in fishing grounds. Some of the 'fishing nets or seine type of fishing' are not environmentally friendly because

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[1] Regulation 5 (3)
[2] Regulation 5 (4)
[3] GN No. 370 of 1994
[4] Regulation 3

during the fishing process these type of nets can fish 'by catch' (i.e. other marine life or unwanted small fish).

2.2.5 The National Environment Management Act 1983

The Act[1] is enacted for National Environment Management Council's (NEMC) administrative purpose and does not create additional substantive powers for environmental protection. This is due to lack of a comprehensive and integrated environmental policy and legislation.

In 1994, the National Environment Management Council (NEMC) prepared a proposal for a national contingency plan with the purpose of covering major oil spills as well as small spills of a significant nature. As of January 1997 and now, this contingency plan has not been implemented, and a new draft law relating to protection of marine environment (which is in any event inadequate)[2] has not been approved by the Ministry of Justice and Constitutional Affairs.

2.2.6 The Territorial Sea and Exclusive Economic Zone Act 1989

This Act[3] establishes the breadth of the territorial sea at 12 nautical miles measured from baselines following the coastal low-water line vests the territorial waters and the sub-adjacent sea bed exclusively in the sovereignty of Tanzania. Part III of the Act provides for the establishment of jurisdiction in and exploitation of the exclusive economic zone, in respect of artificial islands, installations and structures, marine scientific research and the protection and preservation of the marine environment. Despite the fact that, Part III of the Act provides for the protection and conservation of the marine environment, the Act does not stipulate comprehensively how to regulate, control and monitor marine environmental protection.

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[1] Law No. 19 of 1983
[2] See Chapter Three for more details
[3] Law No. 3 of 1989

The Act does not impose fine for destruction of marine environment. But Part V provide for general offences with fine of US $ 100,000 or imprisonment for two years or both regarding interference with an authorised officer in the execution of his duty.

2.2.7 Marine Parks and Reserves Unit Act 1994.

The Act[1] consists of 15 Parts, which provide respectively for the establishment of marine parks and reserve unit; the functions of the Board; a revolving fund; the involvement of village councils; the declaration of marine parks and reserves; management plans; zones within marine parks; regulations; powers of the minister to make regulations; appeals; and enforcement.

Part XI of the Act provides for the regulations restricting entry, residence and settlement in a marine park or reserve. The minister responsible may, after consultation with the Board; upon advice of the Advisory Committee, and in consultations with village councils, make regulations prohibiting, restricting and controlling entry into, and residence within, any marine park or reserve. Nothing in any of the above stated should operate so as to prohibit the entry of ships into the marine park or reserve upon any public highway, of persons travelling through the marine park or marine reserve along such highway; or upon any water way or water of travellers who are unable to avoid such entry.[2] Although this provision is set to ensure safety within the park and avoid pollution from ships, which may pass through the park, it is not clear if ships may be prohibited but not passenger boats.

Part X of the Act provides for other regulations dealing with the restriction of certain activities in marine parks or reserves. It further provides that,

> "no person within a marine park or reserve shall fish, hunt, kill or capture any fish or animal or disturb any egg, nest, roe, spawn within the park or reserve; be in possession of any weapon, explosive, trap or poison; operate

[1] Law No. 29 of 1994
[2] Regulation 18 (1) & (3 b)

any vessel within the park or reserve; destroy, deface or remove any object within a marine park or reserve".[1]

The intention of this section is to preserve, conserve and protect the marine life existing within the reserved unit. Any person who contravenes the provision of this section, commits an offence. It is the opinion of the author that since the law is silent on penalty, this provision should be amended by imposing heavy penalty on the violators in order to achieve the intended objective.

The Act provides further for the restriction of commercial activities, and mining in a marine park or reserve.[2] It is also prohibited under the Act to deposit or discharge oil, chemicals, or other hazardous substances (such as those used in drilling or mining operations) within any marine park or reserve or adjacent areas having an impact on the marine park or reserve.[3]

In addition it is prohibited to deposit or discharge any sewage, litter, rubbish, or other articles or substance within any marine park or reserve, or adjacent areas having an impact on a marine park or reserve, except in accordance with specific permission from the park or reserve warden and consistent with the general management plan of the marine park.[4] This implies that, whoever contravenes the Act or any subsidiary legislation made under this Act or any direction given by an authorised officer, commits an offence under the Act.[5]

Furthermore, Part XII gives the minister power to enact rules of procedure for appeals by any aggrieved person against any order made under this Act, which adversely affects that person. No such rules have been made by the minister, and in the absence of such rules it is impossible to conduct appeals.

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[1] Section 22 (1) & (2)
[2] Ibid, section 24 (1)
[3] Ibid, section 24 (d)
[4] Section 24 (e)
[5] Section 24 (2)

2.2.8 The Mining Act 1979

The Mining Act,[1] clearly stipulates that a person granted a mining licence under the Act should submit a statement with particulars of the programmes of proposed mining operations including prevention of pollution, the safeguarding of fishing and navigation (if relevant), the progressive reclamation and rehabilitation of any land disturbed by mining and the minimisation of the effects of mining on water areas (if relevant) and adjoining land. According to this Act, no mining licence should be granted to an applicant unless the programme of proposed mining operations takes proper account (among other things) of environmental and safety factors.

2.2.9 The Petroleum (Exploration and Production) Act 1980

To control pollution associated with petroleum exploration and production, the Parliament enacted the Petroleum (Exploration and Production) Act 1980, and the Petroleum (Exploration and Production) Transitional Rules, 1982. The 1980 Act stipulates that all those involved in the exploration and production of petroleum in Tanzania's exclusive economic zone, should observe good oil drilling practices, generally accepted as good, safe and efficient in the carrying out, of exploration or development activities.

The Act empowers the minister for the Ministry of Energy to grant petroleum exploration licences to carry out investigations and studies for the assessment of the feasibility of the construction, establishment and operation of recovery of petroleum from an area.[2] Such investigations and studies will include Environmental Impact Studies (EIS) on the possible effects of that industry on the environmental protection. The Act does not spell out the required level to determine the grant of the licence.

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[1] Law No. 17 of 1979
[2] Law No. 27 of 1980

This is a gap left in the Act, which can be used by the applicants or experts appointed to carry out the study not to meet standards which will protect marine environment.

The Act provides that any holder of a licence, whether for exploration or development, should control the flow and prevent the wastage or escape in the exploration or development area of petroleum, or water and has the duty to prevent the escape in the exploration or development area of any mixture of water or drilling fluid and petroleum or any other matter.[1]

[1] Law No. 27 of 1980

CHAPTER THREE

ANALYSIS OF LEGISLATION

3.1 Inadequacy of Legislation:

Tanzania has neither enacted any comprehensive national legislation concerning oil pollution of navigable waters by ships nor become a party to any of the international conventions relating to pollution of the marine environment. There is much legislation on environmental issues which are under various executing ministries and agencies. As stated earlier, the only legal power to deal with marine pollution are derived from the Merchant Shipping Act,[1] which to the views of the author, is far from adequate. It is inadequate in the sense that it is restricted only to pollution caused by ship operations but disregard other sources of marine pollution. The law does not have separate rules/regulation to guide the construction and operation of oil tankers which can permit Tanzania to take such measures on the high seas as may be necessary to prevent pollution from ships.

In Tanzania, there has been an inadequate legislative response to marine pollution from land-based marine pollution, transiting ships and unacceptable fishing methods. An inadequate range of marine environment protection is in place. The structure and division of government institutions means that power is distributed between too many major 'players.' Marine pollution has been approached in a fragmentary manner; not all sources of marine pollution are addressed by existing laws, and where they are addressed, this is done in a glaringly perfunctory manner.

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[1] Section 309

Almost all the laws discussed in Chapter Two are essentially territorial in their application. Their extension to the marine environment can usually only be inferred. For example, the concept of water pollution is defined in relation to terrestrial aquatic bodies; the ecological links between land and sea simply do not find legislative expression. Water pollution should be defined with reference to the requirement to minimise "pollution of the marine environment" from land-based sources. Effective laws should be introduced to deal with all land-based activities which affect the quality of the marine environment.

