

**REGULATING LAND-BASED SOURCES AND ACTIVITIES CAUSING
POLLUTION OF THE COASTAL AND MARINE ENVIRONMENT IN
SOUTH AFRICA, KENYA AND NIGERIA WITHIN THE CONTEXT OF
INTEGRATED COASTAL ZONE MANAGEMENT**

TEMITOPE EMMANUELLA KADIRI

Supervisor

Prof. Jan Glazewski



Thesis presented for the approval of Senate in fulfillment of the requirements for the degree of **DOCTOR OF PHILOSOPHY** in the Department of Public Law

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DECLARATION

I declare that this thesis for the degree of Doctor of Philosophy at the University of Cape Town is my work, and has not been previously submitted for a degree at this or any other University. The thesis is also my work in design and execution and all the materials used and contained herein have been duly acknowledged.

Kadiri Temitope Emmanuella

Date

DEDICATION

I dedicate this work to my family, my father Pastor Vincent Kadiri and mother Pastor Mrs. Colette Yetunde Kadiri. My siblings, Mr. Olumuyiwa Kadiri, miss Olufisayo Kadiri and miss Simil'oluwa Kadiri. Thank you for your great financial, moral and spiritual support.

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LIST OF ABBREVIATIONS

ACAP	Arctic Council Action Plan
ACOPS	Conference on Cooperation for Development and Protection of the Marine and Coastal Environment in Sub-Saharan Africa
AMAP	Arctic Monitoring and Assessment Programme
AMCEN	African Ministerial Conference on the Environment
AU	African Union
BAT	Best Available Technique
BET	Best Environmental Technique
BEP	Best Environmental Practice
BPT	Best Practicable Technology
BOD	Biochemical Oxygen Demand
CBO	Community Based Organization
CDA	Coastal Development Authority
CEC	Committee for Environmental Coordination
CEP	Caribbean Environment Programme
CERM	Consortium for Estuarine Research and Management
CIA	Central Intelligence Agency
COP	Conference of Parties
COI	Indian Ocean Commission
CONNAPP	Consultative National Environmental Management Policy Process
CoZSSA II	Second Conference on Coastal Zones in Sub-Saharan Africa
CSIR	Council of Scientific and Industrial Research
CWDP	Coastal Water Discharge Permit
CWG	Coastal Working Group
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DDT	Dichloro Diphenyl Trichloroethane
DME	Department of Minerals and Energy

DOT	Department of Transport
DPR	Department of Petroleum Resources
DWA	Department of Water Affairs
DWAF	Department of Water and Forestry
EA	Environmental Assessment
ECOSOC	United Nations Economic and Social Council
EIA	Environmental Impact Assessment
EIP	Environmental Implementation Plan
EMP	Environmental Management Plan
EMP	Environmental Management Programme
ESA	Environmentally Sensitive Areas
EEZ	Exclusive Economic Zone
FAO	Food and Agricultural Organization
FEPA	Federal Environmental Protection Agency
FMAWR	Federal Ministry of Agriculture and Water Resources
FMEHandUD	Federal Ministry of Environment, Housing and Urban Development
FRIN	Forestry Research Institute of Nigeria
GCC	Guinea Current Commission
GCLME	Gulf of Guinea Large Marine Ecosystem
GESAMP	Joint Group of Experts on Scientific Aspects of Marine Pollution
GDP	Gross Domestic Product
GIS	Geographic Information System
GMOs	Genetically Modified Organisms
GN	Government Notice
GPA	Global Programme of Action
HCDS	Human Capital Development Strategy
HELCOM	Helsinki Commission
ICAM	Integrated Coastal Area Management
ICARM	Integrated Coastal Area and River Basin Management
ICZM	Integrated Coastal Zone Management
ICZMP	Integrated Coastal Zone Management Plan

ICM	Integrated Coastal Management
IDP	Integrated Development Plan
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IOCINCWIO	Intergovernmental Oceanographic Commission Regional Committee
IUCN	International Union for Conservation of Nature
IWGMP	Intergovernmental Working Group on Marine Pollution
KFS	Kenya Forest Service
KMA	Kenya Maritime Authority
KMFRI	Kenya Marine and Fisheries Research Institute
KWS	Kenya Wildlife Service
KZN	Kwazulu Natal
LASEPA	Lagos State Environmental Protection Agency
LAWMA	Lagos State Waste Management Agency
LBMP	Land Based Marine Pollution
LBSA	Land Based Sources and Activities
LFN	Laws of the Federation of Nigeria
LME	Large Marine Ecosystem
LSWDBS	Lagos State Waste Disposal Board
MAP	Mediterranean Action Plan
MCC	Municipal Coastal Committee
MEC	Member of the Executive Council
MINMEC	Inter-ministerial Committee on Environmental Affairs
MINTEC	Ministerial Technical Committee on the Environment
MPA	Marine Protected Area
MOU	Memorandum of Understanding
NAEF	National Environmental Advisory Forum
NCC	National Coastal Committee
NCMP	National Coastal Management Programmes
NEAP	National Environmental Action Plan
NEC	National Environment Council

NEMA	National Environmental Management Authority
NEPAD	The New Partnership for Africa's Development
NES	National Environment Secretariat
NESREA	National Environmental Standards and Regulations Enforcement Agency
NET	National Environment Tribunal
NGOs	Non-Governmental Organizations
NIOMR	Nigerian Institute for Oceanography and Marine Research
NIWA	National Inland Waterways Authority
NOWPAP	Northwest Pacific Action Plan
NPA	National Programme of Action
NPA	National Ports Authority
NPA	Nigerian Ports Authority
NPS	National Park Service
NRF	National Research Foundation
NWRMS	National Water Resources Management Strategy
OAU	Organization of African Unity
ORI	Oceanographic Research Institute
PA	Protected Areas
PACSICOM	Pan African Conference on Sustainable Integrated Coastal Management
PADH	Physical Alteration and Destruction of Habitats
PAME	Protection of the Arctic Marine Environment Working Group
PCC	Public Complaint Committee
PCC	President's Coordinating Council
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
POPs	Persistent Organic Pollutants
RACs	Regional Activity Centres
ReCoMaP	Regional Programme for the Sustainable Management of the Coastal Zone of the Countries of the Indian Ocean
RCU	Regional Coordinating Unit
RSP	Regional Seas Programme

SAEON	South African Environmental Observation Network
SADC	Southern Africa Development Community
SADCO	Southern African Data Centre for Oceanography
SARDC	Southern African Research and development Centre
SAIAB	Southern African Institute for Aquatic Biodiversity
SALGA	South African Local Government Association
SAMSA	South African Maritime Safety Authority
SANBI	South African National Botanical Institute
SANCOR	South African Network for Coastal and Oceanic Research
SAP	Strategic Action Plan
SAPO	South African Ports Operations
SAREC	Swedish Agency for Research
SEA	Strategic Environmental Assessment
SEACAM	Secretariat for Eastern African Coastal Area Management
SERC	Standards and Enforcement Review Committee
SIDA	Swedish International Development Cooperation Agency
SIDS	Small Island Developing States
TARDA	Tana and Athi Rivers Development Authority
TDA	Transboundary Diagnostic Analysis
UNCSD	United Nations Commission on Sustainable Development
UNDESA	United Nations Department of Economic and Social Affairs
UES	Uniform Effluent Standards
UK	United Kingdom
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USA	United States of America
WACAF	West and Central Africa
WHO	World Health Organization
WIO	West Indian Ocean
WIO	Western Indian Ocean

WRC
WRM

South Africa's Water Research Commission
Water Resources Management

ABSTRACT

This thesis outlines and critically assesses the regulation of land-based sources and activities causing pollution (LBSA) in the coastal and marine environment in two broad areas of sub-Saharan Africa, the West and Central African Region (WACAF) and the West Indian Ocean (WIO) region. These two regions are both endowed with a diversity of life forms and resources that support large populations of coastal communities. The legal and institutional aspects are outlined and examined against the theoretical backdrop of the relatively new concept of integrated coastal zone management (ICZM), the goals of which are to ensure that decisions taken in all sectors regarding the environment and at all levels of government are harmonized and consistent with countries' coastal policies in order to achieve sustainable development of coastal and marine areas. More specifically, the work examines the international soft and hard law developments as well as regional legal developments, paying particular attention to the two UNEP initiated Conventions in the regions namely the 1985 Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African region (Nairobi Convention) and the 1981 Convention for the Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region and its Protocol concerning Cooperation in Combating Pollution in Cases of Emergency (Abidjan Convention), as well as their respective Protocols. The work concludes by examining the extent to which these international and regional developments have been incorporated in the legal and institutional framework structures of three select countries namely, Kenya (representing the WIO) region, Nigeria (representing the WACAF region) and South Africa on the interface of both regions.

This study reflects the laws and policies as of December 2013.

PART ONE: GENERAL BACKGROUND

CHAPTER ONE

Introduction to the study

„When you tug on a single thing in nature, you find it attached to the rest of the world“ John Muir, the conservationist.¹

1.1 Introduction

Ignorance of the marine environment (including the coastal zone) has generated an attitude toward its use, such that it is treated as an infinite source of food supply, a bottomless pit for waste and a common space on which to play and fight, made available to all.² Approximately 80 percent of the pollution entering this environment emanates from sources and activities taking place on land.³ These include industrial, agricultural, municipal, household, oil and gas exploration and exploitation sources and activities such as dumping at sea. The threats⁴ posed by these sources and activities have been increasing on a global scale in recent decades. For instance, rapid population growth,⁵ urbanization, agricultural activities, climate change, industrial and infrastructural developments on the coast,⁶ such as commerce, transport, tourism development, housing, all interfere and compete with both terrestrial and marine species for space on the coast and the open seas.⁷ However, unsustainable use and exploitation of marine resources, coupled with the impact of pollutants released from the above threats are causing the coastal and marine environment to deteriorate.⁸ Hence, the twentieth century has produced a

¹ L Joubert, *Boiling Point* (2008) 12, Heinrich Böll Stiftung, Southern Africa.

² The WWF/IUCN Marine Policy: Creating a Sea of Change, (1998) 5, www.iucn.org/themes/marine/pdf/ Accessed 2008; Meng Qing-Nan, *Land-Based Marine Pollution: International Law Development* (1987) 23, Graham and Trotman/Martinus Nijhoff, London.

³ Patricia Birnie, Alan Boyle and Catherine Redgewell, *International Law and the Environment*, 3rd Edition, (2009) 451, Oxford University Press, New York.

⁴ These threats are environmental, ecological, biological and threats to human health; G Kullenberg, „Approaches to addressing the problems of Pollution of the Marine Environment: An Overview“, *Ocean and Coastal Management*, vol. 42 (1999) 1001.

⁵ As at 1990, about 2 billion people lived within 100km of the sea. By 1995, 200 million or more were already living in coastal areas. ‘World Resources‘ (2000-2001) 73, www.wri.org, Accessed 2008.

⁶ Approximately 29 percent of all lands within 100km of the coastline is considered altered, 19 percent, highly altered, and 10 percent semi-altered; Ibid 73.

⁷ R Hassan, M Scholes AND N Ash (Eds) *Ecosystems and Human Well-being: Current State and Trends: Findings of the Condition and Trends Working Group of the Millennium Ecosystem Assessment*, (2005) 515, Island Press, Washington D.C.

⁸ Daud Hassan, *Protecting the Marine Environment from Land-Based Sources of Pollution: Towards Effective International Cooperation* (2006) 1, Ash gate Publishing Ltd, England.

valuable set of internationally agreed principles,⁹ legal regimes¹⁰ and organizations¹¹ to protect and preserve the coastal and marine environment from these growing threats, as well as conserving coastal and marine resources and ensuring sustainable utilisation of them. Africa has embraced these regimes and principles and gone on to complement them by developing its own regional legal regimes to protect and preserve its coastal and marine environment.¹² While these regimes and principles have gone some way in addressing some of the above threats, thereby improving quality of life in certain areas, pollution from land-based sources and activities, and human encroachment on the coastal and marine environment has continued and even intensified especially in coastal states such as South Africa, Kenya and Nigeria. The need to reverse this trend and change the manner in which the oceans, coastal areas and their resources are used and managed lies at the heart of integrated coastal zone management (ICZM) concept.¹³

1.2 Contextual background

There are six sources of pollution of the marine environment, namely vessel source pollution, pollution from dumping at sea, pollution from sea-bed activities, pollution from activities in the area (deep-ocean mining), pollution from atmospheric sources and pollution from land-based sources and activities.¹⁴ It is the latter category that is the focus of the study. However, land-based sources and activities causing pollution of the coastal and marine environment is introduced by first referring to generally accepted definitions of ‘marine pollution’ and ‘land-based sources and activities’.

⁹ These principles include precautionary principle, preventive principle, public participation principle, EIA, integrative principle and polluter pays principle.

¹⁰ Such as the United Nations Framework Convention on Climate Change and the Kyoto Protocol (UNFCCC), Stockholm Convention on Persistent Organic Pollutants, United Nations Convention on the Law of the Sea (UNCLOS).

¹¹ Such as the United Nations Environment Programme (UNEP) established in 1972.

¹² These include the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention) and the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention).

¹³ Biliana Cicin-Sain and Robert W. Knecht *Integrated Coastal and Ocean Management: Concepts and Practices* (1998) 127, Island Press, DC Washington; Bruce C. Glavovic and Cullinan ‘The Coast’ in HA Strydom and ND King (Eds) *Environmental Management in South Africa*, 2nd edition, (2009) chap 23, 868-870; Alexandre Kiss and Dinah Shelton, *Guide to International Environmental Law*, (2007) 190, Martinus Nijhoff Publishers.

¹⁴ Part XII of the United Nations Convention on the Law of the Sea (UNCLOS) 1982.

1.2.1 What is marine pollution?

The term ‘marine pollution’ has been defined by the United Nations Convention on the Law of the Sea (UNCLOS)¹⁵ to mean

*the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.*¹⁶

By implication, marine pollution has occurred when there is alteration by humans in any form to the function and/or state of the marine environment by bringing in or introducing substances or energy, that has caused or likely to cause adverse effects or damages to it, which also impairs the usefulness of its resources and/or amenities. It also implies a process by which a natural or man-made resource is rendered unfit for beneficial use due to the introduction of physical, chemical or biological factors.¹⁷ This definition has become a standard definition that has been adopted in many soft and hard law agreements relating to pollution of the marine environment.¹⁸

1.2.2 What are marine polluting land-based sources and activities?

The phrase ‘land based sources and activities’ has been defined to mean

municipal, industrial or agricultural sources, both fixed and mobile, on land, discharges from which reach the marine environment in particular

- a) *From the coast, including from outfalls discharging directly into the marine environment and through run-off;*

¹⁵ UNCLOS was adopted in 10 December 1982, entered into force 16 November 1984. UNCLOS is the first international convention to define marine pollution in the context of protecting the marine environment from all forms and sources of pollution.

¹⁶ Article 1(4) of UNCLOS 1982. This definition was adopted from the Joint Group of Experts on Scientific Aspects of Marine Pollution (GESAMP), which was established in 1969 to provide advice on scientific aspects of marine pollution to the various international agencies sponsoring it.

¹⁷ H Daud (note 8) 13.

¹⁸ Such as article 2(1) of Abidjan Convention 1981, article 2(b) of Nairobi Convention 1985, and Article 1(a) of Montreal Guidelines for the Protection of the Marine Environment from Land based Sources.

- b) *Through rivers, canals or other water-courses, including underground water-courses; and*
- c) *via the atmosphere.*¹⁹

Thus, land-based sources and activities causing pollution of the coastal and marine environment can be defined as anthropogenic or human activities taking place on land on a daily basis²⁰ discharging wastes that flow or are deposited into the coastal and marine environment. Given this definition, an initial question is, should dumping at sea be categorised as a land-based source or activity causing marine pollution? It has been established that dumping at sea is generally considered a separate source of pollution to the marine environment, particularly dumping emanating from intentional discharge of oils, chemicals, debris and other matters by ocean-going vessels, and thus covered by various conventions established to control oil pollution.²¹ Therefore ‘dumping at sea’ is not the subject of this thesis.

Effluents or wastes that find their way into the coastal and marine environment through pipelines, outfalls and runoffs are not regarded as ‘dumping at sea’ but are rather ‘land based’ as they emanate from a variety of sources, such as agricultural activities, industrial activities, household activities, municipal activities, infrastructural developments and artificial structures. The resultant pollution emanating from these activities enter into the coastal and marine environment from two sources, namely point and non-point (diffuse) sources.

1.2.3 Point and non-point (diffuse) sources of pollution

Point source pollution emanates from effluent pipelines, municipal sewage treatment plants and industry treatment facilities. The pollutants discharged from point sources are regular, can be monitored and controlled by treating at source.²² By contrast, non-point sources are continuous,

¹⁹ Art 1(b)(i) the Montreal Guidelines, UN Doc. UNEP/GC/WG.120/3 (1985):53, www.un.org, Accessed 2008. This is the only international document that has defined land based sources and activities specifically. More discussions on the guidelines are done in chapter three of this study.

²⁰ M Qing-nan (note 2) 26.

²¹ Conventions such as the London Dumping Convention of 1972 and its Protocol of 1996, and MARPOL 73/78 Convention.

²² S Carpenter Chair., NF Caraco, DL Corell, RW Howarth, AN Sharpely and VH Smith, ‘Non Point Pollution of Surface Waters with Phosphorus and Nitrogen’, *Issues in Ecology, No 3 (1998) 560*.

more often than not are irregular and linked to major infrastructural constructions and seasonal agricultural activities, such as planting and ploughing, making these difficult to control and regulate.²³ Many adverse impacts of land-based sources and activities come from this source, mainly because of the practical difficulty of controlling, regulating or treating at source. The difficulty experienced in controlling, regulating or treating pollution from non-point source is made complex by the various ways in which it occurs.²⁴ For instance, atmospheric deposition aids non-point source pollution as a result of weather conditions, runoff flowing across farmers' fields, active or discontinued logging operations, on-site sewage systems, home gardens and even city streets, all add to non-point source pollution.²⁵

In addition, pollution occurring from non-point sources tends to occur in the process of operation rather than as a result of accident.²⁶ For instance, storm-water runoff and discharges from informal settlements are oftentimes channelled into near-shore waters.²⁷ In the case of enclosed and semi-enclosed seas, wastes discharged remain in sea-water due to slow exchange with the open sea, thus the capacity of dispersion and dilution is low.²⁸ Hence, the marine environment is the ultimate sink for this pollution, while the coastal zone is the most affected as this zone is the first to be affected by pollutants before reaching the open sea.²⁹ The type of pollutants emanating from these point and non-point sources include hydrocarbons, persistent organic pollutants (POPs), solid wastes, sediments, sewage, debris or litter, radioactive substances, toxic chemicals (such as inorganic chemicals), heavy metals and nutrients including

²³ Ibid 4.

²⁴ Campbell Neil, Brian D'Arcy, Frost Alan, Novotny Vladmir and Sansom Anne, *Diffuse Pollution: An Introduction to the Problems and Solutions*, (2004) 6, IWA Publishing, United Kingdom.

²⁵ 'Tackling Non-Point Source Water Pollution in British Columbia: An Action Plan', (1999) 8, www.env.gov.bc.ca/wat/ Accessed 2008.

²⁶ M Qing-nan (note 2) 27.

²⁷ 'The State of the Marine Environment-Regional Assessment' (2006) 31, 34, 36-38, www.gpa.unep.org/documents/regional_so_e_part_1_english.pdf, Accessed 2008; RF Fuggle and MA Rabie, *Environmental Management in South Africa* (1992) 671, Juta and Co Ltd, Wetton.

²⁸ M Qing-nan (note 2) 27.

²⁹ 90 per cent of marine living resources are found in the coastal zone, The Living Planet Report (1998) 3, <http://www.fza.panda.org/> Accessed 2008; '...The coastal zone is ecologically by far the richest, most productive and most sensitive to disturbance', RM M'Gonigle, 'Developing Sustainability' and the Emerging Norms of International Environmental Law: The Case of Land-Based Marine Pollution Control', *The Canadian Yearbook of International Law*, vol. 28 (1990) 173.

agricultural fertilizers.³⁰ The adverse impacts of these pollutants include creating a toxic environment for fish, shrimp and algae, degradation of seawater, sediment quality and drinking water quality, modification of habitats and relevant loss of biodiversity.³¹ Thus, the impact of these pollutants are felt at international, regional and national spheres, and has resulted in international and regional efforts to reduce and/or totally eliminate these forms of pollutants as elaborated on in the next section, and more amply in chapter three and four of the thesis.

1.3 International response to the regulation of land-based sources and activities causing pollution of the coastal and marine environment

In an attempt to regulate pollution of the marine environment from land-based sources and activities, the international community developed a number of soft and hard law agreements, such as the Washington Declaration and the Global Programme of Action for the Protection of the Marine Environment from Land Based Activities (GPA) and those contained in Part XII of the United Nations Convention on the Law of the Sea (UNCLOS).³² The UNCLOS³³ provides the hard law rules for regulating pollution of the marine environment from all sources including land-based sources, while the GPA provides the main soft law rules for regulating land-based sources and activities.³⁴ UNCLOS stipulate that states must take measures to prevent, reduce and control pollution from any source, including land-based sources.³⁵ It further states that in effectively carrying out these obligations, there is need for states to co-operate on a global and regional scale in order to formulate and elaborate on international and regional rules, standards, recommended practices and procedures for the protection and preservation of the marine environment, taking into account characteristic regional features, and to act at appropriate

³⁰ A Kiss and D Shelton (note 13) 202; RF Fuggle and MA Rabie (note 28) 167; 'The State of the Marine Environment-Regional Assessment' (note 27) 2.

³¹ Yihang Jiang, Hugh Kirkman, An Hua, 'Megacity Developments: Managing Impacts on Marine Environments', *Ocean and Coastal Management* vol. 44 (2001) 306; Carpenter Chair S., et al., (note 22) 560.

³² It also includes the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters, 1972 and its Protocol of 1996 (London Dumping Convention); Convention on Biological Diversity, 1992 (CBD); Convention on Persistent Organic Pollutants, 2001 (Stockholm); Convention on the Prior Informed Consent Procedure for certain Hazardous Chemicals and Pesticides in International Trade, 1998 (Rotterdam); Montreal Guidelines, 1985.

³³ UNCLOS was adopted 10 December 1982, entered into force on 16 November 1994.

³⁴ The GPA was adopted in 1995 in Washington D.C. This soft law agreement is discussed in detail in chapter four of this study.

³⁵ Articles 194-207 of UNCLOS.

regional levels,³⁶ thus, making contracting parties responsible for setting up the basis for rules and standards either globally or regionally for ocean and coastal governance. Accordingly, in 1995, representatives of 108 states and the European Commission came together to adopt the ‘Global Programme of Action for the Protection of the Marine Environment from Land based Sources’ (GPA) with the aim of prompting countries to co-operate on a global and regional basis to protect and preserve the marine environment from the adverse impacts of land-based sources and activities.³⁷

International regulation of land-based sources and activities is outlined in chapter three of the study.

1.4 Regional response to the regulation of land-based sources and activities causing pollution of the coastal and marine environment

In carrying out the aim of the GPA and the obligations of UNCLOS in cooperating on a regional scale to combat land-based sources and activities, the United Nations Environment Programme’s (UNEP) Regional Seas Programme (RSP) has developed programmes for protecting and preserving the marine environment for most regions of the world bounded by major seas and oceans, including Africa. In the latter context, the RSP divided Sub-Saharan Africa into two regions, namely, West and Central African (WACAF) region, and West Indian Ocean (WIO) region, while Northern Africa falls under the Mediterranean region.

The WACAF region is located on the Atlantic Ocean, while the WIO region is situated on the West Indian Ocean. The RSP has also developed conventions on the protection of the marine environment from pollution for each region. The Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention)³⁸ was developed for the WACAF region, while the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention)³⁹ was developed for the WIO region. Accordingly, countries representing these two regional Conventions have been chosen as the

³⁶ Articles 197 and 207(3) and (4) of UNCLOS.

³⁷ ‘The State of the Marine Environment—Regional Assessments’ (note 28) 2.

³⁸ Abidjan convention was adopted in 1981, entered into force 1984, www.unep.org/regionalseas/, Accessed 2011.

³⁹ Nairobi Convention was adopted in 1985, entered into force 1996.

focus of this study, namely, South Africa, Kenya and Nigeria. Nigeria is situated in WACAF region and a party to the Abidjan convention; Kenya is located in WIO region and houses the secretariat of the Nairobi Convention, UNEP's headquarters, as well as the regional seas branch that coordinates the work of the RSP in the region.⁴⁰ As South Africa is uniquely placed at the interface of the two oceans, the country is a signatory to both the Abidjan and Nairobi Conventions, being bordered by both the Atlantic and West Indian Oceans. Each region in conjunction with UNEP has established various programmes and projects⁴¹ for regulating land-based sources and activities, and these programmes are outlined in detail in chapter four of the study.

1.5 Regulation of land-based sources and activities causing pollution of the coastal and marine environment of South Africa, Kenya and Nigeria

Recent times have seen the demand for resources and rate of infrastructural development in these three countries grow exponentially, resulting in immense pressure on their fragile ecosystems. These ecosystems are currently under severe threats from development related activities.⁴²

1.5.1 South Africa

Thirty percent of South Africa's population live within 60km of the coast, which puts pressure on the coastal environment and thus, increase in population growth has invariably amplified demands for services such as housing, water supply, sanitation and solid waste disposal.⁴³ For instance, untreated sewage that enters the marine environment from informal settlements through storm-water runoffs contribute to the total sewage load of the marine environment. Although

⁴⁰ UNEP's headquarters and Nairobi convention's secretariat are located in Nairobi, Kenya.

⁴¹ Such as WIO-LaB Project: Addressing land based activities in the West Indian Ocean, Global International Water Assessment Programme (GIWA), Large Marine Ecosystem (LME) and Guinea Current Large marine Ecosystems for WACAF region.

⁴² 2nd Conference on Coastal Zones in Sub-Saharan Africa CoZSSAI in Accra, Ghana' (2005) 2, www.nepadcosmar.org, Accessed 2013.

⁴³ 'The State of the Marine Environment—Regional Assessments' (note 27) 33. However, almost 60 per cent of the coastal population reside in cities such as Durban, Cape Town, Port Elizabeth, East London, Richards Bay and Saldanha. Bruce C Glavovic and C Cullinan (note 13) 872.

attempts are being made by local authorities to link as many informal settlements as possible to the sewage reticulation systems, demand continues to outgrow supply.⁴⁴

A number of legislative initiatives have been undertaken in South Africa to regulate land-based sources and activities causing pollution of the coastal and marine environment. These include statutes which are directly relevant, such as the National Water Act 1998 and the National Environmental Management: Integrated Coastal Management Act 2008. Legislation which is indirectly relevant to the topic includes the National Environmental Management Act 1998 (NEMA), National Environmental Management: Biodiversity Act 2004 and Marine Living Resources Act 1998.⁴⁵ Under these laws are several policies that have been promulgated for the same purpose, such as the Operational Policy for the Disposal of Land-derived Wastewater to the Marine Environment of South Africa, Methodology for the determination of the Ecological Water Requirements for Estuaries, A Guide to Non-point Source Assessment,⁴⁶ as elaborated on in chapter six below.

Underlying the enactment of these various environmental laws is the issue of cooperative governance, highlighting the need for an integrated approach among the three tiers of government for effective management of the coastal and marine environment.⁴⁷ As will be seen in chapter six, South Africa has established to a great extent some measure of institutional structures, but with more than one department regulating a specific pressure, more needs to be done to ensure effective integrated approach to coastal and marine governance among the three spheres of government.⁴⁸ But in the case of Kenya and Nigeria outlined next, the underlying conceptual framework to achieve such integration is encapsulated in the Integrated Coastal Zone Management (ICZM), outlined in chapter five below.

⁴⁴ Marie Parramon, Regulation of land-based marine pollution in South Africa and France (2010) 285, North West University, www.dspace.nwu.ac.za/, Accessed 2014; The State of the Marine Environment—Regional Assessments’ (note 28) 33.

⁴⁵ These statutes are elaborated on in chapter six.

⁴⁶ Bosman Carin and Michael Kidd ‘Water Pollution’ in HA Strydom and ND King (Eds) *Environmental Management in South Africa*, 2nd edition, (2009), chapter 17; BC Glavovic and C Cullinan (note 13) chapter 23.

⁴⁷ BC Glavovic and C Cullinan (note 13) 895.

⁴⁸ Ibid.

1.5.2 Kenya

Kenya is located on the West Indian Ocean (WIO). Its bountiful natural resources has influenced the development of major sectors, such as tourism, fisheries, agriculture, port operations, shipping, and associated infrastructures, such as mariculture, mining, manufacturing and service providing industries.⁴⁹ This development has come with a cost that is now affecting its coastal and marine environment and the natural resources that influenced development are now being degraded at an alarming rate, causing conflict over use of them. It is clear that the ever-increasing needs of the growing coastal population puts the country's natural resources under intense pressure thus requiring strict regulation.⁵⁰ However, Kenya has initiated the process of adopting an integrated coastal zone management approach by starting a pilot programme in the Nyali-Bamburi-Shanzu area near Mombasa town, with the aim of laying a foundation for developing a national ICM policy. Nevertheless, lack of adequate planning of coastal development, a multiplicity of laws regulating one sector, lack of effective institutional mechanisms and lack of coordination among the numerous institutions are some of the barriers that need to be addressed for ensuring effective coastal zone management.⁵¹ Kenyan national laws and institutions relevant to combating land-based sources are outlined in chapter seven.

1.5.3 Nigeria

Nigeria is situated on the Atlantic Ocean of the West and Central African Region (WACAF). The coastal areas most affected by pollution as a result of land-based sources and activities are critical habitats, such as wetlands, mangroves, lagoons and near shore habitats. The lagoons are the most threatened because of their closed nature and poor water exchange.⁵² For instance, Lagos is one of the cities located on the Atlantic coastline, surrounded by a number of estuaries

⁴⁹ _West Indian Ocean Preliminary Transboundary Diagnostic Analysis for Land-Based Activities_, (2002) 54-55, www.ais.unwater/, Accessed 2013.

⁵⁰ _Review of the Policy, Legal, Regulatory and Institutional Frameworks for Land based Sources and Activities Management in the Western Indian Ocean (WIO) Region_ (2009) 13, www.unep.org/NairobiConvention/, Accessed 2013; _Towards Integrated Management and Sustainable Development of Kenya's Coast: Findings and Recommendations for an Action Strategy in the Nyali-Bamburi-Shanzu site_ (1996) 4 www.crc.uri.edu/, Accessed 2013.

⁵¹ _Towards Integrated Management and Sustainable Development of Kenya's Coast_ (note 50) 5-6.

⁵² Kouassi and Biney, _Overview of the Marine Environment Problems of the West and Central African Region_ *Ocean and Coastal Management* vol. 42, (1999) 74.

and lagoons with an estimated population of ten million,⁵³ and household waste is the major source of pollution of the coastal and marine environment, as only 40 percent of the population are connected to a sewer network, which discharges untreated sewage directly into the lagoon and the Atlantic Ocean.⁵⁴ Hence, in controlling pollution and protecting the environment, the federal/national government enacted an array of laws and established corresponding institutions to control, protect and manage the environment as a whole. Most of the laws enacted were on oil and gas exploration and exploitation⁵⁵ leaving the regulation of land-based sources and activities to the state/provincial and local/municipal governments.

At the state and local government levels, various environmental laws and standards were established, with corresponding environmental protection departments in regulating land-based sources and activities such as sewage, effluents and household and municipal wastes.⁵⁶ But from 2007, the federal government realised that land-based sources and activities were causing more harm and damage to the coastal and marine environment than oil and gas pollution and thus, began enacting new laws and regulations at federal level on regulating pollution emanating from land-based sources and activities.⁵⁷ Nevertheless, the continued deterioration of the coastal and marine environment has more to do with effective implementation and enforcement of the laws and regulations enacted. Minimum compliance with these laws and standards is still an illusion

⁵³ According to 2006 population census, Nigeria's population count is over 150 million and Lagos houses 10 million people out of the 150 million. <http://servives.gov.ng/lagos>, Accessed 2013.

⁵⁴ VI Ogu., 'Private Sector Participation and Municipal Waste Management in Benin City, Nigeria' (2000) 12, www.eau.sagepub.com/cgi/content/ Accessed 2013.

⁵⁵ These laws include: the Federal Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 1991, the Federal Environmental Protection (Effluent Limitation) Regulations, 1991, Environmental Impact Assessment Act, LFN 2004, Oil in Navigable Waters Act Cap 6, LFN 2004, Harmful Waste (Special Criminal Provisions) Act, LFN 2004, Petroleum Act, Cap 10, LFN 2004, Mineral and Mining Act, LFN 2004, Water Resources Decree 101, 1993, Associated Gas Re-Injection Act, LFN 2004, Petroleum Products and Distribution Act Cap 12, LFN 2004 and Hydrocarbon Oil Refineries Act, Cap 5, LFN 2004.

⁵⁶ Institutional Aspects of Sustainable Development in Nigeria, (1997) 19, www.un.org/esa/agenda21/natlinfo/countr/nigeria, Accessed 2013.

⁵⁷ The new laws enacted include: the National Environmental Standards and Regulations Enforcement Agency Act LFN, 2007, the National Environmental (Wetlands, Riverbanks and Lakeshores) Regulations 2009 and the National Environmental (Watersheds, Mountainous, Hilly and Catchment Areas Regulations, 2009. The laws reviewed include: the National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 2009 and the National Environmental Protection (Effluent Limitation) Regulation 2009. With the enactment of these laws came the establishment of various federal/national government departments saddled with the responsibility of setting, monitoring and enforcing environmental standards. Amongst them are: the National Environmental Standards and Regulations Enforcement Agency, the Federal Ministry of Environment, Housing and Urban Development, Federal Ministry of Agriculture and Water Resources and Forestry Research Institute of Nigeria.

in Nigeria,⁵⁸ as regulatory authorities do not have the capacity to effectively monitor or fully enforce these laws and regulations.⁵⁹ Furthermore, there is the regulatory and governance dichotomy between oil and gas production and management of the coastal and marine environment.⁶⁰ These are outlined in chapter eight.

1.6 Relevance of the study

Against the above backdrop of laws, policies and management approaches of the three countries under study, these seem to be inadequate to deal with new and upcoming trends of pollution, whose end result is degradation, overexploitation of natural coastal and marine resources and physical alteration and destruction of habitats.⁶¹ The reasons for the seemingly inadequacy of these laws, policies and management approaches of these three countries in regulating pollution emanating from land based sources and activities are that:

1. Priority is given to economic development rather than protection of the environment and conservation of natural resources. These governments are heavily burdened with the responsibility of meeting their people's needs, which necessitates prioritizing economic development over environmental concerns.⁶²
2. Decisions taken on the rights of users of coastal resources and the actual management of these resources are heavily influenced by politics, resulting in the lack of political will to enact effective environmental legislation.⁶³ Moreover, it is an open secret that the failure of these states achieving sustainable development in the governance of their coastal and marine environment is in the practice and use of their natural resources.⁶⁴
3. Existing management systems of these states are traditionally sector-oriented. Several sectoral laws and policies have been enacted to control pollution of the coastal and

⁵⁸ Beatrice Chaytor and Kevin R Gray, *International Environmental Law and Policy in Africa* (2003) 131 and 135.

⁵⁹ Ibid 137.

⁶⁰ Ibid 110.

⁶¹ G kullenberg (note 4) 1004.

⁶² 'A Sea of Troubles', GESAMP Report and Studies No. 70 (2001) chap 6 p3, <http://unesdoc.unesco.org/> Accessed 2013; Chika B Onwuekwe, 'Reconciling the Scramble for Foreign Direct Investments and Environmental Prudence: A Developing Country's Nightmare', *Journal of World Investment and Trade*, vol. 7, No. 1 (2006) 115; Willemien du Plessis, 'Legal Mechanisms for Cooperative Governance in South Africa: Successes and Failures', *South African Public Law*, vol. 23 (2008) 88-89; M Qing-nan (note 2) 49.

⁶³ 'A Sea of Troubles' (note 62) chap 6, p 4.

⁶⁴ 'Assessment of Integrated Coastal Management in Africa' (1998) 1, <https://iodeweb1.vliz.be/odin/bitsream/> Accessed 2009.

marine environment while various government departments have been created for the same purpose. But what the enactment of laws and establishment of institutions have created is the problem of fragmented regulatory and institutional frameworks, making it difficult to effectively regulate and efficiently manage this environment.⁶⁵

However, these situations have started changing as they (South Africa, Kenya and Nigeria) are becoming increasingly aware that, to reverse pollution and degradation of the coastal and marine environment, and achieve sustainable development, a management approach must be developed, which must be comprehensive, systematic and integrated.⁶⁶ This imperative is now examined against the backdrop of the relatively recent trend to adopt the notion of integrated coastal zone management.

1.7 The concept of integrated coastal zone management as an underlying basis for regulating land-based sources and activities

In recent decades, the international community came to the realisation that many environmental problems of land, coastal and marine environment cannot be addressed in isolation as evidence has shown that they are complex and interdependent.⁶⁷ They are also typically trans-boundary in nature, which calls for international and regional cooperation in setting common goals to solve such problems.⁶⁸ Likewise, the human activities that arise from and affect these environments also depend on socio-economic factors, which cannot be overlooked.⁶⁹ Hence, there is the need to come up with an approach that will integrate these varied aspects and address the socio-economic factors that affect coastal states in their quest for a sustainable and protected environment. This need led to the development of the Integrated Coastal Zone Management (ICZM) concept. ICZM as an approach to protect and preserve the marine environment, emphasising the need for national governments to come up with holistic management policies for

⁶⁵ Johan G Nel and Louise J Kotzé, 'Environmental Management: An Introduction' in HA Strydom and ND King (Eds) *Environmental Management in South Africa*, 2nd edition, (2009) chap 1, p 18; 'Towards Integrated Management and sustainable Development of Kenya's Coast (note 50) 5-6; B Chaytor and KR Gray (note 58) 110.

⁶⁶ 'A Sea of Troubles' (note 62) chap 6 p4. South Africa, Kenya and Nigeria's approach in regulating land based sources and activities causing pollution of the marine environment are outlined in detail in chapter six, seven and eight of this study.

⁶⁷ 'A Sea of Troubles' (note 62) chap 6, p5.

⁶⁸ M Qing-nan (note 2) 7; H Daud (note 8) 34.

⁶⁹ 'A Sea of Troubles' (note 62) chap 6, p5.

the governance of land, coastal areas and the marine environment for reasons of developing sustainably these areas and linking economic development, social welfare and resource conservation.⁷⁰ It also advocates co-operative governance at all levels of government and multi-sectoral co-ordination amongst all sectors of the environment, such as agriculture, fisheries, water quality, urban development, coastal planning and oil and gas production.⁷¹ This is done by ensuring that integrated institutional mechanisms are set up to achieve co-operative governance, and approaches are instituted for multi-sectoral co-ordination. Thus, decisions taken on all sectors of the environment and at all levels of government are harmonised and made consistent with environmental laws and policies of a coastal state.⁷²

This approach has been accepted globally as a concept that should be adopted by coastal states in the governance of their coastal and marine environment, including effective regulation of land-based sources and activities. Furthermore, South Africa, Kenya and Nigeria who are signatories to the Abidjan and Nairobi Conventions have adopted the ICZM concept as a way of indicating their political will to deal with the problems and challenges affecting their coastal and marine environment. This concept and its approach in regulating land-based sources and activities are discussed in detail in chapter five of the study, while the incorporation of the ICZM concept into the legal and institutional frameworks of these three countries is also outlined in chapter six, seven and eight of the study.

1.8 Problem statement

Although, South Africa, Kenya and Nigeria have enacted numerous laws and policies in an attempt to regulate pollution of the coastal and marine environment caused by land-based sources and activities, the traditional method of management adopted in controlling and regulating pollution has seemingly failed. This is partly because there is a lack of recognition that there are relationships and links between land, the coast and the marine environment.⁷³ Even institutions that were created to manage these environments have also failed to comprehend

⁷⁰ B Cicin-Sain and RW Knecht (note 13) 39; ‘A Sea of Troubles’ (note 62) chap 6, p5.

⁷¹ B Cicin-Sain and RW Knecht (note 13) 39.

⁷² Ibid.

⁷³ Ibid 17.

that there is a symbiotic relationship between them and has thus created problems of fragmentation, disintegration and inefficiency.⁷⁴

In the past, success has been recorded in the way sectoral/traditional approaches have functioned, but in recent decades they seem to have become ineffective in reversing high levels of pollution. The reasons for this are:

- First, sectoral/traditional approaches have attempted to co-ordinate measures in managing the coastal and marine environment by encouraging the development of international and regional binding instruments and agreements that can be used to control pollution and regulate sources, activities and pollutants. So far, no legally binding instrument has been established at international level for regulating land-based sources and activities. It was in the year 2010 that the contracting parties to the Nairobi Convention adopted a land-based protocol for the West Indian Ocean (WIO) region,⁷⁵ while WACAF region, at the time of writing the thesis, is still drafting its own land-based protocol.
- Secondly, these states' political unwillingness to make a strong commitment towards controlling land-based marine pollution is found in the weakness and inadequacies of their national structures, laws, policies and practices. For instance, many of their existing legislation on coastal management lack the essential prerequisites to enhance their effective enforcement and co-ordinated implementation.⁷⁶
- Thirdly, most existing legislation dealing with management of the coastal and marine environment is out-dated, which makes them unresponsive to new concepts of ocean governance.⁷⁷
- Fourthly, there are too many government institutions including in-house structures enforcing regulation over a particular sector without effective co-ordination between

⁷⁴ Robert Kibiwot, 'Towards the formulation of Kenya's Integrated Coastal Ocean Management Policy Including Institutional Framework' (2007/2008) 40, www.wwan.cn/depts/los/nippon/unff_programme_home/fellows/ Accessed 2009; Onyenenwa Cyprian Eneh, 'Managing Nigeria's Environment: The Unresolved Issues', *Journal of Environmental Science and Technology*, vol. 4, No. 3 (2011) 258-261.

⁷⁵ Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities. Adopted 31 March 2010.

⁷⁶ 'Protecting the Oceans from Land based Activities', GESAMP Reports and Studies No.71 (2001) 86, 111 and 124, www.gesamp.org/, Accessed 2009; R SONI, *Control of Marine Pollution in International Law* (1985) 108, Juta and Co, Ltd; R Kibiwot (note 74) 33.

⁷⁷ R Kibiwot (note 74) 33.

them. For instance, water quality and use may have two or more government departments/institutions regulating it, with each department establishing regulations, licences and permits without effective harmonisation between them, leading to confusion as to which department regulates water quality and which one regulates water use.

- Fifthly, many African states are deficient in technological research and development. Without research, legislators and administrators of the coastal and marine environment will not be able to do their jobs efficiently, which is developing adequate laws, efficient management and monitoring approaches.⁷⁸ In addition, most decisions affecting the environment are made for socio-economic reasons, heavily influenced by politics. The coastal and the marine environment cannot be wisely managed and developed without reliable and timely knowledge.⁷⁹
- Finally, a significant deficiency of their government's administration is the seeming lack of public participation. These states seem not to encourage public participation in their affairs.⁸⁰ This deficiency has the effect of making any government administration dictatorial and its citizens disinclined to comply with enacted legislation.⁸¹ This lack will also be evident in the governance of the coastal and marine environment; a further reason why there is conflict in the use of coastal and marine resources resulting in arbitrary exploitation, degradation and pollution.⁸² In addition, lack of public participation is also manifested in the inadequacy of public awareness to environmental problems.⁸³ It is important that private sectors, local communities, NGOs, resource users and other stakeholders be actively involved in the process of building an understanding about coastal processes and ICZM imperatives through awareness and educational programmes.⁸⁴ Thus, these states' prevailing management efforts are failing to control pollution of the coastal and marine environment from land-based sources and activities.

⁷⁸ Emeka Polycarp Amechi, Poverty, Socio-political Factors and Degradation of the Environment in Sub-Saharan Africa: The Need for a Holistic Approach to the Protection of the Environment and Realisation of the Right to Environment, *Law Environment and Development Journal*, vol. 5, No. 2 (2009) 119-120; R Kibiwot (note 74) 34; GESAMP Report and Studies No 71 (note 76) 109.

⁷⁹ A Sea of Troubles (note 64) chap 6, p4.

⁸⁰ B Chaytor and KR Gray (note 58) 233.

⁸¹ LP Malan., Co-operative Environmental Management: The Applicability of a Multi-dimensional Model, *Journal of Public Administration*, Vol. 44, no 4, (2009) 1146.

⁸² Ibid 252.

⁸³ Ibid 234.

⁸⁴ B Cicin-Sain and RW Knecht (note 13) 133.

A co-operative, co-ordinated and integrated approach is needed to achieve sustainable development and benefit from services provided by coastal ecosystems.

1.9 Key questions

The broad question addressed in this study is to identify and assess the underlying issues confronting developing sub-Saharan coastal African countries in regulating land-based sources and activities causing pollution of the coastal and marine environment. In so doing the study outlines and critically examines the following issues and makes recommendations regarding:

- a) international and regional law developments, in particular a plethora of UNEP initiated conventions designed to combat land-based sources and activities causing pollution of the marine and coastal environment;
- b) the domestic or national laws of three select African countries, namely South Africa, Kenya and Nigeria, each of which are at different levels of implementation of their respective laws to combat land-based sources and activities causing pollution of the marine and coastal environment;
- c) the potential role of the concept of ICZM to improve the regulation of land-based sources and activities (LBSA) in developing sub-Saharan coastal African states, such as South Africa, Kenya and Nigeria;
- d) review national, legal and institutional frameworks in order to incorporate the concept of ICZM so as to raise their levels of adequacy and effectiveness in regulating LBSA.

A central focus of the study is to examine the extent to which the concept of Integrated Coastal Zone Management may assist in combating land-based sources and activities causing pollution of the coastal and marine environment of South Africa, Kenya and Nigeria. The domestic laws of the three countries are examined to assess the extent to which ICZM recognises that coastal areas and the marine environment (including their resources) need to be managed in a comprehensive, holistic and integrated manner by enacting statutes that are comprehensive and holistic. This will encourage multi-sectoral co-ordination among all sectors of the environment and institute integrated management mechanisms that encourage effective enforcement and compliance.

Furthermore, the study examines the role ICZM has played in the international and regional sphere in combating pollution of the marine environment emanating from land-based sources and activities. This is done against the backdrop of UNEP's regional seas programme (RSP). As such, UNEP's RSP has adopted the notion of ICZM in its approach in effectively managing the coastal and marine environment of sub-Saharan Africa and regulating land-based sources and activities causing pollution, and is in the process of incorporating it into its various programmes and projects. The RSP is now encouraging coastal states in the region to do likewise in their various jurisdictions. Some countries have gone ahead to do this by reviewing their legal and institutional frameworks and structures while some countries are in the process of doing same.

1.10 Importance of the study

This study exposes major environmental issues of concern in the management and governance of the coastal and marine environment of coastal African states. The facts presented above confirm that the state of the coastal and marine environment of most sub-Saharan coastal African states are being influenced largely by increasing population growth, poverty, inappropriate development practices and inadequate management. While South Africa, Kenya and Nigeria have embraced the concept of ICZM, there is still much to be done to fully grasp this concept and to apply it to ocean and coastal governance.

In short, this study critically analyses legal and institutional frameworks regulating land-based sources and activities causing marine pollution and management approaches of the three selected countries in the context of integrating existing laws and institutions, enhancing cooperative governance between and within government agencies at all levels, and achieving consistent decision-making at all levels of government. This will stimulate debates on existing regulatory and management practices in the three selected countries for better integrated and coordinated action. It further raises vital issues on ocean and coastal governance in regulating pollution emanating from land-based sources and activities in South Africa, Kenya and Nigeria. These countries have similar proximity to the seas, have realised that there is need to change their approach to the governance of their coastal and marine environment and have gone ahead to effect these changes. The manner and extent to which they have changed their approaches however differ and thus call for a comparative study.

In addition, the study examines the future challenges and opportunities inherent in the application of ICZM in regulating land-based sources and activities causing pollution in the three selected coastal African states. It investigates the extent to which this concept can be applied in the three countries with varying economic circumstances and political settings. The aim of the research is to explore ways in bringing about change in the thinking and practice of achieving an effectively managed and sustained coastal and marine environment. By choosing the three representative countries, it is hoped that the lessons learnt can be applied in other coastal states in sub-Saharan Africa.

1.11 Research methodology

The study is desktop based, relying on primary sources, such as existing national laws and policies including international instruments. South Africa, Kenya and Nigeria have ratified a number of international and regional conventions and agreements on the protection of the marine environment from pollution, which constitute environmental legal regimes that are binding on them. These conventions and agreements are instrumental to the development of legal controls over land-based sources and activities in national jurisdictions.

The study also relies on secondary sources, such as textbooks from leading academic scholars from all over the world, published articles from law journals in the three selected countries of study and elsewhere, published articles from non-law journals, unpublished but authoritative materials sourced from national government departments of the three selected countries of study and published and unpublished theses relevant to this study, including MP Parramon's thesis on Regulation of land-based marine pollution in South Africa and France.

Reputable internet sources have also been used as a source of information on current activities in the field of study as well as factual data compiled by international organizations such as UNEP. Informal consultations with experts in the field have been conducted to provide the researcher with guidance.

1.12 Chapter synopsis

The thesis divides into four parts with each part consisting of two to four chapters. Part one is titled ‘_General background’, consisting of chapters one and two. Part two is titled ‘_Theoretical development of regulating LBSA and historical development of ICZM’, consisting of chapters three to five. Part three is titled ‘_Domestic regulation of land-based sources and activities within the context of ICZM’, consisting of chapters seven to nine and part four is titled ‘_Conclusion’, consisting of chapter nine. This is followed by the reference section.

PART ONE: General background

Chapter One: Introduction to the study

Chapter one introduces the study of land-based sources and activities causing pollution of the coastal and marine environment. It will outline the definitions of marine pollution, land-based sources and activities, point and non-point sources, pollutants that arise from these sources and activities and their impacts on the coastal and marine environment. It will also introduce the concept of integrated coastal zone management in regulating land-based marine pollution, which will be expanded on in chapter five of the study. The regulation of land-based sources and activities causing pollution and the management of the coastal and marine environment of Nigeria, South Africa and Kenya will be introduced as well.

Chapter Two: Overview of land-based sources and activities causing pollution of the coastal and marine environment

This chapter will provide a general overview of the marine environment with the benefits derived from coasts and oceans, causes of degradation to the coastal and marine environment, major threats confronting them and the various sources of pollution threatening the marine environment. Land-based sources and activities such as municipal sources, household activities, industrial activities, agricultural activities, military activities and oil and gas exploration and exploitation will form an integral part of the discussion in this chapter. The various pollutants that emanate from these sources and their impact on the marine environment will be analysed from a scientific point of view. The extent to which these sources are harmful to the coastal and marine environment is critical in analysing how and to what extent their negative impact may be alleviated or minimised in sub-Saharan Africa.

PART TWO: Theoretical development of regulating LBSA and the historical development of ICZM

Chapter Three: International response to the regulation of land-based sources and activities

This chapter will examine international conventions and agreements developed by the international community in protecting the marine environment from land-based sources and activities causing marine pollution. In so doing, it will analyse the development of hard and soft law rules meant to control and regulate the various land-based sources and activities causing pollution of the marine environment. These hard and soft law rules include the 1982 United Nations Convention on the Law of the Sea (UNCLOS), the United Nations Conference on Human Environment (UNCHE), the United Nations Conference on Environment and Development (UNCED), the 1992 Earth Summit, Agenda 21 and Chapter 17, the 1995 Global Programme of Action and the Washington Declaration on Protection of the Marine Environment from Land-based Sources and Activities of Marine Pollution, the 1985 Montreal Guidelines and so on. It will also analyse the extent to which these regimes are successful in controlling land-based marine pollution.

Chapter Four: Regional response in addressing land-based sources and activities

This chapter will analyse regional responses in controlling land-based sources and activities causing marine pollution under the auspices of UNEP and its regional seas programme (RSP). It will examine UNEP's approach in protecting the coastal and marine environment from pollution through the RSP. This approach includes developing framework conventions on protection and preservation of the marine environment from pollution for regions covered by the RSP and initiating programmes for the same purpose. Each framework convention then develops a protocol specifically for combating land-based sources and activities. The conventions and protocols developed by UNEP and its RSP will be briefly outlined. Particular attention will however be paid to the Western Indian Ocean (WIO) and West and Central African (WACAF) regions as they are the main focus of the thesis. Thus, the RSP developed the Nairobi Convention for the WIO region and the Abidjan Convention for the WACAF region. The Nairobi Convention has developed an LBSA Protocol while the Abidjan Convention is drafting

one to this effect. The chapter will also analyse the various programmes and projects initiated by the RSP in the two regions for regulating land-based sources and activities.

PART THREE: Domestic regulation of land-based sources and activities within the context of ICZM

Chapter Five: Regulating land-based sources and activities in the context of integrated coastal zone management (ICZM)

This chapter will examine the international development of the ICZM concept. ICZM only started developing into a global concept 30 years ago as an approach that will better protect the coast and marine environment from land-based sources and activities of marine pollution. The chapter will further examine the development of ICZM in hard and soft law regimes at the regional sphere in sub-Saharan Africa. These regimes include the 1993 Arusha Conference, the 1998 Pan-African Conference on Sustainable Integrated Coastal Management (PACSICOM), the 1998 Conference on Cooperation for Development and Protection of the Marine and Coastal Environment in Sub-Saharan Africa (ACOPS) and the African Ministerial Conference on Environment (AMCEN). In addition, the chapter will outline the various programmes initiated to promote the application and implementation of ICZM in the region. These programmes include the East African Action Plan, which also includes the Nairobi Convention and its Protocols, the Western Indian Ocean Fisheries Sub-Commission, the Regional Programme for the Sustainable Management of the Coastal Zone of the Countries of the Indian Ocean (ReCoMaP), the Secretariat for Eastern African Coastal Area Management (SEACAM) and the Gulf of Guinea Large Marine Ecosystem.

Chapter Six: Assessment of existing domestic legislation regulating land-based sources and activities causing pollution of the coastal and marine environment in South Africa within the context of ICZM

This chapter will evaluate the problems South Africa has in dealing with land-based sources of marine pollution. It will analyse the various legislative and institutional frameworks that has been enacted in dealing with these problems so as to determine the extent of their strengths and weaknesses. This analysis will also show where ICZM principles have been used to strengthen them in order to effectively combat land-based sources and activities causing pollution.

Chapter Seven: Assessment of existing domestic legislation regulating land-based sources and activities causing pollution of the coastal and marine environment in Kenya within the context of ICZM

This chapter will assess the problems Kenya has in dealing with land based sources and activities causing marine pollution. It will analyse the various legislative and institutional frameworks that has been enacted in dealing with these problems in order to determine the extent of their strengths and weaknesses. This analysis will also show where ICZM principles have been used to strengthen them in other to effectively combat land based sources and activities causing pollution.

Chapter Eight: Assessment of existing domestic legislation regulating land based sources and activities causing pollution of the coastal and marine environment in Nigeria within the context of ICZM

This chapter will examine the problems Nigeria has in dealing with land based sources and activities causing marine pollution. It will analyse the various legislative and institutional frameworks that has been enacted in dealing with these problems in order to determine the extent of their strengths and weaknesses. This analysis will also show where ICZM principles have been used to strengthen them in other to effectively combat land based sources and activities causing pollution.

PART FOUR: Conclusion and Recommendations

Chapter Nine

9.1 Conclusions

9.2 Conclusions on integrating legislative frameworks in South Africa, Kenya and Nigeria

9.3 Recommendations on integrating legislative frameworks in South Africa, Kenya and Nigeria

9.4 Conclusions on integrating institutional frameworks in South Africa, Kenya and Nigeria

9.5 Recommendation on integration institutional frameworks in South Africa, Kenya and Nigeria

References

CHAPTER TWO

Overview of land-based sources and activities causing pollution of the coastal and marine environment

When the water is brown, we call it tea': Klaus Toepfer, Executive director of UNEP¹

2.1 The marine environment-oceans and coasts

The oceans cover 361 million square kilometres (km²) of the earth and holds up to 1.3 billion cubic kilometres (km³) of water.² Although the earth is composed of 70 per cent water, all but 3 per cent of it is salt water.³ Hence, this gigantic body of salt water, which wraps around the planet like an insulating blanket, literally makes life on earth possible. It is the motivating force that drives the world's climate, defining weather and storing huge quantities of solar energy in the process.⁴ An important ecosystem service delivered by the oceans is the absorption and storage of carbon dioxide from the atmosphere (an invisible gas). This is one of the main climate change agents that makes the oceans, like forests, an important carbon 'sink' that helps to counter human impacts on global climate.⁵ Coastal areas also provide flood protection, erosion control for low lying communities and act as a sink for waste and nutrient disposal.⁶

2.2 Benefits derived from oceans and coasts

The oceans and coasts have sustained humanity for millennia, providing everything from food to fibre, leather, drugs, medicines and the like. It is estimated that the world's ecosystems provide goods and services worth US\$33 trillion annually, and 63 per cent of this amount is contributed by the oceans.⁷ Although coastal areas make up only 10 per cent of the marine environment, the

¹ Cold-water corals highlighted as new global conservation challenge on world environment day 2004, The Environment Times (UNEP/GRID-Arendal), www.grida.no/news/, Accessed 2010.

² Ocean, www.en.wikipedia.org/wiki/Ocean, Accessed 2008.

³ The WWF/IUCN Marine Policy: Creating a Sea of Change, pg 7, www.iucn.org/themes/marine/pdf, Accessed in 2008.

⁴ Ibid.

⁵ Currently, the ocean absorbs more than 26 percent of the carbon-dioxide emitted to the atmosphere from human activities, resulting in increased acidity of the ocean. Blueprint for Ocean and Coastal Sustainability (2011) 15, www.unesco.org/new/ accessed 2011.

⁶ Ibid.

⁷ R Constanza, et al (12 other Authors), The Value of the World's Ecosystems and Natural Capital, *Ecological Economics*, vol. 25 (1998) 4.

area is home to over 90 per cent of all marine species.⁸ These ecosystems are unequalled protein providers, as sea food provide close to 20 per cent of the world's total animal protein intake. It has been estimated that an average of 84 million tonnes of sea food was landed per year by commercial fleets between 1991 and 1995.⁹ This makes the marine environment the largest food provider to humanity. Also, coastal and marine ecosystems provide other resources that are valuable and of multiple benefits to humans, for example, the popularity of coral reefs continues to grow because of the aquarium trade, tourism and the souvenir industry. Corals are also mined for their lime, which in many tropical countries is an essential ingredient for cement production.¹⁰

Moreover, many marine animals are used in traditional medicines in Asia and elsewhere. So far, about 500 species have been identified that possess pharmaceutically active compounds that could help in the fight against various kinds of cancers and other diseases.¹¹ For instance, the sea horse is used in traditional medicines to treat ailments ranging from respiratory disorders to sexual dysfunctions in Asia.¹² Furthermore, mangrove forest products, marine and coastal flora and fauna, such as giant kelps and brown algae are extensively exploited for their natural compounds, which are used in food products, drugs, textiles, paints and paper production.¹³ In addition, the oceans and the coasts provide a vast range of other resources that have been of immense benefit to humans since their discovery.¹⁴ Lastly, long before roads and aeroplane networks came into existence, the oceans have been the principal highways of colonization and commerce, contributing to the development and spread of cultures, ideas, religions, political systems and transportation of goods and services.¹⁵

⁸ Of the 13, 200 known marine fish species in the world, almost 80 percent of them are found in coastal waters. The Blue Planet-Coasts, http://wwf.panda.org/about_our_earth/blue-planet/coasts/ Accessed in 2010.

⁹ 80 percent of the world population consumes sea food. J Loh, et al, Living Planet Report (1998) 6, <http://wwfza.panda.org/> Accessed 2008.

¹⁰ CV Barber and VR Pratt, Sullied Seas: Strategies for Combating Cyanide Fishing in Southeast Asia and Beyond, (1997) 64, World Resources Institute, Marine life Alliance, www.wri.org, Accessed in 2008.

¹¹ S Wells and N Hanna, *The Greenpeace Book of Coral Reefs*, (1992) 160, Blandford, London, United Kingdom.

¹² ACJ Vincent, *The international trade in Sea Horses* (1996) 163, Traffic International, Cambridge United Kingdom, www.csa.com, Accessed in 2008.

¹³ Creating a Sea of Change (note 3) 15.

¹⁴ These resources include oil and gas for energy, sand and gravel for building, salt for food and industrial purposes and other valuable minerals.

¹⁵ 'A Sea of Troubles', *GESAMP Report and Studies No. 70 (2001) 4*; Creating a Sea of Change (note 3) 16.

2.3 Degradation of the coastal and marine environment

Oceans and coastal resources are experiencing rapid environmental change that is having adverse impacts on their habitats due to the way they are managed, governed and exploited. For instance, mangrove forests are being lost due to infrastructural developments and inappropriate harvesting of their products; coral reefs have been destroyed due to their overexploitation for commercial purposes, as have wetlands. Similarly, sea grass beds have been severely depleted as a result of coastal developments, dredging, pollution and beaches are becoming eroded at rates greater than is natural.¹⁶

The richness and diversity of the coastal and marine environment has encouraged rapid development in sectors such as industries, agriculture, oil and gas prospecting, mining, tourism, infrastructural and urban development.¹⁷ Demographic patterns suggest that coastal populations are increasing at alarming rates due to migration, tourism and increase in fertility.¹⁸ In 1998, about 3.2 billion people lived and worked within 200 kilometres of the coast, while about 4 billion people are found within 400 kilometres of the coast.¹⁹ The coastal population of continents such as Africa and Asia are expected to double between the year 2000 and 2030.²⁰ Of all the continents in the world, with the exception of Antarctica, Africa has more of its population living in rural areas than on the coastline, however, these patterns are changing. The last two decades has seen African coastal cities growing by 4 per cent a year or more because they have become centres of trade and commerce.²¹ Cities such as Lagos (Nigeria), Mombasa (Kenya), Dar es Salaam (Tanzania), Accra (Ghana), Abidjan (Ivory Coast), Dakar (Senegal), Maputo (Mozambique), Cape Town and Durban (South Africa) have seen their populations explode due to migration.²² Thus, the health of oceans and coastal areas are increasingly in

¹⁶ T Agardy, *Marine Protected Areas and Ocean Conservation* (1997) 244, Academic Press, Austin, USA.

¹⁷ 2nd Conference on Coastal Zones in Sub-Saharan Africa (CoZSSA II) (2005) 2, www.nepadcosmar.org, Accessed 2008.

¹⁸ R Hassan, M Scholes and N Ash (Eds), *Ecosystems and Human Wellbeing: Current State and Trends* (2005) 515, Island Press, Washington D.C.

¹⁹ Don Hinrichsen, *Coastal Waters of the World: Trends, Threats and Strategies*, (1998) 27, Island Press, Washington DC.

²⁰ State of the World Population, (2007) 2, www.unfpa.org/swp/2007/english/, Accessed in 2009.

²¹ D Hinrichsen (note 19) 28.

²² Overview of Land-based Sources and Activities Affecting the Marine, Coastal and Associated Freshwater Environment in the West and Central African Region, UNEP Regional Seas Reports and Studies No. 171 (1999) 1, www.unep.org/regionalseas/publications/reports/; Chidi A Ibe, *The Coastal Zone and Oceanic Problems of Sub-*

jeopardy as a result of rapid intensification of human activities.²³ According to the Living Planet Report, between 1961 and 2003 the impact of anthropogenic activities on the planet's ecosystems increased by 150% and if this continues, by 2050 we will need another planet in order to meet all our demands.²⁴

2.4 Threats to the coastal and marine environment

The threats of uncontrolled economic development, overexploitation of coastal and marine resources, alteration of habitats, intensive agricultural activities and rapid population growth have led to half of the world's coastlines suffering from pollution. They have become the ultimate sink for all forms of pollution with about 80 per cent being generated from land-based sources (including atmospheric emissions).²⁵ Although the primary substance constituting the oceans is water, many other substances such as mercury, lead, hydrocarbons and some radioactive nuclides have been discovered to exist in the oceans for millions of years.²⁶ The difference between now and centuries ago is that humans are adding to the concentration of these substances as well as introducing new ones. For instance, chlorinated hydrocarbons are being added in amounts that are significantly altering the chemical composition of the coastal and marine environment, consequently depleting marine and coastal living resources and degrading ecosystems in sometimes irreversible ways.²⁷

Thus, the state of the marine environment is deteriorating and problems identified decades ago are yet to be resolved, while new ones keep emerging. Nevertheless, threats to the marine environment have intensified and are becoming diversified. The world's oceans are great highways over which goods are transported and the fact that thousands of vessels are at sea at

Saharan Africa (1996) 2, www.iodeweb1.vliz.be/odin/bitsream/; Human Dimensions of Coastal Management in the Western Indian Ocean Region, *Ocean and Coastal Management* Vol. 47 (2004) 301; The State of the marine Environment-Regional Assessments: Eastern Africa (2006) 2, www.gpa.unep.org/documents/regional_so_e_part_1_english.pdf.

²³ PA Scheren, Chidi A Ibe, FJ Janssen, AM Lemmens, Environmental Pollution in the Gulf of Guinea-A Regional Approach, *Marine Pollution Bulletin*, vol. 44 (2002) 633.

²⁴ Living Planet Report (note 9) 2.

²⁵ Ibid 8.

²⁶ O Schaeter and D Serwer, Marine Pollution Problems and Remedies, *The American J. of Int'l Law*, vol. 65, No. 1 (1971) 87.

²⁷ Alexandre Kiss and Dinah Shelton, *Guide to International Environmental Law* (2007) 190, Martinus Nijhoff Publishers; D Hinrichsen (note 19) 86.

any one time, raises concerns about the heightened risk of marine pollution.²⁸ Hence, fish stocks are increasingly showing signs of contamination and damage including concentrations of carcinogens, tumours and malformation which render them unsuitable for consumption and which threatens their ability to reproduce.²⁹

However, the part of the ocean most affected by threats of pollution is the waters nearest to the shores, particularly those in estuaries, bays, semi and enclosed seas. More and more narrow strips of land along the coast and its habitats have been ruined by a host of poorly planned and badly regulated activities ranging from explosive growth of coastal cities and towns, increase in tourism, industrialization, expansion of fish farming, development of ports, damming and/or alteration of river systems for irrigation and hydropower.³⁰ These threats are more obvious in less developed and developing countries where the need for economic development takes precedence over environmental degradation. For example, in sub-Saharan Africa, the mining of sand, gravel and other construction materials from estuaries, beaches or near the continental shelf is common in coastal states and islands, thus, causing erosion and flooding.³¹ Moreover, the mining of construction materials has a tendency to disrupt fragile ecosystems such as coral reefs and mangroves and subsequently affects their productivity.³²

Furthermore, the amount of waste dumped or carried into the sea is growing worldwide. Though waste has been reduced in some places by improved technological advances and practices, nevertheless, the use of pesticides, fertilisers and other agrochemicals is on the increase as is the amount of pollutants being washed and/or blown off land into the marine environment. The effect of climate change on natural ecosystems and biodiversity cannot be overlooked as impacts are being felt in coastal and marine ecosystems, such as coral reefs, due to change in weather and temperature patterns.³³ Thus, inappropriate coastal development, increasing habitat destruction, alien species introduction (either intentional or accidental) to

²⁸ A Kiss and D Shelton (note 27) 190.

²⁹ A Sea of Troubles (note 15) 4.

³⁰ Living planet Report (note 9) 3.

³¹ CA Ibe (note 22) 4.

³² Chidi A Ibe and TO Ajayi, Possible upwelling Phenomenon in offshore Nigeria, *NIOMR Technical Paper no. 25 (1985) 10*; CA Ibe (note 22) 4.

³³ Blueprint for Oceans and Coastal Sustainability (note 5) 16.

habitats far from their origins is occurring on a large scale, often disrupting ecosystems and economies.³⁴ Hence, direct physical damage to ecosystems, habitats and overexploitation of coastal and marine resources are having significant effects worldwide.

2.5 Overview of sources and activities causing pollution threatening the coastal and marine environment

The focus of this study is pollution of the coastal and marine environment from land-based sources and activities, and must be distinguished from other sources and activities causing pollution. including vessel-source pollution, dumping at sea, atmospheric pollution, oil and gas exploration and exploitation, and seabed activities. These sources are not dealt with here.³⁵

2.5.1 Pollution from land-based sources and activities

Pollution from land-based activities come from two main sources namely, point and non-point (diffuse) sources. Point source pollution is from a single, identifiable source such as a pipeline through which an industrial or municipal treatment plant releases waste water and pollutants into a water body, while non-point source pollution is caused by one or several activities taking place over a broad area.³⁶ However, these sources are a range of land activities that are adversely affecting the coastal and marine environment, and they have been categorised into household activities, industrial activities, agricultural activities, military activities, mining activities, and infrastructural development. They are outlined below.

³⁴ A sea of Troubles (note 15) 5.

³⁵ K Hakapaa, *Marine pollution in International Law, Material Obligations and Jurisdiction with special reference to the Third United Nations Conference on the Law of the Sea* (1981) 47, Akateeminen Kirjakauppa Publisher, Helsinki; Phillip Sands, *Principles of International Environmental Law*, 2nd Ed (2003) 438, Cambridge University Press, United Kingdom; RR Churchill and A V Lowe, *Law of the Sea*, 3rd Ed (1999) 329, Manchester University Press, United Kingdom.

³⁶ Tackling Non-point Source of Water Pollution in British Columbia: An Action Plan, www.env.gov.bc.ca/wat/wq/bmps/, Accessed 2008.

2.6 Overview of various land-based sources and activities causing pollution of the coastal and marine environment

2.6.1 Household activities

Household substances³⁷ ranging from organic materials to inorganic chemicals³⁸ discharged into the coastal and marine environment are a significant source in this category. Such discharge results in a decline in water quality, habitat degradation, eutrophication, loss of fisheries and marine biodiversity. For instance, in West and Central African (WACAF) region of sub-Saharan Africa where infrastructural needs of coastal urban areas are enormous, raw waste is often discharged directly into the sea even though cities are served by sewer systems.³⁹ The risk of contamination extends not only to surface waters but also to underground water systems because of the relatively high water tables in the coastal zones.⁴⁰ In southern and eastern Africa, municipal or domestic sewage is the most common source of contamination of the coastal and marine environment, and this is associated with all major coastal cities in the region.⁴¹ These contaminants originate from informal settlements, households, schools, hospitals, offices, open markets, slaughterhouses (including abattoirs and butcheries), other commercial units and even waste treatment plants. The rapid growth of urban population is increasingly beyond the capacity of relevant authorities and municipalities to provide basic and adequate services such as water supply, sewage and other wastewater treatment facilities.

2.6.2 Domestic or municipal sources

Municipal wastes originate from domestic sources that contain organic matter, micro-organisms, pathogens and parasitic worms. It is the most common source of pollution in coastal areas. In most cases, municipal wastes mix with industrial wastes due to inefficient drainage or sewage systems, adding chemicals to municipal waste.⁴² The lack of proper sewage systems and waste treatment facilities has led to the direct dumping of waste into the marine environment

³⁷ Such as toilet waste, litters, plastics, wastewater from cleaning activities and garbage, and so on.

³⁸ Examples range from detergents to pesticides.

³⁹ Kouassi and Biney, *Overview of the Marine Environmental Problems of the West and Central African Region, Ocean and Coastal Management, vol. 42 (1999) 72.*

⁴⁰ Ibid.

⁴¹ P Chenje and M Johnson, *Water in Southern Africa, A report by SADC, IUCN and SARDC (1996) 136.*

⁴² Examples of industrial waste mixing with municipal waste are wastes/effluents coming from hospitals, markets places and slaughter-houses (butcheries).

particularly onto beaches and into lagoons. However, municipal wastes usually do not contain water, are degradable and place a high demand on oxygen for decomposition.⁴³

2.6.3 Industrial activities

Industrial activities produce raw wastes such as effluents, sewage, plastics, packaging materials and factory rubbish and are commonly discharged or dumped directly into waters surrounding these factories and eventually find their way into the coastal and marine environment. These wastes typically emanate from industries such as breweries, petroleum refineries, food and beverage manufacturers, chemical manufacturing industries, iron and steel industries, mining and metallurgy industries, ports and harbours, pulp and paper industries, and so on.⁴⁴ As a result of these waste discharges, contamination of surface waters, shallow aquifers, underground water systems and fisheries resources, is a recurrent phenomenon, mostly in the sub- and peri-urban areas where the conditions of overcrowding and poverty are increasing with the growing number of people.⁴⁵ Moreover, a vast range of these wastes are either biodegradable organic waste or persistent organic waste, which require special treatment for their disposal and can be highly acidic or alkaline, liquid or largely solid, inert or reactive and toxic.⁴⁶

2.6.4 Agricultural activities

Agricultural activities exacerbate pollution of the coastal and marine environment to a great extent as manure, chemical fertilizers, pesticides, herbicides, animal slurries, silage effluents and other waste products used in farming activities are mostly toxic and relatively persistent in nature. Agricultural chemicals cause reproductive failure in marine mammals and birds, and are transported by rain into canals that flow into rivers or carried by the movement of wind when

⁴³ The Marine and Coastal Environment of the West and Central African Region and its State of Pollution, UNEP Regional Seas Reports and Studies No. 46 (1984) 54-56, www.unep.org/regionalseas/publications/report/.

⁴⁴ These wastes are the occurrence of industrial oils, hydrocarbons and related petroleum products which have physical and chemical characteristics that have been categorised into dissolved organic and inorganic substances, insoluble and soluble organic substances and radioactive substances. Kouassi and Biney (note 39) 72-73.

⁴⁵ Chidi A Ibe and Kenneth Sherman, A sixteen-country mobilization for sustainable fisheries in the Guinea Current large Marine Ecosystem, *Ocean and Coastal Management*, vol. 49 (2006) 401.

⁴⁶ Ibid.

sprayed.⁴⁷ These eventually find their way into the coastal and marine environment, thus leading to eutrophication which is a leading cause of the growth of toxic algal blooms as well as the cause of oxygen depletion levels in coastal waters.⁴⁸

2.6.5 Military activities

The testing and disposal of nuclear and biological weapons is another source of pollution of the coastal and marine environment but only takes place in countries where nuclear and biological weapons are manufactured.⁴⁹ This results in the introduction of toxic bacteria, radioactive materials and chemicals into the coastal and marine environment.⁵⁰ Since World War II, radioactive wastes from such activities have increasingly entered the coastal and marine environment, increasing the levels of toxicity in fishery resources.⁵¹ For instance, in 1954, nuclear tests were carried out in the Marshall Islands in the U.S. After the test, the Japanese fishermen who fish off the island came in contact with radioactive debris and their catches were rendered unfit for consumption.⁵²

2.7 Pollutants emanating from land-based sources and activities

The various types of pollutants emanating from the above land-based activities makes difficult the identification of their sources and the particular substance responsible for pollution, but some types have been identified to be the major culprits of pollution of the coastal and marine environment. These pollutants include heavy metals, oil hydrocarbons, marine litter, persistent organic pollutants, pesticides, radioactive wastes, sewage and sludge. Some of these pollutants maintain their chemical characteristics for many decades while others are degraded to harmless materials in a matter of hours, days, weeks or months. Some pollutants present a clear and

⁴⁷ Hassan Daud, *Protecting the Marine Environment from Land Based Sources of Pollution* (2006) 20, Ashgate Publishing Limited, England; Meng Qing-Nan, *Land-Based Marine Pollution* (1987) 25-26, Graham and Trotman Limited, United Kingdom.

⁴⁸ Chenje and Johnson (note 41) 132.

⁴⁹ Typically by countries such as France, China, North Korea, Iran and Iraq.

⁵⁰ CC Joyner, *The Southern Ocean and Marine Pollution: Problems and Prospects*, *Case W. Res. J. Int'l L. Vol. 17* (1985) 167.

⁵¹ *Ibid.*

⁵² CO Okidi, *Regional control of Ocean Pollution: Legal and Institutional Problems and Prospects*, (1978) 56, Sijthoff and Noordhoff International Publishers, The Netherlands.

immediate threat to the marine environment while others may only be dangerous in the long term.⁵³

2.7.1 Pesticides

Pesticides are organic chemicals that are environmentally persistent and generally harmful to human health and the environment. They are used mostly for agricultural purposes such as pest control activities and are called chlorinated hydrocarbons. They consist of DDT, dieldrin, endrins, polychlorinated biphenyls (PCBs),⁵⁴ lindane, pyrethrins, temephos, chlorphoxim, methidathion and fenthion.⁵⁵ These are known to be major pollutants of the coastal and marine environment.⁵⁶ These pesticides enter into the marine environment in two major ways; through water run-off (including floods) and the atmosphere. However, the atmosphere is a major pathway because 50 percent of the pesticides sprayed on plants are carried by wind into the atmosphere and into the coastal and marine environment by precipitation. For instance, DDT has been detected on dust particles in areas far from where the pesticides were initially sprayed.⁵⁷

Pesticides are highly toxic and they have an adverse effect on fishery resources and human health because they are sprayed on virtually all food resources.⁵⁸ Their after effects, particularly in excessive quantities are that they produce algal blooms, which spur the release of toxins that can kill fishery resources, poison people and also deplete oxygen in rivers, estuaries, lagoons, bays or near-shore water leading to eutrophication and causing serious threats to coastal and marine ecosystems. They also produce fat soluble toxins that bio-accumulate in predators,⁵⁹ which can cause disease and reproductive failures.⁶⁰ Developed countries no longer use these

⁵³ O Schacter and D Serwer (note 26) 65.

⁵⁴ Ibid.

⁵⁵ FAO Document, Review of the State of aquatic Pollution of West and Central African Inland Water, pgs 4 and 15, www.fao.org/docrep/008, Accessed in 2008.

⁵⁶ J Basedow and U Magnus (Eds), *Pollution of the Sea-Prevention and Compensation* (2007) 15, Springer Berlin Heidelberg, New York.

⁵⁷ Ibid 16.

⁵⁸ O Schacter and D Serwer (note 26) 15 and 96.

⁵⁹ Such as polar bears, whales, dolphins and eagles.

⁶⁰ O Schacter and D Serwer (note 26) 8.

pesticides due to their regulation and control by international treaties,⁶¹ but in less developed countries, they are still very much in use.⁶²

2.7.2 Radioactive wastes

Radioactive wastes are generated from the production of nuclear energy, discarded nuclear and military submarine wastes, industrial wastes and from nuclear applications in medicine and scientific research. Radioactive wastes could be liquid and/or solid wastes which when released into the coastal and marine environment may cause the death of larvae and marine mammals due to the absorption of radiation. These radioactive wastes are non-biodegradable and so accumulate in the marine ecosystem and fishery resources which in turn harm human beings when eaten.⁶³

2.7.3 Persistent organic pollutants (POPs)

These are introduced into the coastal and marine environment by discharge from industrial activities. They are a major pollution hazard largely because of their longevity and extreme toxicity to marine organisms. The most popular of these POPs are dichlorethane, vinyl chloride, carbon tetrachloride, polychlorinated biphenyl's (PCBs) and DDT. They are also found in pesticides, herbicides, nutrients and fertilizers. Although the majority of these POPs have been banned by the 2001 Stockholm Convention on Persistent Organic Pollutants, they are still in wide use in developing and less developed countries.⁶⁴ For example, in Nigeria at least 200 brands are still marketed, while in Ghana about 60 pesticides are officially recognised.⁶⁵

2.7.4 Heavy metals

Heavy metal pollutants originate from industrial wastes/effluents, road sediments and ore-rich mine tailings. Many metals such as iron, zinc, copper, vanadium, selenium, silver, mercury and

⁶¹ Such as the 2001 Stockholm Convention on Persistent Organic Pollutants, the 1998 Rotterdam Convention on the Prior Informed Consent Procedure for certain Hazardous Chemicals and pesticides in International Trade and the 1989 Basel Convention on the Transboundary Movement of Hazardous Waste.

⁶² They are still in much use in West and Central African Region, JE Portmann, et al., State of the Marine Environment: West and Central African Region, UNEP Regional Seas Reports and Studies No. 108 (1989) 7, www.unep.org/regionalseas/publications/report/.

⁶³ Kouasi and Biney (note 39) 8-9; H Daud (note 47) 33-34.

⁶⁴ Such as Nigeria, Cameroon, Cote d'ivoire, Benin, Ghana and Togo.

⁶⁵ UNEP Regional Seas Reports and Studies No. 108 (note 62) 7.

lead, although essential nutrients, have adverse effects if ingested in excessive quantities.⁶⁶ Moreover, these metals bio-accumulate and bio-magnify in the food chain, which causes serious human health concerns.⁶⁷

2.7.5 Sewage and sludge

Sewage and sludge result from both industrial and domestic activities, and are often discharged untreated into the marine environment directly from point sources. Their pathways are mostly municipal drainage systems, rivers and streams.⁶⁸ They affect the economic value of activities that take place in coastal areas, such as tourism and recreational activities and have severe impacts on human health and the marine environment. However, pathogenic bacteria survive in waters already polluted by sewage and sludge for months causing outbreaks of virulent infectious diseases such as hepatitis.⁶⁹

2.7.6 Litter or debris

Plastic is the component of most marine litter worldwide and its threat to the marine environment has been largely ignored for decades.⁷⁰ Households and small industries generate the largest quantity of these non-hazardous waste and they are mostly dumped or carried by municipal drainage systems into beaches, estuaries, lagoons and eventually into the sea. As there is lack of or a few facilities for sewage treatment so there is lack of or few facilities for disposal and treatment of household rubbish. The threats of debris to marine life are primarily mechanical due to ingestion of plastic debris and entanglement in packaging bands, synthetic ropes and lines or drift nets.⁷¹ The list of affected marine species indicates that marine litter is affecting a significant number of species, for instance, at least 267 species worldwide are affected, including 86 per cent of all turtle species, 44 per cent of all seabirds and 43 per cent of all marine

⁶⁶ UNEP Regional Seas Reports and Studies No. 46 (note 43) 66-67.

⁶⁷ UNEP Regional Seas Reports and Studies No. 108 (note 62) 4-11.

⁶⁸ The Health of the Oceans, UNEP Regional Seas Reports and Studies No. 9 (1982) 39, www.unep.org/regionalseas/publications/report/ Accessed 2008.

⁶⁹ A Sea of Troubles (note 15) 6.

⁷⁰ Studies have shown that in 1975 alone, approximately 135,000 tons of plastic fishing gear and 23,600 tons of synthetic packaging material were dumped into the sea from fishing fleets. JGB Derraik, The Pollution of the Marine Environment by Plastic Debris: A Review, *Marine Pollution Bulletin* vol. 44 (2002) 843.

⁷¹ Ibid 844.

mammals.⁷² Marine litter also affects marine ecosystems due to the accumulation of plastic debris on ocean floor. The impact of this is that it inhibits the exchange of gas between overlying waters and the pore waters of sediments, resulting in hypoxic conditions that can interfere with normal ecosystem functioning and alter composition of life on the ocean floor.⁷³

2.8 Impacts of land-based pollutants on the coastal and marine environment

The impacts of the above pollutants on the coastal and marine environment often vary, are complex and tend to have chronic consequences for the entire marine and coastal ecosystem. As major impacts of pollutants they contribute to the nutrient loading of rivers and near shore-waters which can, inter alia, lead to eutrophication,⁷⁴ resulting in contaminated sea food products unfit for human consumption, reduce fish stocks, create unsafe swimming conditions and cause outbreaks of waterborne diseases such as cholera and hepatitis A.⁷⁵ They also alter and destroy critical habitats, boost the growth and spread of harmful algal-blooms thereby harming coral reefs, fish, shellfish and birds, subsequently causing hypoxic conditions.⁷⁶ A hypoxic condition is a state of depletion of dissolved oxygen in rivers and the sea, upon which over 90 per cent of marine species are directly or indirectly dependent. The result is the rapid extinction of marine flora and fauna.⁷⁷ For instance, once a river or part of a sea becomes hypoxic, fish desert or avoid such areas and bottom-dwellers such as shrimps, crabs, snails, clams, starfish and worms eventually suffocate and die.⁷⁸ A good example of a sea that is already hypoxic is the ‘Dead Zone’ at the mouth of the Mississippi river in the Northern Gulf of Mexico. It is worthy to note here that the adverse impacts of these pollutants are as a result of long-term accumulations and the non-point nature of some sources and activities, often making it difficult to identify the exact pollutant and its source in a land-based marine pollution incident.⁷⁹ However, new issues have

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Too much nutrient concentrations in water can stimulate excessive plant growth. UNEP Seas Reports and Studies Report No. 108 (note 62) 3.

⁷⁵ LM Schaefer, Developments in Land based Pollution in 2004, *Colombian J. of Int'l Env't'L. and Policy*, vol. 16, (2004) 184.

⁷⁶ ‘Pollution and Degradation’ found at Ocean Atlas website www.oceansatlas.org, accessed in 2007.

⁷⁷ M Qing-Nan (note 47) 23-24; A Sea of Troubles (note 15) Chapter 2, pg 9.

⁷⁸ Hypoxic conditions occur mostly in enclosed waters adjacent to intensively farmed watersheds and major industrial centres off the coast of Europe and the U.S.

⁷⁹ Osborne and Datta, Institutional and Policy Cocktails for Protecting Coastal and Marine Environments from Land Based Sources of Pollution, *Ocean and Coastal Management*, vol. 49, (2006) 577; M Qing-Nan (note 47) 8.

come to light on the protection of the marine environment that have placed land-based marine sources and activities causing pollution in a new perspective. For instance, pollutants such as sewage and solid wastes, which were once widely perceived as minor threats are now regarded as major threats and have now been found to have adverse effects on human health and the environment much more than before.⁸⁰ These adverse impacts can be minimised by effectively managing the anthropogenic activities taking place on land that are releasing these toxic pollutants and efficiently handling the pollutants before reaching the coastal and marine environment so as not to cause harmful damage. One way of achieving this is through the notion of integrated coastal zone management (ICZM).⁸¹

2.9 Conclusion

The discussions above are an indication that the world's oceans, once thought to possess great natural capacity to absorb and purify itself, is discovered to have limits to this capacity, which has already been reached and even exceeded due to the amounts of harmful substances and chemicals flowing directly and indirectly into it, along with growing world population and expanding industrialization.⁸² Thus, as a new understanding of environmental problems of the oceans has grown so has it been recognised that it cannot be tackled alone. Arguments have been put forward that the oceans, coasts and even the river basins that flow into them should be protected and managed in an integrated way. Hence, one of the ways of solving problems of regulating land-based sources and activities causing pollution of the marine environment is to manage developments taking place in coastal zones and in the hinterland, effectively using the notion of integrated coastal zone management.⁸³ Some countries have practiced this successfully⁸⁴ while the international community has enshrined this notion in international agreements. These international agreements are discussed in the next chapter.

⁸⁰ *A Sea of Troubles* (note 15) 3.

⁸¹ *Ibid* 2-3.

⁸² A Kiss and D Shelton (note 27) 191.

⁸³ *A Sea of Troubles* (note 15) 6.

⁸⁴ Like the United States of America. They are also the first country in the world to establish a law on coastal zone management.

**PART TWO: THEORETICAL DEVELOPMENT OF REGULATING LBSA AND
HISTORICAL DEVELOPMENT OF ICZM**

CHAPTER THREE

International response in regulating land based sources and activities

„...in publications, conferences, international units, matters are generally divided into air pollution, land pollution and water pollution. In fact, there is only one pollution because every single thing, every single chemical whether in the air or on land will end up in the ocean". J. Cousteau¹

3.1 Introduction

The years between World War II and the 1960s saw the gradual development of an international legal regime on marine pollution generally and on LBSA specifically. By 1970, the international community had become aware of the need to protect the marine environment from overexploitation of resources and steady increase in pollution coming from land and sea.² In addition, awareness has grown of the adverse impact of climate change which is beginning to affect marine ecosystems by altering sensitive ecosystems, the distribution of marine species and melting of ice shelves in the arctic regions leading to sea level rise.³ This awareness prompted the international community to collaborate in seeking long-lasting solutions that will promote ocean sustainability and effective coastal management. This awareness led to the formulation of soft law and hard law agreements that aim to prevent, reduce and control pollution. These agreements include soft law declarations such as UNCHE 1972, the Earth Summit 1992 including Agenda 21, which includes an entire chapter, chapter 17 on oceans, coasts and all kinds of seas including the protection, rational use and development of their living resources. Also hard laws such as UNCLOS 1982, which includes Part IX on marine pollution and others. These soft and hard laws are outlined below in the context of efforts to regulate and control land-based sources and activities. Similar regional arrangements particularly in the African context are outlined in chapter four.

3.2 Development of international law on the regulation of land-based sources and activities

International law regulating land-based sources and activities causing pollution of the marine environment is still being developed, while a number of soft and hard law instruments have been

¹ J Cousteau., *'Our oceans are dying'*, New York Times, 14 Nov. 1971.

² Hassan Daud, *International Conventions Relating to Land Based Sources of Marine Pollution Control: Applications and Shortcomings*, *Geo, Int'l L. Rev.* vol. 16 (2003-2004) 662.

³ Patricia Birnie, Alan E. Boyle and Catherine Redgewell, *International Law and the Environment*, 3rd Ed (2009) 380, Oxford University Press.

adopted. There are no legal cases relating to land-based marine pollution that has been heard by an international tribunal nor incidents of transboundary land-based marine pollution that has been reported. Moreover, there is little evidence of emerging state practice on rules of international law relating to land-based sources and activities of marine pollution.⁴ However, protection of the marine environment from pollution generally has become an important global issue, gaining rapid attention since the United Nations Conference on the Human Development (UNCHE), 1972. In general, land-based marine pollution is more of a transboundary national problem rather than an international issue because coastal waters under national jurisdiction are more polluted than the open sea.⁵ This transboundary nature is due to the fact that pollutants are often carried far from the point of entry into the marine environment with widespread effects that are regional and global, thus, bringing in an international dimension to the problem. For instance, pollutants transported by lateral coastal currents and global circulation patterns have led to transboundary impacts in the Gulf of Mexico, Gulf of Maine and the Caribbean.⁶

However, under customary international law, rules and principles have been developed that serve to guide states in the use of the environment. These principles have been used to determine a number of prominent environmental cases including the Trail Smelter Arbitration. These principles have further been codified into conventions that have been established for regulating land-based marine pollution. An example is the principle of good neighbourliness expressed in the Latin maxim *sic utere tuo ut alienum non laedas* (use your property so as not to injure that of another) is central. This principle was later included in the 1972 UNCHE as principle 21 of the *Declaration on the Human Environment*, and has been further included in conventions as outline below.⁷

⁴ M M'Gonigle, Developing Sustainability and the Emerging Norms of International Environmental Law: The Case of Land Based Marine Pollution, *Can. Y.B. Int'l L. vol. 28 (1990) 181*.

⁵ Coastal waters are the waters of the coastal zone and those in the territorial sea, and both of these are subject to exclusive jurisdiction of a nation.

⁶ Remarks of T Wirth on Marine Pollution for Global Affairs at the Global Legislators Organization for a Balanced Environment Oceans Conference 1995, pg 3, <http://dosfan.lib.uic.edu/ERC/environment/releases/950525.html>, Accessed 2009.

⁷ The principle states that *States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or areas beyond the limits of national jurisdiction*.

3.2.1 The United Nations Conference on the Human Environment (UNCHE) 1972

Before this conference, there was no hard law dealing with marine pollution from land-based sources,⁸ neither was land-based sources and activities regarded as a form of marine pollution, as relevant international agreements then did not address pollution issues, rather they were based on issues such as unrestrained national sovereignty over water boundaries, natural resources, navigation and fishing rights along shared waterways.⁹ The 1958 Conventions¹⁰ did not specifically deal with land-based sources and activities causing marine pollution but mention where made about prevention of marine pollution from discharge of oil and radioactive substances from ships.¹¹ It was in 1968 that ECOSOC¹² started to take a direct interest in questions relating to the protection and preservation of the marine environment from pollution emanating from developments taking place on land, and recommended that a world conference on the environment be convened by UN General Assembly to discuss this.¹³ At the conference, several working groups were created and asked to formulate proposals on various aspects of the environment.¹⁴ The Inter-governmental Working Group on Marine Pollution (IWGMP) was created and made responsible for the protection and preservation of the marine environment.¹⁵

During the conference, the IWGMP posed the question: how can economic development taking place on land be regulated and controlled so as not to affect the marine environment adversely and also cause transboundary marine pollution? In answering the question, principle

⁸ Alan E. Boyle, Marine Pollution under the Law of the Sea Convention, *Am. J. Int'l L.* vol. 79 (1985) 348.

⁹ Edith Brown Weiss, International Environmental Law: Contemporary Issues and the Emergence of a New World Order, *The Georgetown Law Journal*, vol. 81 (1992-1993) 675.

¹⁰ These are the Convention on the Territorial Sea and the Contiguous Zone; the Convention on the Continental Shelf; the Convention on the High Seas; and the Convention on Fishing and Conservation and Conservation of the Living Resources of the High Seas; D Momtaz, The United Nations and the Protection of the Environment: From Stockholm to Rio de Janeiro, *Political Geography*, vol. 15 (1996) 261.

¹¹ Article 24 of the 1958 Convention on the High Seas state that *‘Every State shall draw up regulations to prevent pollution of the sea by the discharge of oil from ships or pipelines or resulting from its subsoil, taking account of existing treaty provisions on the subject’*. Article 25(1) states that *‘Every State shall take measures to prevent pollution of the sea from the dumping of radio-active waste, taking into account any standards and regulations which may be formulated by the competent international organization’*. Article 25(2) further requires that *‘all states shall cooperate with the competent international organizations in taking measures for the prevention of pollution of the seas or airspace above, resulting from any activities with radio-active materials or other harmful agents’*.¹¹

¹² ECOSOC means the Economic and Social Council.

¹³ D Momtaz (note 10) 261. Thus, the conference was convened from 5th-16th June 1972.

¹⁴ Angstman Barbara, et. Al, The Stockholm Conference: A Synopsis and Analysis, *Stan. J. Int'l Studies*, vol. 8, no. 31 (1973) 36.

¹⁵ H Daud (note 2) 663.

21 states that it is the duty of governments to protect and develop the environment within the limits of their national jurisdiction and not cause damage to the environment of other states or areas beyond the limits of their national jurisdiction. Also, Recommendation 71 of the Action Plan further provides that states should use the best practicable means available to minimize the release into the environment of toxic or dangerous substances. While, Recommendations 86 and 92 urged states to adopt and ratify existing conventions on the control of marine pollution, and ensure the effective controls on vessel-source pollution, dumping at sea and land-based sources, and to cooperate at both global and regional levels in new efforts to bring all sources of marine pollution under control.¹⁶

The conference is not a convention but its ‘Declaration and Action Plan’ has had an immense impact on the control and regulation of land-based sources and activities by highlighting the need for states to find ways of balancing economic development with environmental protection. As a result, the principles and recommendations formulated at the conference for the protection and preservation of the marine environment laid the bases for further development of more precise legally binding obligations that are enshrined in UNCLOS and other international treaties.

3.2.2 The United Nations Convention on the Law of the Sea (UNCLOS) 1982

UNCLOS¹⁷ was the first attempt ever to develop legally binding global and regional standards, obligations, responsibilities and powers in dealing with all sources of marine pollution, including land-based sources and activities.¹⁸ Part XII of the Convention is devoted to the protection and preservation of the marine environment, supplying a blueprint for global and regional responsive standards. As such, its provisions personify a general framework for anti-pollution measures designed to protect the world marine ecosystem.¹⁹ It also spelt out provisions for states to jointly

¹⁶ United Nations Conference on the Human Environment: Action Plan for the Human Environment 1972 <http://fds.oup.com/www.oup.co.uk/pdf/bt/cassese/>, Accessed 2010.

¹⁷ UNCLOS was adopted in 1982 and came into force in 1994.

¹⁸ Boleslaw Adam Boczek, Global and Regional Approaches to the Protection and Preservation of the Marine Environment, *Case W. Res. J. Int'l L. vol. 16 (1984) 66*.

¹⁹ CC Joyner, The International Ocean Regime at the New Millennium: A survey of the Contemporary Legal Order, *Ocean and Coastal Management, vol. 43 (2000) 191*.

develop and promote contingency plans against pollution,²⁰ provide technical and scientific assistance to developing countries for the protection and preservation of the marine environment²¹ and monitor and assess potential effects of harmful activities.²²

More specifically, Article 207 states that:

(1). States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.

(2). States shall take other measures as may be necessary to prevent, reduce and control such pollution.

(3). States shall endeavour to harmonize their policies in this connection at the appropriate regional level.

(4). States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.

(5). Laws, regulations, measures, rules, standards and recommended practices and procedures referred to in paragraphs 1, 2 and 4 shall include those designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.

This provision laid the legal foundation for the protection of the marine environment from land-based sources and activities²³ since it involves activities that are within the territorial jurisdiction

²⁰ Articles 199-201 of UNCLOS. www.un.org/depts/los/, Accessed 2010.

²¹ Articles 202-203 of UNCLOS.

²² Articles 204-206 of UNCLOS.

²³ Alan E Boyle, Land based Sources of Marine Pollution: Current Legal Regime, *Marine policy*, vol. 1 (1992) 25.

of sovereign states which inevitably have widespread implications for national economic, development and political autonomy.²⁴

However, this particular article of the Convention has been criticized by scholars, holding that it is too general, weak and ambiguous to provide useful guidance to States on control of land-based sources and activities.²⁵ The reasons given are that:

Firstly, the latter part of article 207(1), which provides that ‘states are only obliged to take into account internationally agreed upon rules, standards...’ does not specify what internationally agreed upon rules, standards or practices are to be taken into consideration. Nor does it specify the criteria that should be used to determine the suitability of the above standards and measures.²⁶ The only definite standard foreseen here is that states ‘must take some legislative action and include legislation designed’ to minimise, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.²⁷

Secondly, that article 207 does not require adherence to any minimum international standards established by international organizations.²⁸

Thirdly, it has allowed states the license to either accept or not accept the responsibility of taking adequate measures to control pollution emanating from land-based sources and activities, since the assessment of pollution control depends entirely on their capabilities to do so.²⁹

The negotiators of the Convention gave reasons for adopting this form of approach stating that the wording of article 207 resulted in part from pressures coming from both developed and developing countries. Developing countries are advocating for recognition of their special needs for economic development, while developed countries are arguing for constraints to be placed on

²⁴ Moira L McConnell and Gold Edgar, *The Modern Law of the Sea: Framework for the Protection and Preservation of the Marine Environment? Case W. Res. J. Int'l. L., vol. 23 (1999) 87.*

²⁵ M M'Gonigle (note 4) 184; AE Boyle (note 23) 25; H Daud (note 2) 668; WE Brown (note 9) 354.

²⁶ AE Boyle (note 8) 25.

²⁷ ML McConnell and G Edgar (note 24) 92.

²⁸ Patricia Birnie and Alan E Boyle, *International Law and the Environment*, 2nd Ed (2002) 410, Oxford University Press, New York.

²⁹ H Daud (note 2) 670.

further development and priority to be placed on environmental protection.³⁰ This concern for economic development by developing countries stem from the fact that the degree of environmental problems facing developing countries vary from those facing developed countries, as underdevelopment and poverty are the underlying causes of most environmental problems in developing countries. Thus, they must concentrate their efforts on development, although emphasising environmental protection. However, there are scholars such as Gouilloud³¹ who believe that article 207(1) serves at least three good functions, being:

- 1) That it provides motivation for national legislatures to develop or improve their laws in this area of pollution control;
- 2) That it serves to encourage co-operation among neighbouring coastal states; and
- 3) That it provides a legal basis for the integration of pollution control policy, and relevant institutional arrangements, especially in coastal states.

Thus, the provisions of UNCLOS signify an important step towards the development of international conventional norms relating to regulation of land-based sources and activities causing marine pollution, and directly and indirectly influencing developments on marine and coastal management at a global level.

3.2.3 The Montreal Guidelines for the Protection of the Marine Environment against Pollution from Land based Sources 1985

Soon after the adoption of UNCLOS, UNEP began addressing issues related to pollution of the marine environment from land-based sources and activities by establishing an Ad Hoc Working Group of Experts on the Protection of the Marine Environment from Land based Sources in 1982. Its initiative resulted in the adoption of the Montreal Guidelines, which were endorsed by the UNEP Governing Council in Montreal, Canada in 1985.³² These Guidelines were the first internationally agreed legal document drawn up specifically on land-based marine pollution control. The Guidelines were mainly devised to assist governments in the process of developing

³⁰ J Ntambirweki, *The Developing Countries in the Evolution of an International Environmental Law*, *Hastings Int'l and Comp. L. Rev.* vol. 14 (1990-1991) 907; AE Boyle (note 8) 354; ML McConnell and G Edgar (note 24) 87.

³¹ DM Johnston (Ed.), *The Environmental Law of the Sea* (1981) 244.

³² Second Intergovernmental Review Meeting of the GPA 2006, *Earth Negotiation Bulletin*, vol. 25, No. 32, page 2, www.iisd.ca/unepegc/. Accessed 2008.

appropriate bilateral, regional, multilateral agreements and national legislation for the protection of the marine environment against land-based sources and activities. They were formulated based on common elements drawn from relevant existing Conventions.³³ Primary among these conventions are Part XII of UNCLOS, the Paris Convention for the Prevention of Marine Pollution from Land based Sources, the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, and the Athens Protocol for the Protection of the Mediterranean Sea against Pollution from Land based Sources.³⁴ These Guidelines were also created as

- a broad framework for the development of conventions in regions where needed;³⁵
- guidance for states in areas that may not be covered by regional agreements;³⁶ and
- for the preparation in the long run of a global convention on land-based sources and activities if the need arises.³⁷

The Guidelines comprises of 19 provisions and three annexes. These provisions can be subdivided into three categories:

- category one includes guideline 1, which comprises of various definitions in the text such as the definition of pollution, marine environment, land-based sources and fresh water limits;
- category two includes guidelines 2-9 comprising of general obligations of States such as a duty not to transfer or transform pollution from land-based sources, co-operation on a global, regional or bilateral basis, adoption of measures against pollution from land-based sources, prevent transboundary marine pollution and co-operate in scientific and technical fields, etc; and
- category three includes guidelines 10-19 comprising of specific measures that are to be taken by States to implement the general obligations set out in guidelines 2-9 above.

³³ Meng Qing-Nan, *Land-based Marine Pollution* (1987) 163, Graham and Trotman Limited, United Kingdom.

³⁴ UNEP: Pollution from Land based Sources, *Environmental Policy and Law*, vol. 14 (1984) 77; Ibid 169.

³⁵ Williams Caroline and Davis Bruce, Land based Activities: What Remains to be done, *Ocean and Coastal Management*, vol. 29, nos. 1-3, (1995) 209.

³⁶ M Qing-Nan (note 33) 169.

³⁷ C Williams and D Bruce (note 35) 209.

These measures include developing comprehensive environmental approaches, control strategies, encouraging environmental assessments, notification, information exchange and consultation, and to develop national laws and procedures, etc. However, there have been diverse reactions as to the usefulness and effectiveness of the Guidelines since its preparation. Some scholars have indicated that the usefulness of the Guidelines lies in its non-stringent wording, as the Guidelines were drafted in order to create a starting point for many States that were just beginning to formulate environmental policies on controlling land-based marine pollution and also trying to find the balance between economic development and protection of the environment. This non-stringent nature is also likely to encourage developing countries to co-operate internationally with other developed countries in regulating this pollution.³⁸ The efficacy of the Guidelines lies in its detailed provisions on regulation of land-based sources and activities causing pollution and is meant to assist States in developing national policies, legislation and programmes on controlling it. Consequently, in an attempt by the Guidelines to cover all aspects of regulating land-based sources and activities, it provided little guidance on the pollutants and activities that are degrading the marine environment.³⁹ Given the fact that the Guidelines are an important milestone in tackling the issue of land-based marine pollution globally, it should be regarded as an internationally agreed standard or procedure to be taken into consideration when States are developing multilateral, regional and bilateral agreements and national legislation as stated in article 207(1) of UNCLOS rather than as an historical soft law document.

3.2.4 United Nations Conference on Environment and Development (UNCED) 1992

Reports⁴⁰ stimulating questions about how far the world has come in the last 20 years after the 1972 Stockholm Conference in integrating the imperatives of environmental protection with the demand for economic development in order to achieve sustainable development, and how far it

³⁸ Meng Qing-Nan (note 33) 212.

³⁹ C Williams and D Bruce (note 35) 209.

⁴⁰ In 1982, Joint Group of Experts on Scientific Aspects of Marine Pollution (GESAMP) published the first global assessment report on the health of the oceans, stressing the findings of adverse impacts of land based activities in coastal zones, semi-enclosed seas and shelf areas. Then in 1990, GESAMP published a second global assessment report which also re-emphasized the findings of the negative impacts land based sources and activities and their resultant pollutants are having on the marine and coastal environment.

needs to go in the next 20 years,⁴¹ stirred discussions at the 1992 Conference.⁴² These discussions produced five major agreements,⁴³ amongst them is Agenda 21, which is relevant to the regulation of LBSA.