The environmental challenges that Tanzania face exist partly because the country has not adequately taken into consideration the need for evaluating the environmental law, the costs imposed on the national economy in the form of pollution, depletion of natural resources, destruction of ecological heritage and associated human health problems. The environmental legislative framework should be designed to better organise various governmental agencies charged with aspects of environmental protection, to promote co-ordination and co-operation among these institutions, and to define environmental management tools of general scope which will facilitate an even degree of effective policing and enforcement. Sectoral laws should be designed in such a way as to facilitate environmental policy objectives in their areas of coverage. As far as possible the preventive approach to environmental problems should be given top priority, which is not the case in Tanzania at present.

3.1.1 Merchant Shipping Legislation

Part V of the Act stipulates general safety standards required under the 1960 Safety of Life at Sea Convention. These have relevance to prevention of marine pollution in as much as they deal, *inter alia,* with survey of vessels for safety and seaworthiness. Prevention of pollution from ships requires specific discharge control equipment, safety and discharge standards. The Merchant Shipping Act 1967 does not stipulate the ships and tanker construction specifications such as in MARPOL 73/78 or even in the 1954 London Convention.

Furthermore, there are no provisions in the Merchant Shipping Act, or secondary legislation made under it, requiring ports to have reception facilities for oil and oily wastes. The Merchant Shipping Act should incorporate provision on how to regulate and control pollution originating from marine activities.

IMO's[1] major function in preventing accidental pollution is to make ships of all types safer, including tankers. The overall aim of IMO is to reduce the amount of oil-water mixture which has to be disposed of and then make sure that there are facilities on shore for receiving the oily wastes retained on board. MARPOL requires governments to provide reception facilities for oily wastes and garbage (from all ships, not just tankers), and guidelines have been developed on how these should be provided. The measures incorporated in the numerous safety conventions and recommendations therefore apply to these as well as ships.

Furthermore, there are no regulations/rules made by the minister responsible for Communications and Transport to prevent pollution or any imminent threat of oil spill that might occur along coastline which would definitely pollute coastal waters and threaten marine life, and mangrove forests.

Research has revealed that, lack of awareness on the law relating to marine environment protection is the major problem. The author noted that the issue of a marine environmental protection law to many people involved in the shipping industry seems to be a new concept, although many attempts have been made to raise marine environmental protection awareness through seminars and workshops.

Due to the non-existence of a proper maritime administration in Tanzania, Tanzania is lagging behind both on maritime administration and safety. In other maritime nations, the maritime administrations, with assistance from the Ministries of Justice and Environment, deal with the enactment of laws governing pollution within their coastal waters. For example in Norway, the Ministry of Justice and

[1] FOCUS ON IMO, March 1996 - Tanker Safety: The work of the IMO

Environment, together with the maritime authority, enacted an Act[1] in 1981 concerning protection against pollution and waste. This will enhance co-ordination and co-operation within the institutions and facilitate the implementation of the law.

During data collection in the Ministry of Communications and Transport, the author was informed that, the government through the same Ministry has established a Task Force which is studying the need for the establishment of a Maritime Authority in Tanzania. This authority will be vested with powers to serve as a single maritime administrator also taking into account Zanzibar's interest in matters pertaining to administration and safety in the shipping industry.

Section 317 of the Merchant Shipping Act, Part X, stipulates that the British Merchant rules, regulations and orders applicable to British-registered ships should also be construed as applying in the same manner, *mutatis mutandis* to Tanzanian-registered ships.[2] The minister responsible is given powers to make regulations for

(a) prescribing the forms to be used under and for the purposes of this Act;

(b) prescribing anything which under this Act may be prescribed;

(c) amending any of the rules, regulations and orders referred to in section 317;

(d) generally for carrying out the purpose and provisions of the Act.[3]

There is need to amend this law and put in place the IMO rules and regulations.

3.1.2 Fisheries Legislation and Fisheries

Fisheries legislation dealing with preservation of the marine environment often falls into two broad categories: The first category deals with prohibition of certain fishing methods; the second deals with the protection of certain species or sizes of fish in order to maintain the ecological balance of the environment.

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[1] Act No. 6 of 1981
[2] See Appendix
[3] Section 318

However, national legislation in both aspects is limited in scope. For example, fishing by explosives, could be solved by the existing law on the Fisheries (Explosive, Poisons and Water Pollution) Regulations of 1982;[1] the law is adequate except that enforcement is a problem. In addition, assistance could be given to the fishing communities to develop appropriate gears and boats as well as help in marketing their fish. Fishery legislation does not cover issues such as fishermen's loans and the marketing system.

3.1.3 THA Legislation and Port Activities

Ports may have important substantive responsibilities regarding the prevention and control of pollution within the area of the port's jurisdiction and it is essential that the role of the port, together with powers, rights and obligations pertaining thereto, be spelled out clearly in port Regulations. The THA Act together with THA Regulations are silent on this issue which turns out to be contributing factor for poor co-ordination during pollution incident within harbour limits.

The provision of this regulation reflects the provision of chapter VII, Part A of SOLAS, which provides:

> "all dangerous goods shall be durably marked with the correct technical name; trade names alone shall not be used. The packages containing dangerous goods shall be provided with distinctive labels or stencils of the labels, or placards, as appropriate, so as to make clear the dangerous properties of the goods contained therein".[2]

There is an exception in the same regulation, which states that:

> "packages containing dangerous goods shall be so marked and labelled except those of low degree of hazards or packed in limited quantities; or when special circumstances permit, packages that are stowed and handled in units

[1] GN No. 10 of 1982
[2] Regulation 4(2) of SOLAS chapter VII- Part A

that are identified by labels or placards, shall be exempted according to the specific exemptions provided for in the IMDG code."[1]

The problem is enforcement of the law.

The general principles and special procedures in the Code have been recognised and accepted for global applications not only by carriers, but also by manufacturers, packers, shippers, forwarders and port authorities. The provisions of the Code on the description, classification, packing, identification, marking, labelling and storage of dangerous cargoes have been incorporated into national legislation and regulations all over the world. Tanzania has incorporated it into national law, but not implemented it in practice.

In the proposed National Marine Contingency plan, the THA is suggested to be the focal point for receiving all reports on accidents and observed pollution at sea. In order for the plan to be useful the necessary equipment, like booms, skimmers, vessels and aircraft, must be available and working. Enough field-trained personnel to execute the work are also needed. For that reason, there is need for Tanzania to implement the revised STCW 95 and upgrade the DMI to be able to train the intended personnel up to the required international standards. The main problem with the DMI Act is that the DMI's mission is not extended to environmental awareness issues. This will give effect to the objective of the plan and ensure the appropriate response techniques are used to clean-up the pollutants and that disposal of recovered material is carried out in an environmentally acceptable manner.

3.1.4 NEMC Legislation and Environmental protection.

In January 1994, the Council prepared a Bill for amendment of the National Environment Management Act. The Bill is not yet approved as the comprehensive Environmental Protection Act, which aims at enabling the Council to work effectively. The Bill suggests fundamental changes to the Act. The Bill elaborates and improves the functions of the Council, particularly regarding the power to call

[1] Regulation 4 (4)

for information[1] and procedures to take samples in the course of inspection and environmental emergencies and catastrophes. A new Part IV has been introduced to make the Council's conservation role more effective to ensure sustainable use of natural resources. A new Part V elaborates one of the major issues for environmental management, whereby potential damage to the environment can be determined and prevented, or at least substantially reduced.

Looking at the Bill itself, it covers almost everything that is stated in the proposed draft to amend the National Environment Management Act. The draft proposal for the environmental protection Bill proposes for an Act to make provisions for the mechanism of environmental protection, regulation of polluting activities, the establishment and enforcement of pollution control standards and general conservation. This will effectively facilitate the implementation of the proposed draft bill and simplify the role of the Council in carrying out its functions.

However, some of the provisions of the proposed draft bill need to be revised. For instance its clause 57(1) stipulates that:

> "the discharge of harmful quantities of any hazardous substance into the coastal waters of Tanzania or at the joining shoreline is prohibited.....When an offence is committed by a corporate body it shall on conviction be liable to a fine not exceeding Tshs 1,000,000 (equivalent to US $ 162.601), and additional fine of Tshs 1,000 for subsequent days (equivalent to US $ 1.626)"

The fine imposed is too low compared to the costs which might be involved in clean-up. There is a need to increase this amount, and if possible extend further the civil liability to the polluter being involved in the clean-up process.

3.2 Role and Functions of Government Institutions

Tanzania as stated on pp. 32-33, is among the developing maritime nations without an established comprehensive maritime administration to administer its maritime affairs. In its activities in the development of the maritime field, the

[1] Section 8

appropriate Government Authorities would, therefore, need to have an efficient administrative machinery to advise on the adoption and implementation of the national legislation and other regulations required for developing and operating the maritime programme of the country and for discharging the obligations of the Government under international conventions which may be applicable. However, this machinery can best be provided through a well organised maritime administration which at present does not exist in Tanzania. The objective of a maritime administration organisation[1] within the framework of the country's overall maritime activities is to provide the Government with the machinery which would enable it to satisfactorily and efficiently undertake those functions which are embodied within the country's merchant shipping legislation (i.e. national maritime laws). These functions would include the implementation of the requirements of international maritime conventions, and national rules and regulations framed under the authority of the Merchant Shipping Act.

Lack of proper maritime administration in Tanzania appears to be a contributing factor to the existing basic maritime problems as regards matters pertaining to maritime administration:

- out-dated maritime legislation (both primary and secondary);
- inadequate infrastructure, as regards organisation and personnel, for ensuring
  - (i) proper standards of maritime safety on board ships and prevention of pollution from ships, which cover not only ships but also the personnel manning those ship;
  - (ii) maritime development in general;
  - (iii) attention to allied matters e.g. marine environmental protection; and
  - (iv) shortage of marine and onshore maritime officers with the needed qualifications and experience.

[1] Vanchiswar, P.S. Maritime Adminstration / Maritime Safety Administration, Revised Lecture Notes 1997

Accordingly, if Tanzania were to have an appropriate maritime administration; its primary function would have to be both developmental and regulatory. The developmental function contributes directly to maritime development and can take the form of participation in the process of formulating the policy of the Government on maritime development and deciding upon the activities to be taken in connection with such development.

The roles and functions of the government institution dealing with marine activities in Tanzania are provided for under the law which established those institutions. For instance, the roles and functions of the institution like THA, DMI Division of Environment (DoE), Ministry of Transportation and Communications (MoTC), Department of Fisheries and Mining, as stated in their relevant laws reflect the nature of the activities conducted by the institutions, but yet none has provisions related to environmental protection.

Currently, the functions of the Ministry of Communications and Transport, NEMC and DoE are overlapping due to lack of co-operation and co-ordination between the three and lack of comprehensive environmental legislation and appropriate policies. The author is of the view that greater institutional capacity is a prerequisite for the conception, planning and management of appropriate proposals, policy analysis and the formulation of strategic policy decisions. Likewise, the capacity to assess and articulate needs, form networks and create partnerships, and develop technical and management solutions in a field with some diverse issues as the environment, require substantial expertise.

Management of the coastal and marine environment is an essential government function which should not be postponed till resource degradation and depletion is evidently reversible. Responsible environmental management is a pre-condition for sustainability. Currently, the capability, planning and management approaches for coastal resource in Tanzania are insufficient, present problems of overlapping responsibilities and overlook important concerns. There is little control over coastal resources, and no comprehensive multiple use policy exists.

According to the draft National Environmental Policy, the Division of Environment is responsible for the execution of Government objectives on the environment. For that reason, it is the role of the Division of Environment to provide policies and technical back-up to undertake policy analysis and formulate strategic policy decisions on a continuous basis, to co-ordinate broad single sector approaches, to facilitate strategic communication and catalyse collaboration within Government and major actors in the environment. It is the arm of Government that looks at the wider concerns in the environment field and puts in place basic management frameworks for co-ordinating all major players in order to deliver Government objectives on the environment, and to ensure that Government departments do not operate in isolation but function as part of a system of interacting elements[1].

The Division of Environment should promote the use of an inter-agency co-ordination process under its auspices, as well as other relevant matters involving government departments and other major actors for the primary purpose of sharing information and expertise and ensuring that national policies and actions relating to the environment reflect the best scientific advice and broad social consensus[2]. These strategic functions of the Division form the basis for effective inter-ministerial co-operation and should be reflected in environmental legislation.

Furthermore, as sectors compete for funding, resources and political advantages, there is an increasing need to apply integrated coastal and marine environmental management. A single policy framework to promote integration, co-ordination and communication is needed. Inter-ministerial and inter-sectoral co-ordination at the appropriate executive levels, research institutes and development bodies need to be effectively harnessed to increase their focus on the development of coastal areas. Participation in regional and sub-regional agreements and related programmes can reinforce national capacities, promote effective co-operation and

[1] Linden & Lundun (1993) Integrated Coastal Zone Management in Tanzania pg 99
[2] Ibid.

build networks through which regional, sub-regional and national priorities and actions may be identified and implemented.

This implies strengthening of existing institutions and the establishment of innovative and integrated mechanisms. Integration of the coastal and marine issues into national development strategies requires both horizontal and vertical relationships. Local, national and even sub-regional frameworks have to be compatible with effective integration; and a general awareness of coastal environmental and economic issues must be promoted at all organisational levels.

Legal mechanisms need to be more closely correlated with environmental planning and management.[1] For an effective integrated coastal zone management programme to be created a part of the legal framework should be developed to establish a system of regulations and permits. To ensure success and reduce enforcement costs, collaboration between users affected by a coastal management programme must be promoted, as well as environmentally sound projects with contribution from both public and private sectors.

In addition, one of the major responsibilities of government institutions is to assist local communities to become aware of their own situation and support them to be responsible for their own destiny. Environmental issues are best handled with the participation of all citizens at the relevant level. It is widely recognised that interventions which are likely to have positive impacts are those based on the people's own initiatives, and for which solutions are geared towards felt needs, thereby diminishing the gap between theory and practice.[2] Local communities will participate if they are persuaded that it is right and necessary to do so; when they have sufficient incentive, and the required knowledge and skills.

Local level environmental action is in-situ, responds to specific needs which can change quickly, and is small.[3] Environmental action by national institutions on

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[1] Linden & Lundin , 1993 op cit pp 100
[2] Ibid, pp 103
[3] Proposed National Draft on Environmental Policy, 1995

the other hand is ex-situ, could be comparatively rigid, based in a large institution often in an urban setting, and is large scale. Therefore, marine environmental protection which can reduce the impacts on the marine environment and promote sustainable development must be the responsibility of each and every Tanzanian, just as the quality of the environment is a concern of each and all.

CHAPTER FOUR

HOW TO ACHIEVE A SUSTAINABLE ENVIRONMENTAL POLICY

Unless sustainability is achieved, the natural system will not be able to tolerate human activities. Human activities and actions must work with nature rather than against it, and Tanzanian society will only be substantially successful if prosperity is not obtained at the expense of environmental degradation.

A sustainable environmental policy is a policy which requires the integration of economic development policies and programmes in ways that do not undermine or override environmental objectives. This requires policies, plans and programmes of the major players and interest groups, to balance long term and short term needs for the environment and its development.

It calls for a coherent policy where priorities can be defined for promotion of long term economic growth, creating incentives for sustainable utilisation of natural resources, dis-incentives for environmental pollution and degradation and effective management of the overall environment.

According to the Bruntland Report,[1] the proper management of the ocean is essential for sustainable development. For effective ocean management the report suggested that major land-based threats to the ocean regime require effective international co-operation. More specifically, the report recommended that the following steps be taken to ensure sustainable management of the oceans:

- first, strengthen the capacity for national actions,
- second improve fisheries management,

[1] Alstair C. & Edgar G (eds) (1993) The Marine Environment and Sustainable Development-- Law, Policy and Science pg 17

- third, strengthen control of ocean disposal of hazardous and nuclear wastes, and finally,
- advance the Law of the Sea.

The UN Conference on Environment and Development (UNCED), put more emphasis on

> "elaborate strategies and measures to halt and reverse the effect of environmental degradation in the context of increased national and international efforts to promote sustainable and environmentally sound development in all countries".[1]

In addition it was agreed, that among the environmental issues of major concern is

> "the protection of the ocean and all kinds of seas, including enclosed and semi-enclosed seas and coastal areas and the protection, rational use, and development of their living resources".[2]

The UNCED affirms and goes on to establish a broad set of objectives, including the identification of strategies for co-ordinated action to deal with these problems, the promotion of relevant environmental law, and the promotion of appropriate institutions.[3]

To implement some of the agreed issues, Tanzania being a participating country, started a draft on National Environmental Policy in 1995. This draft policy covered environmental issues as a whole i.e. land, water and air. As stated above, marine environmental protection laws and policies are not given great emphasis by the Tanzanian Government, and the draft concerning marine environmental issues.