A. Agenda 21

The Agenda revealed the consensus of governments present at the summit, stating that integrating environment and development concerns will lead to the fulfilment of basic needs, improved standards for all, better protected and better managed ecosystems, and a safer and more prosperous future.⁴⁴ Although several chapters of Agenda 21 are significant for the protection, preservation and sustainable development of the environment, specific focus will be on chapter 17 which is relevant to LBSA.

B. Chapter 17: Protection of Oceans, all kinds of Seas, including Enclosed and Semi-Enclosed Seas, and Coastal Areas and the Protection, Rational Use and Development of their Living Resources

The chapter is further divided into seven thematic areas, namely:

- Integrated management and sustainable development of coastal areas, including exclusive economic zones (17A);
- Marine environmental protection from land-based activities (17B);
- Sustainable use and conservation of marine living resources of the high seas (17C);
- Sustainable use and conservation of marine living resources under national jurisdiction (17D);

⁴¹ B Cicin-Sain, Earth Summit Implementation: Progress since Rio, *Marine Policy*, vol. 20, No. 2 (1996) 129; D Freestone, The Road to Rio: International Environmental Law after the Earth Summit, *Journal of Environmental Law*, vol. 6, No.2 (1994) 193; WE Brown (note 9) 707.

⁴² The conference is popularly called the Earth Summit. The reason the Conference is called The Earth Summit is because it seemed that the whole world was in attendance, as there were delegates from 178 countries, representatives of some 1500 NGOs, press corps of about 700 and over 100 Heads of State or Government. *The Earth Summit (UNCED), introduction and commentary* by Stanley P Johnson, (1993) 41, Graham and Trotman/Martinus Nijhoff, London, United Kingdom.

⁴³ They are the Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), Agenda 21 and the Statement on Forest Principles.

⁴⁴ UN Conference on Environment and Development (1992) 2, www.un.org/geninfo/bp/envirp2.html, Accessed 2009.

- Addressing critical uncertainties for the management of the marine environment and climate change (17E);
- Strengthening international, including regional, co-operation and co-ordination (17F) and;
- Sustainable development of small islands (17G).

The focus here will be on chapter 17A and B. Chapter 17B deals specifically with protection of the marine environment from land-based sources and activities. The participants at the conference reiterated the fact that land-based sources and activities accounts for 70 per cent of pollution of the marine environment and recommended that UNEP's Governing Council should convene an intergovernmental meeting on the subject so as to come up with a global treaty to address it.⁴⁵ Furthermore, this part spelt out a number of specific substantive approaches that can be taken globally, regionally and nationally in order to prevent, reduce and control land-based sources and activities causing marine pollution.⁴⁶ It also recommended that States should take into account the Montreal Guidelines in their quest to deal with land-based sources and activities, and co-operate in updating, strengthening and extending the Guidelines as appropriate.⁴⁷ This in essence means that the Guidelines could later evolve into a global convention.

In addition, chapter 17A is of the view that the marine environment, which includes the oceans, seas and adjacent coastal areas forms an integrated whole, which must be protected and preserved from pollution. It then recommended that States should develop policies and decision-making processes that will integrate and sustainably manage every aspect of the marine and coastal environment including the rational use and development of their living resources. It further recommended that there is the need to formulate new approaches to marine and coastal area management and development at global, regional, sub-regional and national levels, which are integrated in content and are precautionary and anticipatory in scope.⁴⁸ Thus, chapter 17A

⁴⁵ Chapter 17.18 and 26 of Agenda 21, www.habitat.igc.org/agenda21/ Accessed 2008.

⁴⁶ Chapter 17.18-17.43 Agenda 21.

⁴⁷ Chapter 17.24 and 25 of Agenda 21.

⁴⁸ Chapter 17 of Agenda 21.

reinforces the provisions of UNCLOS⁴⁹ and also brought into sharp relief the concept of sustainable development.

In conclusion, the Earth Summit (Conference) laid the foundation for a new global partnership in integrating the imperatives of environmental protection with the demands of economic development. It further noted that it was the first time, on a grand scale, that policy makers that had traditionally operated sectorally, for instance, the environment, development, climate change, oceans, forests, land resources, water resources, and so on, were made to interact together and examine the consequences of one policy sector on another.⁵⁰

3.2.5 UNEP Conference on Protection of the Marine Environment from Land Based Activities: the Global Programme of Action (GPA) 1995

In response to Agenda 21's call for the UNEP Governing Council to convene an intergovernmental meeting on the subject of regulating land-based sources and activities causing marine pollution, the Council started preparatory activities towards convening this meeting from May 1993 which led up to the Conference in 1995.⁵¹ At the Conference, approaches were examined that can be adapted for addressing land-based sources and activities for particular economic and/or geographic circumstances, opportunities for international co-operation, criteria for development assistance, and technical assistance projects including sewage-related projects.⁵² It then adopted a Global Programme of Action (GPA) on protection of the marine environment from land-based activities and a Declaration,⁵³ which seeks to guide States on ways of addressing land-based sources and activities affecting the marine environment at global, regional and national levels.

⁴⁹ The Preamble of the United Nations Convention on the Law of the Sea 1982.

⁵⁰ B Cicin-Sain (note 41)129; D Freestone (note 41) 193.

⁵¹ The conference took place in Washington D.C. Representatives of over 100 countries with 17 global and regional intergovernmental organizations and 27 non-governmental organizations were in attendance at the Conference. LA Kimball, An International Regime for Managing Land based Activities that Degrade Marine and Coastal Environments, *Ocean and Coastal Management*, vol. 29 (1995) 188.

⁵² B Cicin-Sain (note 41) 128.

⁵³ Called the Washington Declaration.

The GPA is aimed at preventing the degradation of the marine environment from land-based activities with the awareness that increases in population and economic activities in coastal areas are leading to an expansion of construction as well as alteration and loss of coastal habitats and associated wildlife populations.⁵⁴ Chapter one of the document identified nine land-based source categories⁵⁵ that are degrading the marine environment, suggesting that States should set specific targets and take various actions to control these nine sources.⁵⁶ It then set out a step-by-step process for determining priorities for action at national and regional levels, encouraging the development of integrated national and regional strategies for dealing with the collective impacts of all land-based activities, based on the integrity of ecosystems and ecosystem function.⁵⁷ It also restated the objectives set forth in Agenda 21 on the need to:

- apply preventive, precautionary and anticipatory approaches to marine environmental protection;⁵⁸
- ensure environmental impact assessment;⁵⁹
- integrate marine and coastal environmental protection strategies with national and regional strategies for sustainable development;⁶⁰ and
- apply economic techniques and incentives to promote clean production and improve the living standards of coastal populations in order to reduce marine and coastal degradations.⁶¹

Chapter two of the GPA urged States to develop National Programmes of Action (NPAs) or review any existing one as soon as possible⁶² which will be used to:

- identify and assess problems;
- establish priorities for action on these problems;

⁵⁴ JP Ducrotoy, S Pullen, Integrated Coastal Zone Management: Commitments and Developments from an International, European and United Kingdom Perspective, *Ocean and Coastal Management*, vol. 42, (1998) 7.

⁵⁵ These nine land based source categories are: Physical alteration and destruction of habitats, litter, sediment mobilization, nutrients, oil hydrocarbons, heavy metals, radioactive substances, persistent organic pollutants (POPS) and sewage.

⁵⁶ GPA document, Chapter 5, www.gpa.unep.org/, Accessed 2010.

⁵⁷ Kimball (note 51) 188.

⁵⁸ Chapter 17:22 of Agenda 21.

⁵⁹ Chapter 17:28 of Agenda 21.

⁶⁰ Chapter 17:37 and chapter 17: 115 of Agenda 21.

⁶¹ Chapter 17:15 of Agenda 21.

⁶² These NPAs are to be developed or reviewed a few years after the Conference. GPA doc, paragraph 19.

- set management objectives for prioritised problems;
- select management strategies and measures for solving these problems including the criteria for appraising the effectiveness of management interventions; and
- ensure programme support element, such as financing, human resources and legal enforcement mechanisms.⁶³

Chapter two further suggests that States should use these key principles in formulating their NPAs. These key principles include integrated coastal zone management (ICZM), public participation, environmental impact assessment (EIA), the precautionary approach and intergenerational equity.⁶⁴ Chapter three encouraged States to strengthen existing regional conventions on protection and preservation of the marine environment from pollution, programmes and if need be to negotiate new ones.⁶⁵ Chapter four stated categorically that:

- states are expected to fund the development of their NPAs and regional organisations their regional Programme of Actions;
- national, international and bilateral donors should assist with capacity building; and
- for the GEF to support implementation of the GPA under its various focal areas. The chapter also urged States to develop international legal binding agreements on POPs and prior informed consent for certain hazardous chemicals in trade.⁶⁶

Furthermore, in chapter five, States were urged to set specific targets and take various actions in eliminating the nine land-based source categories identified by the Conference. It also urged that regional action plans be developed and suggests possible targets and actions that can be included in these plans.⁶⁷ In addition, the chapter set the institutional foundation for co-ordinating future international co-operation. Thus, academic scholars agreed that the GPA was designed to be a source of theoretical and practical guidance to be drawn on by national and

⁶³ GPA doc, para 18.

⁶⁴ GPA doc, para 23.

⁶⁵ Ibid para25-31.

⁶⁶ Ibid para 48.

⁶⁷ Ibid para 98.

regional authorities in formulating and implementing sustained action to prevent, reduce, control and/or eliminate pollution of the marine environment from land-based sources and activities.⁶⁸

Therefore, assessing contributions that the GPA has made in addressing land-based sources and activities these are that it identified some land-based sources and activities that should be regulated, provided guidance on a number of pollutants that are causing pollution to the coastal and marine environment and problem areas that need urgent action to be taken on them,⁶⁹ thus avoiding the mistake that the Montreal Guidelines made by trying to regulate all land-based sources and activities. The GPA has also motivated governments, regional organisations and the international community to promptly address land-based sources and activities and the impacts they are having on the coastal and marine environment.

3.2.6 Stockholm Convention on Persistent Organic Pollutants (POPs)

The POPs Convention⁷⁰ is a very significant convention in the control of land-based sources and activities causing marine pollution because it contains strong provisions on restricting and in many instances eliminating some of the world's most harmful substances whose sources are land-based, particularly originating from industrial and agricultural use.⁷¹ The Convention targeted 12 persistent organic pollutants, which are sometimes referred to as 'the dirty dozen', but it has set down criteria for adding new pollutants to the list. The decision to limit pollutants to 12 substances is influenced by both environmental and economic factors. From an environmental standpoint, it became important that industries producing these listed substances should turn off production taps, and resources and attention should be focused on issues such as the release of dioxins, the use of PCBs in existing equipment, the continued use of DDT, and the handling and disposal of POP stockpiles and wastes. From an economic standpoint, many of the substances on the list are already been regulated in many countries and so the Convention would

⁶⁸ M El-sabh, S Demers, D Lafontaine, Coastal Management and Sustainable Development: From Stockholm to Rimouski, *Ocean and Coastal Management*, vol. 39 (1998) 7; Second Intergovernmental Meeting (note 32) 2.

⁶⁹ Such as POPs, wastewater treatment and management, chapter 5 of the GPA.

⁷⁰ This Convention was opened for adoption in May 2001 in Stockholm, Sweden and entered into force in 2004, <http://chm.pops.int/TheConvention/Overview/>, Accessed 2010.

⁷¹ Georg Karlaganis, Renato Marioni, Ivo Sieber and Andreas Weber, The Elaboration of the 'Stockholm Convention' on Persistent Organic Pollutants (POPs): A negotiation in Process Fraught with Obstacles and Opportunities, *Environmental Science and Policy Res 8*, vol. 3 (2001) 216-217.

help to level out regulatory regimes (at least from the perspective of those countries) and to promote the use of better alternatives. The Convention is also intended to protect human health and the environment from the adverse impacts of persistent organic pollutants that bioaccumulate in fatty tissues achieving higher concentrations as they move up a particular food chain, and that are prone to long-range environmental transport by eliminating or restricting their production and use.

3.3 Conclusion

The international community has responded to the control of land-based marine pollution by raising awareness as to the adverse impacts anthropogenic activities taking place on land are having on the coastal and marine environment through the conferences convened and the conventions established. Although, no legally binding agreement was established specifically for regulating land-based sources and activities, soft law agreements and some conventions have been adopted to encourage the regulation of land-based marine pollution and how it can be controlled and ultimately eliminated. Thus, quite a number of land-based sources and activities and resultant pollutants were identified as priority areas that call for urgent action. It was further established that effective regulation is achievable only at regional and national levels through integrated and sustained management approaches because of certain factors that may hinder regulation internationally. These factors include:

1. A global approach in combating land-based marine pollution is inappropriate because of the nature and scope of land-based pollutants;⁷²
2. Elements that make the marine and coastal environment of each region vulnerable varies greatly, taking into account the geography, depth, temperature, salinity, currents and absorptive capacity of the ocean, which produces unique pollution problems for coastal nations in a region;⁷³

⁷² H Daud, Regional Frameworks for Land based Sources of Marine Pollution Control: A Legal analysis on the North-East Atlantic and The Baltic Sea Regions, *QUITLJJ*, vol. 4, No 1 (2004) 2; BA Boczek (note 18) 52.

⁷³ H Daud (note 2) 666.

3. The economic and political development of the littoral nations in a coastal region need to be considered bearing in mind that states have the sovereign right to exploit their natural resources in accordance with their duty to protect the marine environment;⁷⁴
4. The social and economic costs of stipulating strict measures are very high because they will substantially have a negative impact on developing nations,⁷⁵ making them stay away from a globally organised technological system;
5. Adopting a regional approach ensures that co-ordinated actions are taken in areas of common interest such as enclosed and semi-enclosed seas,⁷⁶ which will encourage co-operation and which will in turn favour cost-effectiveness and transfer of technology to developing nations;⁷⁷
6. This co-operation will allow a more accurate assessment of trans-boundary problems, as well as an appropriate identification of priorities for action,⁷⁸
7. This cooperation will also strengthen mechanisms for capacity-building both at regional and national levels, and can harmonise and adjust measures according to national environmental, institutional and socio-economic conditions; and
8. Where regions are sufficiently close to each other, transboundary considerations are needed.⁷⁹

These factors point to the disadvantage of adopting strict measures in regulating land-based marine pollution which has necessitated the adoption of soft law agreements internationally. Hence, as the international community has made efforts in responding to pollution of the marine environment especially from land-based sources and activities so too has it called on littoral states in coastal regions to co-operate in addressing it. Accordingly, efforts made regionally to address land-based marine pollution are the next point of discussion.

⁷⁴ Article 193 of UNCLOS.

⁷⁵ P Birnie, AE Boyle and C Redgewell (note 3) 454.

⁷⁶ Ibid 455.

⁷⁷ CO Okidi, Toward Regional Arrangements for the Regulation of Marine Pollution: An Appraisal of Options, *Ocean Development and International Law*, vol. 4, (1977) 18.

⁷⁸ Akiwunmi and Melvasalo, UNEP's Regional Seas Programme: Approach, Experience and Future Plans, *Marine Policy*, vol. 22, No 3, (1998) 229.

⁷⁹ P Birnie, AE Boyle and C Redgewell (note 3) 229.

CHAPTER FOUR

Regional efforts addressing land-based sources and activities

„If the world is to thrive, let alone to survive on a planet of six billion people heading to over nine billion by 2050, we need to get collectively smarter and more intelligent about how we manage waste including wastewaters“. Achim Steiner¹

4.1 Introduction

Regional efforts to protect and preserve the coastal and marine environment from pollution started a quarter of a century ago with the establishment of the United Nations Environment Programme (UNEP) in 1972 as a result of the United Nations Conference on the Human Environment (UNCHE). It identified the following seven aspects of the human environment as priority areas of operation:

- Human settlements and habitats (this later became the independent UN Centre for Habitat);
- Health of people and their environment;
- Terrestrial ecosystems and their management and control;
- Environment and development;
- Oceans (including coastal areas);
- Energy; and
- Natural disasters.²

As regards the priority area oceans, UNEP devised the Regional Seas Programme (RSP) in 1974 with the aim of preparing agreements and negotiating conventions on the protection of specific regional water bodies from pollution.³ More generally, it adopted the Montevideo Programme for the development and periodic review of environmental law (Montevideo

¹ Achim Steiner is UN Under-Secretary General and Executive Director of the UN Environment Programme (UNEP).

² LD Mee, The Role of UNEP and UNDP in Multilateral Environment Agreements, *International Environmental Agreements*, vol. 5, (2005) 231.

³ Achievements and Planned Developments of UNEP's Regional Seas Programme and Comparable Programmes Sponsored by other bodies, UNEP Regional Seas Reports and Studies No. 1, (1982) 1, www.unep.org/regionalseas/publications/, Accessed 2009.

Programme),⁴ establishing guidelines, principles and agreements in the following three subject areas: prevention of marine pollution from land-based sources; protection of the stratospheric ozone layer; and transport, handling and disposal of toxic and dangerous wastes.⁵ In implementing the Montevideo Programme, UNEP negotiated a wide range of legally binding agreements for the prevention of marine pollution from land-based sources including the Montreal Guidelines for the Protection of the Marine Environment from Land based Sources as well as the GPA of 1995.⁶

In 1997, UNEP broadened its mandate at the nineteenth session of its Governing Council's meeting in Nairobi to include:

- analysing the state of the global environment to assess global and regional environmental trends, provide policy advice, give early warning information on environmental threats, and to catalyse and promote international co-operation and action based on the best scientific and technical capabilities available;
- furthering the development of international environmental law, including the promotion of coherent interlinkages among existing international environmental conventions;
- advancing the implementation of agreed international norms and policies, monitor and foster compliance with environmental principles and international agreements, and stimulate co-operative action;
- strengthening its role in the co-ordination of activities in the United Nations system in the field of the environment;
- promoting greater awareness and facilitating effective co-operation among all sectors of society; and

⁴ Montevideo Programme, UN Doc. UNEP/GC.10/21/GC, www.un.org, Accessed in 2009; CA Petsonk, Recent Development in International Organizations: The Role of UNEP in the Development of International Environmental Law, *Am. U. J. Int'l L. and Policy*, Vol. 5 (1990) 364.

⁵ DS Ardia, Does the Emperor Have No Clothes? Enforcement of International Laws Protecting the marine Environment, *Michigan Journal of International Law*, vol. 19 (1998) 364; Montevideo Programme (note 4).

⁶ Montreal Guidelines for the Protection of the Marine Environment from Land based Sources and the GPA of 1995, See chapter three, pgs 47-49, subheading 3.2.3 and pgs 52-55, subheading 3.2.5 for more discussion on the GPA.

- providing policy and advisory services in key areas of institution building such as governments and other relevant institutions.⁷

This broadened mandate has continued to guide UNEP in its operations area, the ‘oceans’. This chapter accordingly examines UNEP’s RSP measures instituted for protecting and preserving the coastal and marine environment from pollution, the agreements, conventions and programmes instituted as well for regulating land-based sources and activities in the various regions it operates. Particular attention is paid to sub-Saharan Africa and the Abidjan and Nairobi Conventions established for the region with the various programmes instituted in an effort to regulate land-based sources and activities.

4.2 Creation of UNEP’s Regional Seas Programme (RSP)

The Regional Seas Programme was established in 1974 with the mandate to develop both legally binding conventions and non-binding agreements for protecting and preserving regional water bodies from pollution. The RSP commenced its activities in the Mediterranean region by adopting an Action Plan for the region in 1975 and negotiating the Barcelona Convention, adopted the following year. The success of the Mediterranean Action Plan and its Convention has become a model for the RSP in developing action plans and conventions for other regions of the world.⁸ An RSP were also adopted for the Baltic Sea⁹ and the North-East Atlantic regions.¹⁰ A related development has been the development of independent regional seas programmes. These independent regional sea programmes are termed ‘independent’ because negotiations on their adoption started way before UNEP’s creation in 1972.

From 1982, UNEP began paying more attention to the protection and preservation of the coastal and marine environment from pollution including land-based sources and activities by

⁷ Summary of the Tenth Special Session of UNEP Governing Council/Global Ministerial Environment Forum, 20-22 February 2008, vol. 4, no. 66, pg 1, www.iisd.ca/unepegc/unepps10/, Accessed 2008; LD Mee (note 2) 236.

⁸ Carol Annette Petsonk (note 4) 363.

⁹ Convention on the Protection of the Marine Environment of the Baltic Sea Area 1992 (Helsinki Convention), www.helcom.fi/Documents/, Accessed 2010.

¹⁰ Convention for the Protection of the Marine Environment of the North-East Atlantic 1992 (OSPAR Convention), www.ospar.org/, Accessed 2010.

convening meetings of government experts on regional marine programmes. This was in co-operation with other relevant international and intergovernmental organisations to review past achievements and planned future programmes of the RSP, as well as comparable programmes sponsored by other bodies on the control of marine pollution. These meetings reiterated the agreement reached at UNCLOS:¹¹ that a regional approach is an effective way to protect and preserve the marine environment, including coastal areas, and to provide a sound basis for global action on land-based pollution.¹² A set of recommendations was produced and these recommendations have since guided the RSP to achieve its mandate. These laid down certain approaches that should be considered when dealing with land-based sources and activities including:

- promoting regional conventions, guidelines and actions for the control of marine pollution and for the protection and management of aquatic resources;
- assessing the state of marine pollution of coastal regions, the sources and trends of pollution, and the impacts of pollution on human health, marine ecosystems and amenities;
- co-ordinating efforts in coastal regions with regard to environmental aspects of protection, development and management of marine and coastal resources;
- supporting education and training efforts in these regions to make possible the full participation of developing countries in the protection, development and management of their marine and coastal resources;
- assisting in research and monitoring;
- strengthening institutional capacities; and
- developing methods for identifying priority needs.¹³

Thus, the RSP established action plans for various regions. Each regional action plan comprises of:

¹¹ See chapter three, pgs 44-47, subheading 3.2.2 for more discussion on UNCLOS.

¹² UNEP's Regional Seas Studies and Reports No.1 (note 3) ii.

¹³ Ibid 3.

- environmental legislation, which includes a framework convention, protocols dealing with specific sources of pollution, and technical annexes, which in principle constitute individual agreements;
- environmental management;
- institutional assessment; and
- financial arrangements.¹⁴

The objective of these action plans are to link assessment of the marine environment and their causes of deterioration with response actions for the purpose of managing and developing the marine and coastal environment sustainably.¹⁵ The framework convention adopted in each action plan generally requires States to take measures that prevent, reduce or control pollution from both land- and sea-based sources while leaving the detailed regulations to additional protocols for later adoption.¹⁶ However, the scope of the framework conventions is mainly on the protection of the marine environment, which does not include other sectors such as fisheries, shipping, trade and development.¹⁷ Each action plan is formally adopted by the respective governments in a region before becoming operational to ensure buy-in of the plan. These action plans are all structured in a similar way but according to regional needs and priorities¹⁸ and the Regional Seas Programme covers all the major developing regions of the world's oceans.¹⁹ Of particular relevance to this work are the framework conventions for the protection and preservation of the coastal and marine environment in west and east Africa, namely the Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention)²⁰ and Convention

¹⁴ Barbara Kwiatkowska, Marine Pollution from Land based Sources: Current Problems and Prospects, *Ocean Development and International Law*, vol. 14, no 3, (1984) 317; AKIWUNMI and MELVASALO, UNEP's Regional Seas Programme: Approach, Experience and Future Plans, *Marine Policy*, vol.22, No. 3(1998) 231; Boleslaw Adam Boczek, Global and Regional Approaches to the Protection and Preservation of the Marine Environment, *Case W. Res. J. Int'l L.* vol. 16 (1984) 59.

¹⁵ Akiwunmi and Melvasalo (note 14) 231.

¹⁶ B Kwiatkowska (note 14) 317; Akiwunmi And Melvasalo (note 14) 231.

¹⁷ G Kullenberg, Approaches to addressing the problems of Pollution of the Marine Environment: An Overview, *Ocean and Coastal Management*, vol. 42 (1999) 1007.

¹⁸ George P. Smith II., The United Nations and the Environment: Sometimes a Great Notion? *Tex. Int'l L. J.* vol. 19 (1984) 346.

¹⁹ There are more than 143 countries participating in the regional sea programme.

²⁰ Adopted in 1981 and entered into force on 5 August, 1984.

for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention).²¹

In summary, UNEP has provided assistance to these regions through its RSP by strengthening and building upon the competences of each region to enable it to implement its action plan through training (capacity building), education, creating institutional frameworks and/or building existing institutional frameworks, research (scientific, socio-economic, political and legal) and monitoring. It has also co-operated extensively with many other UN bodies on the protection of the marine environment on the platform of the RSP. These framework conventions and protocols on regulation of land-based sources and activities are outlined next.

4.3 Outline of regional framework conventions and protocols established to regulate land-based sources and activities

The RSP has developed action plans with associated regional conventions for the following regions: North-East Pacific region, Mediterranean region, Kuwait region, Wider Caribbean region, West and Central Africa region (WACAF), West Indian Ocean region (WIO), South-East Pacific region, Black Sea, East-Asian Seas, South-West Atlantic region, South-Pacific region, South-Asian Seas, North-West Pacific region, Caspian Sea, Arctic region and Red Sea and Gulf of Aden. Some of these regions have developed conventions on protection of the marine environment with specific protocols on the regulation of land-based sources and activities, while others have laid down general provisions on land-based sources and activities in their conventions. Likewise, the North-East Atlantic and the Baltic Sea regions also have action plans, framework conventions and protocols for the protection of their coastal and marine environment, which were developed independently of the RSP. However, regions that have developed specific protocols on LBSA are outlined below to appreciate the role that UNEP and the RSP has played in addressing this source of pollution regionally.

²¹ Adopted on 21 June 1985 and entered into force in 1996.

4.4 Conventions and protocols developed under the regional seas programme (RSP)

4.4.1 The Mediterranean Region

In response to Recommendation 92 of Stockholm Conference,²² the RSP initiated its first regional activity in the Mediterranean because it had been identified at the conference as being among ‘the particularly threatened bodies of water’.²³ The Mediterranean Action Plan (MAP) was adopted in the region²⁴ in 1975. The MAP consists of four components, namely

- integrated planning, development and management of the resources of the Mediterranean basin (environmental management);
- co-ordinated programme for research, monitoring and exchange of information and assessment of the state of pollution and of protection measures (environmental assessment);
- a framework convention and related protocols with their technical annexes for the protection of the Mediterranean environment (environmental legislation-the Barcelona Convention and its Protocol on land-based sources); and
- institutional and financial arrangements for the MAP.²⁵

These four components were intended for long-range planning and assessment of future developments in various sectors of the economy and became so successful that UNEP now uses them as a format for developing action plans for other regions.²⁶ The MAP provided the basis for the Barcelona Convention and Protocols on the various sources of marine pollution.²⁷ The Convention includes a general provision which states that *„contracting parties shall take all appropriate measures to prevent, abate and combat pollution of the Mediterranean sea area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any*

²² Stockholm Conference on UNCHE took place in 1972, See chapter three, pgs 43-44, subheading 3.2.1.

²³ UNEP Regional Seas Reports and Studies no. 1 (note 3) 9.

²⁴ Countries in the region are Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey, European Community and Yugoslavia, www.unepmap.org/, Accessed 2010.

²⁵ UNEP Regional Seas Reports and Studies no. 1 (note 3) 9-10.

²⁶ PM Haas, *Do regimes Matter? Epistemic Communities and Mediterranean Pollution Control*, vol. 43 (1989)381, Cambridge University Press; Mee (note 2) 241.

²⁷ Convention for the Protection of the Mediterranean Sea against Pollution 1976, entered into force 12th February 1978. The Convention also has protocols on dumping; specially protected areas; exploration and exploitation of the continental shelf and the seabed; oil and other harmful substances in case of emergency and hazardous wastes.

other land based sources within their territory”:²⁸ In 1980 it adopted a Protocol on Land Based Sources and Activities.²⁹ Since then, the Convention and all its Protocols have undergone extensive changes and amendments,³⁰ mainly to embrace the more holistic approach of Agenda 21 and the principles of sustainable development adopted by the ‘Earth Summit’.³¹ The amended Protocol on regulation of land-based sources and activities is outlined below.

A. The Protocol for the Protection of the Mediterranean Sea against Pollution from Land Based Sources and Activities 1996

This protocol was first adopted in Athens in 1980 and amended in Syracuse in 1996 to reflect the objectives of the Global Programme of Action (GPA) and the ‘Earth Summit’. The new Protocol reflects important changes, such as:

- the title of the Protocol was changed with the word ‘Activities’ added to the old title;³²
- the preamble indicated that parties to the protocol agreed to apply principles such as the polluter pays principle, the precautionary principle, environmental impact assessment and using techniques such as best available techniques, best environmental practice and clean production techniques in the protection of their marine environment;³³
- parties agreed to *„take all appropriate measures to prevent, abate, combat and eliminate to the fullest extent possible pollution of the Mediterranean sea area caused by discharges from rivers, coastal establishments or outfalls, or emanating from any other land based sources and activities within their territories, giving priority to the phasing out of inputs of substances that are toxic, persistent and liable to bio accumulate”*;³⁴

²⁸ Article 8 of the Barcelona Convention, www.unepmap.org/, Accessed 2010.

²⁹ The Protocol for the Protection of the Mediterranean Sea against Pollution from Land Based Sources 1980, entered into force 17th June 1983.

³⁰ For instance, the Convention was amended in 1995 and renamed Barcelona Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean.

³¹ MA Massoud, MD Scrimshaw, JN Lester, Qualitative Assessment of the Effectiveness of the Mediterranean Action Plan: Wastewater Management in the Mediterranean Region, *Ocean and Coastal Management*, vol. 46 (2003) 880; Mee (note 2) 241.

³² The Protocol for the Protection of the Mediterranean Sea against Pollution from Land Based Sources and Activities 1996, www.basel.int/centers/activ2007-2008/, Accessed 2010.

³³ Preamble to the Protocol.

³⁴ Article 1 of the protocol.

- in eliminating pollution deriving from land-based sources, the parties shall *elaborate and implement, individually and jointly, as appropriate, national and regional action plans and programmes, containing measures and timetables for their implementation*;³⁵
- parties shall restrict pollution of substances listed in Annex II by means of authorisation and regulation.³⁶
- the Protocol's coverage area included brackish waters, coastal salt waters (such as marshes and coastal lagoons) and ground waters communicating with the Mediterranean sea. The Protocol covers the entire watershed area that drains into the Mediterranean sea, which are within the territories of the contracting parties;³⁷
- the meetings of the contracting parties are to be adopted by a two-third majority vote including the short- and medium-term regional plans and programmes containing measures and timetables for their implementation so as to eliminate pollution deriving from land-based sources and activities and in particular phase out inputs of the substances that are toxic, persistent and can bio accumulate (this is the driving force of the Protocol);³⁸
- contracting parties are to submit reports every two years of measures taken, results achieved and difficulties encountered in the application of the Protocol.³⁹

Major changes were also made to the annexes of the Protocol. Annex 1 contains a list of *elements to be taken into account in the preparation of action plans, programmes and measures for the elimination of pollution from land based sources and activities*. It provides that in preparing action plans, measures and programmes, the parties in conformity with the GPA should give priority to substances that are toxic, persistent and can bio-accumulate, in particular persistent organic pollutants (POPs), as well as wastewater treatment and management.⁴⁰ It lists 19 categories of substances and 30 sources of pollution which are to serve as guidance when preparing action plans, measures and programmes for eliminating pollution from land-based

³⁵ Article 5 of the Protocol.

³⁶ Article 6 of the Protocol.

³⁷ Articles 3 and 4 of the protocol.

³⁸ Article 15(1) of the Protocol.

³⁹ Article 13(1) of the Protocol.

⁴⁰ Annex 1 of the Protocol.

sources and activities.⁴¹ The contracting parties are also required to elaborate national and regional plans and programmes containing measures and timetables for implementation, which takes account of the best available techniques and best environmental practice, including clean production technologies, in accordance with the criteria set out in Annex IV.⁴²

Annex II contains *elements to be taken into account in the issue of authorisations for discharges of wastes*. Annex III contains *conditions of application to pollution transported through the atmosphere*, while Annex IV contains *criteria for the definition of best available techniques and best environmental practice*.⁴³ As mentioned earlier,⁴⁴ the success of the Mediterranean Action Plan (which includes the Barcelona Convention and the Protocols developed for various sources of marine pollution such as the LBS/A) propelled the RSP to develop this type of action plan for other regions. The RSP launched its second program in the Kuwait region.

4.4.2 Kuwait Region

Following the Mediterranean model, the RSP developed an action plan for the Kuwait region in 1978. In that year, participating states adopted the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution and its Protocol Concerning Regional Cooperation in Combating Pollution by Oil and Other Harmful Substances in cases of Emergency.⁴⁵ The Kuwait Convention also contains one general provision on land-based marine pollution which states that *contracting States shall take all appropriate measures to prevent, abate and combat pollution caused by discharges from land reaching the Sea Area whether*

⁴¹ Annex 1(A-C) of the Protocol.

⁴² Annex 1 of the Protocol.

⁴³ Tullio Scovazzi is of the opinion that Annex IV of the Protocol was copied verbatim from OSPAR Convention of 1992. Tullio Scovazzi, *Current Legal Developments: Mediterranean, The Amendments to the Protocol for the Protection of the Mediterranean Sea against Pollution from Land Based Sources and Activities 1996*, *The International Journal of Marine and Coastal Law*, vol. 11 (1996) 575.

⁴⁴ See subheading 4.2, pg 60 above.

⁴⁵ The Convention and its Protocol came into force in 1980.

waterborne, airborne, or directly from the coast including outfalls and pipelines".⁴⁶ It then adopted a protocol on land-based sources in 1990.⁴⁷

A. Protocol to the Kuwait Regional Convention for the Protection of the Marine Environment against Pollution from Land-Based Sources 1990

This Protocol is quite different from the Mediterranean Protocol on land based sources in the sense that it does not contain lists of substances to be eliminated or controlled but it concentrates on regulating sources of land-based activities causing marine pollution themselves. Article IV(1) of the Protocol states that contracting parties have agreed to implement action programmes based on source control as outlined in Annex I through techniques such as controlling industrial processes, adopting good operating practices, segregating waste stream and recycling.⁴⁸ Article V further seek to minimise the inhibiting effects of waste treatment costs on new and small industries by promoting industrial location planning programmes as described in Annex II, involving joint or combined effluent treatment. Likewise, Article VI requires contracting parties to develop regional guidelines, standards or criteria for sea-water quality and also develop regional and local (national) regulations for waste discharge and treatment, in accordance with Annex III. In addition, the Article states that polluters must also obtain permits for discharges, the conditions of which must be subject to review and modification.

4.4.3 South East Pacific Region

The region adopted an Action Plan in 1981.⁴⁹ Subsequently, contracting parties⁵⁰ to the Action Plan adopted the framework Convention for the Protection of the Marine Environment and Coastal Area of the South East Pacific (Lima Convention) in the same year. The Lima Convention generally addresses emergency pollution situations. Article 4 provides that contracting parties should adopt measures aimed at preventing, reducing and controlling marine

⁴⁶ Article 6 of the Kuwait Convention, www.ecolex.org/ecolex/ledge/view/, Accessed 2010.

⁴⁷ Called Protocol to the Kuwait Regional Convention for the Protection of the Marine Environment against Pollution from land Based Sources 1990, entered into force in 1993. The following States are parties to the Protocol: Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. www.unitar.org/cwm/publications/, Accessed 2011.

⁴⁸ Annex I of the Protocol.

⁴⁹ Entered into force in 1986. www.unitar.org/cwm/publications/, Accessed 2010.

⁵⁰ Contracting Parties are Chile, Ecuador, Colombia, Panama and Peru.

environmental pollution in order to minimise any possibility that *toxic, harmful or noxious substances*‘ might be released into the marine environment.⁵¹ However, in 1983 the Protocol for the Protection of the South East Pacific against Pollution from Land-based Sources was adopted.⁵²

A. Protocol for the Protection of the South East Pacific against Pollution from Land Based Sources 1983

This Protocol is similar to the 1980 Mediterranean land-based sources‘ Protocol in that it lists substances in its Annex I that must be eliminated in accordance with the provisions of Article IV and others in Annex II that should be progressively reduced in accordance with the provisions of Article V. National authorisations for discharges of Annex I or II substances must take account of factors in Annex III.⁵³ Article VI further urges its contracting parties to adopt rules, standards, common practices and procedures in their local (national) jurisdictions for regulating particular aspects of land-based marine pollution, such as effluents necessitating separate treatment, quality of sea water necessary to guarantee the preservation of human health, marine living resources and ecosystems, studies to determine the length, depth and position of coastal outfalls, and control of products, installations and industrial and other processes causing significant pollution from land-based sources and activities.

4.4.4 Red Sea and Gulf of Aden Region

In 1976 the region adopted its Action Plan. In 1982, the Action Plan was reconstructed to become more comprehensive,⁵⁴ and the Convention for the Conservation of the Red Sea and Gulf of Aden (Jeddah Convention) and the Protocol Concerning Regional Cooperation in Combating Pollution from Oil and Other Harmful Substances in cases of Emergency were adopted.⁵⁵ In 1985 an organisation called the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) was formed to oversee the

⁵¹ Article 4 of the Lima Convention.

⁵² Entered into force in 1986. www.unitar.org/cwm/publications/, Accessed 2010.

⁵³ This is almost identical to Annex III of the 1980 Mediterranean Protocol on land based sources.

⁵⁴ Red Sea and Gulf of Aden, pg 3, www.unep.org/regionalseas/programmes/, Accessed 2010.

⁵⁵ Both the Convention and the Protocol entered into force in 1985. Parties to the convention are: Palestine Liberation Organisation, Sudan, Somalia, Saudi Arabia, Jordan and Republic of Yemen.

implementation of the Jeddah Convention and its protocol.⁵⁶ The focus of PERSGA was more on the problem of oil pollution because the region is an important route for transportation of oil and goods between Europe and the Far East, but in recent times this focus changed as rapid development from oil and gas, shipping, tourism and industry have caused an unprecedented economic transformation that has resulted in a surge in coastal development where a range of threats to the natural environment have emerged. Thus, PERSGA had to develop two more protocols in response to these threats. These protocols are

- Protocol Concerning the Conservation of Biological Diversity and the Establishment of Network of Protected Areas in the Red Sea and Gulf of Aden and;
- Protocol Concerning the Protection of the Marine Environment from Land-Based Activities in the Red Sea and Gulf of Aden.⁵⁷

4.4.5 Wider Caribbean Region

The region adopted its Action Plan in 1981 called The Caribbean Environment Programme (CEP) and in 1983 the Convention for the Protection and Development of the Marine Environment for the Wider Caribbean was adopted at a conference of plenipotentiaries in Cartagena to provide a mutual regional mechanism for reducing and controlling marine pollution of all kinds within the Caribbean area. The Cartagena Convention encompasses the marine environment of the Gulf of Mexico, the Caribbean and the section of the Atlantic Ocean that falls below 30 degrees north latitude, and within 200 nautical miles of the Convention signatories.⁵⁸ Articles 5-7 of the Convention obliges parties to take *all appropriate measures to prevent, reduce and control pollution from ships, dumping and by disposal or by discharge emanating from rivers, estuaries, coastal establishments, outfall structures, or any other sources in the convention area*.⁵⁹ In the light of this, the parties adopted the land-based protocol outline below.

⁵⁶ Red Sea and Gulf of Aden (note 54) 3.

⁵⁷ Both Protocols were adopted in 2005 and are yet to enter into force. www.persga.org/Documents/, Accessed 2011.

⁵⁸ The Convention entered into force in 1986. Participating States are: U.S, Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Cuba, Dominica, Dominican Republic, France, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Netherlands, Nicaragua, Panama, St. Christopher and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, United Kingdom and Venezuela.

⁵⁹ The Cartagena Convention 1983. www.cep.unep.org/cartagena-convention/text-of-the-cartagena-convention Accessed 2010.

A. Protocol to the Cartagena Convention Concerning Pollution from Land Based Sources and Activities 1999

This Protocol⁶⁰ includes some interesting provisions that are not found in any other LBSA protocols, becoming a useful model for the RSP. The Protocol as stated in its preamble is guided by Agenda 21. Article 3 states that „*Contracting parties shall take appropriate measures to prevent, reduce and control pollution of the convention area from land-based sources and activities, using for this purpose the best practicable means at its disposal and in accordance with its capabilities*“. However, Annex 1 defines source categories, activities and associated pollutants of concern, for which Article IV requires parties to develop additional annexes where appropriate. These additional annexes should include effluent and emission limits and management practices based on factors identified in Annex II. Furthermore, binding discharge limits were set in Annex III for domestic wastewater, including setting high standards for sensitive class 1 waters and a timetable for implementing this. Annex IV requires each contracting party to develop plans, programmes and other measures to control pollution from agricultural non-point sources causing marine pollution in their jurisdiction. In aiding compliance with this Protocol, Article XIV stipulates that parties will establish a scientific, technical and advisory committee to advise contracting parties on the implementation of the Protocol and also reviewing their national reports periodically.⁶¹

4.4.6 The Black Sea Region

In 1992 the region adopted its Convention for the Protection of the Black Sea against Pollution (Bucharest Convention).⁶² Article V states that „*Contracting parties shall take individually or jointly, as appropriate, all necessary measures consistent with international law and in accordance with the provisions of this convention to prevent, reduce and control pollution thereof in order to protect and preserve the marine environment of the Black Sea*“.⁶³ In addition, Article VII states that „*Contracting parties shall prevent, reduce and control pollution of the marine environment of the Black Sea from land based sources, in accordance with the Protocol*

⁶⁰ This protocol is not yet in force.

⁶¹ LBS Protocol 1999. www.cep.unep.org/cartagena-convention/lbs-protocol/lbs-protoco-english Accessed 2010.

⁶² The Bucharest Convention entered into force in 1994. Contracting Parties are: Bulgaria, Georgia, Romania, Russia, Turkey, and the Ukraine.

⁶³ Article V (2) of the Bucharest Convention, www.blacksea-commission.org/, Accessed 2010.

on the Protection of the Black Sea Marine Environment against Pollution from Land-based Sources which shall form an integral part of this convention". The implementation of the Convention is managed by the Commission for the Protection of the Black Sea against Pollution (Istanbul Commission).

A. The Protocol on Protection of the Black Sea Marine Environment against Pollution from Land Based Sources

The Protocol was adopted in 1992 and entered into force in 1994. It is similar to the 1980 Mediterranean and 1983 South East Pacific Land Based Sources Protocols by imposing duties on contracting parties to eliminate pollution from Annex I substances and to reduce substances listed in Annex II.⁶⁴ Annex III lists the criteria for discharge authorisations. In addition, the Protocol urged contracting parties to co-operate in developing common guidelines, standards or criteria in dealing with these substances.⁶⁵

Having outlined the regional action plans, framework conventions and protocols established on the regulation of land-based sources and activities, attention will now be focused on the WACAF and WIO region to examine the role that UNEP and the RSP has played in regulating land-based sources and activities causing pollution to the coastal and marine environment in sub-Saharan Africa.

4.5 UNEP and the RSP's approach in regulating land-based sources and activities in sub-Saharan Africa

4.5.1 West and Central African region (WACAF)

The first step in developing an Action Plan for the WACAF region was taken in 1976 when UNEP sent a fact-finding mission to 14 States in the region to ascertain the state of the region's coastal and marine environment, identify the problems plaguing them and also to identify national pollution control capabilities. This initial mission was followed by other missions with several organised workshops.⁶⁶ Based on the findings of these missions and workshops, a draft

⁶⁴ Article 5 of the Protocol.

⁶⁵ Article 6 of the Protocol.

⁶⁶ UNEP Regional Seas Report and Studies No. 1 (note 3).

Action Plan was formulated by the RSP in 1978 with the help of other UN organizations⁶⁷ that had been working in the region.⁶⁸ In 1980 a meeting of legal experts was convened to prepare a regional convention and protocol for the protection and preservation of the marine environment of the region. Subsequently, in 1981 the RSP convened a conference of plenipotentiaries in Abidjan,⁶⁹ who adopted the Action Plan, the Convention for the Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African region and the Protocol Concerning Cooperation in Combating Pollution in Cases of Emergency.⁷⁰ The Convention laid down an array of general provisions, which, together, provides a framework for the protection and preservation of the marine and coastal environment of the region. These provisions cover issues such as land-based sources, dumping, seabed activities, pollution from ships, atmospheric pollution and co-operation in combating pollution in cases of emergency.⁷¹

In addressing the problem of land-based sources and activities in the region, a task team was established in 1989 to assess the potential impact of expected climate change on the marine and coastal environment of the West and Central African region and to recommend policies and measures for mitigation of that impact.⁷² Similarly, in the same year a project titled ‘Gulf of Guinea Large Marine Ecosystem’ was initiated in co-operation with other UN agencies to monitor the quality of the marine environment, concentrating on activities that will result in proposals for concrete pollution measures.⁷³ This project was concluded in 2001 and a report on the state of the marine environment of the region was submitted to UNEP.

⁶⁷ Such as Food and Agricultural Organization (FAO), Intergovernmental Oceanographic Commission (IOC), World Health Organization (WHO) and United Nations Development Programme (UNDP).

⁶⁸ The draft was revised again in 1979.

⁶⁹ This is the capital of Cote D’Ivoire, Ivory Coast.

⁷⁰ The Convention and its Protocol entered into force in 1984. Contracting parties are Angola, Benin, Cameroon, Cape-Verde, Congo, Cote d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, Namibia, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, and Togo.

⁷¹ Articles 5-12 of the Convention, www.unep.org/AbidjanConvention/ Accessed 2011.

⁷² West Africa Region pg 28, www.unep.org/regionalseas/programmes/ Accessed 2011.

⁷³ These other UN agencies are the Food and Agricultural Organization (FAO) and Intergovernmental Oceanographic Commission (IOC). Also, twenty-three university research institutes and laboratories from ten countries were organized into a network to carry out the project.

In 2002, a further project titled ‘Combating Coastal Area Degradation and Living Resources Depletion in the Guinea Current Large Marine Ecosystem (GCLME) through Regional Actions’ was initiated.⁷⁴ Subsequently, in 2005 the GCLME project carried out a Transboundary Diagnostic Analysis (TDA) in the region. The aim of the TDA is to provide a framework of regional and national policies and strategies for the preparation of a comprehensive Strategic Action Plan (SAP) for the region. This is expected to provide littoral states in the region with the opportunities to embark on developing regional and national approaches in protecting and preserving the biological diversity and habitats that form an integrated whole and an essential component of the global life support system of the region.⁷⁵ This TDA identified four major environmental issues plaguing the region. These are:

- Decline in fish stocks and unsustainable harvesting of living resources;
- Uncertainty regarding ecosystem status, integrity (changes in community composition, vulnerable species and biodiversity, introduction of alien species) and yields in a highly variable environment including effects of global climate change;
- Deterioration in water quality (chronic and catastrophic) from land- and sea-based activities, eutrophication and harmful algal blooms; and
- Habitat destruction and alteration, including, inter alia, modification of coastal zones and seabed, coastline erosion and degradation of coast cape.⁷⁶

The TDA further indicated that the resolution of the above issues is encapsulated in the overall development goals of recovering depleted fish stocks, restoring degraded habitats, reducing land- and ship-based pollution and creating an ecosystem-wide assessment and management framework for sustainable use of living and non-living resources in the region.⁷⁷ In achieving these goals, the TDA identified that priority needs to be given to capacity building (as sustainability would be derived from improved capacity, strengthened national and regional

⁷⁴ UNEP initiated the project in cooperation with United Nations Development Programme (UNDP) and United Nations Industrial Development Organization (UNIDO). Since the creation of this project, the phrase GCLME is used interchangeably with the word WACAF.

⁷⁵ Ibid (note 72) 17.

⁷⁶ Report of the Trans-boundary Diagnostic Analysis and Indicators Workshop for the GCLME, (2005) 5, www.unep.org/AbidjanConvention/docs/GCLME_TDA.pdf, Accessed 2011.

⁷⁷ Ibid 6.

institutions and improved policy/legislative frameworks. Hence, in accomplishing the above expected results, the TDA outlined major mechanisms that must be put in place, including:

- Finalizing the SAP and developing sustainable financing mechanisms for its implementation;
- Recovery and sustainability of depleted fisheries and living marine resources, including mariculture;
- Planning for biodiversity conservation, restoration of degraded habitats and developing strategies for reducing coastal erosion;
- Reducing land- and sea-based pollution and improving water quality; and
- Regional co-ordination and institutional stability.⁷⁸

The TDA also recognised these three cross-cutting themes to work on.

- Low-level capacity, expertise and ability to monitor environmental variability;
- Inadequate or inappropriate data and information management; and
- Governance and institutional framework.⁷⁹

The TDA was completed in 2005 forming the basis for the negotiation of the Strategic Action Plan (SAP).

The main objective of the SAP is to describe legal regulatory policies, institutional reforms and financial investments needed to address the problems identified in the TDA that are plaguing the region.⁸⁰ The SAP indicated that the commitment to take joint action by member countries in the region is based on the following applicable principles:

- The concept of integrated sustainable development. This will restore the integrity, health and sustainability of the region's biodiversity and reinvigorate its capacity for use and enjoyment for present and future generations;
- The precautionary principle. This will act as a preventive measure to forestall any potential deleterious effects on living resources, hazards to human health, hindrance to marine activities, reduction of amenities and impairment of other legitimate uses even

⁷⁸ Ibid.

⁷⁹ Ibid 8.

⁸⁰ Strategic Action Plan for the Guinea Current Large Marine Ecosystem, www.unep.org/AbidjanConvention/docs/GCLME_SAP_draft.pdf, Accessed 2011.

when there is no established and conclusive evidence of a causal relationship between the action and the effects, recognizing that greater caution is required when information is unavailable, unreliable or inadequate for meaningful inference;

- Other anticipatory and co-operative actions such as regional contingency planning, environmental impact assessments (EIA), integrated coastal area and river basin management (ICARM), strategic environmental assessments (SEA) involving the conservation of living marine resources and biodiversity, establishment of marine protected areas, assessment of government programmes, policies and plans of transboundary environmental consequences;
- The application of cleaner technologies, which ensures best practices by replacing or phasing out obsolete waste-generating technologies that are in use, and this shall be vigorously pursued and encouraged;
- The use of multilateral economic and policy instruments that promote integrated sustainable development, implementation of economic incentives for transfer of environmentally-friendly technologies, practices and applications through the introduction and enforcement of user fees and the polluter pays principle, as well as periodic environmental and natural resources auditing;
- Mandatory environmental, ecosystem and human health considerations shall be included and required for all relevant policies and sectoral plans, particularly those regarding marine industrial development, fisheries, mariculture and marine transportation;
- Voluntary co-operation and strong political commitment will be encouraged, to resolve transboundary issues, and promote joint activities;
- The full involvement and active participation of the private sector as stakeholders shall be encouraged and advanced as this is integral to the successful implementation of the SAP;
- All 16 littoral states in the region will be encouraged to collaborate, establish linkages and network with other states for their mutual benefits; and

- Accountability, public transparency, and public involvement and co-operation are values to be promoted through wide dissemination of information, in order to enhance the integrated and sustainable management of the region.⁸¹

The SAP further identified various thematic areas for action, indicating the type of action to be taken on each area. The thematic areas relevant to the regulation of land-based sources and activities include Physical Alteration and Destruction of Habitats (PADH),⁸² effective assessment of environmental variability, ecosystem impacts, development of early warning systems for ecosystem change⁸³ and assessment, reduction and control of pollution.⁸⁴ The SAP was concluded in 2007. However, at the meeting of the Eighth Conference of Parties (COP) to the Abidjan Convention, Contracting Parties agreed to revitalize the Convention and its Protocol,⁸⁵ due to the fact that, since the entry into force of the Convention and its Protocol, no action had been taken on them, nor was any other protocol developed.⁸⁶ As a result, the Contracting Parties decided that an extraordinary meeting be held to decide on ways to revive the Convention, its Protocol and possibly draft a new protocol on the regulation of land-based sources and activities in accordance with Article 18 of the Convention.⁸⁷ Accordingly, in 2008 an extraordinary meeting was held in Cape Town, South Africa.⁸⁸ At the meeting, members requested the Secretariat of the Convention to assist the Regional Coordinating Unit (RCU) in

⁸¹ Strategic Action Programme for the Guinea Current Large Marine Ecosystem (GCLME), (2007) 6-7, www.iwlearn.net/iw-projects/ Accessed 2011.