Since environmental policy involves many sectors and interest groups, its scope is necessarily broad, and the logistical demand for overseeing its implementation and ensuring co-ordinated attention to interconnected challenges is

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[1] Alstair C. & Edgar G, 1993 op cit pg 17
[2] Ibid pg.18
[3] Ibid

complex.[1]

The overall objectives of the proposed national environmental policy are the following:

- to ensure sustainable and equitable use of resources to meet the basic needs of the present and future generations without degrading the environment or risking health or safety.
- to conserve and enhance the national natural and man-made heritage, including the biological diversity of the unique ecosystem in Tanzania.
- to raise public awareness and understanding of the essential linkages between environment and development and to promote individual and community participation in environmental action.
- to promote international co-operation on the environment agenda, and expand national participation and contributions to relevant bilateral, sub-regional, regional and global organisations and programmes, including implementation of conventions.[2]

Critical to the effective implementation of these policy objectives, therefore, will be the commitment and genuine involvement of all institutions and sectors of society. Formal and informal organisation in Tanzanian society, as well as, local community should be partners in the implementation of environmental policy objectives.

An environmentally-oriented management policy should be considered to be the most appropriate means of achieving economic cost-efficiency and ecological sustainability. The primary step to achieve a sustainable environment policy is the promotion of the use of environmentally sound technologies, which are less polluting, use resources in a more sustainable manner, produce less sewage, reuse or

[1] Proposed National Policy 1995, para 8
[2] Proposed National Environmental Policy 1995, para 59

recycle more wastes and paper products and handle residual wastes in a more acceptable manner than the technologies for which they are substituted.

The fundamental prerequisites for achieving a sustainable marine policy is broad public participation of individuals, groups and organisations in environmental impact assessment issues and decisions, particularly those which potentially affect the communities in which they live and work. Hence, producers have a responsibility to achieve these aims against a framework of increasing environmental legislation, both local and national, and widely adopted philosophies, such as the 'polluter pays' and precautionary principles.

In addition, nature conservation and sustainable development are central themes for environmental protection. It is the duty of the Government and politicians to create such balance. There should be inserted in the draft bill a provision that natural resources are not only for human use but have an intrinsic value[1] and that the natural environment is not free for-all, in contrast to the previously accepted traditional approach. This will ensure development with sustainability of marine environment protection in Tanzania.

The structural change has to be environmentally-oriented and requires political initiative, and that the participating economic parties take an environmentally friendly direction. However, human and environmental problems cannot be solved completely with regulations but require broad instruments of an environmentally-oriented social market economy in order to change direction towards environmentally friendly action.

The Tanzanian society should seriously take into consideration this aspect of environmental awareness and take a more active role. Thus, effective environmental awareness policies have to be applied continuously, and should not be connected to economic cycles and trends. They require a convincing strategy, which in turn can provide a lasting incentive for the development and use of environmentally friendly technologies.

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[1] Biodiversity Convention 1992 -Preamble

Environmental education and awareness-raising programmes should be undertaken in order to promote informed opinion. Introduction of environmental education, particularly in primary and secondary school curricula should create an enduring awareness by inculcating values that support responsible care but discourage attitudes that are incompatible with sustainable ways of life.

Furthermore, 'regulatory' legislation, i.e. 'command and control'/licensing methods, often has the disadvantage of being an inflexible instrument and it is often not able to arouse the interest of those responsible to do more than achieve the required minimum standard to control pollution. Therefore, Tanzanian regulations have to be broadened with economic instruments and incentives. These will increase individual interest and creativity of the participants in the market; hence, technical progress and cost-efficiency will increase. Example of an economic instrument are effluent taxes. These secondary legislation will make producers take account of recycling and disposal costs during the construction and production. Industry and trade should be responsible for the problems that they create but also an inducement is required to prevent the use of unnecessary packaging and the waste of valuable resources, in particular to encourage recycling and re-use.

This will reduce the amount of wastes which end up at sea from industrial areas through run-off during rainy seasons. Since few industries and small factories in Tanzania are now trying to reduce the amount of wastes in particular by recycling and there is need to put more emphasis on this strategy and enhance strict regulations for other industries to abide to. There should be regional environmental frameworks in relation to marine environmental management, resource protection and conservation; the precautionary principle is regarded as an essential element of environmental and economic politics.

In 1985, agreement was reached at the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the East African Region aimed to minimise polluting inputs to the regional coastal waters. The Nairobi Convention gives general obligations to all contracting parties, to

individually or jointly, take all appropriate measures in conformity with international law and in accordance with the Convention and those Protocols [1]in force to which they are party, to prevent, reduce and combat pollution of the convention area[2] and to ensure sound environmental management of natural resources.[3]

The Nairobi Convention and its protocols require the Contracting Parties to ratify, accept and approve[4] the Convention. Tanzania, Kenya, Somalia, Madagascar, the Seychelles, Mauritius, Mozambique and the Comoros are parties. Tanzania ratified the convention in February 1996 and it came into in May 1996. It will enable Tanzania through joint efforts with other member states within the Eastern African region to combat pollution by establishing 'protected areas' in areas under their jurisdiction with a view to safeguarding the natural resources of the Eastern African region and to take all appropriate measures to protect those areas.

The Contracting Parties, where necessary, are obliged to establish protected areas in areas under their jurisdiction with a view to safeguarding the natural resources of the Eastern Africa region and take all appropriate measures to protect those areas. Such areas should be established in order to safeguard:

- the ecological and biological processes essential to the functioning of the region;
- representative samples of all types of ecosystems of the region;
- populations of the greatest possible number of species of fauna and flora depending on the ecosystem;[5]

To effectively implement the provision of Article 8 Contracting Parties are required under Article 9 of the Convention of to formulate and adopt guidelines, standards or criteria concerning the identification, selection, establishment and management of protected areas.

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[1] Eastern African Region Protocol No. 52(a) - Nairobi Protocol 1

[2] As defined by Article 2 of the Nairobi Convention - this comprised of marine and coastal environment of that part of the Indian Ocean situated within the Eastern African Region and falling within he jurisdiction of the Contracting Parties to the Convention.

[3] Article 4

[4] Protocol No. 52 (b) Article 27

[5] Protocol No. 52 (b) Article 8

To further achieve the objectives of protecting the area, several protection measures are required to enable the contracting parties, in conformity with international law, and taking into account the characteristics of each protected areas. The Contracting Parties, taking into the characteristics of each protected area, are obliged to take, in conformity with international law, the measures required to achieve the objects of protecting the area, which may include:

- the organisation of a planning and management system;
- the prohibition of the dumping or discharge of wastes or other matters which may impair the protected areas;
- the regulations of pleasure craft activities;
- the regulation of fishing and hunting and of capture of animals and harvesting of plants;
- the prohibition of the destruction of plant life or animals;
- the regulation of anything likely to harm or disturb the fauna or flora, including the introduction of non-indigenous animals or plant species;
- the regulation of any activity involving the exploration of the sea-bed or its subsoil or a modification of the sea-bed profile;
- the regulation of any activities and of the removal of any object which may be considered as an archaeological object which originates from protected areas and are subject to measures of protection;
- any other measure aimed at safeguarding ecological and biological process in protected areas.[1]

Should all the above stated protection measures be implemented, assurance of natural conservation within the coast of the Eastern African region can be proved.

Recently, the Government of Tanzania started to implement some of the agreed strategies in the Nairobi Convention and Rio Summit objectives, NEMC in co-operation with the Institute of Marine Science, University of Dar-es-Salaam and

[1] Protocol No. 52 (b) Article 10

with assistance of SIDA (Sweden) and the World Bank (Environment Department) was able to work on the need for integrated coastal zone management in Tanzania. All these are efforts undertaken by the Government to achieve the objectives of sustainable environment policy in Tanzania.

CHAPTER FIVE

MARINE ENVIRONMENTAL LAW OF SOME SELECTED COUNTRIES

5.1 Introduction

As stated earlier, there is no comprehensive national marine environmental legislation in Tanzania compared to other progressive countries. There are a number of general guidelines common to all states on how to control and regulate marine pollution and protect the marine environment. The following rules are likely to exist:

- the discharge of most pollutants into internal waters and territorial sea areas is generally prohibited;
- in many states authorities should also be notified if certain pollutants or dangerous goods are carried, loaded or discharged, and some port States require advance notification of this.