⁸² Ibid 14.

⁸³ Ibid 16.

⁸⁴ Ibid 18.

⁸⁵ The Conference of Parties meeting was held in 2007. Protocol Concerning Cooperation in Combating Pollution in case of Emergency.

⁸⁶ Eighth Meeting of the Contracting Parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the West and Central African Region (2007) 38, www.unep.org/AbidjanConvention/docs/ Accessed 2011.

⁸⁷ Article 18 indicated that additional protocols can be adopted if necessary in preventing, reducing, combating and controlling all sources of pollution.

⁸⁸ Contracting parties to the convention convened in Cape Town to sign a Declaration agreeing to revitalize and strengthen the convention. This meeting is the first extraordinary meeting of the contracting parties to the Convention, www.unep.org/AbidjanConvention/Final_Abidjan_Convention_Report_of_the_Extraordinary_Ministerial_Meeting_June_2008.pdf Accessed 2011.

reviving the Convention and its Protocol, and to also draft the protocol for LBSA using the TDA and the SAP as a supporting document to draft the protocol.⁸⁹

As a result, the LBSA protocol is being drafted by the GCLME project in partnership with the Abidjan Convention Secretariat and UNEP's co-ordination office of the Global Programme of Action (GPA) simultaneously reviewing the amendment process for the Convention and the Protocol Concerning Cooperation in Combating Pollution in Case of Emergency.⁹⁰ As part of this process, workshops and meetings have been held to inform and involve Contracting Parties in the development of the LBSA protocol, with the aim of initiating the adoption process for the protocol following the ninth meeting of the Contracting Parties.⁹¹ The meeting of the Ninth Conference of Parties to the Abidjan Convention was held in Accra, Ghana and the revised Convention has been adopted, but the LBSA protocol is still being drafted at the date of writing.⁹²

4.5.2 Eastern African Region or the Western Indian Ocean (WIO)

The region adopted its Action Plan in 1985 alongside its Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention).⁹³ The Convention laid down general provisions stating that Parties should take all appropriate measures in conformity with international law to prevent, reduce and combat pollution from all sources including land-based pollution and/or degradation of the marine and coastal territories of the Convention area and to ensure sound environmental management of its natural resources.⁹⁴ The Convention had been dormant ever since its adoption until its Conference of Parties (COP) meeting in 1997 called for the review of the Convention and its Protocols in order to bring it up to date with other modern and dynamic legal instruments, and the possibility of developing more protocols for other forms of pollution to the marine

⁸⁹ Ibid (note 80); Ibid (note 81) 38.

⁹⁰ Ibid (note 81) 38.

⁹¹ Ibid.

⁹² Abidjan Convention COP 9, Accra, Ghana. 28 March-1 April, 2011. The revised convention is now known as 'The Convention for Co-operation in the Protection and Development of the Marine and Coastal Environment of the West, Central and Southern African Region'.

⁹³ The Convention entered into force in 1996. Contracting parties are: Kenya, Tanzania, France Reunion, Somalia, Mauritius, Seychelles, Comoros, Mozambique, Madagascar and South Africa.

⁹⁴ Articles 4(a) and 7 of the Nairobi Convention, www.unep.org/NairobiConvention/docs/ Accessed 2010.

environment. Proposals were thus made for a new protocol to be developed for land-based sources and activities.⁹⁵ Accordingly, a legal and technical review task force team comprising of legal and technical experts from all Member Countries to the Nairobi Convention, including the island states⁹⁶ in the region, was formed to lead the revision and development process at regional level. Multi-sectoral committees/working groups and task forces were set up at national levels to develop national consensus on the draft texts prepared by the regional legal and technical review task force.⁹⁷

The revision of the Convention focused on incorporating emerging issues and trends, at both global and regional levels, particularly those that have implications for the management of the coastal and marine environment of the region. The development of the LBSA Protocol is based on the wide recognition that pollution from land-based sources and activities posed a major problem to the coastal and marine environment of the region.⁹⁸ In 2004, a project titled Addressing Land Based Activities in the Western Indian Ocean (WIO-LaB) was initiated by the Contracting Parties to the Nairobi Convention with the help of UNEP.⁹⁹ The vision of the project is to assist governments in the WIO region to build the capacity needed to address challenges faced by them in the management and protection of their marine and coastal environment from activities originating from the land.¹⁰⁰ The objectives of the project include

- Improving the knowledge base, establishing and demonstrating regional strategies for the reduction of stress to coastal and marine ecosystems by improving water and sediment quality;
- Strengthening the regional legal basis for preventing land-based sources and activities causing pollution, including implementation of the GPA; and

⁹⁵ First meeting of the Contracting Parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, 1997; Strategic Action Plan, UNEP/Nairobi Convention Secretariat (2009) 13-14, UNEP/Nairobi Convention Secretariat, Nairobi, Kenya.

⁹⁶ There are five island states in the region namely: France reunion, Mauritius, Seychelles, Comoros and Madagascar.

⁹⁷ The Conference of Plenipotentiaries and the Sixth Meeting of Contracting Parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (2010) 2, www.unep.org/NairobiConvention/docs/ Accessed 2011.

⁹⁸ Ibid 2.

⁹⁹ The project is expected to be implemented within the framework of the Nairobi Convention for the period of 2005 to 2010.

¹⁰⁰ SAP (note 95) 1.

- Developing regional capacity and the strengthening of institutions in the WIO region for the implementation of the Nairobi Convention and sustainable, less polluting developments.¹⁰¹

In achieving these objectives, region-wide assessments of transboundary problems and issues affecting the marine environment of the region were carried out. These assessments provided information on key problems and main causes of degradation of the coastal and marine environment of the region, paying particular attention to land-based sources and activities.¹⁰² The outputs of these assessments led to the development of a Transboundary Diagnostic Analysis (TDA) for the region. In formulating the TDA, three key pressures were identified with two cross-cutting themes as the thematic areas to work on in regulating the adverse impacts land-based sources and activities are having on the coast and the marine environment in the region. These thematic areas are:

- Physical alteration and destruction of habitats in form of degradation of mangrove forests, sea grass beds, coral reefs and changes in shoreline form;
- Water and sediment quality degeneration due to pollution from microbial contamination, high suspended solids loads in coastal waters, chemicals, marine litter/solid wastes and eutrophication;
- Alteration in freshwater flows and sediment loads from rivers;
- Governance and awareness; and
- Climate change.¹⁰³

The TDA also identified the root causes of the above transboundary problems to include rapid population growth, high levels of poverty, provision of inadequate infrastructure, weakness in governance, lack of education and awareness as to the value of ecosystem goods and services provided by a healthy coastal and marine environment, climate change resulting in weather variations and economic drivers that are pushing up excess demand in relation to what the

¹⁰¹ WIO-LaB Insight, *vol.* 1, Issue 1(2005) 12, www.iwlearn.net/iw-projects/ Accessed 2011; SAP (note 95) 16.

¹⁰² SAP (note 95) 2.

¹⁰³ Ibid 16-22.

ecosystem can supply.¹⁰⁴ The TDA further indicated that if the above stated root causes can be jointly addressed by developing regional strategies and measures for managing them, then the key pressures affecting the coastal and the marine environment in the region will be effectively regulated. The TDA was completed in 2008 and it provided the basis for the development of a Strategic Action Plan (SAP) for the region.¹⁰⁵

The main goal of the SAP is to regionally address all the problems and pressures identified by the TDA, and also promote sustainable development by strengthening the management of coastal and marine resources in the various jurisdictions of the region, on the basis of an ecosystem-based management approach. In achieving the above goals, a vision was formulated¹⁰⁶ and this vision is supported by five key principles, namely equity, sharing of responsibility and management, harmony between resources users and nature, an informed society and lifestyles adjusted to foster sustainability.¹⁰⁷ A number of cross-cutting themes were identified for action and targets were defined for each of them.¹⁰⁸ The SAP further indicated that the Integrated Coastal Zone Management (ICZM) concept is an important tool that will be used for implementation. It stated that ICZM is an essential tool for minimising the destruction of habitats that arise from coastal development and it also acts as support for sustainable development of coastal zones.¹⁰⁹ In addition, the SAP suggested that technical and financial support should be provided to littoral states in the region to assist them in strengthening the development of their ICZM legislation and planning process by developing ICZM plans, environmental management plans (EMPs) or National Programmes of Action (NPAs). Hence, the SAP will be used as a framework in developing these plans and programmes. The SAP was completed in 2009.¹¹⁰

¹⁰⁴ Ibid 25.

¹⁰⁵ Ibid 2.

¹⁰⁶ This vision is *to ensure that people of the region prosper from a healthy Western Indian Ocean*. This vision is intended to be achieved by year 2035.

¹⁰⁷ Ibid 31.

¹⁰⁸ These cross-cutting themes are: climate change adaptation and mitigation and small-island developing States (SIDS).

¹⁰⁹ Ibid 35.

¹¹⁰ Ibid 28.

In June 2009, the final negotiation meeting on the revision of the Convention and development of the LBSA Protocol was held in Kenya, where the final text of the Convention was amended and agreed upon with that of the LBSA Protocol.¹¹¹ In March 2010, a Conference of plenipotentiaries was convened which adopted the amended Convention,¹¹² while the Protocol on LBSA was adopted on 1st April, 2010.¹¹³ The amended Convention¹¹⁴ and LBSA Protocol are outlined below.

A. The Amended Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean 2010¹¹⁵

The amended Convention reflects important changes, such as:

- Its title was changed to include phrases such as ‘amended’ and ‘Western Indian Ocean’. The phrase ‘Western Indian Ocean’ replaced the phrase ‘eastern African region’ of the old text;¹¹⁶
- The preamble indicated that ‘Contracting Parties agreed to ensure that resource development in their various jurisdiction will be in harmony with the maintenance of the environmental quality of the region by applying principles such as but not limited to rational environmental management, ecosystem based management, polluter pays and precautionary principles’;¹¹⁷

¹¹¹ SAP (note 95) 3.

¹¹² Conference of Plenipotentiaries for the Adoption of the Amended Convention for the Protection, Management and Development of the Marine and Coastal Environment of the western Indian Ocean, (2010) 1, www.unep.org/NairobiConvention/docs/ Accessed 2011.

¹¹³ Conference of Plenipotentiaries for the Adoption of the Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land based Sources and Activities (2010) 3, www.unep.org/NairobiConvention/docs/ Accessed 2011. Both documents will be opened for ratification till April 2011.

¹¹⁴ The Convention has been renamed ‘The Amended Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean’, www.unep.org/NairobiConvention/docs/Final_Act_Nairobi_Amended_ConventionsandText, Accessed 2011.

¹¹⁵ The amendment mirrors the relevant provisions of the 1982 UNCLOS, the 1992 CBD, the 1992 UNFCCC, the 1989 Basel Convention, the 1991 Bamako Convention and the 1992 UNCED.

¹¹⁶ The Amended Nairobi Convention (note 114).

¹¹⁷ Ibid paragraph 6 of the preamble of the amended Nairobi Convention.

- The preamble further indicated that Contracting Parties are now conscious of the need to adopt integrated policies and practices of sustainable coastal zone management in order to improve the quality of life of their people;¹¹⁸
- The Convention now applies to the Eastern and Southern African region known as the West Indian Ocean, including the riparian, watershed, marine and coastal environment of the Contracting Parties to the Convention;¹¹⁹
- The title of article 7 on ‘pollution from land based sources’ was modified and the phrase ‘activities’ was added. *‘Contracting Parties are obliged to take all appropriate measures to prevent, reduce and combat pollution of the Convention area caused by coastal disposal or by discharges emanating from rivers, estuaries, coastal establishments, outfall structures or any other land based sources and activities within their territories’*;
- A new article on ‘pollution resulting from transboundary movement of hazardous wastes’ has been added to the amended convention;¹²⁰
- The title of article 10 of the old text has been rephrased. The old text reads ‘specially protected areas’, but the amended text now reads ‘biological diversity’. *‘Contracting Parties are obliged to individually or jointly take appropriate measures to conserve biological diversity, protect and preserve rare and fragile ecosystems and threatened species and their habitats. Parties are to also establish protected areas, regulate them and prohibit activities that will adversely affect species, ecosystems or biological processes located in them’*;¹²¹
- Article 24 of the amended Convention stipulates the number of years required for Contracting Parties to transmit information on measures adopted for the implementation of the Convention and its Protocols to the organization. The Article states that this information should be transmitted every two years or at least six weeks before a conference of parties meeting.

The amended Convention is an indication that its Contracting Parties are truly committed to tackling emerging issues and trends, at both regional and national levels, particularly those that

¹¹⁸ Ibid paragraph 7 of the preamble of the amended Nairobi Convention.

¹¹⁹ Articles 1 and 2(b) of the amended Nairobi Convention.

¹²⁰ Article 9 of the amended Nairobi Convention.

¹²¹ Article 10 of the amended Nairobi Convention.

have adverse implications for the management of the marine and coastal environment of the region

B. The Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land Based Sources and Activities 2010¹²²

The Protocol is divided into five parts, starting with the preamble, which recognises the threats land-based sources and activities pose to the marine environment of the WIO region and the need to urgently deal with them. Part 1 of the Protocol consists of Articles 1-4. Article 1 is the definition section, which defined a number of terms in relation to interpreting the Protocol properly. It defines land-based sources and activities as „*sources and activities directly or indirectly causing or contributing to the pollution or degradation of the marine and coastal environment from the landward side as opposed to sources and activities from the seaward side*“.¹²³ Hence, sea-based pollution, such as pollution emanating from seabed activities and dumping from ships are not regulated by this Protocol. Article 2 defines the geographical scope of the Protocol as applying to participating countries that are situated in the Eastern and Southern African region of the West Indian Ocean including their riparian and internal waters constituting part of the natural river basins draining into the West Indian Ocean.¹²⁴ The internal waters of participating countries that do not drain directly or indirectly into the Western Indian Ocean are not covered by this Protocol.

Article 3 provide that the Protocol will only apply to Contracting Parties whose activities, discharges and inputs directly or indirectly affect the marine or coastal environment of the Protocol area. Article 4 provides that Contracting Parties should jointly and individually take appropriate measures to reduce, mitigate, prevent and combat pollution or degradation to the protocol area from land-based sources and activities using the best practicable means at their disposal and to also apply the precautionary principle, the polluter pays principle, EIAs and SEAs. Articles 5-8 makes up Part II of the Protocol, which makes provisions for pollution from point sources, diffuse sources and other harmful activities using Best Environmental Practices

¹²² The Protocol is yet to enter into force. Eight out of the ten contracting parties to the amended convention have signed the protocol and none of the ten members have ratified yet.

¹²³ Art 1(Xiii) of the Protocol.

¹²⁴ Art 2(1) and (2) of the Protocol.

(BEP) and Best Available Techniques (BAT). Part III of the Protocol consists of Articles 9-16. This part provides for effective implementation of the Protocol. Article 10 provides that Contracting Parties should within three years of the Protocol coming into force develop and adopts procedures and necessary mechanisms to assess and promote compliance and enforcement of the Protocol. Article 13 urges Contracting Parties to establish laws or binding procedures on carrying out environmental impact assessment and audits for continuing or existing development programmes, projects or activities with actual or potential polluting or degrading impact in their respective jurisdictions.

Furthermore, Article 14 provides that Parties should co-operate in carrying out scientific research, exchange technical information and develop technical capacities on regulating and controlling land-based sources, activities, and pollutants causing pollution. Article 16 obliges Contracting Parties to submit reports every two years on measures adopted in implementing the Protocol, results obtained from the measures adopted and difficulties encountered in implementing this Protocol. Part IV of the Protocol consists of Articles 17-20. This Part provides for institutional and financial arrangements for effective implementation of the Protocol, while Articles 21-26 are grouped under Part V of the Protocol, which are the final provisions of the Protocol.

Annex 1 of the Protocol encourages Contracting Parties to make use of the Best Environmental Practice (BEP) and Best Available Technique (BAT) in accordance with Article 5(1) of the Protocol in determining whether a set of processes, facilities and methods of operation, including making selections of individual cases are applied in determining emission control of point sources. Annex II lists substances, activities and characteristics of substances emanating from point sources, diffuse sources and other harmful activities¹²⁵ that should be considered when Contracting Parties are preparing national programmes, action plans and measures in tackling land-based sources and activities. Annex III obliges Contracting Parties to systematically carry out monitoring and evaluation of measures, plans and programmes adopted in order to prevent, reduce, mitigate and combat pollution or degradation of the marine and

¹²⁵ Articles 5-7 of the protocol.

coastal environment of the Protocol area in accordance with Article 12. Annex IV instructs Contracting Parties to develop technical and other guidelines concerning environmental impact assessments, evaluation and audits in accordance with Article 13.¹²⁶ The LBSA Protocol is a step forward in tackling land-based sources and activities causing marine pollution. It dealt with land-based pollution from the point of controlling activities and sources of pollution rather than pollutants through the use of environmental management techniques. It also made the effort to integrate marine and coastal zone management by regulating inland activities taking place within drainage areas that discharge into the Western Indian Ocean.

4.6 Conclusion

The creation of UNEP, the RSP and subsequent development of soft and hard law agreements have all contributed significantly to the effective regulation of land-based sources and activities of many regions. UNEP and the RSP have encouraged littoral states in coastal regions to collaborate in seeking ways to tackle this pollution by encouraging scientific research on causes and pathways of this pollution. As a result of this research, legally binding and non-binding agreements, measures and strategies have been developed. Thus, the regional seas programme has been described

- as ‘a race against time’ because it has achieved what could not be achieved in international politics, by bringing countries like Libya and Israel, U.S and Cuba, Iran and Iraq together in international forums to agree on a common solution to their collective problems, which is to protect and preserve the marine and coastal environment without putting a stranglehold on economic and social development;¹²⁷ and
- it has succeeded where similar attempts at international standard setting have failed.¹²⁸

Currently, under the RSP, special emphasis is now placed on using the concept of integrated coastal zone management (ICZM) as a tool in protecting and preserving the coastal

¹²⁶ The text of the Protocol can be found at www.unep.org/NairobiConvention/docs/Final_Act_ProtocolandText Accessed 2010.

¹²⁷ Peter Hulm, The Regional Seas Programme: What Fate for UNEP’s Crown Jewel? *Ambio*, vol. 12, No. 1 (1993) 2.

¹²⁸ Public Health Problems in the Coastal Zone of the East African Region, UNEP Regional Seas Reports and Studies No. 9 (1982), www.unep.org/regionalseas/publications/report.

and marine environment from pollution, particularly land-based sources and activities, and sustainably managing coastal areas and their resources. This approach is outlined in the next chapter.

CHAPTER FIVE

Regulating land based-sources and activities in the context of integrated coastal zone management (ICZM)

5.1 Introduction

The dawn of civilization saw the coasts and oceans being used for two main economic purposes, namely, fishing and navigation.¹ The advent of the twentieth century brought with it an increase in the economic uses of the oceans and coasts in the forms of tourism, coastal mining, military operations, aquaculture, ports and harbour development and offshore developments (including oil and gas exploration and exploitation, and seabed mining). States established different departments for managing each sector independently. Thus, fishing was managed separately from shipping and navigation, while offshore developments were managed separately from coastal mining. In short, the coastal and marine environment has been managed in a sectoral manner. However, the arrival of the twenty-first century brought with it the realisation that these activities affect one another, often causing management challenges for national governments.² As a result of this, the concept of integrated coastal zone management (ICZM) was developed to respond to this challenge.

For over 30 years, the concept of ICZM has become broadly developed and it is now internationally recognised as a contemporary tool for reconciling economic development with environmental protection³ including combating marine pollution in coastal and marine waters. The main justification for advancing ICZM is that the sectoral approach has demonstrated significant limitations in managing sustainably the ocean and coastal areas for economic purposes.

¹ Biliana Cicin-Sain and Robert W. Knecht, *Integrated Coastal and Ocean Management: Concepts and Practices* (1998) 16, Island Press, Washington D.C.

² Ibid 16.

³ International Legal Principles of Coastal Zone Management, Environment and Development in Coastal Regions and in Small Islands, pg 1, www.unesco.org/csi/act/russia/, Accessed 2009.

5.2 Background

Coastal zones comprise of the area between land and sea, which may include beaches, wetlands, lagoons, estuaries, deltas, coral reefs and coastal plains.⁴ These zones are a beehive of intense human activities that conflict with natural ecosystems, making them highly vulnerable to overexploitation, pollution and degradation. These include residential, industrial, fishing, agricultural, mining, and tourism-related activities as well as oil and gas exploration and production, port operations and conservation activities all of which occur in coastal zones. These were never holistically or collectively regulated and managed by dedicated management regimes, rather separate laws and methods of management were independently established for each activity without considering that they are all interrelated and as such should be considered as a whole. A large and growing population has compounded the problems of overexploitation and degradation being experienced in coastal zones as a result of pollution emanating from land, water and air.⁵ The needs of developed countries have necessitated the generation of larger waste treatment facilities, landfill sites, recreational facilities, industries and the likes, thus encouraging the physical alteration and destruction of the coastal and marine environment in order to fulfil these needs. Likewise, in developing countries where there are little or no infrastructural facilities, more people in the coastal zone means more pressure on the natural resources of the coastal and marine environment.⁶

Thus, to encourage economic development while simultaneously protecting and preserving valuable marine and coastal natural resources, all of these and other activities must be managed in a comprehensive, systematic, integrated and sustainable manner - this is ICZM concept. Hence, a concerted effort is necessary to continuously integrate these factors in a comprehensive and systematic manner to achieve sustainability. Moreover, the need to institute ICZM is essential as the environmental health of a littoral state and its economy is inevitably dependent

⁴ SA Nelson, Coastal Zones, 2011, www.tulane.edu/ Accessed 2011; Considering Coasts in the EIA Process 2006, Branch of Marine and Coastal Management of the South African Department of Environmental Affairs, www.eiatoolkit.org.za/ Accessed 2010.

⁵ T Agardy, "Coastal Ecosystems" in: R Hassan, M Scholes and N Ash (Eds), *Ecosystems and Human Well-being: Current State and Trends: Findings of the Condition and Trends Working Group of the Millennium Ecosystem Assessment*, (2005) 515, Island Press, Washington D.C.

⁶ RF Fuggle and MA Rabie, *Environmental Management in South Africa*, 2nd Edition (2009) 333, JUTA Law, Cape Town.

on the overall health of a coastal region, conversely the combined impact of unproductive and ineffective resource-use practice in a littoral state will invariably manifest in the environmental health of a coastal region. For these reasons the United Nations Environment Programme (UNEP)⁷ established the Regional Seas Programme (RSP)⁸ for coastal regions around the world in order for them to protect their coastal and marine environment as well as achieve economic development.

5.3 Historical development of integrated coastal zone management

The concept of ICZM started in the early 1960s with the practice of resolving conflicts arising between coastal zone users and stakeholders in coastal communities in the United States of America (USA).⁹ By late 1960s, communities randomly scattered along the coast were already experimenting with different versions of the concept,¹⁰ and by 1972, the USA developed a National Coastal Zone Management Act (CZMA),¹¹ making it the first country to develop such an Act globally.

The concept received extensive publicity at the 1992 United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro.¹² At the Conference, the concept was recommended as a sustainable, comprehensive and integrated approach for managing the world's oceans and coastal regions.¹³ The Conference then encouraged littoral nations in coastal regions worldwide to develop ICZM programmes by the year 2000.¹⁴ In achieving this objective, the Conference adopted Agenda 21, a document on the protection of the environment and sustainable use of living resources in coastal and marine areas.¹⁵ Chapter 17 of this Agenda stated the integration principle, which has widely publicized the ICZM concept.

⁷ UNEP is discussed further in Chapter four, pgs 58-60, subheading 4.1.

⁸ RSP is discussed further in Chapter four, pgs 60-63, subheading 4.2.

⁹ Mark Forst, The Convergence of Integrated Coastal Zone Management and the Ecosystem Approach, *Ocean and Coastal Management* vol. 52 (2009) 294.

¹⁰ Ibid.

¹¹ US Coastal Zone Management Act of 1972, www.cr.nps.gov/ Accessed 2010.

¹² The conference is popularly called the 'Earth Summit' and was discussed in Chapter three, subheading 3.2.4, pgs 49-52.

¹³ Naeve Heiner and Gracia Serge M, The United Nations Response to Chapter 17 of Agenda 21, *Ocean and Coastal Management*, Vol. 29, Nos 1-3 (1995) 23.

¹⁴ Increasing Capacity for Stewardship of Oceans and Coasts: A Priority for the 21st Century, pg 136, www.nap.edu/openbook.php?record_id=/.

¹⁵ Agenda 21, www.habita.igc.org/agenda21/ accessed 2010, discussed in Chapter three, subheading 3.2.4.A, pg 50.

The principle states that *the marine environment including the oceans, all seas and adjacent coastal areas require new approaches at the national, sub-regional, regional and global levels that are integrated in content and are precautionary and anticipatory in ambit*.¹⁶ The chapter further suggested a series of actions for management institutions to consider undertaking when implementing the ICZM concept. These actions include preparing plans for sustainable use of coastal and marine resources, carrying out environmental impact assessments and monitoring, developing contingency plans for both human induced and natural disasters, improving human settlements in coastal zones, restoring critical habitats, and the like.¹⁷ In addition, it highlighted the need for international co-operation on a bilateral and multilateral basis to support national efforts in achieving the above stated objectives.¹⁸

Since becoming widely accepted as an effective and efficient framework for coastal protection and development, various terminologies such as coastal zone management, coastal area management, shore management, coastal resource management, integrated coastal area planning and integrated coastal zone management have been used to express this concept.¹⁹ Over time, the terms *integrated coastal zone management* (ICZM) and *integrated coastal area management* (ICAM) became the preferred lexis used by both academics and practitioners. Although, they are used interchangeably, it has been argued that they differ in terms of approach and practice.²⁰ Hence, ICZM arguably refers to a geographic area defined by enabling legislation for coastal management purposes while ICAM is used broadly to refer to a geographic area along the coast that is yet to be defined as a zone for management purposes.²¹ As time passed and more knowledge was gained on the complexities of these two terms, and coupled with the fact that a holistic approach to management is needed, the terms were revised and ICZM

¹⁶ Agenda 21.17:1, www.un.org/Depts/los/ Accessed 2010.

¹⁷ Paragraph 17.6, pg 3.

¹⁸ Discussed in chapter three, subheading 3.2.4.B, pgs 50-52.

¹⁹ Nesrin Algan, The Significance of International Legislation in Integrated Coastal Zone Management, *Turkish Journal of Marine Sciences*, vol. 6, No 1 (2000) 1.

²⁰ Julien Rochette, Raphael Bille and Jan Glazewski, Recent Developments in Implementing Integrated Coastal Zone Management (ICZM) within Regional Seas Frameworks: The Development of ICZM Protocols, *South African Journal of Environmental Law and Policy*, Vol. 18, Part 2, (2011) 97.

²¹ Issues, Perspectives, Policy and Planning Processes for Integrated Coastal Area Management, pg 2, www.fao.org/docrep/W8440e/ Accessed 2009.

was chosen.²² These terms are still being used by many authorities interchangeably. For example, the USA, Canada and the World Bank prefer to use the word ICZM, while FAO and UNEP prefer the use of the term ICAM.²³ As evident from the distinction above, ICZM will be the preferred term used in this study.

5.4 Definitions of Integrated Coastal Zone Management

Many definitions have been proposed for ICZM and there is yet to be a global consensus as to an accurate definition, being an evolving concept. As such, there are quite a number of definitions on the concept originating from scientists and intergovernmental organisations alike.²⁴ Most of these definitions have common characteristics but with subtle differences, as outlined below.

The concept has been defined as:

- A resource management system that employs an integrated and holistic approach with an interactive planning process so as to address the complex management issues affecting coastal zones;²⁵
- A continuous process which aims at implementing sustainable development in coastal zones and maintaining their diversity. Gibson elaborates that to this end, it aims, by more effective management, to establish and maintain optimum sustainable levels of use, development and activity in coastal zones, and eventually improve the state of coastal environment;²⁶
- An activity within the broad field of resource management. Resource management is thus defined as a conscious process of decision making whereby natural and cultural resources are allocated over time and space.²⁷ This allocation aims to enhance the

²² Ibid 1.

²³ Ibid 1.

²⁴ A Vallega, Coastal Management: The Integration Principle (2002), www.vliz.be/wiki/The_Integrated_approach_to_Coast, Accessed 2010.

²⁵ Meltzer Evelyn, International Review of Integrated Coastal Zone Management: Potential Application to the East and West Coasts of Canada (1998) 8, Ocean Conservation Report Series, www.dfo-mpo.gc.ca/Library/ Accessed 2010.

²⁶ John Gibson, Legal and Regulatory Bodies: Appropriateness to Integrated Coastal Zone Management Final Report, European Commission (1999) V, European Commission DG XI.D.2, <http://ec.europa.eu/environment/iczm/> Accessed 2010.

²⁷ Guidelines for Integrated Management of Coastal and Marine Areas with special reference to the Mediterranean Basin, Priority Actions Programme Regional Activity Centre, (1994) 19, www.pap-thecoastcentre.org/pdfs/ Accessed 2010.

realization of stated objectives of a society within the framework of its technology, political status, social institutions, legal and administrative arrangements;²⁸ and

- A dynamic process of administering the use, development and protection of the coastal zone and its resources towards achieving common objectives of national and local authorities and the goals of different resource user groups.²⁹

In this writer's view and in the view of other academic scholars,³⁰ ICZM can be defined as the need for national and local authorities responsible for environmental management to adopt a more comprehensive, integrated and co-ordinated approach in effectively regulating all sectoral activities that affect coastal zones and their resources and to efficiently manage economic, social and environmental concerns in a sustainable way. To this end, the optimal approach to coastal zone management is to effectively regulate the various activities taking place in coastal zones in such a way that they become consistent with and support a broader set of overarching national goals for long-term management and sustainability.

5.5 How does ICZM function?

ICZM applies to critical areas where land and water meet. These areas fall under the jurisdiction of sovereign coastal states. The implication is that ICZM can best function at national and regional levels as opposed to international level. As a result, ICZM functions as a process of governance (consisting of legal and institutional frameworks) necessary to ensure that economic plans developed for the coastal and marine environments are integrated with environmental (including socio-economic) goals, ideally made with the participation of those affected.³¹ It also concentrates on sustaining coastal natural resources, conserving biodiversity, protecting the marine environment and countering natural hazards by influencing the form of development that can take place in coastal zones through education, resource management, legal regulations and

²⁸ Ibid.

²⁹ B Cicin-Sain and RW. Knecht (note 1) 39.

³⁰ Such as Biliiana Cicin-Sain and Robert W Knecht (note 1) and JC POST and CG LUNDIN (Eds), Guidelines for Integrated Coastal Zone Management (1996) 2, www.nacoma.org/na/Downloading/WBGuideline, Accessed 2011.

³¹ B Cicin-Sain and RW Knecht (note 1).

environmental assessments.³² The concept uses three operational objectives for achieving long-term integration and sustainability, namely:

- strengthening integrated management through training, capacity building and education;
- increasing productivity and protecting biological diversity of coastal ecosystems through prevention of habitat destruction, pollution and overexploitation; and
- promoting rational development and sustainable utilization of coastal resources.³³

The concept functions by:³⁴

- moving beyond traditional approaches (which tend to be sectorally oriented and fragmented in character) by seeking to manage coastal zones as a whole, using an ecosystem approach where possible;
- employing a multidisciplinary and holistic system perspective that recognises the interconnections between coastal systems and uses;
- maintaining a balance between protection of valuable ecosystems and development of coast dependent economies. Also, it sets priorities for uses, taking account of the need to minimise adverse impacts on the environment, mitigate and restore if necessary and seek the most appropriate citing of facilities as suggested in an environmental impact assessment (EIA);
- providing a mechanism to reduce or resolve conflicts that may occur involving resource allocation or use, as well as the approval of permits and licenses;
- operating within established geographic limits as defined by governing bodies, and integrating sectoral and environmental needs through implementation of specific legal and institutional arrangements at appropriate levels of government and the community;
- seeking input from stakeholders in order to establish policies for equitable allocation of resources and space in the zone. An appropriate governance structure is essential for such decision making and supervision; and

³² TE Chua and LF Scura, *Integrative Framework and Methods for Coastal Area Management: Proceedings*, (1992) 169, www.worldfishcenter.org/libinfo/pdf/ Accessed 2010.

³³ Jan C Post and Carl C Lundin, (note 30) 5.

³⁴ *Ibid* 5.

- promoting awareness at all levels of government and community concerning sustainable development and the significance of environmental protection. Thus, it is proactive (incorporating a development planning element) rather than reactive (waiting for development proposals before taking action).³⁵

Furthermore, its main tools of operation are based on government regulations, environmental assessments, integrated development planning, efficient management and institutional frameworks.³⁶ For ICZM to succeed in achieving long-term integration and sustainability, it is required to make use of these operational tools. Each tool has distinctive roles in the working process. Hence, government regulation is exercised in the form of enacting legislative frameworks whose main objective is to protect coastal biodiversity and regulate the harvesting and use of natural resources. Environmental assessment is used to predict the impacts of various economic development schemes scheduled to take place in coastal zones. Integrated development planning is used to examine the consequences of various development actions and propose necessary safeguards, constraints and development alternatives that will guarantee sustainable development and the sustainable use of coastal natural resources at the most productive levels possible. For example, ICZM assesses the environmental and socio-economic impacts of development projects, and through an environmental impact assessment (EIA) recommends changes necessary to conserve resources and protect biodiversity.³⁷

Efficient management systems are used by ICZM to guide development in coastal zones in order to promote conservation of coastal resources and protect biodiversity. A case in point is where ICZM co-ordinates various sectors of the environment in such a way that on-going developments being made in one sector do not hinder developments made in another.³⁸ For example, scheduled or on-going port development should not diminish the qualitative value of local fisheries and/or tourism. Also, the tool of institutional framework is exercised in the form of government established agencies/departments overseeing the administration/management of

³⁵ Ibid pg 5-6.

³⁶ John R. Clark, Coastal zone Management for the New Century, *Ocean and Coastal Management*, vol. 37, No 2, (1997) 199.

³⁷ Ibid.

³⁸ Ibid.

coastal zones and their resources, and the manner in which they are used.³⁹ These institutions are then meant to encourage broad public participation, co-ordinate actions of government departments with the private sector, and spread the knowledge about coastal zone conservation and use.

Above all, for ICZM to function effectively, a step-by-step process needs to be established and followed.⁴⁰ This step-by-step process involves: first, identifying issues and problems pertinent to users of coastal zones and stakeholders. Secondly, properly assessing and quantifying the issues and problems already identified. Thirdly, coastal zone management plans, programmes or measures can be developed by authorities for resolving issues and problems already assessed and quantified.⁴¹ These developed plans, programmes or measures can either be legally binding (supported by legislation) or non-legally binding instruments.⁴² The fourth step is implementing the plans, programmes or measures developed. Implementation will involve using mechanisms such as education (creating public awareness), capacity building (training staff), legal regulation and monitoring. Accordingly, ICZM functions to protect the coastal and marine environments while promoting economic and social development.

5.6 Advantages of applying the concept of ICZM

Developing ICZM plans and/or programmes, and enacting legislation to support these will be a major impetus for protecting coastal biodiversity, resolving conflicts over use of coastal resources, in so doing promoting the long-term economic sustainability of coastal zones and their resource base. In addition, enhanced fishery productivity, a pollution-free environment, increased coastal tourism revenues, enhanced mangrove forestry and protection of lives and property from sea storms and flooding are some of the practical benefits of effective coastal zone planning and management. Moreover, reports from countries that have been practising ICZM

³⁹ Ibid.

⁴⁰ G Masselink, M Hughes and Jasper Knight, *Introduction to Coastal Processes and Geomorphology*, 2nd edition (2003) 377, Hodder Arnold Publication, London.

⁴¹ Ibid.

⁴² R Kay and J Alder, *Coastal Planning and Management* (1999)117, E and FN Spon, London.

indicate that ICZM is an approach that has added to the socio-economic prosperity of their coastal communities, countries and regions at large.⁴³

As indicated in chapter three,⁴⁴ effective regulation of land-based sources and activities and efficient management of coastal zones using the ICZM concept are at best achieved at regional and national levels. The next section accordingly outlines the extent of development of ICZM in sub-Saharan Africa.

5.7 Development of ICZM in sub-Saharan Africa

Since ICZM has become globally accepted as an appropriate concept to balance economic development with the protection and conservation of coastal zones and their resources, sub-Saharan Africa has embraced the concept and has developed programmes aimed at promoting the concept and its application with the help of a number of international agencies. These include

- the East African Action Plan (which includes the Nairobi Convention and its Protocols);
- the Western Indian Ocean Fisheries Sub-Commission;
- the Intergovernmental Oceanographic Commission's Regional Committee for the Cooperative Investigation of the North and Central Western Indian Ocean (IOCINCWIO); and
- the Marine Science Programme supported by the Swedish Agency for Research Cooperation with Developing Countries (SAREC) now merged with Swedish International Development Cooperation Agency (SIDA).⁴⁵

Important institutions and events focusing on promoting and implementing ICZM were also initiated in the region, including:

- the African Ministerial Conference on Environment (AMCEN);⁴⁶
- the Arusha Workshop and Conference on ICZM in Eastern Africa;⁴⁷

⁴³ Such as the U.S, Britain, etc.

⁴⁴ See chapter three, pgs 56-57 sub heading 3.3.

⁴⁵ Magnus AK Ngoile and O Linden, Lessons learned from Eastern Africa: The Development of Policy on ICZM at National and Regional Levels, *Ocean and Coastal Management vol. 37, No 3 (1997) 308-309.*

⁴⁶ Held in Cairo in 1985.

- the Abidjan and Nairobi Conventions on ICZM, the Pan-African Conference on Sustainable Integrated Coastal Management Cooperation for Development in Sub-Saharan Africa (PAICISCOM);⁴⁸
- the follow up Conference on Cooperation for Development and Protection of the Marine and Coastal Environment in Sub-Saharan Africa;⁴⁹ and
- the development of an ICZM Protocol for the WIO region under ReCoMaP.

These programmes are outlined below.

Consideration to implement the concept of integrated coastal zone management in Africa commenced at the 1985 African Ministerial Conference on Environment (AMCEN) in Cairo, Egypt. This culminated in the 1993 regional ministerial conference held in Arusha, Tanzania. During the course of the conference, scientific experts discussed the environmental problems facing coastal areas of the region and formulated a number of technical recommendations, namely that coastal states should review their national policies to enhance integration, include ICZM's philosophy in their national planning processes and institutionalize co-operative management and a multidisciplinary approach in conducting research.⁵⁰

These recommendations were tabled before the participating ministers who discussed the recommendations at length and resolved to involve stakeholders in planning processes, develop co-ordination between sectoral agencies, enhance integration between science, management and applying the concept of co-operative governance during the implementation of ICZM and developing an inter-disciplinary approach to research in order to provide the required knowledge for ICZM implementation.⁵¹

The Arusha Conference became the first to recognise ICZM as a tool for addressing the multiplicity of issues surrounding coastal and marine pollution in Sub-Saharan Africa. It was

⁴⁷ Held in Tanzania in 1993.

⁴⁸ Held in Maputo in July, 1998.

⁴⁹ Held in Cape Town in December 1998 under the auspices of the Advisory Committee on Protection of the Sea (ACOPS) and UNEP.

⁵⁰ MAK Ngoile and O Linden (note 45) 309-310.

⁵¹ MAK Ngoile, *The Challenges of Integrating Marine Sciences Coastal Management in the western Indian Ocean*, (1997) 27, <http://gridnairobi.unep.org/chm/> Accessed 2010; MAK Ngoile and O Linden (note 45) 310.

followed up by a number of workshops between 1995 and 1996,⁵² with the aim of implementing the resolutions endorsed at the conference and to discuss mechanisms for administering ICZM. A number of decisions were made at these workshops that confirmed the need for an integrated approach to managing marine and coastal zones and their resources in the region. These decisions include among others, that coastal states:

- should incorporate ICZM principles into their national development plans as well as harmonizing legislation regulating the coastal and marine environment;
- address pollution issues including formulating EIA guidelines as well as applying the 'polluter pays' principle;
- should establish a mechanism to ensure cross-sectoral co-ordination at national and local levels in order to achieve integration and sustainability;
- should endeavour to develop and support training and research aimed at increasing capacity for the successful implementation of ICZM;
- should initiate educational and awareness programmes at all levels and ensure stakeholder participation;
- should endeavour to enforce existing laws and regulations on the protection of the coastal and marine environment in order to protect and manage marine resources use effectively;
- initiate an economic inventory of coastal resources;
- develop cross-sectoral investment guidelines which should, among others, encourage production and export of value-added products including the creation of an enabling environment to accelerate investment for sustainable development and use of the coastal zone;
- should endeavour to implement conventions which have been ratified in order to derive associated benefits; and
- sign and ratify other relevant and beneficial conventions.⁵³

In order to implement the Arusha resolution and the above decisions that were taken at the workshops, Eastern African states launched a programme known as the Secretariat for Eastern

⁵² Such as the Seychelles workshop of 1996.

⁵³ MAK Ngoile and O Linden (note 45) 311.

African Coastal Area Management (SEACAM).⁵⁴ The main aim being to assist Eastern African countries to advance their ICZM programmes nationally.⁵⁵ Similarly, in West and Central African region, quite a number of initiatives were adopted. These initiatives commenced as pollution control projects but included ICZM components that have taken on greater significance in the region. A project such as the ‘Gulf of Guinea Large Marine Ecosystem’ combined the implementation of ICZM concept with biodiversity and marine conservation, ICM policy formulation and working with coastal communities on measures leading to sustainable use of resources.⁵⁶ Moreover, in 1998, a Pan African Conference on Sustainable Integrated Coastal Management (PACSIKOM) was held in Maputo, Mozambique, aimed at enhancing the protection, management and development of sub-Saharan Africa’s marine and coastal environment from the margins to the centre stage of decision making policy.⁵⁷

At the conference, various issues pertinent to the degradation, overexploitation and pollution of the region’s coastal and marine areas and their resources were identified, and delegates resolved to ensure that ICZM is implemented in their respective jurisdictions to resolve these pertinent issues.⁵⁸ The conference called upon various UN agencies as well as development partners to help African states in:

- Regularly reviewing the state of Africa’s marine and coastal environment as well as the performance of intergovernmental agreements including programmes;
- Introducing an innovative process to design a comprehensive strategy for sustainable integrated development of the coastal environment of the African continent including the cultural and social dimensions of the development, and taking into account the interface process between the physical environment, the cultural heritage and the people; and
- Improving the efficiency of institutions responsible for management of coastal and marine environment along four axes, namely better co-ordination, making them more

⁵⁴ SEACAM was launched in 1997 in Mozambique.

⁵⁵ Third Meeting of the Contracting Parties to the Nairobi Convention, Maputo, Mozambique, 5-7 (December 2001) 23, www.unep.org/NairobiConvention/docs/ Accessed 2011.

⁵⁶ Assessment of Integrated Coastal Management in Africa (1998) 25, www.pap-thecoastcentre.org/pdfs/ Accessed 2011.

⁵⁷ Lowassa, Tanzania Committed to Good Coastal Governance, Newsletter Tanzania Coastal Management Partnership, issue 2 (1998) 5, www.pwaniyetu.org/.

⁵⁸ Ibid 5.

cross-sectoral, involving stakeholders and providing appropriate national funding arrangements.⁵⁹

Furthermore, the Indian Ocean Commission (COI), with financial support from the European Commission, launched a five-year regional ICZM programme in August 2006 for the WIO region. This programme titled _Regional Programme for the Sustainable Management of the Coastal Zone of the Countries of the Indian Ocean (ReCoMaP) aim to support states that are Contracting Parties to the Nairobi Convention in developing, establishing and/or consolidating and implementing fully legalized national ICZM structures, plans and policies in those states. At national level, the programme supports and co-operates with national ICZM committees as well as national and local ICZM frameworks in government sectors.⁶⁰ In addition, at the sixth Conference of Parties meeting of the Nairobi Convention of the WIO region, members agreed to:

- endorse and support the use of integrated coastal zone management approach for the long-term sustainable development of the coastal and marine areas of the Western Indian Ocean Region;
- request the Convention secretariat to promote and strengthen the application of ICZM tools, and in this regard work in collaboration with the Indian Ocean Commission (COI) and other partners; and
- ensure that the integrated coastal zone management concept be strengthened in the region by developing an ICZM protocol for the region.⁶¹

Thus, in response to the above agreements made at the sixth Conference of Parties meeting of the Nairobi Convention, an ICZM protocol is, at the time of writing (June 2014), being drafted.

With ICZM's recognition and acceptance in Africa, most coastal states in sub-Saharan Africa have started moving away from sectoral approaches to integrated coastal zone

⁵⁹ Ibid 5.

⁶⁰ Billé Raphael and Rochette Julien, Feasibility Assessment of an ICZM Protocol to the Nairobi Convention (2010) 19, www.unep.org/NairobiConvention/docs/ Accessed 2011.

⁶¹ 1st Regional Working Group Meeting on drafting the ICZM Protocol to the Nairobi Convention, (2010) 2-3, www.unep.org/NairobiConvention/Meetings/First_ICZM_Regional_WG_Meeting/ Accessed 2011.

management approach. They have started instituting ICZM programmes, restructuring their institutional frameworks and developing legislation for these purposes. These laws, institutional frameworks and the different ICZM programmes developed by South Africa, Kenya and Nigeria are outlined in the next three chapters.

5.8 The role of ICZM in regulating land-based sources and activities

Land-based sources and activities causing pollution of the coastal and marine environment is a complex problem that is not easily regulated. Its regulation involves controlling anthropogenic activities taking place in coastal zones, the use of resources found in these zones and protection of the environment. Therefore, in effectively integrating all of these concerns so as to achieve long-term management and sustainability, an operational tool, in the form of government regulation, namely legislative and institutional frameworks are needed. However, legislative frameworks cannot on their own implement ICZM without the support of institutional frameworks. Legislation is one major means of governing human behaviour in any society.⁶² As such it is an essential instrument for successfully implementing the ICZM in regulating land-based sources and activities, by controlling human activities taking place in coastal zones and implementing policies and programmes meant to protect these zones. As a result, legislation should outline general principles for coastal zone development, management, use and protection, allowing a concrete policy to be determined within a precisely defined legal framework which takes into account a variety of economic and environmental concerns.⁶³

Accordingly, any coastal zone management plan and/or programme must be adapted to take into account the reality of existing legal and institutional frameworks and where appropriate, include plans for changing existing laws and institutional frameworks so as to remove impediments that may hinder integration and sustainable development. However, amending the various existing laws that were regulating an array of human activities (such as mining, agriculture, tourism, aquaculture, industrial, port and harbour development) in coastal zones in order to accommodate the purposes and objectives of ICZM may not, in this writer's view,

⁶² Integrated Coastal Management Law: Establishing and Strengthening National Legal Frameworks for Integrated Coastal Management, FAO Legislative Study, No 93 pg 4, www.fao.org/docrep/ Accessed 2012.

⁶³ International Legal Principles of Coastal Zone Management, Part 1(note 3) 1-2.

contribute to or promote integration and sustainable development. This is due to the fact that the majority of laws are old and out-dated, and entrenched in the traditional sectoral mode. Boeleart-Suominen and Cullinan point out that in enacting framework ICZM legislation, such legislation must reflect ‘comprehensiveness’, ‘holism’ and consistency, because these are the core principles central to ICZM concept.⁶⁴ They explain further that a comprehensive law should be broad in scope so as to cover the geographical area relevant to the ICZM initiative, and include institutions that will possess the powers to control coastal resources and the subject matter,⁶⁵ necessary to achieve ICZM in relation to both terrestrial and aquatic elements.

Such legislation should also adopt a holistic approach, which must answer questions such as:

- Will the substantive law rights and duties created agree with the overall policy objectives of the ICZM plan and/or programme being initiated?⁶⁶
- Will existing legal and administrative procedures,⁶⁷ ensure that all material information will be considered and that holistic criteria as opposed to sectoral criteria will be used in coastal planning and decision making processes?⁶⁸
- Are there procedural mechanisms for ensuring that at any one time the legal rules and criteria applied by different institutions at different levels in governmental or administrative hierarchy (national, provincial and local government) will be consistent with the objectives of the ICZM plans and/or programme?⁶⁹

To this end, an ICZM law or regulation that will combat land-based sources and activities should specifically and absolutely provide for special coast-specific rules, principles or other legal mechanisms. It should also be primarily concerned with the use and protection of the coastal and marine environment. In addition, the proposed legislation or regulation must aim to

⁶⁴ S Boeleart-Suominen and C Cullinan, *Legal and Institutional Aspects of Integrated Coastal Area Management in National Legislation* (1994) 11, FAO Legal Office.

⁶⁵ Subject matter such as environmental quality and protection, economic development, living resources, etc.

⁶⁶ For example, a right of unrestricted public access to the coast or to mine minerals in coastal areas may conflict with a policy objective to protect fragile coastal ecosystems.

⁶⁷ For example setting out how conflicts between competing resource users will be resolved and who will be involved in planning decisions.

⁶⁸ For example, will the potential impact of developments on the coastal environment be taken into account when conducting and assessing EIAs and in making decisions regarding resource use permits?

⁶⁹ For instance, if the uses to which privately owned coastal land may be put to use, be reasonable, will this restriction be interpreted consistently by all authorities in the coastal zone? S Boeleart-Suominen and C Cullinan (note 64) 11-12.

achieve an approach to managing human interactions within the coastal environment in a manner that is based on the appreciation that the coast is an integrated and an ecological whole, and that coastal management institutions must take into account the implications of any action or proposed action for the coastal system as a whole rather than merely for any particular sector.⁷⁰ Thus, enacting an ICZM law can determine the information required in developing an ICZM plan and/or programme that is needed for the realisation of integrated management, define necessary actions with regard to public opinion (which should be considered when developing and implementing legislation) and promote harmonisation of relations between various users and stakeholders.

Effective governance of the coastal and marine environment, and the implementation of legislative frameworks designed to utilise an ICZM approach are largely dependent on existing or newly established institutional systems and authorities. Hence, the effectiveness of legislation in regulating coastal zone management depends on the organisational structure of institutional frameworks that will enforce compliance. As a result, certain criteria are required to be established by any institutional framework or management authority to fully function as an ICZM governance system. These include:

- having an administrative structure that has jurisdiction over coastal zones, and also responsible for formulating ICZM policies, preparing, enacting and amending when necessary ICZM plans and/or programmes;⁷¹
- having a consistent concept of administration covering all kinds of activities taking place in coastal zones. This concept of administration will include the issuing of permits and authorisations, issuing of guidelines for integration with other management authorities and co-ordinating existing policies;⁷²
- its ICZM planning process must be consistent with national development planning processes; and

⁷⁰ FAO Legislative Study, No. 93 (note 62) 8-9.

⁷¹ Biliana Cicin-Sain and S Belfiore, Linking Marine Protected Areas to Integrated Coastal and Ocean Management: A Review of Theory and Practice, *Ocean and Coastal Management*, vol. 48 (2005) 854; FAO Legislative Study No. 93 (note 62) 221.

⁷² B Cicin-Sain and S Belfiore (note 71) 854.

- if possible, it should be at a higher administrative level than other sectoral agencies in order to give it the necessary authority to harmonise sectoral actions.⁷³

In other words, it is essential to have a management authority of the kind described above, within a precisely defined institutional framework, which can convert general rules into regulations, overcome the fragmentation inherent in a sectoral management approach and in the splits in jurisdiction between levels of government at the land and water interface. This helps to promote flexibility, integration, effective enforcement of legislation and allowing differences in administration to be taken into consideration.⁷⁴

5.9 Conclusion

Thus, the notion of integrated coastal zone management involves enacting legislation that is broad (covering both land and water interface), holistic (not sectoral) and consistent, and establishing institutions that can successfully translate enacted legislation or general rules into effective management mechanisms.

⁷³ Ibid (note 71) 857.

⁷⁴ Ibid (note 71) 857.

PART THREE

Assessment of domestic legislative and institutional frameworks regulating land-based sources and activities causing pollution of the coastal and marine environment in South Africa, Kenya and Nigeria within the context of ICZM

Background

The legal environmental frameworks and institutional structures on the prevention of pollution and management of the coastal and marine environment in South Africa, Kenya and Nigeria are largely fragmented, uncoordinated and disintegrated. The regulation of land-based sources and activities in the three countries are at different levels, likewise, the incorporation of the concept of integrated coastal zone management (ICZM) into the legal environmental frameworks and institutional structures of the three countries is at different stages.

In regulating land-based sources and activities, South Africa has adopted the concept of ICZM into its legal environmental framework by enacting an ICM law and revising other laws affecting the coastal and marine environment, while making efforts to enhance co-operative governance in its institutional framework structures.