At the Rio summit, marine environmental protection was among the issues of major concern discussed UNCED and many countries have adopted strategies for co-ordinated action to deal with the problem of environmental degradation, the promotion of relevant environmental law and appropriate institutions.

5.2 The United States of America

US regulations protecting the marine environment are complex and comprehensive and vessels trading to USA ports are well advised, to carefully check these regulations well in advance. It should be noted that, in addition to the very comprehensive federal laws and regulations, there are state and territorial laws at

least in 33 jurisdictions. Many state regulations are at least strict and often stricter, than the federal rules. This requires additional caution for vessels trading in USA ports which must comply with the federal rules as well as those required by the particular port the vessel is visiting.

The principal Federal Acts governing marine pollution are: Oil Pollution Act (OPA); Federal Water Pollution Control Act, also called Clean Water Act (CWA); Deep Water Port Act (DWPA); Act to Prevent Pollution from Ships (APPS); Trans-Alaska Pipeline Authorisation Act (TAPA); Port and Tanker Safety Act (PTSA); Refuse Act (RA); Marine Protection Research and Sanctuaries Act (MPRSA). In simple terms these acts collectively outlaw the discharge of any type of pollutant into waters under US jurisdiction. Standards are at least equal to MARPOL 73/78 and, in some states, even higher. As can be expected fines are high and always inevitable in the case of larger pollution incidents.

However, in order to ensure safety at sea, some of the THA regulations are equal to the Code and SOLAS respectively.[1] As far as laws governing marine pollution, currently in Tanzania there is no law specifically enacted for that; but there is a Bill on Environment Protection awaiting approval.

In 1972, in response to a growing awareness of the environmental and cultural value of US coastal waters, Congress passed the Marine Protection, Research and Sanctuaries Act.[2] The Act[3] authorises the Secretary of Commerce to designate discrete areas as national marine sanctuaries to promote comprehensive management of their special conservation, recreation, ecological, historical, research, educational or aesthetic resources with US territorial waters.

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[1] See Chapter.Three pg. 36 for more details.

[2] The National Marine Protection Research and Sanctuaries Act, (NMSA) 1972, u.s.c. 1431 et seq.

[3] The Authorising legislation define Marine Sanctuaries as: " areas of special national significance due to their resource or human use value" with reference to "conservation, recreational, ecological, or historical, research, educational or aesthetic value of the sanctuary". - from Final management Plan/Environmental Impacts Statement Vol. III OF III, Florida Keys National Marine Sanctuary: Strategy for Stewardship.

In Tanzania, there is a Marine Parks and Reserve Act enacted in 1989 for protection of Tanzanian coastal waters and designated reserved areas such as Mafia Island

Marine Park (MIMP). Despite the existence of the Act, the MIMP is not well protected compared to US sanctuaries. The management strategies of the sanctuaries in the USA could be a lesson to the Tanzanian government for achieving the objectives of the Marine Park and Reserve Act. For example, in the US, the 1972 Marine Protection, Research and Sanctuaries Act created a framework for ocean care and protection of marine resources. Resource protection can take a variety of forms and reflect a range of management policies, guidelines and regulations.[1]

In addition, each sanctuary is unique and is managed and regulated with regard to its location and specific nature, and threats to its resources. Sanctuary management plans establish the framework for achieving the program goal by tailoring to the needs of individual sites. Individualised management strategies and research and educational activities are used to increase the public's understanding of the discrete marine ecosystems and to promote the wise use of marine resources in general.[2]

Marine sanctuaries provide for multiple uses as long as they are balanced with measures to maintain the health and integrity of the ecosystem. However, within these sanctuaries the following are regulated:

- anchoring or mooring of vessels;
- exploring for, developing or producing oil, gas or minerals within the no-activity zones. This is achieved simply because the US as a coastal State has declared and published the limits of these particular areas and at the same time notified other coastal States through the organisation (IMO) thereof;

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[1] Section 301

[2] Flower Garden Banks National Marine Sanctuary (Brochure), 1997 Sanctuary and Reserve Division.

- handling or straddling coral formations;
- injuring or removing a sanctuary resource;
- taking any marine mammal or turtle within the sanctuary;
- spearfishing or using wire fish traps;
- possessing or using any fish gear, device/equipment or means, except conventional hook and line gear, within the sanctuary except while passing through the area without interruption;
- discharging or depositing certain materials;
- drilling into, dredging or otherwise altering the seabed of the sanctuary, or constructing placing or abandoning any structure, material or other matter on the sea bed of the sanctuary;
- possessing or using explosive or releasing electrical charges within the sanctuary.

In Tanzania Part X of the Marine Park and Reserved Act restricts the access to the marine reserved area, and certain activities are also restricted:

- fish, hint, kill or capture any fish, animal or disturb any egg, nest, roe, or spawn within the marine park or reserve;
- gather, collect or remove any fish, animal, aquatic flora, or vegetation, whether live or dead, or any sand, minerals;
- engage in aquaculture;
- operate any vessel or vehicle within any marine park or reserve;
- construct or extend any buildings, roads or any other work; or
- destroy, deface or remove any object within a marine park or reserve.[1]

All the stated restrictions could be better implemented if Tanzania were able to undertake measures taken by the USA. For example, the reserved unit needs to be declared either as marine protected areas or particularly sensitive sea area to

[1] Section 22

effectively protect the area from pollution both by national vessels and foreign vessels.

5.3 Australia

In Australia,[1] the Great Barrier Reef Marine Pack (GBRMP) is the largest marine protected area in the world covering an area of 34,000 square kilometres. The significance of the comparison between the Great Barrier Reef (GBR) and Mafia Island Marine Park (MIMP) lies in the natural features and resources found within the area.

Both GBR and MIMP have a variety of species and include various ecosystems, habitats, communities and species, Whilst the GBR is an area of unique biological diversity, and the whole region, including the islands, has been placed on the world Heritage list,[2] Mafia's marine habitat types include:

- exposed hard coral, soft coral and algae dominated reefs;
- sheltered back reef systems;
- intertidal flats with hard and soft substrates, extensive sea grass, sponge and soft coral subtidal beds; and
- mangroves.[3]

The Great Barrier Reef Marine Park is divided into four sections, each of which has a zoning or management plan which specifically regulates usage within the area. Zoning is used to prescribe standards of protection and separate conflicting activity levels of protection which may vary from areas where almost any activity is permitted to others where almost no human activities are permitted.[4] However, in

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[1] Wendy Craik (1992) Marine Pollution Bulletin Vol. 25 5-8
[2] MEPC 30/19/1
[3] Ngoile M.A.K. (1982) A case study on Development of Mafia Island Marine Park, Tanzania.
[4] See Appendix 4

ones that most activities are permissible, it is generally the case that medium to high impact activities require permits from the Authority. [1]

Under the Great Barrier Reef Marine Park Regulations[2] the Authority cannot grant a permit for an activity unless it has undertaken an assessment of the impact of the activity on the park. The Zoning plans also regulate the areas of the park through which ships can traverse. However, other ship-related activities which are regulated by the Great Barrier Reef Marine Park Act and zoning plans include the discharge of waste[3] at sea.

The objectives in the development of a Zoning Plan are set out in the Great Barrier Reef Marine Park Act as follows:

- the conservation of the Great Barrier Reef;
- the regulation of the use of the Great Barrier Reef so as to protect it while allowing the reasonable use of it; and
- the preservation of some areas of the reef in its natural state, undisturbed by man except for the purpose of scientific research.[4]

Tanzania too, has developed a zoning strategy for MIMP aimed for the protection of the marine environment and sustainable use of the resources. The zoning plan has led to the separation of the incompatible activities within the MIMP. The potential conflicts of interest between differing user/groups therefore, can be avoided or minimised with the demarcation of a number of user sub-areas or zones within the area enclosed by the park boundaries. The MIMP is separated into three zones which include:

- Core zone: The most protective zone i.e. nature reserves;

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[1] Peter O., Steven S. and Collin T. (1994) Shipping Threats and Protection of the Great Barrier Reef Marine Park- Role of the Particularly Sensitive Sea Areas Concept: International Journal of Marine and Coastal Law, Vol. 9, No.4 pg. 512.
[2] Regulation 26
[3] Section 38J of the Great Barrier Reef Marine Park Act
[4] Wendy Craik (1992) Marine Pollution Bulletin Vol. No. 25, 5-8

- Specified use zone: This surrounds the most protective zone and allows activities and development that is carefully regulated to prevent damage to the areas protected by the core zone;
- Regulated use zone: This has less regulations but large scale activities which could damage the ecosystems are prohibited or strictly controlled.