Kenya is still developing policies for incorporating the concept of ICZM into its legal framework and it is also researching ways of enhancing co-operative governance in its institutional framework structures.

Nigeria however, has not developed an ICM Act but it is amending quite a number of outdated laws relating to oil and gas pollution, which has significance for the regulation of pollution and management of the coastal and marine environment. It has also enacted new laws and policies for regulating land-based sources and activities and has established institutional structures for enforcing and implementing these laws. In addition, the three countries are parties

to the Nairobi and Abidjan Conventions⁷⁵ as well as the soft and hard laws outlined in chapter three.⁷⁶

Part three examines the domestic legislative frameworks and institutional structures of South Africa, Kenya and Nigeria with a view to determining the extent to which they have developed legislative frameworks and institutional structures that have entrenched the concept of ICZM in effectively regulating land-based sources and activities, and efficiently managing developments taking place in coastal zones, preventing pollution and preserving coastal and marine resources.

In assessing the legal environmental frameworks enacted and the institutional structures established by the three countries in regulating land-based sources and activities, this part first and foremost identified and analysed certain activities that substantially contributes to the economic development of these nations and the impacts they have on the management of the coastal and marine environment. This analysis provides the introduction necessary to assess the extent to which these legal frameworks and institutional structures have incorporated the concept of ICZM in dealing with the issue of LBSA. Each country's environmental legislation (national, provincial and municipal) relevant (directly or indirectly) in regulating land-based sources and activities were identified and analysed against the backdrop of the ICZM concept. It identified in each country the institutional framework structures (national, provincial and municipal) in place and the role they play in terms of co-operative governance. It is worthy to mention here that South African environmental laws and institutional structures on regulating land-based sources and activities, and managing the coastal and marine environment effectively are more advanced than that of Kenya and Nigeria.

⁷⁵ Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) and Convention for the Protection, Management and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention). See Chapter four, pgs 72-85, sub heading 4.5.1 - 4.5.2 above for more discussion on the Conventions.

⁷⁶ See chapter three, pages 43-55 for more discussion on UNCHE, UNCLOS, Montreal Guidelines, UNCED and POPs Convention.

CHAPTER SIX

SOUTH AFRICA

6.1 Introduction

Map 1: South Africa's map showing its nine provinces¹



South Africa occupies the southern tip of Africa and it is a member to both the Abidjan and Nairobi Conventions.² Its long coastline stretches more than 3,000km from the desert border of Namibia on the southward coast of the Atlantic Ocean to the border of subtropical Mozambique on the West Indian Ocean.³ Of the nine provinces, four are coastal, namely Northern Cape, Western Cape, Eastern Cape and KwaZulu-Natal.⁴ The low-lying coastal zone is narrow for much of that distance, soon giving way to a mountainous escarpment that separates it from the

¹ Source: <http://www.routes.co.za/map.html>, Accessed 2010.

² See chapter four, pgs 78-85, sub heading 4.5.2 for more discussion on this.

³ South Africa's Geography, www.southafrica.info/about/geography/ Accessed 2011.

⁴ As seen in the map above, South Africa is made up of nine provinces, namely Gauteng Province, Mpumalanga Province, Limpopo Province, Northwest Province, Free State Province, Kwazulu-Natal Province, Eastern Cape Province, Western Cape Province and Northern Cape Province.

high inland plateau, in some regions, in particular the province of KwaZulu-Natal.⁵ Although the country is classified as semi-arid, it has considerable variation in climate as well as topography. The coast spans three coastal climatic zones, namely the cool temperate west coast, warm temperate south coast and subtropical east coast.⁶ The great inland Karoo plateau, where rocky hills and mountains rise from sparsely populated scrubland, is very dry, and gets more so as it shades into the north-west towards the Kalahari Desert. It can be extremely hot in summer but icy in winter.⁷ In contrast, the eastern coastline is lush and well-watered, a stranger to frost, while the southern coast, part of which is known as the Garden Route, is rather less tropical but also green, as is the Cape of Good Hope - the latter especially in winter. This south-western corner of the country has a Mediterranean climate, with wet winters and hot, dry summers. Its most famous climatic characteristic is its wind, which blows intermittently virtually all year round, either from the south-east or the north-west.⁸

Two major oceanic circulation systems bound the South African coastline, namely the warm south flowing Agulhas current along the east and south coasts, and the north flowing Benguela current along the west coast. Along this coastline are some 343 estuaries.⁹ The nutrient-rich Benguela upwelling system off the south-west coast supports large numbers of marine animals, while the Agulhas current off the east coast has a smaller quantity of fish, but a greater variety of species, such as whales, seabirds and tunas, which migrate to or pass South Africa at certain times of the year.¹⁰

The coastal zone of South Africa comprises various types of benthic substrate including several sandy, rocky and mixed substrata. The distribution of habitat types can be partly explained by geography, likely reflecting large-scale patterns in coastal geology. The west coast is characterized by heterogeneous substrates with marked contrasts between rocky cliffs, long

⁵ Ibid (note 3).

⁶ South Africa's National Coastal Management Programme (2014) 12, Department of Environmental Affairs, Cape Town, www.environment.gov.za/ Accessed 2014.

⁷ Ibid.

⁸ South Africa by Google, <http://images.google.co.za/imgres?imgurl=http://>, Accessed 2011.

⁹ National State of the Environment Report—South Africa, A Report by the Department of Environmental Affairs, Cape Town 2006, www.environment.gov.za/ Accessed 2011.

¹⁰ Ibid.

sandy beaches, extremely sheltered deep bays and highly exposed open coasts. The majority of South Africa's long scattered beaches are found along this stretch of coast. The south coast comprises largely of a series of long spiral bays¹¹ mixed with cliffs or long stretches of rocky coastline.¹² Along the south coast, the Alexandria dune field is a unique feature and represents one of the largest active coastal dune fields in the world. Cliffs, rocky shores and in-between estuarine pocket beaches dominate the transition zone into the east coast. Along the east coast rocky shores and sandy beaches dominate the south whereas, beaches become more intermediate and scattered in-between in the north.¹³

In addition, South Africa's geographical landscape provides and support opportunities for economic activities including agriculture, fisheries and mineral resource exploitation. It also offers significant opportunities for tourism, recreation, export, food production and associated economic development.¹⁴ Nonetheless, these social and economic activities have impacted adversely on the marine and coastal environment to the extent that different laws and policies have been enacted to control the use, management and sustainability of these environments.

6.2 Economic activities causing pollution on the coastal and marine environment in South Africa

The coast contributes substantially to the economy¹⁵ primarily through its coastal developments, tourism as well as the harvesting of marine resources and products. The economy is one that has evolved from natural resource extraction and sale to one of manufacturing and services, and is increasingly dependent on port facilities for the export of processed goods. Much of the country's coastal development is centred in seven large commercial ports situated at Saldanha Bay, Cape Town, Mossel Bay, Port Elizabeth, East London, Durban and Richards Bay. These facilities have sparked extensive industrial, urban and infrastructural developments, which has made them central to government coastal planning initiatives such as the introduction of Spatial

¹¹ For example Mossel Bay, Plettenberg Bay and Algoa Bay.

¹² For example the Tsitsikamma coast.

¹³ South Africa's National Coastal Management Programme (note 6) 13.

¹⁴ Ibid.

¹⁵ It is estimated that 35 percent of its gross domestic product is generated in the coastal regions. S O' Donoghue and DJ Marshall, Marine Pollution Research in South Africa: A Status Report, *South African Journal of Science*, 99 (2003) 349.

Development Initiatives (SDIs).¹⁶ In recent years, coastal areas have seen the influx of people with the estimation that one-third of the population reside within 60km of the seashore.¹⁷ This influx is mounting considerable pressure on the coastal and marine ecosystems thereby increasing the threats of pollution and degradation. Similarly, the threats of pollution and degradation on the coastal and marine environment are further heightened by the negative impacts of some economic activities.¹⁸ These economic activities and the adverse impacts they have on the coastal and marine environment are outlined below.

6.2.1 Fishing activities

Fishing is a primary economic activity that generates at least R5 billion annually to the gross domestic product (GDP).¹⁹ Unsustainable levels of exploitation threaten the natural integrity of coastal and marine ecosystems, particularly where a few species are targeted for harvesting. The destruction of these resources through unsustainable exploitation has severe negative consequences on the economy and the local communities dependent on them. Land-based pollution emanating from fish processing industries along the coast is severe as wastewater discharges emanating from these industries introduce nutrients such as ammonia into the ecosystem thereby enhancing the risk of uninterrupted growth of toxic algal blooms.²⁰ These harm fishery resources and also pose a great threat to human health.

6.2.2 Mining activities

Mining is another primary economic activity, and South Africa boasts of abundant mineral resources such as gold, manganese ore, diamond, titanium minerals, platinum-group metals and fluorspar.²¹ Coastal mining activities in particular are a significant source of land-based

¹⁶ National State of the Environment Report—South Africa (note 9).

¹⁷ S O' Donoghue and DJ Marshall (note 15) 349.

¹⁸ Such as mining, fishing, shipping, trade, agriculture, industrial activities, tourism development, urbanization, energy production, climate change and introduction of invasive alien vegetation.

¹⁹ Fifteen Years: A Review of the Department of Environmental Affairs and Tourism (2009) 52, www.environment.gov.za/AboutUs/ Accessed 2011.

²⁰ UNEP's Africa Environment Outlook 2, Chapter 5 (2006) 180, www.unep.org/dewa/Africa/publications/ Accessed 2011.

²¹ South Africa's Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (2011) 11, www.ewasa.org/downloads/ Accessed 2012; Ibid (note 19) 208.

pollution having a devastating effect on the coastal and marine environment.²² A pertinent example is diamond mining undertaken along the west coast between the mouth of the Orange River and Lambert's Bay, with operations extending from the shore to water depths of up to 130 metres.²³ Seabed mining disrupts the bottom sediment profile of the ocean, radically altering the habitat for benthic organisms.²⁴ On the East Coast, particularly in Richards Bay, mining of various heavy minerals such as titanium and zirconium are having adverse impacts on the sand dune systems, wetlands and estuaries. The refining process is also creating offensive odour, a form of air pollution.²⁵ Since mining largely takes place in the open sea and/or along high energy coastal zones, the impact of fine grained suspended sediments on coastal and marine ecosystems is thought to be minimal but it has been established that recovery from marine mining activity takes decades and it is unknown whether the ecosystem can ever recover fully.²⁶

6.2.3 Tourism and urbanisation

Tourism was once considered to be a minor economic activity in South Africa before 1994, contributing little to the country's GDP. But the transformation to democracy in 1994 turned tourism into a major economic activity. The increase of foreign visitors into South Africa from 1994 has enhanced the rapid development of tourism in coastal areas to the extent that it has overtaken gold mining as the leading earner of foreign exchange.²⁷ Tourism development is having adverse impacts on the coast and the marine environment. Infrastructural developments such as construction of hotels, roads, parks, land fill sites, port dredging, beach and reef mining on the coast has brought about the physical alteration and destruction of coastal and marine habitats. Pollution and degradation of the coastal and marine ecosystem are the adverse impacts of having a large number of tourists in coastal areas.²⁸

²² It is estimated that coastal mining has contributed 16 percent to loss of supra tidal coastal habitat and 4 percent to the loss of habitat in the sub tidal coastal areas. BM Clark, S Lane., JK Turpie., L Van Niekerk. and PD Morant, Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa: South Africa National Report Phase I: Integrated Problem Analysis (2002), GEF MSP Sub-Saharan Africa project (GF/6010-0016).

²³ National State of the Environment Report (note 9).

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Southern Africa Environment Outlook (2008) 111, http://SAEO_vuNyL, Accessed 2011.

²⁸ State of the Environment and Policy Retrospective: 1972-2002, pg 184, www.grida.no/geo/ Accessed 2011.

6.2.4 Port and Harbour Operations

South Africa lies on the Cape shipping route connecting the Indian and South Atlantic Oceans. On this shipping route are large commercial ports.²⁹ These ports are channels for trade between South Africa and its partners in Africa. There are also 12 proclaimed fishing harbours located mainly along the Southern and Western Cape Coasts.³⁰ Numerous dedicated yacht harbours and marinas have been built along the coastline as well, from the Berg River in the west towards Port Alfred in the east.³¹ To build and/or expand ports, harbours and marinas, and to maintain channel and basin depths required for shipping, it is expected that dredging will take place. The potential impacts of dredging include shoreline accretion caused by discharge of sand in the dredged spoil, mud deposits may smother benthic organisms and seaweed, the buildup of sand on the beach may affect biota, erosion may occur on the shoreline if dredged sediment is not returned to the littoral transport system, dredged spoil disposed at an estuary mouth can have a significant impact on its stability (with ecological impacts if mouth conditions change), sediments may become contaminated (e.g. by trace metals and hydrocarbons), contaminants may be released into the water column when dredged spoil is dumped and these contaminants can be transported to sensitive areas, and permanent changes can occur to habitats in that environment.³² Ports that are situated adjacent to major cities are also vulnerable to pollution by creating areas of poor water circulation and as a result pollutants emanating, either from the cities (e.g. contaminated storm water runoff) or from activities in the ports (e.g. dredging), often accumulate with detrimental consequences to marine life (e.g. causing fish kills).³³

6.2.5 Agricultural activities

South Africa operates a dual agricultural economy, which has a well-developed commercial farming system and a subsistence-based farming system in the rural areas.³⁴ The weather and

²⁹ These ports are Saldanha Bay, Cape Town, Mossel Bay, Port Elizabeth, Ngqura, East London, Durban and Richards Bay.

³⁰ These fishing harbours are managed by the national government, Department of Public works and the Department of Environmental Affairs.

³¹ National Programme of Action for Protection of the Marine Environment from Land based Activities (2008) section 2, pg 2, www.environment.gov.za/, Accessed 2011.

³² Ibid 2-3.

³³ Ibid 3.

³⁴ South Africa's Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (note 21) 10.

landscape of the country allows for intensive crop production, mixed farming, cattle and sheep farming, citrus and sub-tropical fruit production and cultivation of a diverse range of marine products.³⁵ As a result, the country is self-sufficient in almost all agricultural produce and it is a net exporter of food crops such as maize, grapes, apples, wool, fruit juice, wine, hides and skins, meat and dairy products.³⁶ The use of agrochemicals such as pesticides, insecticides and herbicides are having an adverse effect on the environment and consequently on the coastal and marine environment.³⁷ The inappropriate agricultural practices in catchments draining into the coastal and marine environment can introduce toxic substances and excessive nutrients, and contribute to increased suspended solid loads as a result of soil erosion.³⁸

6.3 Adverse impacts of economic activities on the coastal and marine environment

The rapid development of coastal urban centres has resulted in rapid population growth and increasing pressure on the use of natural resources such as fresh water, land for construction of roads, houses, food production, recreation/tourism and others.³⁹ As a result, the demand for fresh water and the abstraction of water for irrigation purposes places pressure on estuaries by altering hydrological organisations and affecting estuarine organisms majorly dependent on specific salinity regimes which are controlled by freshwater inflow.⁴⁰ A total of 64 habitat types are considered threatened.⁴¹ Seventeen per cent of these habitat types are critically endangered, seven per cent endangered, twenty-three per cent vulnerable and fifty-two per cent least threatened. Although forty-seven per cent of habitat types are considered threatened (i.e. critically endangered, endangered and/or vulnerable), the overall area of threatened habitat is less than thirty percent of the marine and coastal environment.⁴²

³⁵ Ibid (note 31) 3.

³⁶ Farming contributes about 8% to the country's total exports. Ibid (note 31) 3.

³⁷ G Preston and L Williams, Case Study: The Working for Water Programme: Threats and Successes, Service Delivery Review, vol. 2, Nos. 2 (2003) 66, www.dpsa.gov.za/documents/service_delivery_review/, Accessed 2011.

³⁸ National Programme of Action for Protection of the Marine Environment from Land based Activities (note 31) section 4, pg 29.

³⁹ National State of the Environment Report-South Africa (note 9).

⁴⁰ Ibid.

⁴¹ Forty-seven percent of the total amount of habitat types.

⁴² South Africa's National Coastal Management Programme (note 6) 14.

With rapid coastal development and increase in population growth, comes the problem of waste and effluent generation and disposal. Some 63 ocean outfalls are located along the South African coast and approximately 800,000 cubic metres of sewage and industrial effluents are discharged into the sea on a daily basis. For instance, there are two pipelines at Richards Bay outfall servicing Tongaat textiles, AECl, SAPPI SAICCOR and the formaldehyde plant (Smith Chemicals) at Sezela on the KwaZulu-Natal coast. There is also an oil refinery outfall at Milnerton (Cape Town) and several fish factory outfalls in Saldanha Bay in the Western Cape.⁴³ The impacts associated with discharging sewage and industrial wastes into the coastal and marine environment include organic enrichment, nutrient enrichment, increase in concentrations of suspended solids, effects of harmful substances such as metals and poly-aromatic hydrocarbons.

In addition, the volume of storm water run-off entering the coastal and marine environment has become an issue that cannot be overlooked.⁴⁴ In 1991, it was estimated that the total volume of storm water run-off entering the coastal and marine environment was about 876,000 cubic metres per day, and where this is untreated, it poses a pollution risk to a variety of beneficial water uses like coastal recreation, mariculture (in Saldanha Bay, Algoa Bay) and communities of marine biota. For instance, storm water discharge into the Muizenberg surf-zone (Cape Town) and the subsequent restriction on bathing in this area is an example of limiting coastal communities' use of recreational opportunities due to health risks, since several effluent constituents have carcinogenic (cancer causing) effects on humans. Discoloration caused by effluent discharge from a cellulose factory on the KwaZulu-Natal coast has restricted diving, fishing and beach activities in the coastal area around the factory.⁴⁵

Urban encroachment into coastal zones and the resultant transformation in coastal land use creates various adverse impacts on landscape and habitat ecosystem. Urbanization around estuaries cuts them off from the surrounding terrestrial habitats and the bio-physical processes

⁴³ Operational Policy for the Disposal of Land-derived Water containing Waste to the Marine Environment of South Africa (2004) A-6, Water Quality Management Series, Sub-Series No Ms 13.4, Department of Water Affairs and Forestry, www.dwaf.gov.za/ Accessed 2011; National State of the Environment Report-South Africa (note 8).

⁴⁴ Southern Africa Environment Outlook (note 27) 91.

⁴⁵ National State of the Environment Report-South Africa (note 9).

which links them together. Estuarine ecosystems are exposed to the risk of water quality deterioration and eutrophication, particularly in cases of seasonally closed systems, because of sewage discharge and the introduction of storm water and other effluents.⁴⁶ A total of seventeen per cent of estuaries are considered to be in an excellent state, another forty-one per cent are in a good state, about thirty-five per cent are in a fair state and seven per cent are in a poor state.⁴⁷ Thus, legislative and institutional frameworks regulating these economic activities have been established. Over the past few years, changes in environmental legislation and policies have resulted in the enactment of new laws with a national focus on effective and efficient management of not only coastal and marine resources and ecosystems but also all the natural resources in the country. However, effective implementation of these laws is dependent on the management capacity of government departments and availability of information necessary for good decision making. These laws and policies are outlined below. Also, existing institutional frameworks for management purposes are examined to determine their level of co-operation in effectively managing coastal ecosystems and marine resources.

6.4 Legal and institutional frameworks relevant in regulating land-based sources and activities in South Africa

The legal frameworks and institutional structures governing the protection and management of the coastal and marine environment are quite extensive and largely sectoral in nature, i.e. different pressures are governed by different Acts and by different government departments. There are instances where specific pressures are governed by more than one Act and by more than one government department, as a result South Africa's environmental legal frameworks and institutional structures are generally fragmented and uncoordinated.⁴⁸ Fragmented governance structures result in fragmented governance processes that culminate in fragmented policies as

⁴⁶ Southern Africa Environment outlook (note 27) 91.

⁴⁷ South Africa's National Coastal Management Programme (note 6) 16.

⁴⁸ There are precisely 96 national sectoral legislation enacted for the protection of the environment and many more environmental laws were also enacted at provincial and municipal levels. Morne Van der Linde (Ed.), *Compendium of South African Environmental Legislation* (2006) 20-30, Pretoria University Law Press; RF Fuggle and MA Rabie, *Environmental Management in South Africa*, 2nd edition (2009) 18, 195 and 895, JUTA Law, Cape Town; JG Nel and Willemien du Plessis, *Unpacking Integrated Environmental Management – A Step Closer to Effective Co-operative Governance?*, *South African Public Law*, vol. 19 (2004) 183.

well as implementation of such policies at the operational level of governance.⁴⁹ For instance, legislation of the former Department of Minerals and Energy indicated a strong trend in monopolising issues regarding the environment within its own departmental sphere, excluding the final decision-making from other departments. While the former Department of Environmental Affairs and Tourism proposed legislation (for example environmental impact legislation), which will provide it with authority over issues pertaining to energy and mining in relation to the environment.⁵⁰ Thus, integration and co-operative governance are important considerations in effectively regulating land-based sources and activities and efficiently managing the coastal and marine environment. These legal frameworks and institutional structures are mainly initiated from national level with some aspects being assigned to provincial and municipal levels of government.⁵¹ The environmental legal frameworks enacted that are relevant to the regulation of land-based sources and activities, and which also enhance co-operative governance and integration are outlined below.

6.4.1 Constitution of the Republic of South Africa, 108 of 1996

On becoming a democratic state in 1994, South Africa reviewed its Constitution and concluded that it needed to redraft a new one, which will include provisions protecting and preserving its environment (including the coastal and marine environment). Section 24 states:

Everyone has the right to an environment that is not harmful to their health or wellbeing; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative measures that-

- i. Prevent pollution and ecological degradation;*
- ii. Promote conservation; and*
- iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

⁴⁹ Louise J Kotze, Johan G Nel, Willemien du Plessis and Esmé Snyman, Strategies to Integrate Environmental Policy at the Operational Level: Towards An Integrated Framework for Environmental Authorisations, *South African Journal of Environmental Law and Policy*, Vol. 14 (2007) 59; L P Malan, Co-operative Environmental Management: The Applicability of a Multi-dimensional Model, *Journal of Public Administration*, Vol. 44, no 4 (2009) 1143.

⁵⁰ LP Malan. (note 49) 1143.

⁵¹ RF Fuggle and MA Rabie (note 48) 18.

The inclusion of this provision in the Constitution has set in motion the underlying principles for environmental governance in the country.⁵² As a result, the three spheres of government have a duty to give effect to section 24 by implementing measures that would protect the environment from degradation and pollution including those emanating from land-based sources and activities.⁵³ The Constitution further set out rights and obligations for government in adopting international environmental agreements that are of importance in protecting and preserving the environment, and which will become binding on the State after parliament has approved them. As such, the Constitution laid down governance principles that are to underpin the actions of decision makers for environmental purposes. These principles can be found in chapter three of the Constitution.⁵⁴ This chapter expressly states that the Republic of South Africa is constituted of national, provincial and local governments which are distinctive, interdependent and interrelated.⁵⁵ The chapter further provides that each sphere of government and all organs of states within each sphere must exercise their powers and perform their functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere.⁵⁶ This invariably means that the administration and management of the environment and its natural resources is carried out by the three spheres of government, and each sphere must not intrude in the function of the other. Rather co-operative governance should be promoted among them and the various institutions/departments created.⁵⁷ Thus, the Constitution listed the areas of legislative competence for each sphere of government.⁵⁸

In promoting the principles of co-operative governance and intergovernmental relations listed in chapter three, the Intergovernmental Relations Act 13 of 2005 was enacted. The objective of the Act is to provide a framework to facilitate co-ordination in the implementation

⁵² Ibid 19.

⁵³ Anél du Plessis, "Local Environmental Governance" and the Role of Local Government in Realizing Section 24 of the South African Constitution, *Stellenbosch Law Review*, vol. 2 (2010) 268.

⁵⁴ Chapter three of the constitution is on cooperative governance.

⁵⁵ Section 40(1) of the Constitution.

⁵⁶ Section 41(g) of the Constitution.

⁵⁷ Carin Bosman, Louis J Kotzé and Willemien du Plessis, The Failure of the Constitution to Ensure Integrated Environmental Management from a Co-operative Governance Perspective, *South African Public Law*, vol. 19 (2004) 413; Louise J Kotze, Johan G Nel, Willemien du Plessis and Esmé Snyman (note 48) 65.

⁵⁸ Section 104(1)(b) should be read with Schedules 4 and 5. Schedule 4 is titled 'functional areas of concurrent national and provincial legislative competence', while schedule 5 is titled 'functional areas of exclusive provincial legislative competence'.

of policy and legislation, including coherent government, effective provision of service as well as the realisation of national priorities.⁵⁹ To achieve this objective, the Act established a number of structures on national, provincial and local levels as well as on interdepartmental and inter-sphere levels to give effect to co-operative governance.⁶⁰ These structures include the President's Coordinating Council (PCC)⁶¹ and intergovernmental forums established by the national, provincial and local spheres of government.⁶² These forums act as platforms for intergovernmental consultation and discussion, and though they are not deemed to be executive decision making bodies, they may adopt resolutions or make recommendations in terms of agreed procedures.⁶³ The forum must, for example, discuss performance in the provision of services and initiate corrective action where failure occurs.⁶⁴

Provision is also made for intergovernmental technical support structures consisting of officials or any other person who might be useful to the relevant forum.⁶⁵ Section 35 provides for government departments to co-ordinate their actions where policy needs to be implemented, where a statutory power is exercised or a function or provision of services depends on the participation of the other department. They may do so by entering into an implementation protocol.⁶⁶ The implementation protocol must identify all challenges facing the implementation of the policy, exercise of statutory powers, performance of statutory functions or the provision of services. It must also describe the roles and responsibilities of each organ of state in the implementation of the policy, etc. An outline has to be given of the priorities, aims and desired outcomes. Measuring instruments must be developed and supervision mechanisms

⁵⁹ Section 4 of the Intergovernmental Relations Act, www.info.gov.za/ Accessed 2012.

⁶⁰ Chapter two of the Act.

⁶¹ The PCC consists the President, Deputy-President, Minister in the Presidency, Minister of Finance, other Ministers, Premiers of the provinces and a Municipal Councillor designated by the organised local government structure. Sections 6-8 of the Act.

⁶² The Provincial Intergovernmental forums consists the Premier, relevant members of the Provincial Executive Council and Mayors of district and metropolitan municipalities, administrators or Municipal Councillors. Sections 9-11 of the Act.

⁶³ Section 32 of the Act.

⁶⁴ Willemien du Plessis, *Legal Mechanisms for Cooperative Governance in South Africa: Successes and Failures*, *South African Public Law*, vol. 23 (2008) 104.

⁶⁵ Section 30 of the Act.

⁶⁶ See also Gazette Notice 493 in GG 29846 of 2007/04/26 for a Draft Implementation Protocol Guide, www.greengazette.co.za/acts/, Accessed 2014.

implemented.⁶⁷ The required and available resources of each organ of state to implement the protocol must also be indicated.⁶⁸ In case of intergovernmental disputes, provision is made for dispute resolution measures.⁶⁹ Guidelines⁷⁰ were published to regulate intergovernmental dispute prevention and settlement, which can play an important role in decision making on matters relating to environmental pollution.⁷¹ Thus, section 24 of the Constitution brought about the enactment of a number of other environmental laws and policies⁷² for protection, preservation and management of the coastal and marine environment and their resources. The laws and policies relevant to the regulation of land-based sources and activities are outlined below.

6.4.2 Framework legislation relevant to the protection and preservation of the coastal and marine environment from land-based sources and activities

A. The National Environmental Management Act 107 of 1998 (NEMA)

Shortly after the attainment of democracy in 1994, a consultative national environmental management policy process (CONNEPP) was instituted nationwide. The intention of this policy process was to move the nation from a previous situation of unrestrained and environmentally insensitive development to sustainable development with the aim of achieving a stable state economy in balance with ecological processes.⁷³ This process culminated in the White Paper on Environmental Management Policy.⁷⁴ The White Paper endorsed the notion of sustainable development and a number of environmental management principles such as the polluter pays principle, precautionary approach and the cradle to the grave principle.⁷⁵ The provisions of the White Paper and the principles endorsed have all been incorporated into the National Environmental Management Act.

⁶⁷ See also Gazette Notice 696 in GG 30140 of 2007/08/03 for Implementation Protocol Guidelines and Guidelines for Managing Joint Programmes, www.greengazette.co.za/acts/, Accessed 2014.

⁶⁸ Section 35(3) of the Act.

⁶⁹ Section 35(3)(g) and Section 40.

⁷⁰ See Gazette Notice 491 in GG 29845 of 2007/04/26 Practice Guide for Intergovernmental Dispute Prevention and Settlement and Guidelines for Effective Conflict Management, www.greengazette.co.za/acts/, Accessed 2014.

⁷¹ Willemien du Plessis (note 64) 104.

⁷² Ibid 88.

⁷³ The CONNEPP process was instituted in 1996.

⁷⁴ The white paper was concluded in 1997. The overarching goal of the white paper is sustainable development.

⁷⁵ Operational Policy for the Disposal of Land-derived Water containing Waste to the Marine Environment of South Africa (note 43) B-7.

NEMA is a broad legislation the primary objective of which includes the promotion of a coordinated approach to matters affecting the environment. It ensures that co-operative governance as well as coordinating mechanisms is implemented as key principles for the effective management of the environment of South Africa.⁷⁶ NEMA gives effect to section 24 of the Constitution⁷⁷ by establishing principles for environmental management,⁷⁸ procedures for co-operative governance⁷⁹ and integration, respectively.⁸⁰ Accordingly, the environmental management principles are designed to provide a general framework for environmental planning and guidelines for the interpretation, administration and implementation of the Act. The principles are also fundamental in the decision making process of all organs of state as they apply throughout the country and bind all organs of state.⁸¹ Thus, any organ of state (i.e. government department) that makes/takes a decision that will impact on the environment without considering these principles, such organ's decision/action may be subject to review on administrative grounds.⁸² The principles relevant in protecting the coastal and marine environment from pollution and preserving their resources include a number of internationally recognised environmental norms, such as the preventive principle, precautionary principle, polluter pays principle and equitable access for the previously disadvantaged to ensure human well-being.⁸³

Chapter 5 of NEMA is relevant to the regulation of land-based sources and activities and the realization of the concept of ICZM, as section 23(2) states that the principles of integrated environmental management set out in section 2 should be incorporated into all decisions that may significantly have an impact on the environment. Thus, before activities that may have significant impacts on the environment are allowed to take place, there must have been identification and actual evaluation of the potential impacts of such activities on the

⁷⁶ The National Coastal Management Programme of South Africa (note 6) 2; Louise J Kotze, Johan G Nel, Willemien du Plessis and Esmé Snyman (note 49) 65.

⁷⁷ Preamble of NEMA, www.saflii.org/za/legis, Accessed 2011.

⁷⁸ Section 2, chapter 1 of NEMA.

⁷⁹ Section 11 of NEMA.

⁸⁰ Section 23 of NEMA.

⁸¹ Section 2 (1) of NEMA.

⁸² RF Fuggle and MA Rabie (note 48) 198.

⁸³ Section 2(1) of NEMA.

environment, socio-economic conditions and cultural heritage.⁸⁴ To further achieve the above objectives, the state must identify and employ the best suitable environmental management strategies.⁸⁵ One such strategy is an environmental impact assessment (EIA). Section 24(1) states that before any activity that may significantly impact on the environment is allowed to take place, the activity must consider, investigate, assess and report its potential impacts to EIA administrators. Sub-section 24(2), (3), (5) and (6) authorize the Minister or MEC to make regulations to identify activities that must undergo EIAs and the geographical areas in which these identified activities must not take place before prior authorisation and all other matters relevant to these processes.

The Minister has published three new EIA regulations by way of Government Notices in respect of the above, titled ‘Environmental Impact Assessment Regulations’.⁸⁶ Land-based sources and activities that may impact on the environment that require environmental authorizations are listed in GN No. R544 to include infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from a watercourse, the sea, seashore, littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater.⁸⁷ Consequently, the penalty for commencing a listed activity illegally or contravening the conditions of an environmental assessment (EA) constitutes a crime punishable with an administrative fine not exceeding R5 million.⁸⁸

⁸⁴ As well as assessing risks, consequences, alternatives and options for mitigating negative impacts, and maximising benefits with a view to promoting compliance with the principles set out in section 2. Section 23(2)(b) of NEMA.

⁸⁵ Section 23(2)(f) of NEMA

⁸⁶ Government Notice R.543, R. 544, R.545 and R.546 in Government Gazette 33306 of 18 June 2010. This is the EIA regulation published in 2010 which has repealed the 2006 regulations. These regulations came into force on 2 August 2010, Environmental Impact Assessment Regulation Laws, South Africa, www.environment.co.za/environmental-laws-and-legislation-in-south-africa/, Accessed 2014.

⁸⁷ In addition, the above activities only require a Basic Assessment in accordance to Regulation 3 of GN No. R544, while the land based sources and activities that require full Scoping and Environmental Assessment (i.e. a Full EIA) are listed in GN No. R545, and they include development activities which exceed 20 hectares or more, and construction of earth-moving activities in the sea or within 100 metres inland of the high water mark of the sea.

⁸⁸ Section 24G (4) of NEMA.

Also, section 28, which codified the common law doctrine of ‘duty of care’ applies to the regulation of land-based sources and activities. Section 28(2) states that every person who undertakes any activity that causes significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation. An amendment to the Act further added a new section 28(1A), which states that significant pollution or degradation includes those that:

(a) occurred before the commencement of this Act;

(b) arises or is likely to arise at a different time from the actual activity that caused the contamination; or

(c) arises through an act or activity of a person that results in a change to pre-existing contamination.⁸⁹

Section 28(3) further listed the kind of reasonable measures that may be taken in this situation to include

- Investigating, evaluating, and/or assessing the impact on the environment;
- Informing and educating employees of the risk of their work, and how to perform to avoid pollution or degradation;
- Ceasing, modifying, and/or controlling any act or process that causes the pollution;
- Containing or preventing the movement of the pollutants;
- Eliminating the source of the pollution; and
- Remedying the effects of the pollution.

In the event that the above measures are not taken by the person/s responsible for the pollution and/or degradation, section 28(5) empowers the Department of Environmental Affairs (DEA) to instruct the person/s responsible for the pollution and/or degradation to comply with the above measures putting into consideration factors such as the environmental management systems in use by the department, severity of the impact of the pollution and/or degradation and the cost of taking the above measures. Where the directive of the DEA is not complied with, section 28(8) empowers the DEA to implement the above listed measures without giving

⁸⁹ Section 12 of the National Environmental Laws Amendment Act 14 of 2009.

consideration to the cost of taking the measures and also recovering the cost from the responsible person/s. The Amendment Act further added new subsections, 14 and 15 to section 28, which states that it is a criminal offence to:

- Unlawfully and intentionally or negligently committing any act or omission which causes significant or is likely to cause significant pollution or degradation of the environment;
- Unlawfully and intentionally or negligently committing any act or omission which detrimentally affects or is likely to detrimentally affect the environment in a significant manner; or
- Refusal to comply with a directive issued under section 28.

The penalty for these offences is a fine of not more than R 1 million and/or one year imprisonment.⁹⁰ Although NEMA has measures in place to enhance and ensure co-operative environmental governance, it seems not to be effected at ground level. There is little evidence that all government departments take NEMA section 2 principles into account in decision-making.⁹¹

B. National Environmental Management: Integrated Coastal Management Act 24 of 2008 (NEM: ICM)

The Act was enacted in 2008. The Act comes on the heels of a prolonged consultative process that included a Green Paper⁹² and a White Paper on coastal policy,⁹³ and a publicly circulated draft Integrated Coastal Management Bill.⁹⁴ A number of sections in the Act are relevant to the regulation of land-based sources and activities. The definition of the coastal zone in chapter two covers not only the land-sea interface area, but also the full extent of the Exclusive Economic Zone (EEZ) including functions such as release of effluents, incineration and dumping of wastes, which were normally reserved for other environmental protection legislation.⁹⁵ Section 58 specifically incorporated the 'duty of care and the remediation of environmental damage'

⁹⁰ Section 12(d) of the National Environmental Laws Amendment Act 14 of 2009.

⁹¹ LJ Kotze, JG Nel, W du Plessis and E Snyman (note 49) 67.

⁹² South Africa Green Paper on Coastal Policy 1998.

⁹³ South Africa White Paper Coastal Policy 2000.

⁹⁴ South African Integrated Coastal Management Bill 2006.

⁹⁵ Chapter two of the NEM: ICM Act of 2008.

provided for in section 28 of National Environmental Management Act (NEMA).⁹⁶ The section states that *all people and organizations must act with due care to avoid negative impacts on coastal resources and its environment*.⁹⁷ Section 58(2) further requires the users of coastal public property, owners and occupiers of land, coastal managers and other responsible persons to take reasonable measures to avoid causing adverse effects to the coastal environment in accordance with section 28 of NEMA. In addition, section 59 provides that the Minister may issue written coastal protection notices requiring measures to be taken to protect the coastal environment and assess notices to ensure that no person carries out an activity that is or is likely to have an adverse effect on any citizen's right to gain access and enjoy the use of coastal public property.⁹⁸

Section 60 allows the Minister to issue a written repair or removal notice to any person responsible for repairing or removing a structure on or within the coastal zone if the structure contravenes the Act or is having or is likely to have an adverse effect on the coastal environment because of its condition or because of its abandonment. Section 63 also stipulated the requirements for granting authorisations and permits in terms of NEMA prior to undertaking certain activities in the coastal and marine environment. An environmental authorisation to be issued in terms of NEMA may not be issued if the development or activities for which authorisation is sought is, inter alia:

- situated within the coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations;
- is situated within the coastal protection zone and is inconsistent with the purpose for which such zone is established;
- is situated within coastal access land and is inconsistent with the purpose for which such land is designated; and

⁹⁶ Section 28 of NEMA provides that *any person who undertakes any activity that causes significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation*.

⁹⁷ A User Friendly Guide to NEM: ICM Act (2009): 7, www.dea.gov.za, Accessed 2009.

⁹⁸ NEM: ICM Act, www.denc.ncpg.gov.za/, Accessed 2010.

- unless the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land or will provide important services.⁹⁹

The regulation of the discharge of effluent into the sea, which has been dealt with to an extent in the National Water Act 38 of 1998, has been extended by this Act. Section 69 provides that no one may discharge effluent that originates from a source on land into coastal waters except in terms of a general authorisation published by the Minister in a Gazette in terms of section 69(2) or a Coastal Water Discharge Permit (CWDP) issued under section 69 by the Minister, after consultation with the Minister responsible for water affairs in instances of discharge of effluent into an estuary. The section further provides for transitional provisions in this regard, stipulating that a person who possessed a licence or authorisation under the National Water Act to discharge effluent into coastal waters before the commencement of the NEM: ICM Act, may continue such discharge provided that the relevant person applies for a CWDP within 24 months of the commencement of the NEM: ICM Act from the Department of Environmental Affairs (DEA).¹⁰⁰ Similarly, if the discharge is in terms of an existing lawful water use in terms of sections 32 and 33 of the National Water Act, a CWDP must be applied for within 36 months of the commencement of the NEM: ICM Act from the Department of Environmental Affairs. Both the general authorization and the CWDP for the discharge of effluent into estuarine waters require the Minister responsible for environmental affairs to consult with, and issue the authorization or permit in concurrence with the Minister responsible for water affairs.¹⁰¹

Furthermore, sections 70 and 71 prohibit incineration and dumping at sea without a dumping permit. It is worthy to note here that the NEM: ICM Act has repealed the Dumping at Sea Control Act of 1980. Section 70(1)(a) stipulates that no person may incinerate waste or any other material within coastal waters or the EEZ or aboard any vessel in these areas without a dumping permit. Section 70(1)(b)-(d) stipulates further that no person may import any waste or other material to be dumped or incinerated at sea within the coastal waters or the EEZ or export

⁹⁹ Section 63(2) of the NEM: ICM Act.

¹⁰⁰ Section 69(3) and (4) and chapter 1 of the NEM: ICM Act.

¹⁰¹ Section 69(7) of the NEM: ICM Act.

any waste or other material to be dumped or incinerated on the high seas or in an area of the sea under the jurisdiction of another state. Section 70(2) however provides exemptions in this regard in case of emergency incidents. Section 71(3) specifies the substances for which a dumping permit may be issued to include sewage, sludge, fish waste, inert inorganic geological materials and organic material of natural origin. Section 71(4) stipulates that a dumping permit may not be issued in respect of certain substances, which include substances that contain levels of radioactivity greater than as defined by the International Atomic Energy Agency. Section 92 further stipulates that the Minister may issue a verbal directive to any responsible person to stay an activity if such activity poses an immediate risk or serious danger to the public or potentially significant detriment to the environment. The verbal directive must, however, be confirmed in writing within 7 days.¹⁰² Penalty for a person found guilty of an offence is a fine of up to R5million. In essence, the Act protects and maintains the coastal environment for present and future generations, and prescribes provisions which may place restrictions on any development or activity that may or is likely to have adverse effects on the coastal environment.

C. National Environmental Management: Biodiversity Act 10 of 2004

One of the Act's objectives is to provide for co-operative governance in the management and conservation of biological diversity within the Republic and of the components of such biological diversity.¹⁰³ As such the focus of the Act is on the preservation of species (a widely defined term) and ecosystems, irrespective of where they are situated (i.e. in areas including the coastal and marine environment).¹⁰⁴ The legislation establishes both the South African National Biodiversity Institute (SANBI) through which the Act is, to a large extent implemented and the National Biodiversity Framework, which must provide for an integrated, co-ordinated and uniform approach to biodiversity management by organs of state in all spheres of government, non-governmental organisations, the private sector, local communities, other stakeholders, and the public.¹⁰⁵ The Minister may to this end, for example, enter into biodiversity management plans with the public or organs of state. These plans must conform to EIPs and EMPs in terms of

¹⁰² Environmental Law Ensignt, www.ens.co.za/newsletter/briefs/, Accessed 2011.

¹⁰³ Section 2 of the NEM: BA. Section 1 defines biological diversity or biodiversity as the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems.

¹⁰⁴ Section 4(1) of the NEM: BA.

¹⁰⁵ Section 39(1)(a) of the NEM: BA.

chapter 3 of NEMA. In order to achieve co-operative governance, it is further provided that an organ of state that must prepare an EIP or EMP in terms of chapter 3 of NEMA, must align its plan with the National Biodiversity Framework and any applicable bioregional plan, incorporate into that plan those provisions of the National Biodiversity Framework or a bioregional plan that specifically apply to it, and demonstrate in its plan how the National Biodiversity Framework and any applicable bioregional plan may be implemented by that organ of state or municipality.¹⁰⁶

Section 48 further provides that the National Biodiversity Framework, bioregional plans and biodiversity management plans must not be in conflict with environmental management plans (EMPs) and environmental implementation plans (EIPs) in terms of NEMA, integrated development plans (IDPs) in terms of the Local Government: Municipal Systems Act 32 of 2000 and any spatial development frameworks in terms of legislation regulating land-use management, land development and spatial planning. A new approach to co-operative governance can be found in section 92, which concerns the issuing of integrated permits relating to biodiversity resources. The section provides that, if a related authorisation is required in terms of another law, the authority empowered under that other law to authorise that activity, and the issuing authority empowered under the NEM: BA to issue permits in respect of that activity, may exercise their respective powers jointly. In this instance, the authorities are empowered to issue a single integrated permit instead of individual permits and authorisations. The Act also identifies biological threats to biodiversity, principally through alien and/or invasive species but also may require an EIA to be conducted before genetically modified organisms may be released into the environment.¹⁰⁷

D. National Environmental Management: Air Quality Act 39 of 2004

The Act regulates air quality control by providing reasonable measures for preventing pollution and ecological degradation.¹⁰⁸ Thus, this Act is relevant to the regulation of land-based sources and activities since air pollution mostly occurs from sources and activities taking place on land

¹⁰⁶ Section 44 and 45 of the NEM: BA; LJ Kotze, JG Nel, W du Plessis and E Snyman (note 49) 72

¹⁰⁷ Chapter 5 of the NEM: BA.

¹⁰⁸ Preamble to the NEM: Air Quality Act, www.saflii.org/za/, Accessed 2011.

that releases poisonous gases and offensive odours, which eventually settle in the surrounding environment. These poisonous gases affect coastal and marine organisms as some of them are persistent in nature, making them non bio-degradable and being stored in the tissues of these micro-organisms. These eventually become harmful to these organisms and human health. The Act stipulates that atmospheric emission licenses are required before undertaking any activity that may have a significant detrimental effect on the environment.¹⁰⁹ Section 38 provides that every application for an atmospheric emission license must comply with section 24 of NEMA and section 22 of the Environment Conservation Act 73 of 1989 (ECA) before a license is granted. The sections of these two Acts hinge on an environmental impact assessment (EIA). Thus, any activity that may significantly affect the environment must be investigated and assessed so as to determine the impact it will have on the environment before granting the necessary authorization/license. Section 50(1) enables the Minister to investigate any situation that may create air pollution or is reasonably anticipated to contribute to air pollution, and which may also violate any international agreement regarding pollution, which is binding on South Africa.

In addition, the Minister may also prescribe measures to prevent, control or correct atmospheric releases within the country that may have a significant detrimental impact on air quality of another country.¹¹⁰ This provides for regulation of transboundary air pollution. Measures that can be prescribed by the Minister include the declaration of priority areas,¹¹¹ listing of processes requiring a license,¹¹² setting of minimum emission standards for listed processes, controlled emitters and fuels,¹¹³ preparation of pollution prevention plans, atmospheric impact reports, recognition programmes¹¹⁴ and measures for dust, noise and offensive odours.¹¹⁵ Offences and penalties are provided for in chapter 7, with a maximum

¹⁰⁹ Sections 21, 22, 25(1), 28(1), 37(1) and 42(1) stipulates that the Minister or MEC must publish in the Gazette listed activities and activities related to controlled emitters and controlled fuels which requires atmospheric emission licence.

¹¹⁰ Section 50(2) of NEM: Air Quality Act.

¹¹¹ Section 18 of NEM: Air Quality Act.

¹¹² Section 21 of NEM: Air Quality Act.

¹¹³ Sections 21(3), 24 and 27 of NEM: Air Quality Act.

¹¹⁴ Sections 29, 30 and 31 of NEM: Air Quality Act.

¹¹⁵ Sections 32-35 of NEM: Air Quality Act.

penalty of ten years' imprisonment or a maximum fine of R10 million. This Act repealed and replaced the outdated Atmospheric Pollution Prevention Act of 1965.

E. National Environmental Management: Protected Areas Act 57 of 2003

The Act states as one of its aims, to promote inter-governmental co-operation and public consultation in matters concerning protected areas.¹¹⁶ Section 39(3) specifically provides that when preparing a management plan for a protected area, the management authority concerned must consult municipalities, other organs of state, local communities and other affected parties that have an interest in the area. Management plans must also take into account all the aspects of integrated development plans (IDPs) of local authorities situated in the protected area.¹¹⁷ Section 41 further provides that a management plan must at least contain a co-ordinated policy framework and may contain provisions on financial and other support to ensure effective administration and implementation of a co-management agreement. This may also aid in creating a more integrated framework by involving planning authorities and by ensuring practical implementation of environmental and land use and planning laws, which would in turn have an impact on individuals wishing to undertake activities within a protected area.¹¹⁸ The designation of protected areas can help curb land-based marine pollution as certain activities that can cause pollution to the water bodies situated in a protected area will be prohibited while permits will be needed for other types of land-based activities.¹¹⁹ The Act needs to be read along with the National Environmental Management: Biodiversity Act as they have essentially the same underlying objective.¹²⁰

F. The Environment Conservation Act 73 of 1989 (ECA)

Most sections of this Act have been repealed by NEMA except for part 4 and section 31A. Part 4 and section 31A are relevant to the regulation of land-based sources and activities by controlling disposal of waste in landfill sites that have been established for that purpose so as to

¹¹⁶ Long title and section 2(b) of NEM: PAA.

¹¹⁷ Section 39(4) of NEM: PAA

¹¹⁸ LJ Kotze, JG Nel, W du Plessis and E Snyman (note 49) 71.

¹¹⁹ Part 3 of chapter 4 of the NEM: PAA.

¹²⁰ Section 6 of the NEM: PAA. Andrew Muir and Chris Galliers, National Environmental Management: Specific Environmental Management Acts, www.enviropaedia.com/topic/ Accessed 2014.

control pollution, particularly pollution of surface water and underground water systems.¹²¹ Hence, part 4 stipulates that „*no person shall discard, dump or leave any litter on any land or water surface, street, road or site in or on any place to which the public has access, except in a container or at a place which has been specially indicated, provided or set apart for such purpose*“.¹²² Part 4 further provides that no one may establish, provide or operate a waste disposal site without a permit,¹²³ and no one may discard or dispose of waste except at a disposal site for which a permit has been issued and in a manner which may be prescribed by the Minister.¹²⁴ Section 31A empowers the Minister of Environmental Affairs to stop any person carrying on activities that may in his or her opinion damage, endanger or detrimentally affect the environment with a view to eliminate, reduce or prevent the damage, danger or detrimental effect. Hence, a land fill facility may be closed if the Minister deems it as an activity that may damage, endanger or affect the environment adversely. The Department of Environmental Affairs (DEA) is responsible for managing all aspects of waste other than its disposal, while the Department of Water Affairs (DWA) administers the waste management provisions regarding disposal by means of a permit system.¹²⁵

Other laws that are relevant to the protection and preservation of the marine and coastal environment from land-based sources and activities include the International Health Regulations Act 28 of 1974 which provides that all ports must have effective waste disposal systems and that it is an offence for a master of a ship to eject anything from a ship into the harbour;¹²⁶ the National Heritage Act 25 of 1999, and Sea Birds and Seals Protection Act 46 of 1973.

¹²¹ „Waste means any matter, whether gaseous, liquid or solid or any combination thereof, which is from time to time designated by the minister by notice in the gazette as an undesirable or superfluous by-product, emission, residue or remainder of any process or activity“ www.chr.up.ac.za/ Accessed 2011.

¹²² Section 19(1) of ECA.

¹²³ Section 20(1) of ECA.

¹²⁴ Section 20(6) of ECA.

¹²⁵ Section 20(5) of ECA.

¹²⁶ Articles 30 to the Schedule of the Act.

6.4.3 Legislation directly relevant in regulating land-based sources and activities

A. The National Water Act 36 of 1998

The objective of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled. Section 3(1) provides that the national government is the trustee of the nation's water resources, which requires it to *ensure that water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner, for the benefit of all persons and in accordance with its constitutional mandate*. Section 3(2) mandates the national Department of Water Affairs (DWA) to ensure that water is allocated equitably and used beneficially in the public interest, while promoting environmental values. A number of provisions regulating water quality standards in the Act are relevant in regulating land-based sources and activities due to the fact that they form the basis for controlling access, use and pollution of water.¹²⁷ Section 21 provides that all *water use* must be licensed.¹²⁸ Section 21 widely defines *water use*, but a number of these definitions are of particular relevance to regulating land-based sources and activities. Thus, *water use* is defined as

- a) *discharging waste or water containing waste into water resource through a pipe, canal, sewer, sea outfall or other conduit;*
- b) *disposing of waste in a manner which may detrimentally impact on a water resource;*
- c) *disposing in any manner of water which contains waste from or which has been heated in any industrial power generation process;*
- d) *altering the bed, banks, course or characteristics of a watercourse; and*
- e) *removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people;*¹²⁹

This definition widely defines *water use* to include not only consumptive uses but also activities which pollute or degrade water resources. Also, the reference to *sea outfall* in section

¹²⁷ Sections 6, 9, 12, 13, 19, 20, 21, 26, 27, 151, 152 and 153 of the Act.

¹²⁸ There are exceptions found in section 22 and Schedule 1 of the Act.

¹²⁹ Section 21(d)-(h) of the Water Act.

21(f) includes marine outfalls¹³⁰ due to the fact that, although the sea is not included in the definition of ‘water resource’¹³¹ and ‘watercourse’,¹³² the discharge of waste into the sea by means of a ‘sea outfall’ is a ‘water use’, therefore, marine outfalls are included in the definition of ‘water use’. In conformity with section 21, the DWA published the Operational Policy for the Disposal of Land-derived Water Containing Waste to the Marine Environment of South Africa in 2004.¹³³ The aim of this Policy is to provide a framework within which practical principles as well as ground rules on land-derived wastewater disposal to the marine environment can be assessed, managed and controlled. It also provides a management framework within which to conduct such activities.

In managing water use the Minister of Water Affairs is empowered to issue licences with the provision that the Minister can assign this power and duty to a catchment management agency.¹³⁴ Water management areas were declared in 1999¹³⁵ and the Minister is expected to establish catchment management agencies in these areas after public consultation, on the initiative of the community and stakeholders concerned. The agencies are in turn expected to develop catchment management strategies for their areas for purposes of water uses.¹³⁶ In applying for a licence for water use, section 41(3) provides that such application must be directed to the responsible authority, which in this case is the regional office of the DWA. The section also provides that the responsible authority may, to the extent that it is reasonable to do so, require the applicant, at the applicant’s expense, to obtain and provide it by a given date, ‘... *an assessment by a competent person of the likely effect of the proposed licence on the resource quality; and an independent review of the assessment furnished in terms of subparagraph (ii), by a person acceptable to the responsible authority...*’¹³⁷ Thus, an EIA is important before a

¹³⁰ Marine outfall is a pipeline conveying wastewater from a treatment plant and discharging through a diffuser. Operational Policy for the Disposal of Land-derived Water containing Waste to the Marine Environment of South Africa (note 43) A-6.

¹³¹ Section 1 (xxvii) of the Act defines ‘water resource’ to include a watercourse, surface water, estuary or aquifer.

¹³² Section 1 (xxiv) defines water course to mean a river or spring, a natural channel in which water flows regularly and any collection of water which the minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant its bed and banks.

¹³³ National State of the Environment Report-South Africa (note 9) i.

¹³⁴ Section 63 of the Act.

¹³⁵ Notice No. 20491 in Government Gazette No. 1160, 1 October, 1999.

¹³⁶ Chapter 7 of the Act.

¹³⁷ Section 41(2)(ii) and (iii) of the Water Act.

licence for water use is granted. The procedure for authorizing a licence for water use has been published in 2000 as a guideline document by the department entitled Water Use Authorization Process for Individual Applications.¹³⁸ In issuing a licence, the responsible authority must take into consideration several factors including pollution, in that *...the quality of water in the water resource may be required for the reserve and for meeting international obligations...*¹³⁹

Furthermore, section 22 provides for non-consumptive use of water resource. These non-consumptive uses include the discharge of effluent into water resources and the disposal of waste on land. In regulating these non-consumptive uses, a water user must obtain a water use licence unless the water use is listed in schedule 1 of the Act, is an existing lawful use, is permissible under a general authorisation, or if a responsible authority dispenses with requirement for a licence if it is satisfied that the purpose of this Act will be met by the granting of a licence, permit or other authorisation under any other law.¹⁴⁰ In the interests of co-operative governance, a responsible authority may promote arrangements with other organs of state to combine their respective licence requirements into a single licence requirement.¹⁴¹ Section 19(1) imposed a general obligation on a number of persons to *...take all reasonable measures to prevent any activity, process, or situation which causes, has caused or is likely to cause pollution of a water resource from occurring, continuing or recurring...*¹⁴² These persons may also be directed by the relevant catchment management agency to take reasonable measures by a stipulated date.¹⁴² Failure to do this may result in the catchment management agency taking the necessary measures to remedy the situation and recover the costs from these persons and others stated in the Act, jointly or severally.¹⁴³

B. The Water Service Act 108 of 1997

The Act deals with the provision of water and sanitation services to households and other municipal water users such as industries. As such it cannot be read in isolation, but in tandem

¹³⁸ Operational Policy for the Disposal of Land-derived Water containing Waste to the Marine Environment of South Africa (note 43) B-11.

¹³⁹ Section 27(j)(i) of the Water Act.

¹⁴⁰ Section 22(1) of the Water Act.

¹⁴¹ Section 22(4) of the Water Act.

¹⁴² Section 19(3) of the Water Act.

¹⁴³ Section 19(4) and (5) of the Water Act.

with the pollution provisions of the National Water Act of 1998. Access to these services must be rendered by a 'water service authority'.¹⁴⁴ Section 2 defines a 'water service authority' as a municipality including a district or rural council as defined in the Local Government Transition Act 209 of 1993 responsible for ensuring access to water services. The water service authority is to ensure that water services are efficient, affordable, economical and sustainable to all consumers in their area of jurisdiction.¹⁴⁵ Section 7(2) prohibits the disposal of industrial effluents in a manner not approved by a water service authority. Section 7(4) further states that where an approval has been given by a water service authority, the authorization does not relieve anyone from complying with any other law relating to the use of water and conservation of water and water resources or the disposal of effluent thereof.¹⁴⁶ Where effluent is discharged into a municipal sewer, for which the water services authority has an authorization of water use, such discharge does not require a water use authorisation in terms of the National Water Act, as it is regarded as a Schedule 1 water use.¹⁴⁷ Section 9(1) empowers the Minister to, from time to time, prescribe compulsory national standards relating to the quality of water taken from or discharged into any water services or water resources system amongst other things.

In accordance with section 9(1), the Minister in 2001 published 'The Regulations Relating to Compulsory National Standards and Measures to Conserve Water'.¹⁴⁸ Section 21(3) (i)-(iv) provides that a water service authority that is providing water services for industrial use, and for controlling a system through which industrial effluents is disposed of, must make by-laws which will provide for at least service standards, technical conditions of supply, the determination of tariffs, structure payment, the payment and collection of money due and the circumstances under which the provision and disposal may be limited or prohibited.

Water service authorities are required to prepare draft water Services Development Plans for the purpose of ensuring that water services are constantly being developed, monitored and

¹⁴⁴ Section 11 of the Act.

¹⁴⁵ Section 11(1) of the Act.

¹⁴⁶ This is why it was mentioned in the first paragraph that this Act has to be read along with the National Water Act.

¹⁴⁷ RF Fuggle and MA Rabie (note 48) 674.

¹⁴⁸ GN R509 in GG 22355 of 8 June 2001.

reported.¹⁴⁹ In preparing a draft Water Service Development Plan, information such as details of existing industrial effluent disposed of within the area of jurisdiction of the relevant water service authority and existing industrial water use within the area of jurisdiction of the relevant water service authority must be included in the plan.¹⁵⁰ The importance of this plan in relation to regulating land-based sources and activities is that it will prevent pollution and ensure effective management of water resources. The Act has thus placed important responsibilities on the shoulders of local and/or municipal authorities regarding water quality control and treatment of industrial and domestic effluent in an effort to achieve three objectives which are relevant to regulating land-based sources and activities. These are:

- a) To provide access to basic water supply and sanitation necessary to secure the sufficiency of water and an environment not harmful to human health and well-being;¹⁵¹
- b) To provide for the preparation and adoption of water service development plans by water service authorities;¹⁵² and
- c) The promotion of effective water resource management and conservation.¹⁵³

C. Marine Living Resources Act 18 of 1998 (MLRA)

The Act primarily regulates the conservation and sustainable utilisation of living marine resources in preventing over-exploitation and marine pollution, and setting of quotas and total allowable catch.¹⁵⁴ Section 43 provides that the Minister of Environmental Affairs can declare an area a Marine Protected Area (MPA) for the purpose of protecting marine flora and fauna and the physical features on which they depend, facilitate research on fishery pristine communities and management, and diminish any conflict that may arise from competing uses in the established area. Section 43(2) lists the various activities that are prohibited in an area declared as an MPA without the requisite permit, which includes fishing, dredging, extraction of sand or gravel, discharging or depositing of waste or any other polluting matter, disturbing, altering or destroying the natural environment, erecting structures and conducting any activity that may have an adverse impact on the ecosystems in the area. Section 43(3) empowers the Minister to

¹⁴⁹ Section 2(c) of the Act.

¹⁵⁰ Section 13 of the Act.

¹⁵¹ Section 2(a) of the Act, www.dwaf.gov.za/Documents/, Accessed 2011.

¹⁵² Section 2(c) of the Act.

¹⁵³ Section 2(j) of the Act.

¹⁵⁴ The preamble of MLRA, www.info.gov.za, Accessed 2011.

give permission in writing that any activity prohibited in section 43(2) may be undertaken, where such activity is required for the proper management of the MPA.

In addition, section 77 states that the Minister has the power to enact a wide array of regulations to achieve the objectives of the Act, which includes preserving marine biodiversity, minimising pollution and conserving marine living resources.¹⁵⁵ Section 78 empowers the Minister to assign the administration of any provisions of the Act to the executive authority of a provincial government, and can also delegate all or any of the powers conferred on the Minister (other than the power to make regulations) to the Director-General (D-G) of the Department of Environmental Affairs or any officer of the department nominated by the D-G.¹⁵⁶ The same powers can also be delegated by notice in the Government Gazette to an authority in local government level. The D-G may further delegate any powers conferred on his office to any officer in this department.¹⁵⁷

6.4.4 Legislation indirectly relevant in regulating land-based sources and activities

A. National Building Regulations and Building Standards Act 103 of 1977

The Act provides for uniformity in the law relating to guidelines and standards on construction, erection, structural design, demolition of buildings including buildings that are for the provision of sewerage, drainage, storm water disposal, electricity supply or water supply services, and related matters in areas of the jurisdiction of local authorities.¹⁵⁸ The Act provides for the making of regulations, known as the National Building Regulations.¹⁵⁹ Section 4 stipulates that no building should be erected without prior approval from the local authority in the jurisdiction where the building is to be erected. Anyone who contravenes this provision will be guilty of an offence and liable on conviction to a fine not exceeding R100 for each day on which such person

¹⁵⁵ Objectives of the MLRA are found in Section 2.

¹⁵⁶ Section 79 MLRA.

¹⁵⁷ Section 79(2) MLRA.

¹⁵⁸ Section 1 of the Building Standards Act, www.qasa.co.za/, Accessed 2011.

¹⁵⁹ Section 17 of the Building Standards Act. The Regulation has been published in Government Gazette no. 2378 dated 12 October, 1990 and amended by R.432 in Government Gazette no. 13054 dated 8 March, 1991. The regulations have been amended again by Government Gazette no. R. 574 dated 30 May 2008. Review of the Policy, Legal, Regulatory and Institutional Frameworks for Land Based Sources and Activities Management in the Western Indian Ocean Region, UNEP/GEF WIO-LaB Technical Report Series No 5 (2009) 31.

was engaged in erecting such building.¹⁶⁰ Part P4 of the Gazetted Regulation stipulates that industrial effluents should be discharged according to the conditions contained in the approval obtained from local authority, and where it is necessary to construct additional drainage or other installation for industrial effluent discharge, such construction or installation must be done according to the approval obtained from the local authority. Thus, anyone who constructs an installation other than in accordance with what is stipulated in the approval obtained will be guilty of an offence.¹⁶¹ In essence, this Act is relevant to the regulation of land-based sources and activities as it will ensure that critical coastal and marine habitats are protected from alteration, degradation and destruction.

B. Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA)

This Act is the primary legislation responsible for regulating mining activities. It is relevant to the regulation of land-based sources and activities due to the fact that many mining activities take place on the coast and in the offshore environment. Section 5(4) provides that mining is not allowed in any area (including the coastal and marine environment) without an approved Environmental Management Programme or Plan (EMP). The Mineral and Petroleum Resources Development Regulations (MPRDRA) further provides that an applicant whose application for a prospecting right or mining permit was accepted in terms of the Minerals and Petroleum Resources Development Act must submit an EMP to the office of the regional manager in whose region the application is lodged within 60 days from the date of notification by the regional manager.¹⁶² An Environmental Management Plan must substantially be in the standard format provided by the Department of Mineral Resources and must contain the following

- (a) a description of the environment likely to be affected by the proposed prospecting or mining operation;
- (b) an assessment of the potential impacts of the proposed prospecting or mining operation on the environment, socio-economic conditions and cultural heritage, if any;

¹⁶⁰ Section 4(4) of the Building Standards Act.

¹⁶¹ Part P4 (2) of the Building standards Regulation.

¹⁶² Published under Government Notice R527 in Government Gazette 26275 dated 23 April 2004. Regulation 52(1).

- (c) a summary of the assessment of the significance of the potential impacts, and the proposed mitigation and management measures to minimize adverse impacts and benefits;
- (d) financial provision;
- (e) planned monitoring and performance assessment of the environmental management plan;
- (f) closure and environmental objectives;
- (g) a record of the public participation undertaken and the results thereof; and
- (h) an undertaking by the applicant regarding the execution of the environmental management plan.¹⁶³

In addition to the EMP requirements provided above, the Minister of Environmental Affairs has published new EIA Regulations in accordance with sections 24(2)(a) and (d) of NEMA, which are provided for in Regulations 544, 545 and 546 of 18 June 2010. The new EIA regulations provide for two assessment processes in terms of proposed activity, namely basic assessment process or a scoping and EIA process. The basic assessment process will be conducted if a proposed activity has been listed in Regulation 544, which contains the schedule of activities in respect of which a basic assessment is needed prior to commencement of the relevant activities. A scoping and EIA process will be conducted if a proposed activity has been listed in Regulation 545, which contains the schedule of activities in respect of which a scoping and EIA process is needed prior to the commencement of the relevant activities. Mining activities are listed in this Regulation. Proposed mining activities that require an exploration right or renewal thereof as contemplated in sections 79 and 81 of the MPDRA cannot commence without environmental authorization from the competent authority and in respect of which the investigation, assessment and communication of potential impact of activities must follow the procedure as described in its Regulations 26-35. Likewise, proposed mining activities that require mining right or the renewal thereof as contemplated in sections 22 and 24 of the MPDRA, proposed mining activities as contemplated in sections 83 and 85 of the MPDRA that

¹⁶³ Regulation 52(2) of MPRDRA.

require a production right or the renewal thereof, and proposed mining activities that require a reconnaissance permit as contemplated in section 74 of the MPDRA.¹⁶⁴

The Act further stipulates that mining and prospecting rights will not be granted if granting them will result in unacceptable levels of pollution, ecological degradation and/or damage to the environment amongst other conditions.¹⁶⁵ The only provision in the MPRDA that indirectly relates to co-operative governance is the closure certificate that is issued after closure of mining operations. According to section 43 of the Act, a closure certificate may only be issued when the Chief Inspector, Mining, and DWAF have confirmed in writing that health, safety and water pollution have been addressed adequately. It is however not provided how this co-operation should be facilitated.¹⁶⁶ The Act is administered by the Department of Minerals Resources (DMR).

C. Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972 (FCDA)

This Act regulates the manufacture, sale and importation of any foodstuffs, cosmetics and disinfectants which contain or have been treated with a prohibited substance.¹⁶⁷ It allows the Minister of Health to make regulations prescribing the nature and composition of any food stuff, cosmetic or disinfectant. These regulations may prescribe the composition, strength, purity or quality for any other attribute of any foodstuff, cosmetic or disinfectant or any ingredient or part thereof.¹⁶⁸ Foodstuffs, cosmetics and disinfectants covered by this Act may not be sold, manufactured or imported for sale if any of the conditions listed are not met.¹⁶⁹ This Act can be used to ban persistent organic pollutants that are used in foodstuffs, cosmetics and disinfectants to minimize the adverse effects they will have on coastal and marine organisms when they are disposed of into the environment.

¹⁶⁴ Regulation 545 of EIA Regulations 2010

¹⁶⁵ Section 23(1)(d) and Section 17(1)(c) of the MPRDA.

¹⁶⁶ LJ Kotze, JG Nel, W du Plessis and E Snyman (note 49) 71.

¹⁶⁷ Section 2(1) of FCDA, www.nda.agric.za/, Accessed 2011.

¹⁶⁸ Section 15 of the FCDA.

¹⁶⁹ Section 2(2)(a)-(d) of the FCDA.

D. Hazardous Substances Act 15 of 1973

The Act regulates industrial chemicals that are hazardous in nature. It is relevant to the regulation of land-based sources and activities by virtue of the fact that it *provides for the prohibition and control of importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products...*¹⁷⁰ These substances are mostly persistent in nature, and if released into the environment by way of usage or disposal, can have adverse effects on coastal and marine organisms. The Act is administered by the Department of Health, which exercises control over various substances by declaring them to be in any one of four specified groups of hazardous substances, namely, group I, II, III and IV.¹⁷¹

Group I and II¹⁷² substances are toxic, group III substances concern electronic products¹⁷³ and group IV substances are radioactive, but not those used in nuclear installations.¹⁷⁴ Once a substance has been grouped, the Minister can promulgate regulations controlling various aspects of its handling.¹⁷⁵ Section 3(1) states that if a substance is declared as a group I, II or III substance, no person may *sell*,¹⁷⁶ let, operate, use, apply and install such substance unless such person has obtained a license from the Department, and subject to any conditions prescribed or determined by the Director-General in the license.¹⁷⁷ The substances declared as group I include arsenic, cyanides, lead acetate, zinc phosphide, DDT, chlordane, heptachlor and

¹⁷⁰ Preamble of the Act, www.opbw.org/nat_imp/, accessed 2011.

¹⁷¹ Group I and II consists of hazardous chemicals, substances or mixtures of such substances, *which in the course of customary or reasonable handling or use, including ingestion, might, by reason of its nature or effect cause harm to human beings and is declared as such by notice in government gazette.* Group III consists of hazardous electronic products declared as such by notice in government gazette and Group IV is defined by the Act to be *radioactive materials.* Section 2 of the Hazardous Substances Act.

¹⁷² The list of substances declared as group II hazardous substances is published in government notice R. 1382 of 12 August 1994. South Africa's Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (note 21) 26.

¹⁷³ Section 2(1)(b) of the Act.

¹⁷⁴ These are regulated under the Nuclear Energy Act 46 of 1999, and the National Nuclear Regulator Act 47 of 1999.

¹⁷⁵ Such as authorizing, regulating, controlling, prohibiting or restricting manufacture, sale to persons under 16 years of age, modification, importation, use, application, storage and transportation. Section 29 of the Act.

¹⁷⁶ *Sell* is defined broadly to include offer, advertise, keep, transmit, consign, convey or deliver for sale, or exchange, or disposal of, to any person, in any manner, whether for consideration or otherwise, or manufacture or import for use in the Republic. Section 1 of the Hazardous Substances Act.

¹⁷⁷ The list of substances declared as group I hazardous substances can be found in government notice R. 452 of 25 March 1977.

hexachlorobenzene.¹⁷⁸ The Minister may publish exempting any substance from the list of group I hazardous substances above.¹⁷⁹ A list of group II substances has been published but no licensing requirements have been put in place for them, only very limited control measures such as the regulation of the aerial application of agricultural products have been put in place by Regulation.¹⁸⁰ PCBs have been identified as group II hazardous substances, which are also likely to be present in older electronic goods regulated as group III hazardous substances.

Furthermore, to produce or otherwise acquire, dispose, import or export, be in possession, use, convey or cause to be conveyed, a group IV hazardous substance, a written authority from the Director-General is required.¹⁸¹ The written authorization may be granted subject to prescribed conditions and any further conditions that the Director-General may determine.¹⁸² The written authorization may also extend to any employee of the holder of the authorization.¹⁸³

E. Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947 (FFASA)

This Act is aimed first and foremost at the registration of the various products mentioned in the title of the Act, and to regulate or prohibit the importation, sale, acquisition, use or disposal of them.¹⁸⁴ This Act is relevant to the regulation of land-based sources and activities by virtue of the fact that agriculture is a land-based activity that make use of pesticides, herbicides, insecticides and fertilizers whose compositions contain persistent organic pollutants (POPs) which are dangerous to coastal and marine organisms and human health. Hence, the composition of ‘agricultural and stock remedies’ referred to in the Act comprise of nine persistent organic pollutants,¹⁸⁵ whose use have been restricted by the Stockholm Convention on Persistent Organic Pollutants.¹⁸⁶ Sections 2, 3 and 7(1) provides that only persons registered under the Act are allowed to sell fertilizer, farm feed, agricultural or stock remedies, and the Minister must

¹⁷⁸ Compilation of South African National Chemicals Profile (2003) 10, www.environment.gov.za/Documents/, Accessed 2011.

¹⁷⁹ Section 3(1A) of Hazardous Substances Act.

¹⁸⁰ South Africa’s implementation of the Stockholm Convention (note 21) 26.

¹⁸¹ Section 3A of the Act.

¹⁸² Section 3A(b) of the Act.

¹⁸³ Section 3(3) of the Act.

¹⁸⁴ Preamble to the FFASA.

¹⁸⁵ DDT, toxaphene, mirex, hexachlorobenzene, heptachlor, endrin, dieldrin, chlordane and aldrin. South Africa’s Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (note 21) 24.

¹⁸⁶ See chapter three, pages 55-56, section 3.2.6 for discussion on the POPs convention.

designate a registrar of patents in the Department who will be responsible for registering pest control operators and pesticides.

Section 23 further grants the Minister the powers to make regulations on a wide range of matters relating to fertilizers, farm feeds, agricultural and stock remedies.¹⁸⁷ Application for the registration of any remedy including pesticides must be made to the registrar before being sold.¹⁸⁸ The registrar must also take into consideration certain criteria before registering any remedy or pesticide. These criteria include the suitability of the remedy or pesticide for their stated purpose and their efficiency subject to public interest. The registrar may cancel registration if, inter alia, it is against public interest for the product to remain registered.¹⁸⁹ The Department of Agriculture, which administers the Act, has prohibited some of these pesticides and remedies from being acquired, disposed and sold because of the POPs they contain. But the Department did not prohibit their use thus, DDT, hexachlorobenzene, dieldrin and aldrin are still used by the Department of Health for other purposes such as malaria vector control in rural areas, carrying out experiments which must be approved in writing by the registrar, and controlling wood destructing termites underneath buildings.¹⁹⁰ Penalties for offences are either a R500 fine and/or twelve months imprisonment or R1000 fine and/or two years imprisonment, depending on the offence.¹⁹¹

F. The Local Government: Municipal Systems Act 32 of 2000

With regard to co-operative governance, this Act emphasises the importance of a new system of local government, which requires an efficient, effective and transparent local public administration that conforms to constitutional principles.¹⁹² These constitutional principles arguably include the principles established in the 1996 Constitution, which deal with co-operative governance. The latter provision is strengthened even further by subsequent provisions in the preamble, which state that there is a need to create a more harmonious relationship

¹⁸⁷ UNEP/GEF WIO-LaB Technical Report Series No 5 (note 159) 32.

¹⁸⁸ Section 2 of the FFASA.

¹⁸⁹ Section 4 of the FFASA.

¹⁹⁰ Michael Kidd, *Environmental Law*, 2nd edition (2011) 202, JUTA Law, Cape Town; South Africa's Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (note 21) 25.

¹⁹¹ Section 18(1) of FFASA.

¹⁹² Preamble of the Act.

between municipal councils, municipal administrations and local communities through the acknowledgement of reciprocal rights and duties. This may ultimately result in an efficient system of local government, which is capable of exercising the functions and powers assigned to it in, inter alia, a co-operative manner.¹⁹³ Section 3 of this Act contains specific provisions pertaining to co-operative governance. Section 3(1) states in this regard that local government should exercise executive and legislative authority based on constitutional provisions of co-operative governance envisaged in section 41 of the Constitution. It is also required that national and provincial spheres of government must, for their part, exercise executive and legislative authority in a manner that does not compromise or impede a municipality's ability or right to exercise its executive and legislative authority.¹⁹⁴ In order to achieve effective and well-established co-operative governance practices, local government authorities must, inter alia, develop common approaches for local government as a distinct sphere of government,¹⁹⁵ enhance co-operation, mutual assistance and sharing of resources among municipalities¹⁹⁶ and facilitate compliance with the principles of co-operative governance and inter-governmental relations.¹⁹⁷ It is argued that these provisions are provided for to, inter alia, serve as guideline principles for the sound facilitation of co-operative governance in the local government sphere.¹⁹⁸

The integrated development plans (IDPs) envisaged for local government by the Act also serve as an example of an available legislative measure to further co-operative governance.¹⁹⁹ By way of IDPs, local government should, in conjunction with other organs of state, contribute to the progressive realisation of the fundamental rights contained in, inter alia, section 24 of the 1996 Constitution.²⁰⁰ Section 24(1) further states that planning undertaken by a municipality must be aligned with, and complement the development plans and strategies of other affected municipalities and other organs of state. The need for alignment is significant to give effect to

¹⁹³ LJ Kotze, JG Nel, W du Plessis and E Snyman (note 49) 69.

¹⁹⁴ Section 3(2) of the Act

¹⁹⁵ Section 3(3)(a) of the Act.

¹⁹⁶ Section 3(3)(b) of the Act.

¹⁹⁷ Section 3(3)(3)(d) of the Act.

¹⁹⁸ LJ Kotze, JG Nel, W du Plessis and E Snyman (note 49) 70.

¹⁹⁹ Chapter 5 of the Act.

²⁰⁰ Section 23(1)(c) of the Act.

the principles of co-operative governance contained in section 41 of the 1996 Constitution. These provisions may be particularly significant in so far as they may be utilised to address unco-operative behavioural practices that currently exist in the local governmental sphere. They may also be relevant for establishing co-operative practices amongst environmental authorities in the local sphere of government.

Other laws indirectly relevant to the regulation of land-based sources and activities include the National Nuclear Regulator Act 47 of 1999, the National Health Act 61 of 2003, the Nuclear Energy Act 46 of 1999, Agricultural Pests Act 36 of 1983 and the Conservation of Agricultural Resources Act 43 of 1983.

6.4.5 Policy frameworks relevant to the regulation of land-based sources and activities

A. White Paper for Sustainable Coastal Development 2000

The White Paper identified that the most effective way in achieving sustainable coastal development is through the introduction of a system of integrated coastal management. It further defined integrated coastal management as *„a continuous and dynamic process that unites government and the community, science and management, sectoral and public interests in preparing and implementing an integrated plan for the protection and development of coastal ecosystems and resources“*.²⁰¹

B. Operational Policy for Disposal of Land-Derived Water Containing Waste to the Marine Environment of South Africa 2004

The goal of the Operational Policy is to achieve water quality that is *„fit for use“* and that can maintain aquatic ecosystem health on a sustainable basis by protecting the country’s water resources (including marine waters), in a manner allowing justifiable social and economic development. This will be achieved in accordance with the hierarchy of decision-making for water quality management, namely *„prevent waste, minimise waste, and dispose responsibly“*.²⁰²

²⁰¹ Warren Freedman, White Paper for Sustainable Coastal Development and the Future of the Sea-Shore Act: Note, *OBITER*, Vol. 27, Issue 3 (2006) 585-586.

²⁰² S Taljaard, WAM Botes, SHH Oelofse and P Viljoen, Operational Policy for Disposal of Land-derived Water containing Waste to the Marine Environment of South Africa, *Water SA*, Vol. 32, Issue 4 (2006) 527.

C. White Paper on Integrated Pollution and Waste Management for South Africa: A Policy on Pollution Prevention, Waste Minimisation, Impact Control and Remediation 2000

The goal of the White Paper is to move from end-of-pipe technologies towards a regime that focuses on pollution prevention; waste minimisation; cross-media integration; institutional integration - both horizontal and vertical of departments and spheres of government; as well as on the involvement of all sectors of society in pollution and waste management.²⁰³ The White Paper proposes a number of mechanisms to overcome the challenges of fragmentation, of which the primary one is a legislative programme that will ultimately culminate in new pollution and waste management legislation. One objective of this proposed legislation is to address current legislative gaps and clarify and (re)allocate responsibilities within government for pollution and waste management.²⁰⁴

6.4.6 Provincial ordinances relevant to the regulation of land-based sources and activities

There are ordinances that have been enacted at provincial level which have provisions dealing with fresh water pollution that are relevant to the regulation of land-based sources and activities.

These include:

- Ciskei Nature Conservation Act 10 of 1987;
- Transkei Environmental Conservation Decree 9 of 1992;
- The KZN Nature Conservation Management Act 9 of 1997 the KZN Nature Conservation Board with primary functions including the management of nature conservation in KZN and also within protected areas in the province. The Act also established the KZN Nature Conservation Service (EKZN Wildlife) with the function to carry out the day-to-day operation of nature conservation in KZN and as such is accountable to the Nature Conservation Board,²⁰⁵
- The Land Use Planning Ordinance 1985 as amended in 2004 provides for decision making regarding land use and planning issues, including applications for rezoning, subdivision and the amendment of relevant structure and/or spatial plans promulgated. Most

²⁰³ The White Paper is found in Government Gazette 20978 2000-03-17. Louis J Kotzé, Revisiting the South African Integrated Pollution Prevention and Control (IPPC) Regime: A Critical Survey of Recent Developments, *South Africa Public Law, Vol. 22, issue 1 (2007) 44-45*.

²⁰⁴ Ibid 45.

²⁰⁵ Chapter three and four of the Act, www.kzndae.gov.za/Portals/, Accessed 2011.

planning applications received by municipalities and/or the provincial planning and environmental department are in terms of this Ordinance and include applications for departure from, rezoning or subdivision and appeals against planning decisions taken by a municipality.²⁰⁶

- The Cape Nature Conservation Board Act 15 of 1998 allows for the establishment of the Cape Nature Conservation Board (or Cape Nature). The objective of the Board is to promote and ensure nature conservation and related matters in the province, render services and provide facilities for research and training in connection with nature conservation and related matters in the province, and generate income in pursuing the objects of the Board, within the framework of any applicable policy determined by the responsible Minister or the provincial cabinet.²⁰⁷
- The Cape Nature and Environmental Conservation Ordinance (No. 19 of 1974, as amended in 1999). Although this Ordinance applies principally to terrestrial land, by analogy it can be extended to estuaries because it refers to inland waters (which in turn include tidal rivers or estuaries).²⁰⁸
- The Western Cape Planning and Development Act 7 of 1999 provides guidelines for the future spatial development in the Western Cape Province in such a way as will most effectively promote the orderly development of the area as well as the general welfare of the communities concerned.²⁰⁹

6.5 Institutional frameworks overseeing the regulation of land-based sources and activities

South Africa has established a number of institutions for the management of the coast, the marine environment and their resources. Their administrative powers cover a wide range of environmental issues such as environmental management, natural resource management, pollution prevention, waste management and conservation of biodiversity. These institutions are national departments that have been created to administer and implement the different environmental legal frameworks, policies and by-laws mentioned above. Each national

²⁰⁶ www.capetown.gov.za/en/planningandbuilding/Publications/, Accessed 2011.

²⁰⁷ National Programme of Action for Protection of the Marine Environment from Land based Activities (note 31) section 3, pg 3.

²⁰⁸ Ibid.

²⁰⁹ Ibid.

department administers two or more laws and policies on the environment relevant to the regulation of land-based sources and activities. Also, some national departments have regional and provincial offices for easy administration of laws. These departments are outlined below.

A. Department of Environmental Affairs (DEA)

This is the lead agent for environmental governance in South Africa in accordance with the National Environmental Management Act (NEMA). The Department in conjunction with other departments regulating the environment develop and set national policies, norms, standards, strategies, frameworks and capacity building for environmental governance.²¹⁰ The Department has a sub-directorate dedicated to oceans and coasts.²¹¹ The mandate of the sub-directorate is the management, development, sustainable use and orderly exploitation of South Africa's marine and coastal resources, as well as protecting the integrity and quality of the marine and coastal ecosystems.²¹² Its activities are focused on marine resource management, marine research, vessel deployment and management, integrated coastal management, monitoring, control and surveillance, and the management of the marine living resources fund.²¹³ Licensing of land-based effluent discharges to the coastal environment is administered by the sub-directorate.²¹⁴

In 2005, the then Minister for Environmental Affairs launched the WIO-LaB project²¹⁵ at both national and provincial level, and then created two task teams to give effect to the objectives of the project at local government level.²¹⁶ The Department, after the launch of the WIO-LaB project, developed a National Programme of Action (NPA) in collaboration with key role players to address issues affecting the protection of the coastal and marine environment from land-based sources and activities. The NPA has identified 14 priority issues that will be

²¹⁰ DEAT www.environment.gov.za Accessed 2011.

²¹¹ Ibid.

²¹² Fifteen Years: A Review of the Department of Environmental Affairs and Tourism (note 19) 102.

²¹³ Ibid.

²¹⁴ *National Guideline for the Discharge of Effluent from Land-based Sources into the Coastal Environment*, Department of Environmental Affairs (2014) 23, Pretoria, South Africa, RP101/2014, www.environment.gov.za/, Accessed 2014.

²¹⁵ WIO-LaB means 'Addressing Land based Activities in the Western Indian Ocean Region'. This project has already been discussed in chapter four, pg 80, sub heading 4.5.2.

²¹⁶ UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 159) 55.

addressed over the next few years.²¹⁷ In implementing and enforcing the various laws and policies affecting the coastal and marine environment, it has a number of vessels, patrol boats, aircrafts and a spotter plane which patrols the coastline up to the 200 nautical mile limit including the remote off-shore parts of South Africa's EEZ and around the Prince Edward Islands in the Southern Ocean.²¹⁸

B. Department of Water and Sanitation (DWS)

DWA administers the National Water Act 36 of 1998 and the Water Services Act 108 of 1997. It is mainly responsible for the formulation and implementation of policies governing this sector. It also has an overriding responsibility for managing water services provided by local government.²¹⁹ It has a sub-directorate called 'Water Quality Management', which takes care of pollution issues emanating from land-based activities, from both point and non-point sources.²²⁰ It also has a chief directorate called 'Water Use and Conservation'. Under this directorate, a programme called 'Water Resources Management' (WRM) was developed to ensure that water resources are protected, used, managed and controlled in a sustainable and equitable manner by minimizing the impacts of waste discharge and disposal, and other land-based activities on water resources and the establishment and maintenance of a national water resource monitoring and management system.²²¹

C. The South African Maritime Safety Authority (SAMSA)²²²

It is responsible for ensuring maritime safety, managing ocean-going vessels that are of local and international origin and also responsible for implementing and enforcing a number of international conventions on protection and preservation of the coastal and marine environment.²²³ The responsibilities of SAMSA in preventing pollution occurring in the coastal and marine environment include:

²¹⁷ Fifteen Years: A Review of the Department of Environmental Affairs and Tourism (note 19) 108.

²¹⁸ Ibid 109.

²¹⁹ The Department of Water and Sanitation, www.dwa.gov.za/about/, Accessed 2015.

²²⁰ UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 159) 55.

²²¹ South Africa's Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (note 21) 18.

²²² Section 2 (1) of the South African Maritime Safety Authority Act 5 of 1998 established SAMSA as a statutory authority, making it a juristic person capable of suing and been sued in its own rights.

²²³ Ibid (note 21) 20.

- enforcing technical and operational standards for all shipping operations in South African waters and for South African ships anywhere, to promote responsible operations in terms of seaworthiness, safety and pollution prevention;
- managing national capability to respond to marine pollution incidents and other maritime emergencies;
- public awareness and education in marine safety and pollution prevention; and
- participating in the development and implementation of national and international maritime safety and marine environment protection standards.²²⁴

D. Transnet National Ports Authority (TNPA) and Ports Regulator of South Africa

The vision of TNPA is to be a transformed, collaborative port authority that leads economic growth in a world class port system. Ports Regulator of South Africa and TNPA were separated so as to separate operational functions from landlord functions to optimize benefits and potentials of private/public sector partnerships while at the same time reigning in state ownership of this essential part of national infrastructure. The TNPA is responsible for managing and controlling all commercial seaports including development of port infrastructure and environmental management.²²⁵ The functions of the Ports Regulator of South Africa include exercising economic regulation of the ports system in line with government's strategic objectives, promoting equity of access to the South African commercial seaports and to the facilities and services provided by these ports, monitoring the activities of TNPA to ensure that it performs its functions, and hearing complaints and appeals.²²⁶

E. Department of Energy

The Department is responsible for ensuring exploration, development, processing, utilisation and management of South Africa's mineral and energy resources.²²⁷ Its aim is to formulate energy policies, regulatory frameworks and legislation, and oversee their implementation to ensure

²²⁴ Ibid.

²²⁵ UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 159) 55; Transnet National Ports Authority website, www.transnetnationalportsauthority.net/, Accessed 2015.

²²⁶ Ibid.

²²⁷ What we do, The Department of Energy, www.energy.gov.za, Accessed 2015.

energy security, promotion of environmentally-friendly energy carriers and access to affordable and reliable energy for all South Africans.²²⁸

F. Department of Minerals Resources

The Department grants prospecting and mining rights for the purpose of mining minerals in both onshore and offshore environments. These permits include conditions of preventing pollution of the coastal and marine environment. It administers the Mineral and Petroleum Development Act 28 of 2004.²²⁹

G. Department of International Relations and Cooperation

This Department negotiates and signs international multilateral and bilateral conventions and agreements including those relating to the protection and preservation of the coastal and marine environment.²³⁰

H. The Council for Scientific and Industrial Research (CSIR)

This is a leading scientific and technology research, development and implementation organisation in Africa. It is a statutory authority constituted under the Scientific Research Council Act 46 of 1988. It undertakes and applies direct research and innovations in science and technology to improve the quality of life of people. Its research and development core operating units draw together skills from research fields and scientific disciplines to address national needs such as pollution of the coastal and marine environment.

6.6 Coastal provincial and local authorities

These authorities administer certain national laws assigned to them. One such law is the Sea-shore Act 21 of 1935. However, the Sea-shore Act has been repealed by the NEM: ICM Act of 2008, but the NEM: ICM Act stipulates that the sections that have been assigned to provinces are

²²⁸ Strategic Plan 2015-2020, Part B, The Department of Energy (2015) 16, www.energy.gov.za/files/, Accessed 2015.

²²⁹ See also pgs 137-139, subheading 6.4.4.B on more discussion on the Mineral and Petroleum Resources Development Act. Ibid.

²³⁰ South Africa's Plan for the Implementation of the Stockholm Convention on Persistent Organic Pollutants (note 21) 15.

not repealed.²³¹ These sections are to be administered by both coastal provincial and local authorities.²³² Coastal local authorities are also responsible for monitoring the coastal and marine environment for pollution incidences.

6.7 Environmental institutional framework structures meant to enhance integration and cooperative governance at national, provincial and local government levels

A. National level

To support the Department of Environmental Affairs (DEA) in enhancing co-operative governance between the different departments involved in environmental management, a statutory body has been established called MinMEC. This is an inter-ministerial committee that comprises of national ministers and provincial ministers or MECs of environmental affairs.²³³ This committee is set up to aid co-ordination between the national DEA and provincial environmental departments at ministerial level.²³⁴ They consider all matters that require MinMEC decisions and agree at a technical level before matters are tabled at committee meetings.²³⁵ In the meetings, the development of national policy and legislation relating to matters affecting the environment is discussed as well as the implementation of these policies. Other matters for discussion should be the co-ordination and alignment of strategic, and performance plans as well as the priorities, objectives and strategies across national, provincial and local governments. This structure can only contribute to the enhancement of integration and co-operative governance if the meetings are attended regularly by delegates who have the authority to make decisions. They should also discuss performance in order to detect failures and to propose preventive or corrective action.²³⁶

The second statutory body established is the Ministerial Technical Committee (MinTEC) for the environment. This is also set up to facilitate co-ordination between the national DEA and

²³¹ Schedule 1 of the NEM: ICM Act 24 of 2008, www.greenhart.co.za/, Accessed 2011.

²³² Ibid.

²³³ MINMECs coordinate the Ministers for environment and Members of the Executive (MECs); National Programme of Action for Protection of the Marine Environment from Land based Activities (note 31) section 5, pg 2.

²³⁴ RF Fuggle and MA Rabie (Note 48) 81.

²³⁵ Fifteen Years: A Review of the Department of Environmental Affairs and Tourism (note 19) 129.

²³⁶ L P Malan (note 49) 1144-1145.

provincial environmental departments. Several technical working groups meet regularly to discuss and advise on issues of biodiversity and heritage, impact management, pollution, waste management, planning, reporting and a working group that deals with cross-cutting issues.²³⁷ Working Group 8 (WG8) deals with oceans and coasts and is chaired by the Chief Director: Integrated Coastal Management of DEA: Oceans and Coasts. WG8 is attended by key national agencies, representatives from provincial lead agents for ICM, science councils, and conservations bodies, amongst other.²³⁸ MinTEC activities include the development and implementation of the five-year strategic plan for the environment sector (2008 to 2013), which sets out the priorities for the sector from a departmental perspective. It also collaborates with provincial departments responsible for the environment and the department's public entities at both national and provincial level.²³⁹

B. Provincial level

Provincial environmental departments are the primary bodies entrusted with environmental governance at provincial level. The structure for environmental management at provincial level are not separate: it is usually one department managing different sectors of the environment, such as development planning, tourism, pollution, nature conservation and agriculture.²⁴⁰ But there are some provinces that have establish various statutory bodies for various functional areas.²⁴¹ These provincial environmental departments are allowed to promulgate laws for protected areas, conservation areas or nature reserves in their provincial jurisdictions (for instance Western Cape and KZN have established nature and conservation areas respectively).²⁴²

C. Local government level

Local government is seen as the pillar of service delivery while its constitutional directive requires it to carry out business in a way that is consistent with sustainable development

²³⁷ National Programme of Action for Protection of the Marine Environment from Land based Activities (note 31) section 5, pg 2; RF Fuggle and MA Rabie (note 48) 81.

²³⁸ South Africa's National Coastal Management Programme (note 6) 47.

²³⁹ Fifteen Years: A Review of the Department of Environmental Affairs and Tourism (note 19) 129.

²⁴⁰ Ibid 82.

²⁴¹ Provinces such as Western Cape and Kwazulu-Natal.

²⁴² National Programme of Action for Protection of the Marine Environment from Land based Activities (note 31) section 3, pg 69.

principles and to integrate environmental issues into its planning process. In terms of environmental management and co-operative governance, local government is responsible for implementing environmental policies, plans and programmes of national and provincial government.²⁴³ In terms of the Municipal Systems Act 32 of 2000, municipalities have to prepare Integrated Development Plans (IDPs), which are co-ordinated by the Department of Provincial and Local Government and which must comply with NEMA principles. These are not just local plans of action, but government wide strategic plans of action for integrated development.²⁴⁴ For this reason, the DEA has played an increasing role in supporting local government, including the development of environmental guidelines to merge environmental sustainability with the IDPs of local government.²⁴⁵

Despite all these mechanisms put in place in all the spheres of government, fragmentation still occurs and departments are taking responsibility for their own decision-making on matters regarding the environment.²⁴⁶

6.8 Additional institutional framework structures meant to enhance integrated coastal zone management

Chapter 5 of NEM: Integrated Coastal Management Act 24 of 2008 (ICM) created additional institutional frameworks concentrating explicitly on the coastal and marine environment. Chapter five empowers the Minister of Environmental Affairs to establish a National Coastal Committee (NCC) and determine its powers.²⁴⁷ The overall aim of the committee is to promote integrated coastal management and effective co-operative governance within each sphere of government, between different spheres of government and between organs of state and other parties concerned with coastal management. Pending the establishment of an official national institutional structure for coastal management, under the ICM Act, WG8 fulfills the role. In this regard, a term of reference has been developed and adopted for this working group.²⁴⁸ Section 35(3) stipulates that the NCC is to develop National Coastal Management Programmes (NCMP)

²⁴³ RF Fuggle and MA Rabie (note 48) 82.

²⁴⁴ Ibid 129-130.

²⁴⁵ Ibid 130.

²⁴⁶ Willemien du Plessis, (note 64) 95.

²⁴⁷ Section 35 (1) of NEM: ICM Act.

²⁴⁸ South Africa's National Coastal Management Programme (note 6) 47.

which are to be implemented according to the Act. Section 45 states explicitly what the NCMP should contain, and some of these components are relevant to the regulation of land-based sources and activities.

These include:

- A national vision and resource objectives for South Africa's coastal marine environment;
- National policies, legislation and best practice guidelines to facilitate effective management of land-based activities, amongst other threats to the coastal marine environment, e.g. from maritime activities;
- National support elements to facilitate effective coastal management in South Africa, e.g. education and awareness campaigns and capacity building initiatives;
- National coastal management objectives; and
- Monitoring and evaluation of the effectiveness of the national coastal programme to support the sustainable management of the coastal marine environment, e.g. National State of Environment/Coast Report.

Section 39 provides that the executive committee (MEC) of the provincial departments of environment in each province should establish Provincial Coastal Committees (PCC).²⁴⁹ Section 47(1) further states explicitly that a provincial coastal programme (PCP) should contain issues such as that addressed in the NCP but modified to suit provincial implementation. PCPs are also to be aligned with and incorporated into other provincial programmes and initiatives so as not to cause any inconsistencies.²⁵⁰ According to South Africa's National Programme of Action, the four coastal provinces²⁵¹ have already set up related structures as proposed by the White Paper for Sustainable Coastal Development in South Africa. These structures are called Coastal Working Groups (CWG). Their functions are to co-ordinate coastal management programmes between provincial departments of environment, other departments and NGOs.²⁵² These CWGs can be converted to PCCs for integration purposes and easy implementation of the Act. Section

²⁴⁹ Section 39 of NEM: ICM Act.

²⁵⁰ Section 47(2) of NEM: ICM Act.

²⁵¹ Northern Cape, Western Cape, Eastern Cape and KwaZulu-Natal Provinces.

²⁵² National Programme of Action for Protection of the Marine Environment from Land based Activities (note 31) section 5, pgs 4-6.

42 empowers metropolitan municipalities and district municipalities that have jurisdiction over any part of the coastal zone to establish coastal committees. Most municipalities already have institutional frameworks in place regulating land-based sources and activities, and other pressures impacting on the coastal and marine environment.²⁵³ These structures can be converted into Municipal Coastal Committees (MCCs) rather than creating separate committees for same purpose. This may enhance integration and co-operative governance at local government level.

Furthermore, while formal coastal management institutions (such as those listed above) remain central to a co-operative governance framework, a governance framework extends wider, requiring additional partnerships with government, business, civil society and the scientific and professional communities. Further, human capital development and empowerment are critical to enhance the capacity of institutions and individuals to undertake effective coastal management programmes.²⁵⁴ Cicin-Sain and Knecht argue that integrated coastal management cannot survive over the long-term without the support of the public (i.e. society outside government).²⁵⁵ Section 93 states that the Minister of Environmental Affairs must progressively, and within the available resources of the Department, make sufficient information available and accessible to the public concerning the protection and management of the coastal zone to enable the public make informed decisions of the extent to which the state is fulfilling its duties in terms of coastal management. Section 83(1)(e) permits the Minister of Environmental Affairs to make regulations stipulating the type and format of data to be submitted to the Department or other organs of state for the purposes of monitoring the coastal environment and the implementation of the ICM Act or maintaining a coastal information system. The most comprehensive oceanographic data system for South Africa, which includes data on the coastal zone, is the Southern African Data Centre for Oceanography (SADCO).²⁵⁶ The Department of

²⁵³ Such as water quality forums, catchment management forums, estuarine forums, pipeline monitoring committees and technical steering committees. Ibid 7.

²⁵⁴ South Africa's National Coastal Management Programme (note 6) 10.

²⁵⁵ Biliiana Cicin-Sain and Robert W. Knecht, *Integrated Coastal and Ocean Management Concepts and Practices* (1998) 20, Island Press, Washington D.C.

²⁵⁶ SADCO is hosted by the Council for Scientific and Industrial Research (CSIR) and is funded by a number of marine organizations in South Africa and Namibia, including the CSIR, South African Navy, Namibian Ministry for Fisheries and Marine Resources, National Research Foundation (NRF) and DEA: Oceans and Coasts. South Africa's National Coastal Management Programme (note 6) 49.

Environmental Affairs maintains a geographic information system (GIS) for the storage and analysis of cartographic (mapped) and related environmental information for use by the Department. Some departmental programmes require the submission of mapped data to a GIS standard.²⁵⁷

Section 83(1)(m) permits the Minister of Environmental Affairs to make regulations on training, education and public awareness programmes on the protection, conservation and enhancement of the coastal environment and the sustainable use of coastal resources. Section 38 however, tasks provincial lead agents to promote, in collaboration with other appropriate bodies and organizations, training, education and public awareness programmes. In practice, awareness and education is a shared responsibility between public, private and civil society sectors. Current efforts by the Department include the International Coastal Clean-up Campaign that takes place in September every year involving large numbers of public participants through a series of regional initiatives, the South African Blue Flag Campaign, an international initiative that encourages municipalities to provide clean and safe beaches for local populations and tourists. NGOs also contribute to the Department's efforts by organizing programmes such as World Wildlife Fund South Africa, the Environment Society of South Africa, Coastwatch (KZN) and Ushaka Sea World and its Education Centre in Durban.²⁵⁸

The DEA, in response to national challenges relating to skills and expertise have developed a Human Capital Development Strategy (HCDS), which arose out of the constitutional imperative for a clean, healthy environment that benefits current and future generations, and the impetus to strengthen opportunities associated with a green economy. Significant to the HCDS is the human resource demands of achieving the Presidential Delivery Agreement for Outcome 10, which focuses on environmental assets and natural resources that are valued, protected and continually enhanced. The HCDS is also directly relevant to provincial and local government strategy and planning. It is vital that the institutions for ICM, both formal and informal, provide input to an oceans and coasts sub-component of the HCDS.²⁵⁹ Sustainable

²⁵⁷ Ibid 49.

²⁵⁸ Ibid 50.

²⁵⁹ Ibid 51.

coastal management is strongly reliant on sound scientific research support, continuously extending and improving information and knowledge bases, and ensuring that new learning are taken up in the coastal management and governance systems. Organized scientific research support in South Africa, including support for coastal management, spans institutions such as the South African Network for Coastal and Oceanic Research (SANCOR), Consortium for Estuarine Research and Management (CERM), South Africa's Water Research Commission (WRC) and the National Research Foundation (NRF).²⁶⁰ Also, coastal research is undertaken at several of the country's tertiary education institutions, science councils (e.g. CSIR), scientific institutions (e.g. SAEON, Southern African Institute for Aquatic Biodiversity, South African National Biodiversity Institute (SANBI) and the Oceanographic Research Institute) and through private consultancies. The DEA is also in the process of preparing a coastal research plan.²⁶¹

6.9 Conclusion

South Africa's coastal and marine environment is a very important sector, especially from an economic point of view, as its economy is dependent on land-based activities such as tourism, port and harbour development, mining, fishing, manufacturing and agriculture. In order to regulate and manage the adverse impacts these land-based activities are having on the environment, it enacted laws, policies and regulatory instruments which, before 1994, were fragmented, sectoral in nature and lacked comprehensive mechanisms to promote co-operative governance. From 1994, it has tried to set in place an integrated style of governance in its environment sector with an emphasis on co-operative governance. This effort started with the enactment of a new constitution that recognised the right to a safe and a healthy environment, necessitating the enactment of various environmental laws (such as NEMA, NWA and the NEM: ICM Act) and policies to enforce this right.

But the promulgation of these new set of laws intensified the fragmentation and disintegration that was inherent in the apartheid laws, in the sense that the new laws enacted are still sector-specific and prescribes a host of procedures, processes and environmental governance mechanisms that cause an overlap of jurisdictions and give rise to confusing authorisation

²⁶⁰ Ibid 53.

²⁶¹ Ibid.

processes and procedures that must be followed by prospective authorisation applicants.²⁶² There are a number of relevant competent government departments/authorities involved, with conflicting mandates and jurisdictions, as well as other legislation that, in addition, may be applicable directly or indirectly.²⁶³ There is sometimes a lack of communication of policy matters both to government officials and other stakeholders.²⁶⁴ There is also the problem of misinterpretation or misunderstanding of policy and legislation, unclear distinction between the roles and responsibilities of role players, inefficient and ineffective decision-making, bureaucracy, uncertainty about which legislation takes precedence and confusion between government officials, which eventually interferes with decision-making on developmental issues.²⁶⁵

Thus, more effort needs to be directed towards enforcing implementation and compliance with laws. Effective implementation may be achieved through adequately skilled and experienced personnel, equipped with the appropriate materials (e.g. vehicles, boats, and so on) and financial resources.²⁶⁶ Strategies may be developed for co-ordinated compliance and enforcement, including the opportunities for collaboration between various departments, authorities and operators.²⁶⁷ Strategies may also be developed to involve coastal local communities in compliance and enforcement efforts.²⁶⁸

The establishment of co-operative governance and sound intergovernmental relations by the Constitution necessitated reviewing institutional structures responsible for managing the environment and creating new ones where necessary. As a result, chapter 3 of the Constitution stipulates that „*an act of parliament must establish or provide for structures and institutions to promote and facilitate intergovernmental relations*“.²⁶⁹ Government departments must work

²⁶² Louis J Kotzé, Integrating Pollution Regulation Regimes: A Comparative Survey of the Finnish and South African Legal Systems, *OBITER* (2007) 443; Jeannie Van Wyk, The Impact of Development on the Environment as Part and Parcel of Integrated Development Planning? *Law Democracy and Development*, Vol. 11, Issue 2 (2007).

²⁶³ Ibid.

²⁶⁴ Willemien du Plessis, (note 64) 107.