Beside the above strategies, the Division of Environment set up a Steering Committee to further propose the mechanism for managing such an area. This Committee developed the following management objectives:

- to protect ecosystem processes and areas of high species and genetic diversity;
- to stimulate the rational development of non-utilised natural resources including tourism,
- to promote sustainability of existing resource use incorporating recovery strategies for over utilised resources; and
- to involve marine park uses especially Mafia residents in the planning development and management of the park and to give priority of resource use and economic opportunity to Mafia residents in pursuance of goals 2 and 3 above.[1]

The author feels that, since MIMP's main goal reflects the integration of the development and protection of the environment, there is a need to draw a lesson of what has been done by Australia for the Great Barrier Reef. The most important step that need to be given priority is to declare MIMP as a particularly sensitive sea area or marine protection areas to other coastal States through the notification to IMO, and further implement the requirements set out in the Guidelines for the Designation of Special Areas and Identification of Particularly Sensitive Sea Areas - Resolution 720 (17).

[1] Ngoile M.A.K. (1982) op cit

5.4 The Seychelles

In order to develop a better understanding of the full scope of legislation in the field of environment, the Department of Environment (DOE) initiated a project to compile and review the environment legislation of the Seychelles which was completed by March 1990.[1] The purpose of the review of the whole legislation was to identify provisions requiring reform or amendment and to recommend improvement.

The significance of selecting the Seychelles as a lesson to Tanzania is that, prior to the initiation of the above mentioned project, the marine environment laws in the Seychelles were outdated and in urgent need of revision, as was the case regarding Tanzanian marine environmental laws. The author feels that what is being done by Seychelles government could also be done in Tanzania, since most of the laws discussed in chapters two and three are in urgent need of revision.

Since the revision of those laws is the most expensive process, to start with, and by following the example of the Seychelles, immediate priority may be given to revising some of the existing environmental legislation discussed in the previous chapters to fill gaps in the legal framework and to upgrade, and strengthen the standards, provisions and penalties in the existing laws.

The Seychelles started by giving immediate priority to the Exclusive Economic Zone[2] as one of the existing laws. The reason for this was that the Seychelles aimed at demarcating its EEZ an area beyond the territorial waters of the Seychelles to be able to exercise its sovereign rights for the purpose of exploration, exploitation, conservation and management of all resources and exclusive jurisdiction to preserve and protect the marine environment and to prevent and control marine pollution.

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[1] Environment Management Plan Vol. 1 pg. II-37
[2] EEZ (No.2) Order S/ 1 125 of 1978

Furthermore, the Seychelles reviewed the Fisheries Act,[1] especially the provisions for the protection of marine mammals. Regulations are made under this Act to facilitate the enforcement and compliance of the law. Among other things which have been undertaken in the Seychelles on this legislation is to prepare a detailed inventory of the endangered species of flora and fauna of the Seychelles; and measures on the management to ensure the survival of rare and endangered species, which is a major preoccupation of nature conservation and can take many forms including:

- stopping habitat sites,
- protecting breeding sites;
- developing habitats management;
- actively protecting and controlling non-indigenous species.[2]

Tanzania's Fisheries Act is of the same purpose as that of the Seychelles. This law is inadequate and in need of urgent revision. Tanzania could effectively achieve the goal of revising this law by following the above efforts undertaken by the Seychelles.

In addition, the Seychelles has reviewed all existing provisions on animal and wildlife legislation to enhance the established management policy on a detailed inventory of threatened species. In the Review Report, it was recommended that an integrated development plan affording sustainable utilisation of marine resources whilst permitting the commercial development of the fishing sector should be incorporated into the Act, with specified guidelines, codes of practice and yearly quotas for commercial exploitation artisanal fishing and aquaculture schemes. Consideration should also be given to the following:

- an enforcement agency should be detailed, with powers of inspection, search and arrest, to monitor activities in the marine sector and enforce fisheries legislation;

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[1] Fisheries Act No. 5 of 1986

[2] Romilly B. (1990) Review of Environmental Legislation of Seychelles

- prohibition on environmentally harmful fishing practices (e.g. driftnetting), with severe penalties for vessels which enter the Exclusive Economic Zone with prohibited gear, and possible prohibition on bunkering and other services for vessels engaged in the prescribed fishing practices;
- legislation to ensure tighter control of scientific research in order that no harm is caused to the established marine ecosystem, and prevent any undesirable practice which may be harmful to the marine environment.[1]

The above stated consideration may be taken as a lesson by Tanzania when reviewing the Fisheries laws, since illegal methods of fishing are one of the problems facing Tanzania. Finally, on Marine Pollution, Tanzania could also adopt the penalty imposed by the Seychelles.[2]

[1] Romilly B. (1990) op cit pg. 22
[2] Section 6 of Marine Pollution S / 1 51 of 1978

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

From the earliest times, the sea has been a source of materials, a means of transport and a sink for wastes.[1] Tanzania like many other countries faces mounting problems related to the rights and obligations,. including local over fishing, poor management performance, ecosystem degradation, increased stock fluctuations, over-capitalisation, excessive fleet sizes, inefficient gear, inadequate resource information and increasing competition between artisanal and industrial fishing.

Technological development has increased the scale and range of all human activities and brought major changes in human capacity to influence the seas. Human activities cannot be managed successfully if they are dealt with individually or in isolation. It is the authors' feeling that since the Tanzanian population is growing steadily, the sustainable use and conservation of marine living resources is of social, economic and nutritional importance, as they can make a significant contribution to national food security.

Thus legal instruments for protection of the marine environment need to take account of interactions, both between different practices and the environment and between the various mechanisms developed for regulatory and protection purposes. This requires a process of planning and review that is not easily achieved on the international arena.

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[1] Kenchington R. A & Taylor F , Managing Marine Environment.

Where substances originate from land, their subsequent environmental distributions are strongly influenced both by human intervention and natural processes. Without appropriate management, any substance has the potential to cause unwanted effects in any sector of the environment. For these reasons, the operational elements of international agreements on marine pollution by wastes and other materials need to be implemented as part of integrated control procedures that are formulated and applied at national level.

In Tanzania like in other parts of the world, the vulnerable sea is bounded by coastal states which are underdeveloped, short of economic and human resources and struggling with numerous technical and socio-economic difficulties which readily assume priority over concern for the environment. As it might be noted from this text, notwithstanding major problems of non-existence of comprehensive environmental law and proper maritime administration, there are other contributing factors associated with coastal marine degradation. Environmental marine degradation many times arises out of the prolmugation of sectoral and macro policies.[1] Degradation of the marine environment in Tanzania results from a wide range of activities on land, often due to the lack, or the excess, of economic and industrial growth. Human populations and their land use, agriculture, forestry, fisheries, urban development, tourism and industry all influence the marine environment.

Developmental and resource use activities along the coast of Tanzania have caused and continue to degrade the coastal environment and threaten the depletion of the resources.[2] The direct activities are harvesting of fish and other living resources, seaweed cultivation, exploration for energy sources, coastal tourism, and shipping.

Indirect activities include coastal urbanisation, development of tourism facilities, disposal of wastes, agricultural development and damming of rivers for hydro-electric power and irrigation. The rate at which the land based pollutants in

[1] A proposed National Environmental Protection 1994
[2] Ngoile M.A.K (1982) Overview of Coastal Issues and managing initiative in Tanzania.

the ocean is governed by physical, chemical, and biological processes of the aquatic and atmospheric environments. There should be an urgent need to address these environmental issues, identify their causes and lay a strategy for their solution.

For effective management of the coastal waters of Tanzania, there is a need to strengthen existing institutions of the coastal and marine sectors and if possible establish a maritime administration which will play a big role in administering all matters pertaining to the coastal zone. Local, national and even sub-regional frameworks will have to be compatible for effective integration. General awareness of coastal and organisation levels must be in place. Co-operation among the management programmes must be promoted to ensure success and reduce enforcement costs. Concerted efforts must be to link initiative in the direction of increased investments for environmentally sound projects generated by the private and public sectors.[1]

Legal mechanisms have to be more closely correlated with anticipatory environmental planning and management approaches, designed to incorporate new perception relating to coastal zone issues.

To sum up, an analysis of the existing laws related to marine environmental protection in Tanzania proved the following:

- Enforcement of laws pertaining to marine environmental protection is weak.
- Environmental Impact Assessment (EIA) requirements are not reflected in the legislation. Although it is now reflected in the draft bill for repeal of the National Environment Management Act, 1983, but until now the bill has not yet been approved as a law.
- Penalties and incentives are low or non-existent.
- Marine environmental policy is lacking despite the existing proposal of a National Environmental Policy, which has not yet been approved.

[1] Mugurusi E. (1982) Institutional Framework for managing Coastal Zone Resources.

- Most of the provisions of the laws, e.g. the Merchant Shipping Act, are outdated; hence they need to be reformed and some consolidated.
- Marine environment information is not transparent. Public access to information regarding marine environment should be reviewed.
- Cross-sectoral co-ordination is weak.

6.1.1 Need for Reform and Consolidation

The inherent nature of environmental law to set demands, imposes duties and limits and creates obligations for the individual and for private and public bodies to make clear contribution to fit human activities into laws. The lives of all Tanzanians are intimately intertwined with the environment: their survival and that of future generations depends on the harmonious relationship with the national elements. Tanzanians have no choice but to strive to manage the environment and its natural resources in ways that enhance the potential for growth and opportunity for sustainable development of present and future generations. Environmental problems are real. A healthy economy and environment go hand in hand. Both are needed for Tanzania's survival and prosperity.

Marine environmental protection is, therefore, a social and economic necessity as an integral component of sustainable development, which is a central concept in the national environmental policy. Despite the socio-economic changes and development which are going on in Tanzania, the existing laws related to marine environmental protection are lagging behind to reflect such changes.

Free use and open access when demand is low pose no problem. When demand nears or exceeds supply, policies of open access on the ocean environment create conflict among uses and lead to significant resource and environmental degradation. Public perception of ocean issues is in transition. Tanzanian society is gradually appreciating that the impacts of human activities no longer permit a casual approach to the sea as an unlimited receptacle for waste and an endless supply of free and open access to resources.

The root cause of coastal management problems lies in the distribution, absolute size and rates of growth of human populations. Rapid growth of coastal settlements, expansion of recreation areas and centres of maritime transport, and concentration of industrial development along the coast all contribute to the accelerated coastal degradation. The challenges on marine environmental protection, which face Tanzania, exist partly because the country has not adequately taken into consideration the need for environmental law, the cost imposed on the environment in the form of pollution, depletion of natural resources, destruction of ecological heritage and associated human health problems.

Legal instruments need to be closely correlated with environmental planning and management approaches designed to incorporate new perceptions of ocean use. Since the ocean and coastal areas need to be viewed as a positive asset presenting opportunities for sustainable development, management involves the attempt to provide a balance between and among the various uses of ocean space and to protect the viability of the ocean environment.

It encompasses several steps, which include collection, organisation and analysis of data; setting up of priorities; making laws and regulations; implementation of policies; surveillance and enforcement of rules; and evaluation of results.

Certainly, ratification of international conventions incorporating the ratified convention into a national law is not a simple matter, for it requires a very careful consideration by the Government. This includes the advantages and disadvantages to the country, legally being a party to an international convention.

This means being responsible to the international community in so far as the proper and effective implementation of the provisions may necessitate adequate financial resources and appropriate qualified personnel to ensure the enforcement agencies are able to discharge their duties and responsibilities effectively. This includes the maritime administration itself. e.g. the ministry responsible for shipping and maritime affairs.

Part X, section 317 of the Merchant Shipping Act, 1967 needs to be reviewed and reformed. The technological changes and developments in the shipping industry led the amendments to the referred United Kingdom rules/regulations in the second schedule of the Act. This section was relevant in the 1960s when the Merchant Shipping Act was enacted, but with the on-going changes in the shipping industry, together with the length of time since the Act has been in operation, it is the author's view that the Government should be in a position through the minister responsible for Communications and Transport to exercise powers conferred upon him under the Law[1] to prepare Tanzania's own rules/regulations.

In order to protect marine life in Tanzanian waters, there is need to review and reform the Fisheries Act, 1970 to make it reflect the technological changes in the fishing industry, e.g. the use of modern fishing gear and methods. The Government should also consider the need to ratify the Torremolinos International Convention for the Safety of Fishing Vessels, 1977 and incorporate it into national law.

However, because of the nature of the fishing industry it is extremely difficult to develop regulations for other sectors of the shipping industry which can be applied without modification to fishing vessels as well. Therefore, the amendment of the Fisheries Act, 1970 should also take into consideration the provision of International Convention on Standards of Training, Certification and Watch-keeping for Fishing Vessel Personnel (STCW-F) 1995. This Convention will apply to crews of seagoing fishing vessels. Tanzania has ratified the STCW 78 though not yet adopted the new STCW Code 1995. There is therefore a need for the Government to adopt the new STCW Code, 1995 which contains some of the most important amendments to the 1978 STCW.

The amendments require the parties to the Convention to provide detailed information to IMO concerning administrative measures taken to ensure compliance with the Convention. Also enhanced procedures concerning the exercise of port state

[1] Section 318

control should be developed to allow intervention in the case of deficiencies deemed to pose a danger to persons, property or the environment.

In addition measures have to be introduced for watchkeeping personnel to prevent fatigue which might cause accident/collision and result in pollution to the marine environment. By so doing, Tanzania will be able to establish that it has the administrative, training and certification resources necessary to implement the Convention.

The role and function of the THA in protection of coastal waters constitute an integral part of the general environmental law of the State; it is inevitable that the responsibilities of the THA will give impact on, and be affected by the responsibilities of other Government institutions concerned with maritime transport and environmental protection.

Accordingly, legislation on the role of the THA in pollution prevention should indicate clearly the relationship of the THA with other government institutions, as well as procedures and arrangements for the co-ordination of the respective activities of the various bodies and institutions. For example, THA may be obliged to yield some competence to shore-side institutions in cases where an incident in port threatens to cause great damage outside the port area. Similarly, the port will have to take into account regulations or procedures established by appropriate government institutions regarding the disposal of waste matters which have been deposited at port reception facilities, whether such disposal is to be made at sea or land.

6.2 Recommendations

In view of the above observations, the author now wishes to make the following recommendations:

1. Tanzanian government should monitor, take inventory, and assess the hazards of sea and land- based marine pollution sources and regularly

update national and regional assessment of the state of the marine environment.

2. A co-ordinated institutional approach, integrating all relevant environmental and developmental aspects of seas resources, is essential.

3. Government should establish regulatory and monitoring programmes and treatment facilities to reduce and control effluent discharges, chemicals such as synthetic organic compounds, toxic and bio-accumulative pesticides and fertilisers, sewage and solid waste, air pollutants, oil and other hazardous substances.

4. National legislation and regulations pertaining to the protection and development of marine and coastal environment should be reviewed, and when necessary expanded, updated or strengthened.

5. With regard to living marine resources under national jurisdiction, e.g. fisheries, Tanzania should develop and manage these through monitoring and enforcement of regulations related to illegal fishing and over fishing. Appropriate fishing practices and the use of selective gear which minimise adverse impacts on target and non-target species should be developed and promoted.

6. With regard to non-living resources, Tanzania should put in place stringent measures together with regulations to effectively facilitate the enforcement of the existing primary laws, i.e. Mining Act, Petroleum Exploration Production Act, Territorial Exclusive Economic Act and the Marine Park and Reserve Unit Act.

7. Part IX, section 309 and Part X, section 317 of the Merchant Shipping Act, together with the first and second schedules, should be reviewed and reformed to accommodate changes of IMO Conventions.

8. The Regulations on the Merchant Shipping (Certification of Marine Officers) should be amended to infuse changes in line with the new revised STCW 95, as well as amendment of the DMI Act to extend the mandate of the institute to carry out training on marine environmental protection.