²⁶⁵ Ibid 106.

²⁶⁶ Ibid. 107

²⁶⁷ Ibid 51.

²⁶⁸ Ibid 54.

²⁶⁹ Section 41 (2)(a) of the Constitution.

together for the general functioning of the state and the well-being of all the people of the country by ensuring that service delivery is efficient, economic, effective, transparent and accountable. As such, all spheres of government must co-operate with one another by performing their functions in a manner that does not encroach on the functional and institutional integrity of another sphere of government.²⁷⁰ They must assist and support one another, consult each other on matters of common interest, co-ordinate their actions and legislation with one another, and avoid legal proceedings against each other.²⁷¹ In accordance with chapter 3 of the Constitution, NEMA Act 107 of 1998 directed the DEA to be the lead national agency on environmental governance and to also co-operate with other national departments directly or indirectly linked to the environment, in ensuring protection and sustainable development of the environment. Provincial and local tiers of government that have established lead environmental departments should cooperate with the DEA and other national departments in ensuring environmental protection and sustainability.

In preventing pollution of the coastal and marine environment from land-based sources and activities, no institution or semi champion has been established particularly for this purpose. But the DEA and other departments have established in-house structures to work with provincial and local government environmental departments in regulating pollution emanating from land-based sources and activities. However, more work needs to be done in addressing issues such as capacity building, surveillance and monitoring systems, public and private stakeholder participation and public awareness on environmental issues.²⁷² The shortage of skills and human resource capacity can hinder effective environmental management thus, regular ‘in-house-training’ courses on coastal management may be developed for government officials and other authorities responsible for aspects of coastal management in collaboration with tertiary education institutions for accreditation of such training courses in order to assist with capacity building. These institutions may explore expansion of the role of the Working for the Coast Programme to further enhance training and capacity building for coastal management.²⁷³

²⁷⁰ Willemien du Plessis (note 64) 91-92.

²⁷¹ Section 41 of the Constitution. Louise J Kotze, Johan G Nel, W du Plessis and Esmé Snyman (note 49) 78-79.

²⁷² W du Plessis, (note 64) 107-108.

²⁷³ South Africa’s National Coastal Management Programme (note 6) 52.

Meaningful participation by all sectors of society is crucial for effective environmental governance. Also, providing for public participation and input gives society a voice and provides legitimacy to decision-making processes, whereas failing to provide for public input can lead to conflict and resistance. Thus, a hotline may be established where the public and/or stakeholders can report and/or give information concerning protection and management of the coastal and marine environment.²⁷⁴ They may expand on existing awareness raising programmes²⁷⁵ to address specific activities in the coast, such as inappropriate coastal development and the importance of storm water management. A strategy to incorporate coastal issues into school curricula may be developed as well.²⁷⁶

²⁷⁴ Ibid 50.

²⁷⁵ See pages 155-156 above for the existing education and awareness programmes on coastal management.

²⁷⁶ Ibid 51.

CHAPTER SEVEN

KENYA

7.1 Introduction

Map 1: Kenya's map showing its Provinces¹



Kenya is divided into eight provinces² with a population of over 38 million people.³ It is a party to the Nairobi Convention.⁴ Kenya's coastline is 600km long⁵ with a unique ecosystem that is

¹ Source: <http://www.mapsofworld.com/kenya/maps/kenya-political-map.jpg>, Accessed 2010.

² Central Province, Coast Province, Eastern Province, Nyanza Province, Rift Valley Province, Nairobi Province, North Eastern Province and Western Province.

rich in aquatic and terrestrial habitats supporting an array of biological diversity and natural resources.⁶ These habitats are dominated by extensive lowlands, kaya forests, mangrove forests, sandy beaches, sea grass beds, wetlands, coastal mudflats and coral reefs. The lowland and Kaya forests support a diverse array of flora and fauna.⁷ The mangrove forest forms an important nursery for a number of fishes and crustaceans, while it is also a roosting ground for different species of seabirds. The coral reefs are an important fishing ground for artisanal fishermen.⁸ Sea grass beds are an important nursery and breeding ground for reef fish, while various fauna species find suitable sanctuary among the roots of sea grasses.⁹ This rich ecosystem provides food, varieties of recreational resources, construction materials, aesthetic and spiritual values, as well as employment.¹⁰

Kenya's climate along the coast is influenced mainly by large-scale pressure systems of the West Indian Ocean and monsoon winds.¹¹ The monsoon winds blow from the northeast from December to March and from the southeast from May to October. There are four oceanic currents influencing its coastal waters, namely the East African coastal current, the Somali current, the Southern Equatorial current and the Equatorial counter current. These currents are responsible for causing upwelling that bring great numbers of fish to the northern Kenyan coast.¹² Kenya's economy is mainly dependent on tourism, fishing, agriculture,¹³ coastal mining,

³ Kenya National Bureau of Statistics: 2009 population census, www.knbs.or.ke/Census%20Results/KNBS%20Brochure.pdf, with a projection of 70.3 million by 2030; Kenya's State of the Environment and Outlook Report (2010) 3, www.nema.go.ke/ Accessed 2012.

⁴ Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention). See chapter four, pgs 78-85, subheading 4.5.2 for more discussion on the Nairobi Convention.

⁵ State of the Coast Report: Towards Integrated Management of Coastal and Marine Resources in Kenya (2009) 10, www.nema.go.ke/ Accessed 2011.

⁶ West Indian Ocean Preliminary Transboundary Diagnostic Analysis for Land-Based Activities (2002) 54, GEF/UNEP Pdf-B, www.unep.org/ Accessed 2009.

⁷ State of the Coast Report (note 5) 39.

⁸ GEF/UNEP Pdf-B (note 6) 54.

⁹ Towards Integrated Management and Sustainable Development of Kenya's Coast: Findings and Recommendations for an Action Strategy in the Nyali-Bamburi-Shanzu site. Prepared by the Coastal Development Authority, chap two (1996) 41 (Personal Communication).

¹⁰ Robert Kibiwot, Toward the formulation of Kenya's Integrated Coastal Ocean Management Policy Including Institutional Framework, (2007/2008) 40, www.wwan.cn/depts/los/nippon/unfff_programme_home/fellows/ Accessed 2009.

¹¹ State of the Coast Report (note 5) 18.

¹² Ibid 21.

¹³ Including aquaculture and forestry.

shipping and industry. These sectors are a major threat on coastal resources, marine biodiversity and the quality of the coastal and marine environment because they have brought about rapid population growth. Thus, population growth in coastal cities is higher than in any other inland towns.¹⁴ These sectors also account for vital employment opportunities for thousands of people flocking into these areas.¹⁵ This rapid population growth is having adverse impacts on the coastal and marine environment resulting in pollution, degradation, overexploitation and physical alteration and destruction of habitats. Also, unplanned and poorly managed infrastructures, weak sectoral legislation and ineffective enforcement of this legislation contribute immensely to the exacerbation of these adverse impacts.

There are principally two layers of government in Kenya, namely central government and county governors. There are eight provinces in Kenya, and each province is governed by a county governor. There is only one province on Kenya's coastline, called the 'Coast Province'. This province has six districts namely, Mombasa, Kilifi, Kwale, Tana-River, Taita-Taveta and Lamu. The districts are governed by district commissioners.¹⁶ The central government enacts laws for the regulation of land-based sources and activities, and governance of the coastal and marine environment, while the county governors implement these laws through district commissioners.¹⁷

7.2 Economic activities causing pollution of the coastal and marine environment of Kenya

7.2.1 Tourism

Tourism is a key economic activity in Kenya that accounts for 17.9 per cent¹⁸ of its foreign exchange earnings, surpassing coffee and tea export earnings, while coastal tourism accounts for 9.2 per cent of the gross domestic product (GDP).¹⁹ It generates up to 9 per cent of total

¹⁴ More than one third of the population reside in urban areas, with the highest concentration found in cities such as Mombasa, Nairobi and Kisumu. Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (including Financial Instruments), (2009) 9, Prepared by the Coastal Development Authority (Personal communication).

¹⁵ Ibid 23.

¹⁶ Management of the Coast: Administration, pg 97, www.unep.org/eafatlas/, Accessed 2011.

¹⁷ Ibid. The laws enacted are elaborated on from pg 169 below.

¹⁸ Kenya's State of the Environment and Outlook Report (note 3) 12.

¹⁹ SM Mwanguni, National Level Review of GPA Guidelines and the Status of Municipal Waste Management in Kenya, (2008) 7 (Personal Communication with the author); State of the Coast Report (notes 4) 43.

employment in the country.²⁰ Economic activities associated with tourism have attracted more and more people to coastal areas resulting in increased populations there. For instance, the town of Malindi in the Coast Province is totally dependent on tourism, as 90 per cent of its population work in the tourism industry, as is the case in the towns of Watamu, Diani and Mtwapa.²¹ There are growing concerns that this sector is beginning to have negative impacts on the coastal and marine environment as physical alteration of shoreline and destruction of habitats is taking place due to unplanned developments and poorly managed infrastructure. Vast quantities of untreated domestic sewage, waste water and litter emanate from beach hotels and informal settlements which flow directly into the West Indian Ocean.²²

7.2.2 Coastal urbanisation

Kenya's rapid coastal urbanisation is placing high demands on the already inadequate public infrastructure that is available.²³ As more people are moving into coastal towns in search of employment opportunities, roads and other infrastructural developments are not keeping pace. Encroachment on existing residential areas is creating unpredictable influx, while temporary informal settlements are springing up leading to uncontrolled developments.²⁴ Land use policies and plans, though existing, are found to be inadequate in coping with the impact of rapid influx.²⁵ For instance, Nyali, Bamburi and Shanzu in the northern part of the Coast Province, have land use plans that are administered by the Municipal Council of Mombasa but they have become difficult to adhere to because of the unpredictable influx of people.²⁶

²⁰ Kenya's State of the Environment and Outlook Report (note 3) 12.

²¹ Ibid (note 3) 7.

²² Ibid (note 3) 7.

²³ Such as water, electricity, roads and sewerage system. Towards Integrated Management and sustainable Development of Kenya's Coast (note 9) 16.

²⁴ Ibid.

²⁵ For instance, areas where there is no sewage and waste systems, raw sewage and waste are pumped directly into coastal waters untreated.

²⁶ Ibid.

7.2.3 Agricultural activities

Agriculture is the backbone of Kenya's economy, providing employment for 75 per cent of the labour force and accounting for 6.3 per cent of gross domestic product (GDP).²⁷ The coastal region produces vegetables, tropical fruits, aquaculture, forestry and substantial livestock.²⁸ Intensive agricultural activities on the mainland are affecting the coastal and marine environment in such a way that sediment cores are being discharged directly into the West Indian Ocean. Although Kenya's agricultural activities are more subsistent, with very little use of agrochemical products, modern farming methods are beginning to replace traditional forms necessitating the use of agrochemicals on large farms.²⁹ Thus, agricultural run-offs from these farms during rainy seasons contribute significantly to pollution loads of rivers. For instance, in the Kilifi district,³⁰ agricultural run-off from plantations that make use of agrochemicals contributes significantly to the pollution load in the area.³¹ Also, the Tana and Sabaki rivers discharge large quantities of sediment into coastal waters due to soil erosion, partly as a result of tillage in their respective catchment areas.³²

7.2.4 Mining activities

Mineral extraction and quarrying of iron ore, lead, limestone, gypsum, coral stone, clay, sand and rock salt occur along the Kenyan coast on a large scale.³³ For instance, the quarrying of limestone is done on a large scale for the cement factories in the Bamburi and Kaloleni areas,³⁴ while rock/pan salt extraction is carried out at Gongoni in Malindi in the Coast Province.³⁵

²⁷ Overview of Land-based Sources and Activities Affecting the Marine, Coastal and Associated Freshwater Environment in the Eastern African Region, UNEP Regional Seas Reports and Studies No. 167, (1998) 9, www.iwlearn.net/publications/regional-seas-reports/unep-regional-seas-reports-and-studies-no-167

²⁸ For example, there are two large scale aquaculture farms that are currently being developed along the coast. Ibid.

²⁹ Approximately 56 tons of fertilisers and 24 tons kg of pesticides are applied annually in the districts of Mombasa and Lamu. TM Williams, J Rees, KK Kairu, AC Yobe, Assessment of Contamination by Metals and Selected Organic Compounds in Coastal Sediments and Waters of Mombasa, Kenya, (1996) 37, *British Geological Survey Technical Report WC/96/37*, Accessed 2011.

³⁰ In the Coast Province. Management of the Coast (note 16) 97.

³¹ TM Williams, J Rees, KK Kairu, AC Yobe, Yobe (note 29) 37.

³² AJ Mmochi and J Francis, Land Based Activities and Sources of Pollution to the Marine, Coastal and Associated Fresh Water Ecosystems in the Western Indian Ocean Region, (2003) 4, www.oceandocs.org/bitstream/ Accessed 2011.

³³ State of the Coast Report (note 5) 52.

³⁴ In the Coast Province. Management of the Coast (note 16) 97.

³⁵ UNEP Regional Seas Reports and Studies No. 167 (note 27) 16.

Mining on the coast contributes significantly to ecosystem damage as entrapment of fine particulate matter find their way into water columns, leading to the deaths of corals.³⁶

7.2.5 Industrial activities

The level of industrialisation in Kenya's coastal area is accelerating in an unprecedented manner due to port and harbour development, food processing, metal, textile and shipping activities. This acceleration is caused by the emphasis placed on industrial development at national level.³⁷ Increase in port and harbour activities has necessitated the development or expansion of new ports and harbours, requiring dredging in the near-shore or marine environment vicinity. Dredging and direct dumping of dredged spoils adversely affect the delicate marine environment and associated ecosystems.³⁸ The discharge of untreated food and beverage processing chemicals,³⁹ heavy metals and inadvertent oil spills from industrial and shipping activities flow directly into near-shore waters. For example, industries around the Kilindini harbour and port Reitz discharge their waste directly into near-shore waters, while the more hazardous wastes are disposed of in the Kibarani dumpsite. Leachate is already entering into the creek and adversely polluting the groundwater system.⁴⁰ There are also reported elevated concentrations of lead, zinc and copper in waters around this area and suspended particulate matter along the reef front between Nyali and Mtwapa.⁴¹

7.2.6 Fishing

Coastal communities in Kenya depend on fishing and the mangrove forest for their livelihood.⁴² The inshore marine environment is very rich in marine organisms due to the upwelling system. Fishing mostly takes place along the reef and sea grass as most fishermen are artisanal and this is causing overexploitation as many of the fishermen prefer to fish inland because they only

³⁶ Corals grow in clear waters and are extremely sensitive to pollution, whether due to chemical contaminants or suspended sediments. Ibid (note 27) 7 and 16; GEF/UNEP Pdf-B (note 6) 97.

³⁷ State of the Coast Report (note 5) 55.

³⁸ UNEP Regional Seas Reports and Studies No. 167 (note 27) 17.

³⁹ For instance in Mombasa the annual total biochemical oxygen demand (BOD) load was estimated to be 25,800 tons and 72% comes from industrial effluents, while 94% of this estimate is from food and beverage processing industries. Ibid 12.

⁴⁰ Ibid 11.

⁴¹ AJ Mmochi and J Francis (note 32) 6.

⁴² State of the Coast Report (note 5) 50.

possess simple fishing tools.⁴³ There have been reports of abusive fishing practices where fishermen use pesticides, dynamites and poisons in catching fish.⁴⁴ Dynamite is used to scare fish (mainly lobsters) from crevices in coral rocks and results in the destruction of coral reefs that may have been formed over many years. Leaves and other materials which sedate or kill fish, which then float in the water and are easy to catch, are also used.⁴⁵ This has raised questions on whether these fish are fit for human consumption.⁴⁶

7.3 Impacts of economic activities on the coastal and marine environment of Kenya

The signs of degradation, pollution and overexploitation are evidence that Kenya's coastal and marine environment is under intense pressure from land-based sources and activities. Proliferation of waste, discharge of chlorinated swimming pool water from hotels on coastal waterfronts, direct discharge of chemicals and waste from industries situated along the coast, rapid development of inadequate infrastructure are seen as growing problems. Beaches have been polluted, natural beach vegetation removed, coral reefs destroyed, marine habitat degraded, and there has been loss of nesting habitat for turtles and declines in fish reproduction. High density population of septic tanks and soakage pits necessitated by the unplanned human population increase into coastal areas has resulted in pollution of freshwater and potable water supplies through faecal contamination.⁴⁷ Elevated concentrations of nutrients such as nitrate, phosphorus and fertilizers have been noticed in municipal drainage systems and near creek systems resulting in eutrophication including a decline in dissolved oxygen concentrations of freshwater and near coastal waters⁴⁸ and siltation is taking place due to agricultural activities.⁴⁹

In addition, the elevated concentrations of lead, zinc and copper in waters along the reef front in Nyali and Mtwapa areas have been associated with flushing of ship tanks in the ports and harbours. The petroleum refinery in Changamwe produces a considerable amount of hazardous

⁴³ Ibid.

⁴⁴ David Kamweti, Deborah Osiro and Donald A. Mwiturubani, Nature and Extent of Environmental Crime in Kenya, *Institute for Security Studies Monograph 166 (2009) 28.*

⁴⁵ Ibid 28-29.

⁴⁶ Kenya's State of Environment and Outlook Report (note 3) 19.

⁴⁷ State of the Coast Report (note 5) 60; David Kamweti, Deborah Osiro and Donald A. Mwiturubani (note 44) 25-26.

⁴⁸ Ibid.

⁴⁹ UNEP Regional Seas Reports and Studies No. 167 (note 27) 7-17; GEF/UNEP Pdf-B (note 6) 54.

sludge contaminated with oil marcaptans, tetraethyl lead and rust, which is disposed of on immediate agricultural land within the refinery area.⁵⁰ Water quality is not monitored regularly because of financial constraints and the absence of monitoring systems. More than half the population does not have proper sanitation facilities. No more than 30 per cent of the present 142 urban areas have sewerage systems due to financial and planning deficiencies.⁵¹

7.4 Legislative frameworks regulating land-based sources and activities

Kenya enacted several laws for particular sectors and activities taking place in the coastal and marine environment before 1999.⁵² These sectors and activities include tourism, agriculture, mining, port development, land reclamation, mangrove management (because of fishing activities) and damming of rivers. The reason for this form of regulation was that government believed that these sectors and activities are high income yielding, and as such should be given priority.⁵³ Other sectors and activities that might have negative impacts on the coastal and marine environment were neglected. In addition, the 1963 Constitution lacked provisions on protection and governance of the environment, and as such overexploitation of coastal and marine resources, uncontrolled destruction of coastal and marine habitat and pollution of water and water catchment areas spiralled out of proportion.⁵⁴ Also, quite a number of these sectoral laws had become out dated and could barely cope with current pressures affecting the coastal and marine environment.⁵⁵

From 1999, Kenya started reforming its environmental legislative and institutional frameworks by repealing out-dated laws, amending and enacting new laws to deal with upcoming trends of pollution and establishing effective institutional structures for environmental management. Examples of new laws enacted include the Environmental Management and Coordination Act (EMCA), which is the framework legislation on environmental management and the new Constitution, which entrenched protection of the environment in its provisions.

⁵⁰ Ibid (note 27) 7.

⁵¹ David Kamweti, Deborah Osiro and Donald A. Mwiturubani (note 44) 9.

⁵² State of the Coast Report (note 5) 66.

⁵³ Review of the Policy, Legal, Regulatory and Institutional Frameworks for the Land Based Sources and Activities Management in the Western Indian Ocean Region, UNEP/GEF WIO-LaB Technical Report Series No 5 (2009) 10.

⁵⁴ A new constitution was enacted in 2010 and is elaborated on below. Ibid 10.

⁵⁵ State of the Coast Report (note 5) 66.

However, most of these laws are sectoral and the institutional framework is still fragmented, with key environmental laws and regulations still lacking.⁵⁶ The new Constitution, EMCA and the various sectoral laws that have been enacted for the regulation of the coastal and marine environment are outlined below.

7.5 Legislation directly relevant in regulating land-based sources and activities

A. The Constitution of Kenya, 2010

The Constitution has now made provisions for the protection and governance of the environment (including the coastal and marine environment). Article 42 states:

every person has the right to a clean and healthy environment, which includes the right to--

- a) have the environment protected for the benefit of present and future generations through legislative and other measures, particularly those contemplated in Article 69; and*
- b) to have obligations relating to the environment fulfilled under Article 70.*

It also emphasised in chapter five the need for sustainable utilization, development, exploitation, management, and conservation of natural resources and the environment, and elimination of processes and activities that are likely to endanger the environment including protecting ecological sensitive areas.⁵⁷ The Constitution provides access to the courts for the sake of protecting the environment in chapter ten by declaring that *if a person alleges that a right to a clean and healthy environment recognised and protected under Article 42 has been, is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter*.⁵⁸ The court may then give order or directions---

- a) to prevent, stop or discontinue any act or omission that is harmful to the environment;*
- b) compel any public officer to take measures to prevent or discontinue any act or omission that is harmful to the environment; or*

⁵⁶ David Kamweti, Deborah Osiro and Donald A. Mwiturubani (note 44) xii.

⁵⁷ Section 69 of the Constitution, www.parliament.go.ke/ Accessed 2011.

⁵⁸ Article 70(1) of the constitution.

- c) provide compensation for any victim of a violation of the right to a clean and healthy environment.⁵⁹

In addition, the fourth schedule of the Constitution clarified the functions of the national government and the county governments. National government is responsible for protection of the environment and natural resources with a view to establishing a durable and sustainable system of development in the areas of fishing, hunting and gathering, protection of animals and wildlife, water, hydraulic engineering, the safety of dams, securing sufficient residual water and enacting an energy policy. The county governments are responsible for implementing specific national government policies on natural resources and environmental conservation, including soil, water and forestry conservation. The inclusion of these provisions is expected to pave the way for enacting specific laws on pollution prevention, protection of the coastal and marine environment, and preservation of natural resources.

B. Environmental Management Coordination Act No. 8, 1999 (EMCA)

The objective of EMCA is to provide an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto. Section 42 provides for the protection and preservation of rivers, wetlands, lakes and the coastal zone. It prohibits dumping of any substance that is likely to have adverse effects on rivers, lakes, wetlands or the coastal zone, and it imposed stringent penalties for breach of this provision.⁶⁰ Section 55(6) and (7) relates particularly to land-based sources and activities. It mandates the Minister in consultation with lead relevant agencies to issue appropriate regulations for the control and prevention of pollution of the marine environment including rivers, estuaries, pipelines and outfall structures from land-based sources, vessels, aircrafts and other engines used in coastal zones, and installations and devices used in the exploration or exploitation of natural resources of the seabed and subsoil in the EEZ. Section 54(2) empowers the Minister to issue general and specific orders, regulations or standards that include management, protection or

⁵⁹ Section 70(2) of the Constitution.

⁶⁰ Section 55(5) EMCA. The penalty for this offence is the payment of a fine not less than one million shillings or to imprisonment not exceeding two years or to both fine and imprisonment.

conservation measures to protect areas that are at risk of environmental degradation.⁶¹ A regulation has been promulgated in 2003 to this effect, titled ‘The Environmental (Prevention of Pollution in Coastal Zone and Other Segments of the Environment) Regulation’. Section 54(1) and 55(1) empowers the Minister to cause contingency plans to be developed for the prevention and control of deliberate and accidental discharge of pollutants into the sea, lakes or rivers.

Furthermore, section 55(2) mandates the National Environmental Management Authority (NEMA) in consultation with other relevant lead agencies to prepare a coastal survey, which will be used to prepare an integrated coastal zone management plan (ICZMP). The aim of the ICZMP is to encourage methods that would be effective in managing and protecting the marine and coastal environment and associated fresh water catchments, especially estuaries.⁶² Section 58(1) states that no project must be executed without submitting an EIA report to the appropriate authority, while section 58(7) requires that EIA guidelines and procedures be enacted so that any project that requires an EIA must follow the procedures and guidelines laid down.⁶³ The Environmental Impact Assessment and Auditing Regulation was promulgated in 2003,⁶⁴ stipulating ways in which EIA and Audits reports can be conducted. The Regulations also provide for adherence to standards, mitigation measures and environmental management plans (EMPS) that outline how polluting agents can be contained.⁶⁵ In addition, section 72 prohibits pollution of waters from toxic, noxious poison, radioactive or other pollutants. For further enforcement of this section, Water Quality and Waste Management Regulations were promulgated in 2006. The Water Quality Regulations control the discharge of effluents, provide for standards and the basis and mechanisms for compliance and enforcement against effluent discharges.⁶⁶ EMCA also provides for environmental restoration orders, environmental conservation orders and environmental easements contained in part IX, in which case, anybody polluting a water body has to bear the consequences of these orders.

⁶¹ The Environmental (Prevention of Pollution in Coastal Zone and Other Segments of the Environment) Regulation, www.elaw.org/system/files/, Accessed 2011.

⁶² UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 53) 12.

⁶³ Categories of projects requiring EIA are listed in the Second Schedule to the EMCA Act, they include Urban Development, dams, rivers and water resources forestry related activities, agriculture, waste disposal and natural conservation areas.

⁶⁴ Ibid (note 53) 12; State of the Coast Report (note 5) 66.

⁶⁵ SM Mwanguni (note 19) 13.

⁶⁶ Ibid (note 19) 15; State of the Coast Report (note 5) 57.

C. The Water Act No. 8, 2002

The Act regulates all matters concerning management, conservation, use and control of water resources. Section 94(1) prohibits the pollution of water resources, controls the discharge of industrial effluents into the ocean and other water bodies, and actions that deplete and degrade the quality of water which ultimately ends in the marine environment.⁶⁷ Section 2(1) also prohibits the pollution of any water resource whose physical, thermal, chemical and biological properties may have been indirectly altered, which makes it

- less fit for any beneficial purposes for which water may reasonably be expected to be used;
- harmful or potentially harmful to the welfare, health and safety of human beings; and
- any aquatic or non-aquatic life or property, and the environment.

Sections 49 and 50 cannot be overlooked as they define water supply and sewerage pollution prevention strategies, which are necessary in regulating land-based sources and activities. Section 49(i) provides that the Minister is expected to formulate and publish a national water strategy that has the objective of ensuring a programme that ensures extension of sewerage services to every area of Kenya. The National Water Resources Management Strategy (NWRMS) was published in 2006 outlining amongst other things, pollution prevention approaches to water quality management, which involve reducing pollution at source, recycling waste to reduce the quantity and/or toxicity, and to minimise present and future threats posed by hazardous substances to human health and the environment. In relation to regulating land-based sources and activities, the NWRMS recommends that a precautionary approach be adopted which aims to minimise or prevent the entry of pollutants into any water environment.⁶⁸ Section 73 further allows a licensee meant to provide water services to make regulations for the purpose of protecting against degradation of water resources. A licensee is usually a water services board,⁶⁹ but the board can contract one or more agents to exercise and perform all or any of its

⁶⁷ Estuaries have been identified as some of the primary sources of pollution of coastal zone www.kenyalaw.org/kenyalaw/, Accessed 2011.

⁶⁸ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 18.

⁶⁹ Section 53(1) of the Water Act.

powers and functions under the licence, and such agent or agents are to be known as water service providers.⁷⁰

In addition, section 75(1) allows a licensee to construct and maintain drains, sewers and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing pollution of water sources within his/her jurisdiction. Similarly, no person is allowed to discharge trade effluents from any trade premises into sewers of a licensee without consent of the licensee upon application indicating the nature and composition of effluents, maximum quality anticipated, flow rate of the effluent and any other information deemed necessary.⁷¹ The consent shall be issued on conditions including payment of rates for discharge as may be provided under section 77. The Act also makes provisions for catchment protection and protection of wells and springs that occur in forests and further supports community involvement in the management of these catchments.

D. Coast Development Authority Act, Cap 449, 1992

This Act was enacted with the aim of establishing an authority that will plan and coordinate the implementation of development projects in the Coast Province and in the EEZ.⁷² Section 8(6) is relevant to the regulation of land-based sources and activities as it mandates the authority to develop an up-to-date long-range development plan for the Coast Province and the authority must work closely with the Department of Physical Planning and Municipal Councils of Mombasa and Malindi in order to promote an ICZM policy within their area of jurisdiction. The Act also mandates the authority to oversee the sustainable development of sectors such as water, forestry, wildlife and tourism in order to ascertain how they affect the ecological changes of the coastal zone.⁷³

E. Physical Planning Act No. 6, 1996

The Act provides for the preparation and implementation of national, regional and local development policies, and guidelines and strategies for sound development of infrastructures.

⁷⁰ Section 55(1) of the Water Act.

⁷¹ Section 76 of the Water Act.

⁷² State of the Coast Report (note 4) 67.

⁷³ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 20-21.

The Act offers control on the use and development of land and buildings. Section 3 defines land to include „*anyland covered with water, and any buildings or other things attached to land, and any interest or right of easement in, to or over land*”. Section 29 empowers local authorities to reserve and maintain all land planned for open spaces, parks, urban forests, marine reserves and green belts. Section 30(4)(a) states that any person who carries out development on any land mentioned above without permission will be required to restore the land to its original condition. It further states that no licensing authority shall grant licenses for commercial or industrial use or occupation of any building without a development permission granted by the respective local authority.⁷⁴ Thus, if in connection with a development application, a local authority is of the opinion that proposals for industrial location, dumping sites, sewerage treatment, and so on, will have injurious impact on the environment, the applicant is required to submit, together with the application, an EIA report.⁷⁵ Enforcement of the provisions of this Act will help alleviate the problem of physical alteration and destruction of habitats (PADH) particularly in coastal and marine reserved areas. For instance, in the towns of Mombasa, Malindi, Watamu and Lamu, rapid social and economic development has resulted in rapid alteration of its habitat due to port dredging, landfills, coastal solid dumps, coastal construction and road building.⁷⁶ The ICZM plan, which the EMCA mandates the National Environmental Management Authority (NEMA)⁷⁷ to prepare cannot be effectively implemented without enforcing and complying with the provisions of this Act (Physical Planning Act).⁷⁸

F. The Fisheries Act, Cap 378, 1991

This Act provides for the development, management, exploitation, utilization and conservation of fishery resources in Kenya. Part X of the Act is relevant to the regulation of land-based sources and activities as it provides for measures on prevention, protection and conservation of fishing waters, and Kenya’s fishing waters include its maritime zones. Section 59 declares Kenya’s entire fishing waters ‘pollution prevention zones’ and its Regulation 60 prohibits the discharge of waste into any of its fishing waters. Section 60(4) provides that offenders of that

⁷⁴ Section 30(5) of Physical Planning Act.

⁷⁵ SM Mwanguni (note 19) 14.

⁷⁶ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 16.

⁷⁷ Section 55(2) of EMCA.

⁷⁸ Ibid (note 13) 16.

regulation be either fined to the tune of 20,000 Kenyan shillings (Kshs) (an equivalent of R2,488) or be imprisoned for up to a year.⁷⁹

G. Maritime Authority Act No. 5, 2006

The Act mandates the Kenyan Maritime Authority (KMA) to ensure collaboration with other public agencies and institutions in preserving the marine environment from pollution and creating quick responses to marine environment incidents.⁸⁰ The KMA would accordingly play a key role in co-ordinating port and shipping activities to reduce incidences of pollution that might emanate from ships and ports. The Act repealed the Maritime Zones Act No. 6, 1989.

7.6 Legislation indirectly relevant in regulating land-based sources and activities

A. Forest Act, Cap 7, 2005

The objective of this Act is to provide for sustainable utilisation of all forest resources including mangrove forests. It directly controls forest activities and transactions, and vested wide ranging management powers in the Minister and the Kenya Forest Service (KFS). Sections 4 and 5 empower the KFS to formulate policies and guidelines for the management, conservation and utilization of all types of forest areas in Kenya. It also created an orderly system of protecting forests as well as rational exploitation of timber and other forest products, including coastal forest resources.⁸¹ In regulating land-based sources and activities, section 54 prohibits the dumping of wastes in mangroves, which was rampant in the past and was not prohibited in the repealed Forest Act of 1992.⁸² Section 41 requires that all indigenous forests and woodlands are to be managed on a sustainable basis for the purpose of conserving water, soil, biodiversity, river line, shoreline and ensuring sustainable production of wood and non-wood products. Section 48 states that the Director-General of NEMA, in consultation with forests authorities, may enter into contractual arrangements with the private owner of any land to register such land as forest land.

⁷⁹ Ibid 24.

⁸⁰ UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 53) 14.

⁸¹ State of the Coast Report (note 5) 59.

⁸² UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 53) 13.

B. Wildlife (Conservation and Management Act), Cap 376, 1976

The Act empowers the Minister in charge of wildlife to declare that a given area is a national park,⁸³ national reserve⁸⁴ or a local sanctuary.⁸⁵ A notice of establishment of such an area is issued through a government gazette and interested parties may submit objections within 60 days after which the confirmed area is to be reported to the National Assembly for confirmation.⁸⁶ Section 7(1) states that the Minister may declare a specific area to no longer be a national park, reserve, local sanctuary or that a boundary has been changed.⁸⁷ No removal or disturbance of any living or non-living marine resources are permitted in these designated areas, except if it is necessary for monitoring or research in order to evaluate management's effectiveness.⁸⁸ The Minister may also demarcate an area surrounding the designated area as a buffer zone to promote protection of wildlife. Fees are chargeable for entry into any park but settlement therein is prohibited.⁸⁹ The Wildlife (Conservation and Management) (National Parks) Regulations promulgated in 2010 has designated some areas as marine parks and marine reserves.⁹⁰ In a marine reserve, some activities such as fishing using traditional methods are allowed while exploration and exploitation of oil and gas are prohibited.⁹¹ Wildlife according to this Act does not include fish species, coral reefs, sea beds, sea mammals, marine reptiles, and so on.

C. Public Health Act, Cap 242, 1986

This Act regulates waste water disposal and management, supply of potable water for human consumption and cleanliness of premises. Section 116 stipulates that it is the responsibility of local authorities to maintain clean and sanitary conditions to prevent occurrence of nuisance or condition liable to be injurious or dangerous to human health through disposing such nuisance into the environment. Section 118 defines nuisance as waste pipes, sewers, drains or refuse-pits in such state, situated or constructed as in the opinion of the medical officer of health to be

⁸³ Section 6 of the Act, www.kenyalaw.org/, Access 2011.

⁸⁴ Section 18(1) of the Act.

⁸⁵ Section 19(1) of the Act.

⁸⁶ Section 7(2) of the Act.

⁸⁷ Section 7 (1) of the Act.

⁸⁸ Section 13 of the Wildlife (Conservation and Management) Act.

⁸⁹ EO Odada, DO Olago, WO Ochol (Eds), Environment for Development: An Ecosystems Assessment of Lake Victoria Basin Environmental and Socio-Economic Status, Trends and Human Vulnerabilities, (2006) 163, <http://start.org/downloads/publications/environment-development.pdf>, Accessed 2011.

⁹⁰ Legal Notice No. 207, www.kenyalaw.org/, Accessed 2011.

⁹¹ State of the Coast Report (note 5) 80.

offensive or injurious to health. Section 118(1) states that any noxious matter or waste water flowing or discharged from any premises into public streets or into gutters or side channel or watercourse, irrigation channel or bed not approved for discharge is also deemed as nuisance. Section 129 provides specifically for pollutants discharged into waters; it states in part that *‘.....it shall be the duty of every local authority to take all lawful, necessary and reasonably practicable measures for preventing any pollution dangerous to health of any supply of water which the public within its district has a right to use and does use for drinking or domestic purposes’*. In addition, section 136 states that all collections of water, sewage, rubbish, refuse and other fluids that permit or facilitate the breeding or multiplication of pests shall be deemed nuisances. The provisions on prevention of pollutants and nuisances to be discharged into watercourses, irrigation channels and other water sources help regulate polluting underground water systems, near shore waters and their ecosystems.

D. Agriculture Act, Cap 318, 1963

The Act mainly deals with soil conservation, fertility, agricultural land use and development. In regulating land-based sources and activities, section 184 empowers the Minister to enact land preservation orders where necessary in order to prevent erosion. Erosion flushes sediments from agricultural lands that are heavily loaded with agrochemicals into near water bodies. The Act has been amended several times in a piecemeal fashion since its promulgation but is still lacking in provisions regulating the use of agrochemicals that contain persistent organic pollutants (POPs) and fertilisers used on farms located on the coast.⁹²

E. Mining Act, Cap 306, 1940

This Act provides the legal and institutional framework for mining in Kenya. The Act was substantively revised in 1987 and has been amended again to reflect the importance and impact of mining in the seabed and the EEZ. In regulating land-based sources and activities, the Act prohibits the discharge of poisonous substances into waterways, and requires the licensing of mining operations in order to control the physical alteration and destruction of habitat due to

⁹² State of the Coast Report (note 5) 70.

mining of sand and limestone in the seabed and EEZ.⁹³ Licensing of mining operations requires that an EIA and audit assessment be carried out, bringing into play the EIA and Auditing Regulation of 2003 and relevant provisions of EMCA on regulating mining activities on the coast.

Other Acts that are indirectly relevant to the regulation of land-based marine pollution include the Fertilizer and Animal Food Stuffs Act, Cap 345, 1967; Pharmacy Poisons Act, Cap 244, 1948, Dangerous Drugs Act, Cap 245, 1966, Irrigation Act, Cap 347, 1967, Tana and Athi Rivers Development Authority Act, Cap 443, 1991, Merchant Shipping Act No. 4, 2009 and Radiation Protection Act, Cap 243, 1982.

7.7 Policy frameworks regulating land-based sources and activities

Kenya has developed a number of policies for regulating land-based sources and activities. These include:

- The 2009-2013 National Environmental Action Plan (NEAP): The plan aims at providing a broad framework for the co-ordination of environmental activities by all actors, i.e. private sector and government, to guide the course of development activities. It is a step towards enhancing integration of the environment into development planning;⁹⁴
- The 2003 EIA Regulations: These provide that any new project that will impact the environment significantly must undergo EIA before commencing;⁹⁵
- The Environmental Audit Regulations 2003 is a compliance monitoring and evaluation tool that measures how well existing projects/facilities are performing with respect to compliance with environmental standards and regulations;⁹⁶
- The 2006 Environmental Management Coordination (Water Quality) Regulations provide that anyone who discharges effluent into the environment or public sewer shall be required to apply for an effluent discharge license. The licence for

⁹³ Ibid 23.

⁹⁴ GW Maina, A Baseline Report for the Kenyan Small and Medium Marine Pelagic Fishery (2012) 7, www.swiofp.net/ Accessed, 2012.

⁹⁵ State of the Coast Report (note 5) 78.

⁹⁶ Ibid.

discharge is Kshs 5,000 (R 528) while the annual licence fee for discharge into the environment is Kshs 20,000 (R2, 109) or Kshs 100,000 (R10, 544) depending on the facility. Non-compliance with the regulations attracts a fine not exceeding Kshs 500,000 (R52, 722) and the polluter pay principle may apply depending on the court ruling;⁹⁷

- The 2006 Environmental Management Coordination (Waste Management) Regulations provide that no person shall engage in any activity likely to generate any hazardous waste without a valid EIA license issued by the National Environment Management Authority;⁹⁸
- The 2011 Integrated Coastal Zone Management Action Plan for Kenya aims to *conserve the coastal and marine environment and to ensure that its resources are utilised in a sustainable manner for the benefit of coastal communities and the national economy*. It also aims to ensure effective and efficient implementation of environmental plans and ensure that they are mainstreamed into development processes;⁹⁹
- The 2009 draft Environmental Policy provides a framework for sound environmental and natural resource governance by mainstreaming environmental considerations into sectoral policies and strengthening regional and international cooperation in environmental management.¹⁰⁰
- The 2004 draft National Land Policy addresses a number of land-based challenges, such as the proliferation of informal settlements, inadequate infrastructural services, environmental degradation, unplanned urban centres and land conflicts.¹⁰¹

⁹⁷ Environmental Laws, Policies and Regulations: Thematic Area 2 (Environmental Regulations and Standards) 56, www.eac.int/ Accessed 2012.

⁹⁸ Ibid 64.

⁹⁹ GW Maina (note 94) 7.

¹⁰⁰ Ibid 7.

¹⁰¹ Sustainable Development in Kenya: Stocktaking in the run up to Rio+20 (2012) 35, www.uncsd2012.org/ Accessed 2012. Report compiled for UN DESA, UNDP and UNCSD.

7.8 Institutional frameworks regulating land-based sources and activities

A. The Coast Development Authority (CDA)

This authority was established under the Ministry of Regional Development Authority. It is a key institution in the regulation and management of Kenya's coastal and marine environment. The CDA's main focus is the sustainability of Kenya's coastal zone as stated in the Act that established it.¹⁰² It has been mandated by the Act to carry out surveys and studies on the promotion of ecological principles, the preservation of the coastal zone from land-based sources and activities, the promotion of sustainable coastal agriculture, co-ordinate and plan coastal development activities to ensure sustainable utilization of coastal resources including those within the EEZ and co-ordinate the process of preparing an ICZM plan.¹⁰³ It is exercising the mandate of preparing an ICZM plan by working closely with a number of government agencies, non-governmental organisations and research institutes.¹⁰⁴

B. The Forestry Department

This department falls under the Ministry of Environment and Natural Resources. In regulating land-based sources and activities, the Department has the responsibility of safeguarding mangrove forest resources from pollution and physical alteration and destruction of habitat. Mangrove forests occupy a fairly large area of the Kenyan coastal zone and therefore constitute a vital coastal resources, but they are experiencing increasing pressure from the timber industry as well as conversion of previously forested areas to agriculture and aquaculture use.¹⁰⁵

C. Tana and Athi Rivers Development Authority (TARDA)

TARDA falls under the Ministry of Regional Development Authority. Its aim is to give advice on the institution and co-ordination of development projects in the area bound and drained by Tana and Athi rivers and their basins and tributaries.¹⁰⁶ The authority has initiated numerous projects in aquaculture, power generation, irrigation and water management, which have a direct impact on the discharge level of these rivers. In regulating land-based sources and activities, the

¹⁰² Coastal Development Authority Act, 1990.

¹⁰³ Section 8 of the CDA.

¹⁰⁴ UNEP/GEF WIO-LaB Technical Report Series No. 5 (note 53) 51.

¹⁰⁵ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 26.

¹⁰⁶ These are the two main rivers flowing into the West Indian Ocean. Section 3 of the Tana and Athi Rivers Development Authority Act, Cap 443, 1974.

authority has undertaken studies on changes of discharge/flow rates of the rivers and the impact this has on the coastal and marine environment.¹⁰⁷

D. Fisheries Department

This department is established under the Ministry of Livestock and Fisheries. It formulates policies and guidelines on fisheries management and development in Kenya.¹⁰⁸ It must also guard against unsustainable exploitation of fish resources and the threats posed by land-based sources and activities on their ecosystem.¹⁰⁹ This is done through licensing of fishing vessels, fish dealers and processors, provision of extension and training services, conducting research and surveys, promoting co-operation among fishermen, promoting arrangement for orderly marketing of fish and value addition, providing infrastructural facilities, stocking waters with fish and supplying fish for stocking. The Department is also responsible for aquaculture development, fish safety and quality assurance.¹¹⁰

E. Kenyan Port Authority

This institution handles imported and exported cargo. It also handles hazardous wastes in accordance with the International Maritime Goods Code, which covers safe handling, classification, storage and transportation of hazardous cargo. It has a pollution control unit that monitors pollution especially relating to oil spillages.¹¹¹

Other key institutions on the regulation and management of the environment include the Kenyan Maritime Authority (KMA), Kenya Marine and Fisheries Research Institute (KMFRI), Kenya Wildlife Service (KWS), the National Irrigation Board and the Municipal Councils of Mombasa and Malindi.

¹⁰⁷ Robert Kibiwot (note 10) 75.

¹⁰⁸ State of the Coast Report (note 5) 74.

¹⁰⁹ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 26.

¹¹⁰ Robert Kibiwot (note 10) 72.

¹¹¹ David Kamweti, Deborah Osiro and Donald A Mwiturubani (note 44) 45.

7.9 Additional Institutional frameworks regulating land-based sources and activities

The enactment of EMCA in 1999 brought about the evolution of Kenya's environmental governance framework. Its aim is to improve environmental co-ordination and fill gaps which existed in previous legal and institutional dispensation. Thus, the *EMCA is declared as an Act of Parliament to provide for the establishment of an appropriate „legal“ and „institutional“ framework for the management of the environment and for the matters connected therewith and incidental thereto.*¹¹² Accordingly, it created key institutional structures for regulating and managing Kenya's environment. The institutions created are referred to as *„lead agencies“* by EMCA¹¹³ and they are outlined below.

A. National Environment Council (NEC)

Section 4 of EMCA established the National Environment Council (NEC). Section 5 states the responsibilities of NEC to include policy formulation, setting of national goals, objectives and priorities for the protection of the environment and the promotion of co-operative governance among government departments, local authorities and other stakeholders. It is empowered to formulate policies, goals and objectives for regulating land-based sources and activities and enhance co-operative governance in effectively managing the coastal and marine environment. The NEC comprises the Minister for Environment, permanent secretaries of ministries and other stakeholder representatives.¹¹⁴ The NEC meets at least four times in every financial year.¹¹⁵

B. National Environmental Management Authority (NEMA)

NEMA was established in year 2000 by section 7 of the EMCA under the Ministry of Environment and Natural Resources to act as an institutional body for general supervision and co-ordination of all matters relating to the environment and to be the principal instrument of government in the implementation of all policies relating to the environment.¹¹⁶ Section 28(1) of

¹¹² Preamble of the EMCA Act.

¹¹³ Section 2 of the Act defines *„Lead Agencies“* as any Government ministry, department, parastatal and State Corporation or local authority in which any law vests functions of control or management of any element of the environment or natural resource.

¹¹⁴ Section 4 of EMCA.

¹¹⁵ Kenya National Profile to Assess Chemical Management (2011) 78, Report developed by the Ministry of Environment and Mineral Resources, www.unitar.org/cwm/ Accessed 2012.

¹¹⁶ Section 9(1) Of EMCA.

EMCA requires NEMA to create a register of those activities and industrial plants and undertakings which have or are most likely to have significant adverse effects on the environment when operated in a manner that is not in conformity with good environmental practices. The Minister responsible for finance may, on the recommendations of the NEC, prescribe that persons engaged in activities or operating industrial plants and other undertakings identified under subsection (1) pay such deposit bonds as may constitute appropriate security for good environmental practice.¹¹⁷ Section 55 further places a duty on NEMA to liaise with other lead agencies in preparing a survey of the coastal zone in order to prepare an ICZM plan. It is also the function of NEMA to prepare annual reports on the state of the environment which must be brought before parliament by the Minister of Environment within specified time limits.¹¹⁸ NEMA has to date considerably developed its human and other resource capacity to enable it to co-ordinate the environmental management activities of lead agencies.¹¹⁹ Sections 11, 12 and 13 define several important powers and competencies of NEMA.

C. Provincial Environment Committees and District Environment Committees

Section 29 of EMCA mandates the Minister to appoint provincial and district environment committees under NEMA. They are responsible for the proper management of the environment within the districts and provinces in which they are appointed.¹²⁰ Hence, they are empowered to ensure that pollution and degradation of the environment (including the coastal and marine environment) under their jurisdiction is not perpetuated. They are also required to develop five-year environment Action Plans which are then incorporated into the National Environment Action Plan.¹²¹ The committees comprise government institutions, representatives of farmers, pastoralists, business community, NGOs and regional development authorities.¹²²

¹¹⁷ Section 28(2) of EMCA.

¹¹⁸ Section 9(3) of EMCA.

¹¹⁹ Environmental Management in Kenya- The Tana River Delta (2003) 303, www.tanariverdelta.org/tana/ Accessed 2011.

¹²⁰ Section 30 of EMCA.

¹²¹ Section 39 of EMCA.

¹²² Kenya National Profile to Assess Chemical Management (note 115) 78.

D. Public Complaints Committee (PCC)

This is a committee of NEMA established by section 31 of EMCA. It is concerned with the investigation of complaints relating generally to environmental damage and degradation. The PCC has powers to investigate complaints against any person or even against NEMA or on its own motion, investigate any suspected case of environmental degradation.¹²³ Thus, a complaint relating to pollution of the coastal and marine environment can be brought before the Committee for investigation. Section 32 of EMCA requires it to submit reports of its findings and recommendations to the National Environment Council (NEC). The law is weak in this respect as it does not provide the PCC with the mandate to see its recommendations carried through.¹²⁴ Moreover, NEC is not specifically required to do anything with regard to the reports submitted and will often not adopt the same without any further follow-up action. In addition, its function include

- identifying and appraising trends in the development of urban and rural settlements, their impacts on the environment, and strategies for the amelioration of their negative impacts; and
- proposing guidelines for the integration of standards of environmental protection into development planning and management.¹²⁵

So far, the PCC has experienced challenges, such as failure to honour summonses, hostility between parties, hostility directed at PCC investigators, lack of understanding of EMCA and abdication of duty by lead agencies.¹²⁶

E. Standards and Enforcement Review Committee (SERC)

This is a committee of NEMA established by section 70 of EMCA. This is a technical committee responsible for the formulation of environmental standards, methods of analysis,

¹²³ The power of the PCC to investigate complaints also has a constitutional status according to article 70(1) of the 2010 constitution, which state that *“If a person alleges that a right to a clean and healthy environment recognised and protected under Article 42 has been is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter”*. See pg 169-170, subheading 7.5.A.

¹²⁴ Environmental Management in Kenya (note 119) 306.

¹²⁵ Section 38 of EMCA.

¹²⁶ Ibid (note 119) 307.

inspection, monitoring and technical advice on necessary mitigation measures.¹²⁷ Certain functions of the committee are relevant to the regulation of land-based sources and activities, namely

- analysing and submitting to the Director-General conditions for discharge of effluents into the environment;
- identifying and recommending to the NEMA areas of research on the effects of water pollution on the environment, human beings, flora and fauna; and
- advising the NEMA to carry out investigations of actual or suspected pollution of water bodies including the collection of data and recommending to the Director-General works necessary for the treatment of effluents before being discharged into water bodies.¹²⁸

The members of the SERC consist of representatives of various relevant government ministries and parastatals that are ‘lead agencies’ as well as those responsible for matters such as economic planning, national development, finance, labour, public works, law and law enforcement. Other members are drawn from public universities, and other government institutions.¹²⁹

F. National Environment Tribunal (NET)

The NET is established by section 125 of EMCA for the purpose of hearing appeals from administrative decisions made by organs responsible for enforcement of environmental standards. An appeal may be lodged by a project proponent upon refusal of granting a licence or for the transfer of his licence under this Act or regulations; the revocation, suspension or variation of his licence; the imposition of any condition, limitation or restriction on his licence; the amount of money which he is required to pay as a fee; and the imposition against him of an environmental restoration order or environmental improvement order.¹³⁰ NEMA may also refer any matter that involves a point of law or is of unusual importance or complexity to the tribunal for direction. The proceedings of the tribunal are not as stringent as those in a court of law and

¹²⁷ Section 71 of EMCA.

¹²⁸ Section 71 of EMCA.

¹²⁹ Environment Management in Kenya (note 119) 307.

¹³⁰ Section 129 of EMCA.

NET is not bound by the rules of evidence as set out in the Evidence Act. Upon the making of an award, NET's mandate ends there as it does not have the power to enforce its awards.¹³¹ Section 130 of EMCA provides that any person aggrieved by a decision or award of NET may within 30 days appeal to the High Court. In addition, the NET is also instrumental in realising the objectives of article 70 of the 2010 Constitution.¹³²

7.10 Conclusion

Kenya's coastal zone is wealthy in both living and non-living resources that support livelihoods and economic development, in addition to providing ecosystem goods and services. These natural resources drive maritime trade, tourism, fisheries, agriculture, mining and other industries that form the economic backbone of the country. Thus, Kenya developed a large body of sectoral laws, policies and strategies in the hope of curbing the environmental degradation that results from their operations, but this approach hasn't yielded the results desired. As such, its recent effort to harmonize these sectoral approaches by enacting the Environmental Management Coordination Act (EMCA, the framework environmental law) is one of many commitments made towards integration and sustainability.

However, the large body of legislation enacted to protect the environment including the coastal and marine environment shows that they may be either weak, partially implemented or legislation does not exist to handle some land-based sources and activities. For instance, the present pollution of water bodies and the marine environment indicates that the Water Act of 2002 is not being strictly enforced because untreated sewage and waste water are still being discharged directly into them.¹³³ The current rate at which rapid industrialization and tourism development are causing physical alteration of the coastal zone and destruction of fragile ecosystems, particularly in the coastal towns of Mombasa, Malindi, Watamu and Lamu, show that the Physical Planning Act of 1996 is partially enforced.¹³⁴ The Forest Act of 2005 now

¹³¹ Ibid (note 118) 307.