9. THA regulations should be reviewed and amended to enhance powers of the port to prevent marine pollution in the conduct and operation of vessels while in port. Regulations, such as requirements to be met during the stay of vessel in port and those relating to provisions of adequate reception facilities for residue containing oil and noxious liquid substances and ship's garbage should be rigidly enforced.

10. The existing draft proposal on National Environmental Policy prior to approval should be revised and include policy on marine environmental protection and finally,

11. Tanzania should ratify all relevant international maritime conventions related to marine environmental protection and incorporate into national laws. Some of these Conventions are: international convention relating to Intervention on the High Sea in case of oil pollution causalities, 1969 (INTERVENTION), international compensation Fund for oil Pollution Damage 1972, (Fund convention), international convention on Civil Liability for oil Pollution Compensation 1969 (CLC),Tonnage Measurements, international Regulations for Preventing Collision at sea, 1972 (COLREG), to start with, although this list is not exhaustive.

It is the author's feeling that as a support for the above recommendations, campaigns should be launched to create public awareness on issues relating to protection and development of the marine environment and coastal resources. This will facilitate the achievement of sustainable marine environment protection and reduce the risk associated with degradation of the marine environment within Tanzanian coastal waters.

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The Petroleum (Exploration and Production) Act 1980 (No 27) (Tanzania)

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APPENDIX 1

MAP OF AFRICA

Source: World Atlas

APPENDIX 2

Commercial Bank Interest rates as of 24/09/97

CURRENCY	MEAN/CROSS RATE
US DOLLAR	615.18
POUND STG	989.22
DEUTSCHE MARK	346.33
FRENCH FRANC	104.06
JAPANESE YEN	5.07
SWISS FRANC	427.81
SOUTH AFRICAN RAND	131.54
INDIAN RUPEE	17.00
UAE DIRHAM	167.49
EAST AFRICAN CURRENCIES	
KENYAN SHILLING	9.91
UGANDAN SHILLING	0.54

Source: http://www.intafrica.com/express/ (Issue No. 32 October 1997)

APPENDIX 3

Source: Merchant Shipping Act No. 43 of 1967 (Tanzania)

SECOND SCHEDULE

(s. 317)

Carriage and Stowage of Cargo.	
The East African Harbours (Improperly Loaded Ships) Regulations, 1960.	L.N. 44 of 1960
The Timber Cargo Regulations, 1958.	UK/S. I. 1958 No. 621
The Petroleum (Liquid Methane) Order.	UK/S. I. 1957 No. 859
Crew Accommodation.	
The Merchant Shipping (Crew Accommodation) Regulations, 1953.	UK/S. I. 1953 No. 1036
Collision Regulations.	
International Regulations for Preventing Collisions at Sea, 1960.	1954 No. 1660 1965 No. 1047
Dangerous Goods.	1961 No. 393
The Merchant Shipping (Dangerous Goods) Rules, 1965.	UK/S. I. 1965 No. 1067
Distress Signals.	
The Merchant Shipping (Signals of Distress) Rules, 1965.	UK/S. I. 1965 No. 1550
Examinations and Certificates of Competency.	
Regulations for the Examination of Masters and Mates (Exn. 1)	1962 U.K.M.O.T.
Regulations for the Examination of Engineers (Exn 1a).	1958 U.K.M.O.T.
Regulations made under the East African Railways and Harbours Act for the Examination of Masters, Mates and Engineers in the East African Coasting Trade.	1962 No. 579 1964 No. 955
Merchant Shipping (Certificates of Competency as A.B.) Regulations, 1959.	UK/S. I. 1959 No. 2148
Fire Precaution and Extinction.	
Merchant Shipping (Fire Appliances) Rules, 1965.	UK/S. I. 1965 No. 1106
Health.	
Merchant Shipping (Anti-scorbutics) Order in Council, 1927.	U.K.S.R. & O. 1927 No. 360
Merchant Shipping Medical Scales Order, 1953.	UK/S. I. 1953 No. 998 1953 No. 1446 1955 No. 1157 1961 No. 1045
Life-saving Appliances.	
Merchant Shipping (Life-saving Appliances) Rules, 1965.	UK/S. I. 1965 No. 1105
Load Line.	
The Load Line Rules, 1959.	UK/S. I. 1959 No. 2238

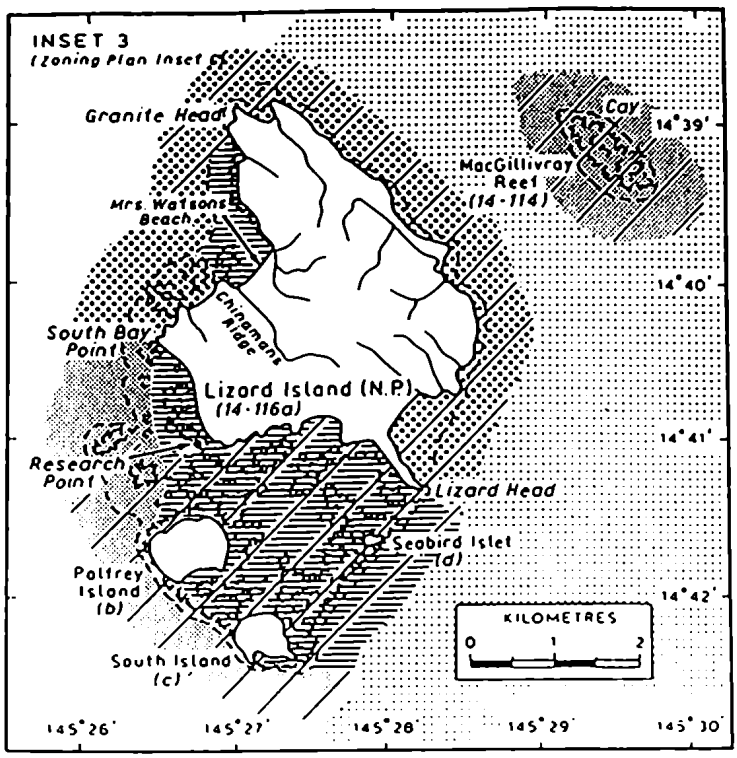
SECOND SCHEDULE—*contd.*

U.K.S.R. & O. 1932 No. 921	*Load Line*—contd. Load Line Convention Certificates, Validity Regulations, 1932.
UK/S. I. 1965 No. 1113	*Musters and Drills.* Merchant Shipping (Musters) Rules, 1965.
UK/S. I. 1965 No. 1051	*Navigational Warnings.* Merchant Shipping (Navigational Warnings) Rules, 1965.
UK/S. I. 1965 No. 1103	*Passenger Ships.* Merchant Shipping (Passenger Ship Construction) Rules, 1965.
UK/S. I. 1965 No. 1114	Merchant Shipping (Closing of Openings in Hulls and Water-tight Bulkheads) Rules, 1965.
UK/S. I. 1965 No. 1046	*Pilot Ladders* Merchant Shipping (Pilot Ladders) Rules, 1965.
UK/S. I. 1965 No. 1107	*Radio and Radio Aids to Navigation.* Merchant Shipping (Radio) Rules, 1965.
UK/S. I. 1965 No. 1112	Merchant Shipping (Direction—Finders) Rules, 1965.
UK/S. I. 1965 No. 1104	*Cargo Ships.* Merchant Shipping (Cargo Ship Construction and Survey) Rules, 1965.

APPENDIX 4

PROTECTION OF THE GREAT BARRIER REEF MARINE PARK

Source: International Journal of Marine and Coastal Law Vol. 9 No. 4 1994



ACTIVITIES	Diving, boating, anchoring, photography	Line fishing	Trolling	Spearfishing (snorkel only)	Collecting	Limited collecting	Bait gathering (by hand)	Bait netting	Crabbing	Oyster gathering	Commercial netting	Trawling	Aircraft
General Use Zone	Yes	Yes	Yes	Yes	Permit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Habitat Protection Zone	Yes	Yes	Yes	Yes	Permit	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Conservation Park Zone	Yes	Limited	Pelagic species only	Restricted rates	No	Yes	Yes	Yes	Limit on pots	Limited	No	No	Yes
Buffer Zone	Yes	No	Pelagic species only	No	No	No	No	Pelagic species only	No	No	No	No	Yes
National Park Zone	Yes	No	No	No	No	No	No	No	No	No	No	No	Yes
No Structures Sub-Zone													

Figure . Excerpt from Cairns Section Zoning Plan: Lizard Island