¹³² Article 70(1) state that „If a person alleges that a right to a clean and healthy environment recognised and protected under Article 42 has been is being or is likely to be, denied, violated, infringed or threatened, the person may apply to a court for redress in addition to any other legal remedies that are available in respect to the same matter“:

¹³³ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 14.

¹³⁴ Ibid 14.

prohibits the dumping of wastes in mangrove forests, which is laudable as mangrove forest have been dumpsites in the past before the enactment of the Act. But more needs to be done in the sense that mangroves and creeks need to be declared as protected areas according to section 55 (5) of EMCA so that no form of dumping will be allowed. Also, oil spills coming from the Kilindini harbour are usually allowed to flow into the creek and which eventually flow to the mangrove forest near to it. This action has reduced the quality of the waters of the creek and has also destroyed the habitat of the mangrove forest.¹³⁵

The use of agro-chemicals that contain persistent organic pollutants and the issue of agricultural run-offs are not expressly covered by the Agricultural Act, Cap 318, 1965 and thus needs to be amended so as to regulate these issues. The Fertilizer and Animal Food Stuffs Act, Cap 345 needs to be amended to accommodate matters relating to the use of chemicals, poisons, fertilizers and agricultural pesticides.¹³⁶ The Radiation Protection Act, Cap 243, 1982 needs to be amended because it does not prohibit the discharge of radioactive substances which are being dumped directly into the Western Indian Ocean by refineries situated along the coast.¹³⁷

Furthermore, there is no framework law on conservation of marine living organisms and protection of their ecosystems. The Wildlife (Conservation and Management) Act focuses more on conservation of terrestrial wildlife resources as opposed to marine and coastal living resources.¹³⁸ An integrated coastal zone management plan is yet to be developed in accordance with section 55(2) and (3) of EMCA.¹³⁹ An ICM Act is yet to be enacted. An Environmental (Prevention of Pollution in Coastal Zone and Other Segments of the Environment) Regulation¹⁴⁰ has been enacted but it may be necessary to promulgate a framework law in the form of an ICM Act, which may then be supported by regulations, guidelines and standards. The EIA and Audit Regulations enacted in 2003 are said to have only recently started being enforced, and that the public is unaware of the Regulation.¹⁴¹ The enactment of the Water Quality and Waste

¹³⁵ Ibid 18.

¹³⁶ Ibid 19.

¹³⁷ Ibid.

¹³⁸ Ibid 16.

¹³⁹ See pgs 170-171, subheading 7.5.B above for more discussion on section 55 of EMCA.

¹⁴⁰ This regulation was enacted in 2003. See pg 171 above for more discussion on the Regulation.

¹⁴¹ SM Mwangi (note 19) 29. See pg 171 above for more discussion on the EIA and Audit Regulations.

Management Regulations of 2006¹⁴² are also said not to be known to the public and concerned authorities. It is thus necessary to fully implement and enforce existing laws and also work towards enacting a specific coastal and marine legislation which will integrate many of the issues already addressed in the many existing sectoral laws.

In addition, most of the established institutions that are charged with coastal zone management are largely fragmented and unco-ordinated. They are scattered (in the form of in-house structures) in different departmental or sectoral disciplines, such as agriculture, fisheries, port and shipping, municipal government and others. This multiplicity, in the absence of adequate co-ordination mechanisms, makes it difficult to give focused attention to the coastal and marine environment. The fact that there is no specific department dedicated to deal with coastal and marine issues, including land-based sources and activities is clearly an important gap. Also, institutional capacities of the various statutory and government agencies charged with coastal zone management should be strengthened. The most pertinent of these are the municipal councils. Municipal councils on the coast lack proper systems of collecting waste particularly from the informal settlements.¹⁴³ Many of the hotels located in the coastal zone, though, have their own treatment systems, but municipal councils lack the technical capacity to audit or monitor treatment and disposal practices of these hotels.¹⁴⁴ Due to insufficient control, these institutions lack adequate participation from the private, civil and other sectors. Meaning that the institutions are either working in parallel or at cross-purposes with other key stakeholders, thus undermining any efforts to have a more consolidated and consultative approach towards the development, protection and conservation of the coastal and marine environment in Kenya.

¹⁴² Ibid. See pg 171 above for more discussion on the Water Quality and Waste Management Regulations.

¹⁴³ These settlements generate most of the waste that adversely affect the coastal and marine environment.

¹⁴⁴ Substantive Review of Legal, Regulatory, Policy and Institutional Frameworks (note 14) 25; SM Mwanguni (note 19) 27-29.

CHAPTER EIGHT

NIGERIA

8.1 Introduction

Map 1: Nigeria's map showing its 36 States¹



Nigeria, the most populous country in Africa² has a coastline of about 853km with a total area of 923,768sq km and located between latitudes 4° and 14° north of the equator, and longitudes 3° and 14° east of the Greenwich meridian. It is bounded on the west by the Republic of Bénin, in the north by the Republic of Nigèr and in the east by the Federal Republic of

¹ Source: <https://en.wikipedia.org/wiki/Nigeria>, Accessed 2010.

² Nigeria's population figure is about 170 million. Central Intelligence Agency (CIA), The World Fact book, <https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html>. Accessed 2014.

Cameroon.³ On the north-east border is Lake Chad which extends into the Republic of Niger and Chad also touching the northernmost part of the Republic of Cameroon, while in the south, the Nigerian coastline is bathed by the Atlantic Ocean.⁴ The country's coastal zone is dominated by extensive stretches of sandy and mud beaches, lagoons, the Niger delta and many estuaries. The coastal zone stretches inland for a distance of about 15km into Lagos (in the west) to about 150km in the Niger Delta and about 25km east of the Niger Delta.⁵ The zone experiences a tropical climate consisting of a rainy season and dry season.⁶ Its terrain is generally low-lying, resulting in extensive wetlands, mangrove swamps, savannah grasslands and tropical rainforests. Nigeria has the largest area of mangrove forests in Africa and the Niger Delta region provides the best conditions for the widest variety of trees, plants and associated fauna.⁷ This terrain also houses a variety of ecosystems, natural resources and a large human population.

Furthermore, Nigeria possesses ample reserves of crude oil and gas, coal, tin, gold, iron-ore and a range of other mineral resources.⁸ Its large population as well as its economic activities are mostly situated in the states (provinces) located in the coastal zone.⁹ This ecologically sensitive zone is under tremendous pressure caused by factors that are varied and many-sided.¹⁰ For example, the rapid urbanisation of most cities along the coast accounts for the intensity of pollution arising from the many industries that discharge effluents and wastes into rivers, gorges and watercourses. The ineffectiveness of pollution control, poor enforcement

³ Geography of Nigeria, www.wikipedia.org/, Accessed 2011.

⁴ Geography and Map of Nigeria, <http://geography.about.com/library/cia/>, Accessed 2011; Development of Pilot National Programme of Action for the Protection of the Marine Environment from Land based Activities in Nigeria, UNEP/GPA/LBA, Feb (2006) 4 (Personal communication with the Director of National Environmental Standards and Regulations Enforcement Agency).

⁵ UNEP/GPA/LBA (note 4) 4.

⁶ The rainy season is from April-November, while the dry season is from December-March. Geography and Map of Nigeria (note 4) 16.

⁷ EO Oyewo, TO Ajayi, CO Dublin-Green, EA Ajao and LF Awosika, Anthropogenic Activities and their Impact on Aquatic Resources in the Nigerian Coastal Zone, Proceedings of the 5th Session of the Inter-African Committee Oceanography, Sea and Inland Fisheries, Mombasa, Kenya, (1998) 82; Boyowa Chokor, Government Policy and Environmental Protection in Developing World: The Example of Nigeria, Environmental Management Vol. 17, No.1, (1993) 17.

⁸ Boyowa Chokor (note 7) 17.

⁹ 25 percent of the overall population resides in coastal areas. UNEP/GPA/LBA (note 4) viii. There are nine States on Nigeria's coastal line.

¹⁰ About 80 percent of industrial establishments in Nigeria are located in these states. Overview of Land-based Sources and Activities affecting the Marine, Coastal and Associated Freshwater Environment in the West and Central African Region, UNEP Regional Seas Reports and Studies No. 171 (1999) 55, <http://iodeweb1.vliz.be/odin/bitstream/>.

regime and lack of effective sewage and industrial effluents treatment facilities contributes to the problem.¹¹ The low-lying nature of the coastline makes the coastal zone and marine ecosystems particularly vulnerable to sea level rise, flooding and salt water intrusion, thus contaminating fresh water resources.¹² Also, overexploitation of fishery resources, physical alteration and destruction of habitats, coastal erosion and introduction of invasive species are part of the problems experienced in this ecologically sensitive zone.

Nigeria operates a federal system of government with three tiers of government, namely federal (national), state (provincial) and local governments. There are 36 states in Nigeria, each governed by a state governor and 768 local government councils, each governed by a local government chairman. Nine states are located on the coastal zone, namely Lagos (the former capital of Nigeria), Rivers, Cross River, Ondo, Ogun, Edo, Akwa Ibom, Delta and Bayelsa States. According to the Constitution, the federal and state governments are empowered to enact laws for specific sectors of the environment.¹³ In addition, Nigeria is a party to the Abidjan Convention.¹⁴

8.2 Economic activities causing pollution of the coastal and marine environment in Nigeria

8.2.1 Urbanization

The unending rural-urban drift has made population growth a continuous occurrence in coastal areas, resulting in increased pressure on the environment due to poor physical and land use planning.¹⁵ For instance, sand mining has become an activity that is particularly degrading the coastal environment in coastal areas, as the sand mined is used for topping up eroding beaches

¹¹ Amokaye G. Oludayo, *Environmental Law and Practice in Nigeria*, University of Lagos Press, Akoka, Lagos, Nigeria (2004) 424.

¹² Facts on Climate Change in Nigeria: Repercussions for Coastal Zone and Marine Ecosystems, www.nestinteractive.org/, Accessed 2011

¹³ See pgs 196-198, subheading 8.5.A for more discussion on the specific areas of the environment each tier of government is empowered by the constitution to enact laws for.

¹⁴ Convention for the Protection, Management and Development of the Marine and Coastal Environment of the West and Central African Region (Abidjan Convention). See chapter four, pgs 73-78, sub heading 4.5.1 above for more discussion on the convention.

¹⁵ EO Oyewo, et al (note 7) 92.

and sand filling swamps for development projects such as construction of roads, highways and buildings.¹⁶

8.2.2 Oil and gas exploration and exploitation

Nigeria is rated the twelfth largest producer of crude oil in the world and the largest in sub-Saharan Africa,¹⁷ providing 95 per cent of the country's foreign exchange earnings and 65 per cent of its budgetary revenues.¹⁸ Oil and gas operations are concentrated in the Niger delta region¹⁹ with major exploration and exploitation activities taking place onshore, offshore and in deep waters. The Niger delta region is very rich in fish, mullets, shrimps and edible crabs but has now been adversely affected by oil spills and wastewater effluents emanating from the exploration and exploitation activities.²⁰ During exploitation and transportation of crude and refined petroleum products, minor and major accidental spills occur due to equipment failure, vandalism, mud drillings and cuttings, routine tanker operations at jetties, numerous tank farms and related facilities including the discharge of ballast waters.²¹ Oil spills adversely affect coastal and marine resources and even the socio-economics of communities located in the region. Depending on the prevailing meteorological and surface water circulation pattern at the time of a spill, the impact may be felt in areas far from where the spill occurred.²²

8.2.3 Industrial activities

The positioning of industries in Nigeria have been largely influenced by the close proximity of local raw materials, access to sea ports, communication facilities, available labour force and access to market outlets for industrial products.²³ Industries situated in most coastal areas are

¹⁶ UNEP/GPA/LBA (note 4) 21.

¹⁷ See Energy Information Administration, 'Top World Producers 2011', www.eia.gov/countries/index.cfm Accessed 2013.

¹⁸ UNEP/GPA/LBA (note 4) 19.

¹⁹ The Niger-Delta is the most ecologically sensitive region along the coast.

²⁰ Oil spill is responsible for the introduction of exotic macro invertebrates into some estuaries in the region. Review of the State of Aquatic Pollution of West and Central African Inland Waters, (2008) 15, www.fao.org/docrep, Accessed 2008; EO Oyewo, et al (note 6) 92; UNEP/GPA/LBA (note 3) viii.

²¹ EO Oyewo, et al (note 7) 92.

²² Ibid.

²³ These are mostly available in coastal areas so, it is not surprising that about 80 percent of industries in Nigeria are situated in coastal states (provinces) with Lagos State having 80 percent alone. EOA Aina AND NO Adedipe, Environmental Consciousness for Nigerian National Development, FEPA Monograph 3, (1992) 96, Ibadan University Press, Ibadan, Nigeria; UNEP Regional Seas Report No. 171 (note 10) 55; EO Oyewo, et al (note 7) 95.

breweries, soft drink plants, paints, cement, pharmaceuticals, wood and pulp, soap and detergent, food and beverages, plastics and textile industries.²⁴ These industries generate liquid effluents, wastes and emissions that are discharged directly into nearby water bodies (such as rivers, streams, creeks and lagoons) which eventually find their way into the Atlantic Ocean with little or no treatment. These wastes are high in chemical concentrates, for instance, textile industries located along the coast produce waste waters with high concentrations of caustic chemicals and fibrous materials.²⁵ Similarly, discharges from breweries and soft drink plants are highly caustic due to the nature of chemicals used, thereby producing toxic smells and acids. Also, paints, scrap-metal, plastics, pulp and paper industries produce hot effluents which, though devoid of toxic substances, are dangerous to marine life.²⁶ Many of the receiving water bodies around these industries do not possess adequate assimilative capacity for the effluents, hence, ‘coloured’ rivers and streams are seen in Lagos and other coastal and urban areas. These polluted streams and rivers emit noxious odours, while some contain oil.²⁷ The majority of waterborne diseases that occur in coastal areas particularly in the Niger-delta region are as a result of these wastes and effluents.²⁸

8.2.4 Agricultural activities

The high demand for food by the teeming population has necessitated the increase in agricultural activities which can only be met by the use of fertilizers, pesticides and herbicides to improve food production, storage and produce high-quality yields. These herbicides, fertilizers and pesticides contain substances²⁹ that have been banned worldwide by the Stockholm Convention on Persistent Organic Pollutants (POPs)³⁰ but which are still very much in use in Nigeria for various reasons.³¹ The only concern here is that when these substances find their way into

²⁴ EOA Aina and NO Adedipe, *Towards Industrial Pollution Abatement in Nigeria*, FEPA Monograph 2 (1992) 14, Ibadan University Press, Ibadan, Nigeria

²⁵ Ibid.

²⁶ Ibid; EO Oyewo, et al (note 7) 95.

²⁷ Ibid; UNEP Regional Seas Report No. 171 (note 10) 56.

²⁸ The Environment and Sustainable Development in Nigeria, published by the Federal Environmental Protection Agency (1990) 94-95 (Personal Communication).

²⁹ Such as lindane, aldrin, dieldrin, heptachlore and DDT.

³⁰ Nigeria is a party to the Stockholm Convention on POPs, <http://chm.pops.int/Countries/>, Accessed 2011. See chapter three, pgs 55-56, sub heading 3.2.6 for more discussion on the Convention.

³¹ Some are used as vector and pest control while others are used for crop production. The Environment and Sustainable Development in Nigeria (note 28) 95.

coastal waters they become non-degradable, thus persisting in the environment and interfering with biological productions.³² They pose grave health hazards to coastal communities as underground water becomes contaminated and undrinkable (Nigerians rely more on dug wells and boreholes as there is no other source of potable drinking water).³³

8.2.5 Timber and logging activities

This industry is very prominent in coastal areas in Nigeria as there are lots of infrastructural developments going on which necessitates the use of wood, thus producing lots of wood shavings and saw dusts. These are either burnt or dumped directly into surrounding waters where they negatively impact on the recipient environment by altering the hydrodynamic conditions of the ecosystem and smothering of benthos.³⁴ Large mangroves are fast disappearing along the coast due to deforestation for fuel and construction materials. Uncontrolled deforestation renders the environment susceptible to erosion and flooding which has become a prevalent phenomenon.³⁵ Also, loss of mangroves results in loss of biodiversity due to destruction of habitats, nursery and breeding grounds for many commercially important sea foods.³⁶

8.2.6 Introduction of marine invasive species

The discharge of effluents, wastes and toxic substances into surrounding waters with little or no treatment has led to serious disturbance of ecosystems causing eutrophication and depletion of oxygen thereby encouraging the growth of harmful aquatic weeds and floating plants. During the early 1980s an exotic species of plant, *Eichhornia crassipes* commonly called water hyacinth, found its way into the Nigerian marine environment, and between 1984 and 1991, spread fast over a distance of 800km from Lagos to Akwa-Ibom State. The water hyacinth weed

³² Like fishery resources.

³³ The Environment and Sustainable Development in Nigeria (note 28) 8-9; Review of the State of Aquatic Pollution (note 20) 14; UNEP Regional Seas Report and Studies No. 171 (note 10) 60; EO Oyewo, et al (note 7) 95.

³⁴ EO Oyewo, et al (note 7) 95; UNEP/GPA/LBA (note 4) 56.

³⁵ UNEP Regional Seas Report No. 171 (note 10) 60; UNEP/GPA/LBA (note 4) 49.

³⁶ EO Oyewo, et al (note 7) 97.

spreads very quickly, and makes rivers difficult to navigate. The weed has also been found to be a potential vector of disease, since it transports molluscs and insects easily across countries.³⁷

8.3 Adverse impacts of economic activities on the coastal and marine environment in Nigeria

The degradation of the coastal and marine environment from the impact of oil spills, sand filling and mangrove forest conversion (to housing, office complexes and roads) has led to the reduction and destruction of breeding and nursery grounds of prawns, shrimps and shell fish in creeks, swamps, mud flats, river channels and estuaries.³⁸ Also, the rise in industrial and agricultural activities has led to the release into the coastal and marine environment of all sorts of wastes and chemicals that are killing fishery resources and changing their habitat.

8.4 Legislative frameworks regulating land-based sources and activities

The bulk of Nigeria's environmental legislation on protection of the environment is on oil and gas pollution. One worrisome issue, however, is that there is no specific legislation on protection of the coastal and marine environment generally, let alone land-based sources and activities. One is therefore left with no choice than to gather from the few legislative provisions for protection from oil and gas pollution, which though inadequate, are somewhat helpful in the quest for the protection of the coastal and marine environment. These laws, though loosely covering protection of the environment, tend to diminish in their utility in this regard due to the fact that they are issue-specific laws that may not have contemplated the problem of land-based sources and activities directly.³⁹

Nigeria promulgated a framework environmental decree in 1988 as a matter of urgency due to two major incidents that happened in 1987. In one case, one Italian company tried to dump toxic and hazardous waste (made up of mainly PCBs) in a small village 5km away from the coast in former Bendel state (now Delta State). While in the other case, a discovery of drums

³⁷ Christopher O Orubu, Water Resources, Environment and Sustainable Development in Nigeria, *J. Hum. Ecol.*, vol. 19, no. 3 (2006) 178; Ibid.

³⁸ UNEP/GPA/LBA (note 4) 55-56.

³⁹ Nelson Manuel Ojukwu-Ogba and Enabulele Amos Osaigbovo, The Legal Protection of Groundwater Resources in Nigeria, *MLJ*, vol. 13, issue 2, (2009) 292.

containing 3,800 tonnes of carcinogenic and toxic wastes was buried on a farmland in Koko, a riverine settlement in Nigeria.⁴⁰ This incident propelled the government to re-examine its environmental legislative framework as it discovered that there was no adequate legislation to handle this situation, protect the coastal and marine environment from pollution and also conserve its biological diversity.⁴¹ As a result, the federal government enacted the now repealed Federal Environmental Protection Agency (FEPA) Decree no. 58 of 1988 and many other laws on protection of the environment from oil and gas exploration and exploitation.⁴²

The FEPA Decree established the Federal Environmental Protection Agency and vested it with wide powers and functions to make regulations and set national environmental standards in respect of water quality, noise pollution, hazardous substances, air quality and atmospheric protection.⁴³ Thus, FEPA enacted regulations, standards and guidelines in 1991 for regulating pollution emanating from land-based sources and activities.⁴⁴ In 2007, The National Environmental Standards and Regulations Enforcement Agency Act (NESREA) was enacted and this new Act repealed the Federal Environmental Protection Agency Decree no. 58 of 1988. The regulations, guidelines and standards enacted by the repealed FEPA Act were not repealed by NESREA Act but are now referred to as regulations, guidelines and standards enacted under the new NESREA Act. In addition, the name, date and year of enactment of the regulations, guidelines and standards have been changed. The NESREA Act and other legislation relevant in regulating land-based sources and activities are outlined below.

⁴⁰ All the land and water within 500 metre radius of the dumpsite were found to be contaminated, and there were congenital deformities in babies born for upwards of five years in the area after the discovery. Dejo Olowu, Environmental Governance and the Accountability of Non-State Actors in Africa: A Rights-based Approach, *South African Year Book of International Law*, vol. 32 (2007) 271.

⁴¹ Sampson Ebhomi, Environmental Legislation Changes in Nigeria: What Impact on Foreign Investment pg 3, www.geplaw.com/media/ accessed 2011.

⁴² In accordance with the Constitution, the federal government does not have the power to regulate LBSA. See discussion on Constitution below.

⁴³ Section 4 of FEPA Act.

⁴⁴ These regulations are: The Federal Environmental Protection (Effluent Limitation) Regulations 1991; The Federal Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations 1991 and The Federal Environmental Protection (Guidelines on Waste Disposal through Underground Injection) Regulations 1991.

8.5 Legislation directly relevant in regulating land-based sources and activities

A. Constitution of the Federal Republic of Nigeria 1999

The Constitution does not provide for the right to protect and sustainably develop the environment. The only constitutional imperative to protect the nation's environment is contained in chapter II⁴⁵ which provides that, *“the State shall protect and improve the environment and safeguard the water, air, land, forest and wildlife of Nigeria”*.⁴⁶ But this constitutional imperative is not enforceable in a court of law as stated in section 6(6)(c):

...the judicial powers vested in accordance with the foregoing provisions of this section - shall not except as otherwise provided by this Constitution, extend to any issue or question as to whether any act of omission by any authority or person or as to whether any law or any judicial decision is in conformity with the Fundamental Objectives and Directive Principles of State Policy set out in Chapter II of this Constitution....

The rights that are considered enforceable in courts of law are listed in chapter IV,⁴⁷ and the imperative to protect the environment is not included. Also, there are two sets of legislative lists under the Constitution, namely, the Exclusive Legislative List, under which the federal/national government alone is granted powers to legislate, including matters incidental to the matters under the list,⁴⁸ and the Concurrent Legislative List, under which both the federal and the state/provincial governments are granted power to legislate, including matters incidental to the matters under the list.⁴⁹ Protection of the environment is not included in these two lists.

⁴⁵ Fundamental Directive Principles of State Policy.

⁴⁶ Article 20, Chapter II of the 1999 Constitution. www.nigerialaw.org/ConstitutionOfTheFederalRepublicOfNigeria/ Accessed 2011.

⁴⁷ These include the Right to life, Right to dignity of human persons, Right to personal liberty, Right to fair hearing, Right to private and family life, Right to freedom of thought, conscience and religion, Right to freedom of expression and the press, Right to peaceful assembly and association, Right to freedom of movement, Right to freedom from discrimination, Right to acquire and own immovable property, Compulsory acquisition of property, Restriction on and derogation from fundamental human rights, Special jurisdiction of High Court and Legal aid.

⁴⁸ Section 4(1) and (2) of the Constitution. This list is set out in Part 1 of the Second Schedule to the Constitution, they include but are not restricted to drugs and poison, fishing and fisheries (other than fishing and fisheries in inland water ways), national parks, maritime shipping and navigation, mines and minerals (including oil and gas) and interstate water resources including lakes, wetlands and groundwater and other resources that are subject of interstate commerce.

⁴⁹ Section 4(7) of the Constitution. The concurrent legislative list is set out in the 1st column of Part II of the Second Schedule to the Constitution. The list includes making laws to establish research centres for agricultural, industrial, commercial, scientific and technology studies; making laws for the health, safety and welfare of persons employed

Furthermore, in Nigeria, it has become acceptable that any matter that cannot be inserted into either the Exclusive Legislative List or the Concurrent Legislative List automatically falls under a third list called the Residual List.⁵⁰ This list is a coinage of the judiciary and not the Constitution, but it has been recognised as a valid source of legislative power because it is consistently treated as such in both jurisprudence and literatures.⁵¹ Thus, it is deemed that protection of the environment falls under the Residual List.⁵²

However, since jurisdiction over *„mines and minerals, including oil fields, oil mining, geological surveys and natural gas‘*, including matters incidental to these subjects, resides with the federal government as stated in the Exclusive Legislative List, environmental regulation can be said to be a matter incidental to these subjects, provided it relates to environmental protection connected with *„mines and minerals, including oil fields, oil mining, geological surveys and natural gas‘*.⁵³ It can therefore be argued that the regulation of the environmental effects of *„mines and minerals, including oil fields, oil mining, geological surveys and natural gas‘* falls exclusively to the federal legislature since these are incidental to a matter under the Exclusive Legislative List.⁵⁴ Hence, environmental matters incidental only to matters under the Concurrent Legislative List fall to both spheres of government while those that are not connected with matters on either list will fall under the jurisdiction of the state government. From the forgoing, it is clear that regulation of land-based sources and activities is the preserve of state governments

to work in factories, offices or other premises and making laws for the establishment of institutions and bodies for promoting or financing agricultural, commercial or industrial projects.

⁵⁰ Allan Ingelson and Chilenye Nwapi, Environmental Impact Assessment Process for Oil, Gas and Mining Projects in Nigeria: A Critical Analysis, *Law Environment and Development Journal*, vol. 10, No. 1 (2014) 41.

⁵¹ For example in Attorney General of Qgun State v Abeniagba (2002) 2 WRN 52 at 77, The Supreme Court (per Bello JSC) defined the Residual List as „*what was left after the matters in the Exclusive and Concurrent Legislative lists and those matters which the Constitution expressly empowers the Federation and the State to legislate upon have been subtracted from the totality of the inherent and unlimited powers of a sovereign Legislature‘*“, and further declaring that „*[t]he Federation has no power to make laws on the residual matters‘*“; Also Attorney General of Abia State v Attorney General of the Federation (2006) SC 99/ 2005, SC 121/2005, SC 216/2005 (Judgment of 7 July 2006) noting that „*[t]he Constitution of the Federal Republic of Nigeria, 1999, like most Constitutions, does not provide for a residual list. And that is what makes the list residual. The expression emanates largely from the judiciary, that is, it is largely a coinage of the Judiciary to enable it exercise its interpretative jurisdiction, as it relates to the Constitution‘*“. Ibid (note 50).

⁵² Ibid (note 50) 42.

⁵³ Ibid.

⁵⁴ Ibid.

as LBSA are anthropogenic activities that take place in the states and their localities, whose negative environmental outcomes are felt in these jurisdictions.

Furthermore, in protecting, improving and safeguarding the environment, the fourth schedule of the Constitution stipulates the main functions of a local government. These functions include among others licensing canoes; constructing and maintaining drains, roads, streets, other public highways, parks, gardens, open spaces, or such public facilities as may be prescribed from time to time by the House of Assembly of a State; providing and maintaining public conveniences, sewage and refuse disposal; and developing agriculture and natural resources, other than the exploitation of materials, providing and maintaining health services. The functions listed above relate to the environment, which means that local governments must put in place the legal and institutional structures necessary to effectively enforce this provision.

B. The Water Resources Decree 101, 1993⁵⁵

The objective of this decree is to develop and improve the quality and quantity of water resources in Nigeria.⁵⁶ The decree vests absolute ownership, management and administration of the water resources affecting more than one state including underground water within shared courses in the federal government.⁵⁷ Section 20 defines pollution as „*any direct or indirect alteration of physical thermal, chemical, biological or radioactive properties of any water or groundwater so as to render such water or groundwater less fit for any beneficial purpose for which it is, or may be used, or to cause a condition which is hazardous or potentially hazardous to public health, safety, welfare to animal, birds, wildlife, fish or aquatic life or to plants*”. Section 1 however, empowers the federal government to regulate, develop and license all water operators. Sections 5 and 6 make provision for the Minister to prepare pollution prevention plans and regulations for the protection of fisheries, flora and fauna.⁵⁸ In regulating land-based sources and activities, section 8 stipulates that the Minister has the power to prohibit and/or

⁵⁵ This law was promulgated during military rule in Nigeria that is why it is called a decree.

⁵⁶ Section 1 of the Water Resources Decree.

⁵⁷ Section 20 of the Water Resources Decree.

⁵⁸ So far, no pollution prevention plans have been made under this Act. However, the National Environmental Protection (Effluent Limitation) Regulation 2009 was enacted to regulate the discharge of solid, gaseous and liquid wastes into watercourses, lakes, rivers, public drains and the Atlantic Ocean. Please see pgs 204-205 for more discussion on the regulation.

regulate the carrying out of activities on land or water that is likely to interfere with the quantity and quality of water in any watercourse or groundwater. As a result, section 18 makes offenders liable to pay a fine not exceeding N2000 (Naira) (an equivalent of R100) or an imprisonment of six months. The offender is also liable to pay N100 (an equivalent of R5) for every day the activity is carried out.

C. Environmental Impact Assessment Act, LFN 2004

This Act makes it mandatory for all major developmental projects or activities that are likely to have significant impacts on the environment to carry out EIAs before such activities or projects are given final authorisation by authorities.⁵⁹ In regulating land-based sources and activities, the Act classifies projects or activities that need assessment into two categories, namely, mandatory and discretionary projects. EIA must be carried out on every project that falls under the mandatory category. This category is further subdivided into sectors such as waste treatment and disposal, fisheries, forestry, water supply, mining activities, ports development, agriculture/agro allied projects, drainage and irrigation, power generation and transmission, petroleum exploration and exploitation projects, resorts and recreational development projects.⁶⁰ For instance, under the waste treatment and disposal project, an EIA will only be mandatory where the project proponent intends to construct an incineration plant, recovery plant (off site or on site), waste treatment plants, storage facility, composting plant, recovery or recycling plant, municipal solid waste landfill facility, waste water treatment plant and marine outfalls.⁶¹ Section 13 further classified mandatory projects into category I and II, depending on the nature, size or location of the activity. Activities not deemed significant may be subject to an EIA under category II and III, if they are to be implemented in environmentally sensitive areas (ESA) or protected areas (PA) because of its importance or vulnerability. These areas include coral reefs, mangrove swamps, small islands, wetlands and coastal areas, and so on.⁶²

⁵⁹ Section 2 (1) of the EIA Act.

⁶⁰ AG Oludayo (note 11) 550.

⁶¹ Ibid.

⁶² Cyprian Eneh Onyenekenwa, Managing Nigeria's Environment: The Unresolved Issues, *Journal of Environmental Science and Technology* vol. 4, No. 3, (2011) 256; AG Oludayo (note 11) 551.

D. Harmful Waste (Special Criminal Provisions) Act, LFN 2004

This Act prohibits the carrying, dumping and depositing of harmful waste on or in any land, air and water (including the territorial waters) of Nigeria without a licence.⁶³ Anyone found guilty of discharging hazardous wastes into the water resources of Nigeria shall on conviction be sentenced to life imprisonment.⁶⁴ Section 12(2) provides that where death or disease of any kind occurs as a result of dumping or depositing of harmful waste in the environment, the environmental regulatory authority may recover the cost of damage from the polluter and the polluter would be liable to any person who suffers injury as a result of his offending act. Section 6 empowers police officers to search, seize and arrest any suspected offenders without warrant, and any offender discovered will be held strictly liable and their punishment can range from a fine, to restoration of the polluted environment or life imprisonment. This Act was promulgated as a direct reaction to the dumping of toxic wastes in a town in the former Bendel State⁶⁵ by an Italian firm in 1988.⁶⁶

E. The National Environmental Standards and Regulations Enforcement Agency Act (NESREA) No. 25 of 2007

This Act repealed in its entirety the Federal Environmental Protection Agency (FEPA) Decree no. 58 of 1988.⁶⁷ The NESREA Act also dissolved the Federal Environmental Protection Agency and established in its stead the National Environmental Standards and Regulations Enforcement Agency (NESREA).⁶⁸ The NESREA will perform all the functions of its predecessor (FEPA) and every regulation, guidelines and standards enacted by the FEPA Decree are now taken to have been promulgated by the NESREA Act.⁶⁹ The NESREA Act is now the main environmental framework governing protection and development of the Nigerian environment, while the agency is the champion institution responsible for enforcing

⁶³ Section 15 of the Harmful Waste Act.

⁶⁴ Section 1 of the Harmful Waste Act.

⁶⁵ The town is called Koko. Former Bendel State is now Delta State of Nigeria.

⁶⁶ See pg 195, subheading 8.4 for more discussion on this incident.

⁶⁷ Section 36 of NESREA Act.

⁶⁸ Section 1(1) of NESREA Act.

⁶⁹ See pgs 204-207, subheading 8.7.A, 8.7.B and 8.7.D for the Regulations, Guidelines and Standards that were promulgated by FEPA and which are now referred to as Regulations, Guidelines and Standards enacted under NESREA.

environmental legislation.⁷⁰ Section 37 defines pollution as „*man-made or man-aided alteration of chemical, physical or biological quality of the environment to the extent that it is detrimental to that environment or beyond acceptable limits and „pollutants“ shall be construed accordingly*“. In regulating pollution of the environment (including the coastal and marine environment), section 8 (1)(k) empowers the agency to make and review regulations on air and water quality, effluent limitations, control of harmful substances and other forms of environmental pollution and sanitation.⁷¹ Section 27 prohibits the discharge of hazardous substances into the environment without authorisation. This offence is punishable with a fine not exceeding N1 million (equivalent of R50, 000) and an imprisonment term of 5 years. Where the offender is a company, it will pay an additional N50, 000 (equivalent of R25, 000) for every day the offence persists.

8.6 Legislation indirectly relevant in regulating land-based sources and activities

A. The Mineral and Mining Act, LFN 2004

The objective of this Act is to address environmental degradation caused as a result of mining other forms of mineral resources aside from oil and gas.⁷² The Act prohibits a licensee from polluting or causing to be polluted any watercourse in the area within its mining lease or beyond it.⁷³ The licensee is also under a duty of care to ensure that no injurious substances are deposited in the water bodies surrounding its area of operation which will be prejudicial or detrimental to animal or vegetable life.⁷⁴

B. Oil in Navigable Waters Act, Cap 6, LFN 2004

This Act prohibits the dumping of oil into „prohibited sea areas“.⁷⁵ Areas designated as „prohibited sea areas“ are defined in the schedule of the Act to include all sea areas within 50 miles from land (this include shorelines) and within the territorial waters of Nigeria.⁷⁶ It is an

⁷⁰ Sections 2 and 7 of NESREA Act.

⁷¹ See pgs 208-211, subheading 8.7.E-8.7.I for the relevant Regulations that have been enacted by NESREA for combating LBSA.

⁷² Sections 2 and 6 of the Mineral and Mining Act.

⁷³ Section 65 of the Mineral and Mining Act.

⁷⁴ AG Oludayo (note 11) 441.

⁷⁵ Section 1(1) of the Oil in Navigable Waters Act.

⁷⁶ Ibid (note 11) 441-442.

offense to discharge any oil or mixture containing oil from any vessel, any place on land, apparatus used for transferring oil from or to any vessel (whether to or from a place on land or to or from another vessel).⁷⁷ Section 3 makes it an offence also for a ship master, occupier of land or operator of any apparatus for transferring oil, to discharge such into Nigerian waters. This offence is punishable by paying a meagre sum of N2, 000 (an equivalent of R100). Also, ships are required to have anti-pollution equipment on board and to carry with them a record of occasions of oil discharge.⁷⁸

C. Associated Gas Re-injection Act, LFN 2004

The objective of this Act is to control the effect of gas flaring in the atmosphere and address the hazards of atmospheric pollution through gas flaring. It is relevant to the issue of LBSA because it compels companies producing oil and gas to submit preliminary programmes for gas re-injection, detailed plans for implementation of gas re-injection so as to reduce atmospheric pollution and the impact it will have on the coastal and marine environment.⁷⁹ Section 3(1) prohibits any oil and gas company from flaring gas without authorisation. The penalties prescribed for violating this section include forfeiture of concessions and withholding of all or part of any entitlements of the offender by the Minister in charge of Petroleum Resources.⁸⁰

D. Hydrocarbon Oil Refineries Act, Cap 5, LFN 2004

This Act is primarily concerned with the licensing and control of refineries and refining activities. Refineries are positioned onshore which makes it relevant to the regulation of LBSA, since disposal of waste from refining oil hydrocarbons may be discharged with little or no treatment into near water bodies. Section 1 thus prohibits any unlicensed refining of hydrocarbon oils in places other than in a refinery and section 9 requires the operators of the refinery to maintain pollution prevention facilities.⁸¹

⁷⁷ Section 2 and 2(3) of the Oil in Navigable waters Act.

⁷⁸ Section 7 of the Act.

⁷⁹ AG Oludayo (note 11) 69.

⁸⁰ Ibid 69.

⁸¹ A Synopsis of Laws and Regulations on the Environment in Nigeria, www.elri-ng.org/, Accessed 2011.

E. The Federal National Parks Act, Cap 65, LFN 2004

The Act is concerned with the establishment of protected areas used for resource conservation, water catchments protection, wildlife conservation and maintenance of the national ecosystem balance.⁸² Management of national parks are exclusively vested in the federal government.⁸³

8.7 Regulatory instruments relevant in regulating land-based sources and activities

In accordance with the Constitution, regulation of LBSA is the exclusive preserve of state governments⁸⁴ but the two major incidents of 1987 forced the federal government to re-examine its environmental legislative framework and promulgated an environmental decree with an environmental agency that had wide powers to make regulations and set national environmental standards in respect of water quality, noise pollution, hazardous substances, air quality and atmospheric protection.⁸⁵ This agency has thus made and set regulations, guidelines and standards. These relevant to combating LBSA are outlined below.

A. National Environmental Protection (Effluent Limitation) Regulations, 2009

The objective of these Regulations are to limit and regulate the discharge of solid, gaseous and liquid wastes into watercourses, public drains, lakes, rivers and the Atlantic Ocean. The Regulations requires every plant or facility to install and maintain anti-pollution equipment for the treatment of effluents and chemical discharges emanating from such facility.⁸⁶ The anti-pollution equipment must conform to the best available technology (BAT), the best practicable technology (BPT) or the uniform effluent standards (UES). However, the scopes and meanings of the term BAT, BPT and UES are not defined in the regulation.⁸⁷ Regulation 3 requires a facility operator to treat effluent to a uniform level specified in schedule 2 before discharging into public drains, lakes, rivers or underground water. It must furnish the National Environmental Standard and Regulation Enforcement Agency (NESREA) with the composition of any effluent treated.⁸⁸ Regulation 5 further requires every owner of a plant or facility to adopt

⁸² Ibid.

⁸³ Schedule 2, part 1, item 40 of the 1999 Constitution.

⁸⁴ See pgs 196-197 above.

⁸⁵ See pgs 195-196 above for more discussions on the incidents, the environmental decree and agency.

⁸⁶ Regulation 1(1) of the National (Effluent Limitation) Regulation.

⁸⁷ AG Oludayo (note 11) 357.

⁸⁸ Regulation 3(1) of the National (Effluent Limitation) Regulation.

in-plant waste reduction and pollution prevention strategies. This is the first regulation originally enacted under the repealed FEPA Decree no. 58 of 1991 which has now been renamed and re-dated under the NESREA Act of 2007.⁸⁹

B. National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations, 2009

These Regulations complement the above regulation by regulating other aspects of industrial pollution not regulated by the above law. Regulation 15(6) prohibits the discharge of solid and hazardous wastes into watercourses, public drains, lakes, rivers and inland waters. It prohibits the release of hazardous or toxic substances into the air, water or land by any facility or plant beyond limits approved by NESREA.⁹⁰ Regulation 15 requires every facility to obtain permit for discharging effluents above the limits set in this regulation into public drains, rivers, lakes, underground injection or the Atlantic Ocean. Permits are required before any facility could store, treat or transport harmful toxic waste within Nigeria.⁹¹ NESREA will however, revoke the permit of an offender of the above, if the conditions of issuing the permit are not being complied with.⁹² Every plant or facility is required to establish a pollution monitoring unit within its premises and a site pollution control so as to minimise incidences of pollution. Alternatively, such responsibility may be contracted to independent contractors duly approved by NESREA. Compliance with this regulation is made effective by the requirement that every industry must analyse all solid, gaseous and or liquid waste discharged and submit on monthly basis a discharge monitoring report to NESREA.⁹³ This will enable NESREA to monitor and verify compliance as well as maintain records of environmental discharges in any specified facility.

Furthermore, every established or about to be established plant or facility is required to adopt in-plant waste reduction and pollution prevention strategies. Any company whose activities will generate waste must meet this requirement before it can be permitted to commence operation. NESREA is empowered to prevent the commencement of operations of any facility

⁸⁹ See pgs 195-196 above.

⁹⁰ Regulation 1.

⁹¹ Regulation 10.

⁹² Regulation 1(1).

⁹³ Regulation 3.

that fails to meet this requirement where it believes such operations will constitute new point source pollution.⁹⁴ Any solid waste generated by a plant or facility resulting from the operation of pollution abatement equipment must dispose the waste in an environmentally safe manner. Any plant or facility likely to release gaseous, liquid, solid or particulate waste is enjoined to install in its system appropriate abatement equipment in such manner as may be determined by NESREA.⁹⁵ A facility operator is required to maintain contingency plans against accidental release of pollutants, and such contingency plan must be approved by NESREA.⁹⁶ Any unusual or accidental discharges of waste must be reported to NESREA within 24 hours of the occurrence. The facility operator must also set up machinery for combating pollution hazards and maintain equipment in the event of an emergency as well as maintaining a stock of such pollution response equipment that shall be readily available to control pollution hazards in the event of accidental discharges.⁹⁷ Every generator of any waste is liable for the collection, treatment, transportation and final disposal of the waste. The generator of any waste is also responsible for the clean-up, remediation or restoration connected with the waste and payment of appropriate compensation in deserving cases to all affected parties.⁹⁸

The contravention of any provision of this regulation is an offence and any person or body whether corporate or un-incorporated that contravenes any provision of this regulation shall be guilty of an offence and liable on conviction to the penalty specified in section 27 of the NESREA Act.⁹⁹ To secure effective enforcement of this regulation, state and zonal offices of the agency were created and designated as pollution response centres for co-ordinating pollution

⁹⁴ AG Oludayo (note 11) 80.

⁹⁵ Ibid.

⁹⁶ Regulation 5.

⁹⁷ Ibid 81.

⁹⁸ Ibid.

⁹⁹ Section 27(1) provides that *„the discharge in such harmful quantities of any hazardous substance into the air or upon the land and the waters of Nigeria or at the adjoining shorelines is prohibited, except where such discharge is permitted or authorized under any law in force in Nigeria“*. Section 27(2) further provides that *„a person who violates the provisions of subsection (1) of this Section, commits an offence and is liable on conviction, to a fine, not exceeding N1,000,000 (equivalent to R58,000) or imprisonment for a term not exceeding 5 years“*. In addition, Section 27 (3) state that *„Where an offence under subsection (1) of this section is committed by a body corporate, every person who at the time the offence was committed was in charge of the body corporate shall be deemed to be guilty of such offence and shall be liable to be proceeded against and punished accordingly provided that nothing contained in this subsection shall render any person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence“*. www.nesrea.org/uploads/, Accessed 2011.

response activities. Each state is expected to designate buffer zones in industrial layouts and shall ensure that such buffer zones are rigidly kept away from developers through constant monitoring.¹⁰⁰ This is the second Regulation originally enacted under the repealed FEPA Decree no. 58 of 1991 which has now been renamed and re-dated under the NESREA Act of 2007.¹⁰¹

C. Petroleum (Drilling and Productions) Regulations, 2009

These Regulations place restrictions on a licensee from using land within 50 yards of any building, dam, reservoir and public roads.¹⁰² Regulation 25 requires a licensee to adopt all practicable precautions, including the provision of up-to-date equipment approved by the Director of Petroleum Resources to prevent the pollution of inland waters, rivers, watercourses (including the territorial waters of Nigeria) or the high seas by oil, mud or other substances which might contaminate the water, banks or shoreline or which might cause harm or destruction to fresh water or marine life. A licensee is under statutory obligation to maintain all apparatus, appliances, boreholes and wells capable of producing petroleum in good condition.¹⁰³ It also requires it to carry out all its operations in a manner accepted by the Director of Petroleum Resources as amounting to good oil field practice and take all steps practicable to control the flow and to prevent the escape of avoidable waste of petroleum and prevent the escape of petroleum into any water, well, spring, river, lake reservoir, estuary or harbour.¹⁰⁴

D. National Environmental Guidelines on (Waste Disposal through Underground Injection), 2009

The Guidelines regulate the underground injection of solid and hazardous waste and wastewater with a view of improving the environmental quality of underground water. It prohibits the disposal of oil wastes by underground disposal except by methods ordered by NESREA in response to an application filed by an operator. The operator must show that the disposal operation will not allow movement of fluid into sources of fresh underground or surface water

¹⁰⁰ Ibid 82.

¹⁰¹ See pgs 195-196 above.

¹⁰² Regulation 17(1)(b) of the petroleum drilling and production regulation.

¹⁰³ AG Oludayo (note 11) 442.

¹⁰⁴ Ibid 443.

and the integrity of disposal wells must be proven and monitored.¹⁰⁵ Authorisation for the discharge of liquid and solid waste will only be granted by NESREA if it is proven that waste will be contained in a suitable receiving zone and disposal will not contaminate freshwater, cause waste to migrate to the surface, impair the mechanical integrity of the disposal well and damage a producing or potentially producing formation or impair the recovery of oil and gas.¹⁰⁶ The company requesting authorisation shall prove its capabilities in the knowledge of well integrity and underground structure, comply with monitoring and reporting requirements ensure that best management practices are applied and an EIA is conducted in accordance with the EIA Act.¹⁰⁷ These Guidelines are relevant in regulating land-based sources and activities because they will improve the environmental quality of underground water system. This is the third Regulation originally enacted under the repealed FEPA Decree no. 58 of 1991 which has now been renamed and re-dated under the NESREA Act of 2007.¹⁰⁸

E. National Environmental (Wetlands, River banks and Lake Shores) Regulations, 2009

The key objectives of these Regulations that are relevant to the regulation of land-based sources and activities include providing for the conservation and wise use of wetlands and their resources in Nigeria, ensuring water catchments conservation and flood control, ensuring the sustainable use of wetlands for ecological and tourism purposes for the common good of the citizens, ensuring the country's wetlands are protected as well as the habitats and species of fauna and flora and minimizing and controlling pollution.¹⁰⁹

F. The National Environmental (Watersheds, Mountainous, Hilly and Catchment Areas) Regulations, 2009

These Regulations control activities in mountainous, hilly and catchment areas that are inconsistent with good land management practices especially in areas prone to landslides, floods, drought, desertification, siltation, heavy sediment loads, falling rocks, fires and damage by

¹⁰⁵ Ibid 438-439.

¹⁰⁶ Ibid 439.

¹⁰⁷ Ibid.

¹⁰⁸ See pgs 195-196 above.

¹⁰⁹ E Oladipo, Towards Enhancing the Adaptive Capacity of Nigeria: A Review of the State of the Country's Preparedness for Climate Change Adaptation (2010) 17, <http://boellnigeria.org/>.

wind.¹¹⁰ These Regulations are structured into three parts and three schedules. The first part provides for regulations on watersheds, mountainous, hilly, and catchment areas in Nigeria.¹¹¹ These Regulations include identification of major watersheds, registration and restriction on the use of watersheds, mountainous and hilly areas, delineation of roles, prevention of fires in watersheds, mountainous and hilly areas, land use mapping, afforestation and reforestation as well as grazing of livestock.¹¹² The second part deals with provisions relating to offences, penalties and appeals.¹¹³ The third part covers general matters relating to interpretation, citation and schedules.¹¹⁴ The schedules deal with request and application formats for registration and permits to carry out activities in watersheds, mountainous, hilly and catchment areas.¹¹⁵

G. The National Environmental (Sanitation and Wastes Control) Regulations, 2009

These Regulations are relevant to the regulation of LBSA as the aim is to adopt sustainable and environmentally friendly practices in sanitation and waste management in order to minimise pollution.¹¹⁶ Part one deals with issues pertaining to food, market and industrial sanitation, and all categories of wastes generated therein, especially, community, end-of-life, hazardous, health care, industrial, radioactive, leaf and yard, solid and packaging wastes.¹¹⁷ Part two deals with matters relating to the polluter pays principle and banned pesticides or chemicals for domestic

¹¹⁰ Ibid 16. Regulation 1 state that *“every land owner or occupier, while utilizing land in a watershed, mountainous, hilly or catchment area shall: observe and respect the carrying capacity of the land; carry out measures for soil conservation and for the protection of water catchment areas; use the best available environmentally friendly technologies to minimise significant risks and damage to ecological and landscape aspects”*. It further state that *“the Agency shall, with respect to watersheds, mountainous, hilly and catchment areas in a particular environment, control activities, which are inconsistent with good land management practices especially in areas prone to landslides, floods, drought, desertification, siltation, heavy sediment loads, falling rocks, fires and damage by wind”*.

¹¹¹ Regulation 12, defines the term *‘watershed’* to mean the total land area that drains directly or indirectly into a particular stream or river; *‘mountain area’* to mean an area with steep elevation with a restricted summit area projecting 600 metres or more above the surrounding land; *‘hilly area’* to mean an area with a natural elevation of land of the local area and a well-defined outline higher than a rise and lower than a mountain usually not less than 300 metres but not up to 600 metres above the surrounding land; and *‘catchment area’* to mean an area from which rainfall flows into a river, stream, lake, reservoir or other water bodies including the tributaries and the entire basin draining into the water body.

¹¹² Muhammed Tawfiq Ladan, *‘Review of NESREA Act 2007 and Regulations 2009-2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria’*, *Law Environment and Development Journal No. 128*, (2012) 129.

¹¹³ Regulations 10-11.

¹¹⁴ Regulations 12-14.

¹¹⁵ Ibid (note 112) 130.

¹¹⁶ Regulation 2. These Regulations are divided into seven parts with eighteen schedules.

¹¹⁷ Ibid (note 112) 130.

fumigation.¹¹⁸ Part three provides for detailed provisions on the control of solid waste, effluent discharge, hazardous and health care wastes.¹¹⁹ Part four provides for roles and responsibilities of the federal, state and local governments by emphasising the need for co-operative governance.¹²⁰ Part five seeks to ensure effective implementation of these Regulations and promote stakeholder involvement in environmental sanitation through public and private sector strategic alliances on approved intervention programmes, enforcement action and notices, offences and penalties.¹²¹ The schedules provide for (a) guidelines for approved permissible limits for waste water discharge, waste water treatment facility, labelling and packaging of hazardous wastes containers, and (b) quality standards for sources of domestic water, lists of banned pesticides, standards for the disposal of industrial effluents, types of hazardous waste, list of hazardous characteristics under the UN Code, categories and treatment methods of, and national colour code for health care waste.¹²²

H. The National Environmental (Mining and Processing of Coal, Ores and Industrial Minerals) Regulations, 2009

The purpose of these Regulations is relevant to combating LBSA as it aims to minimize pollution from the mining and processing of coal, ores and industrial minerals.¹²³ Regulation 2 requires new development in mining and processing techniques so as to apply up-to-date, efficient cleaner production technologies in order to minimise pollution to the highest degree practicable. Part two deals with matters relating to monitoring pollution, control, mitigation and enforcement as well as incentives.¹²⁴ Part three deals with treatment of effluent, management of oil station and fuel dumpsites, permits, polluter pays principle and emergency response plans.¹²⁵ Part five deals with matters relating to industrial wastewater monitoring and reporting requirements, duty of the Agency to ensure compliance with conditions, enforcement notices and

¹¹⁸ Regulations 3-22, including matters relating to general cleanliness, duties of owners and occupants of properties and premises, citizens obligations and extended producer's responsibility.

¹¹⁹ Regulations 103.

¹²⁰ Regulations 63-65.

¹²¹ Regulations 66-104.

¹²² See Schedules 1-18.

¹²³ Regulation 1. Ibid (note 112) 132.

¹²⁴ Regulations 4-9. This Part also deals with general permits, equity and community relations.

¹²⁵ Regulations 10-14.

reminders.¹²⁶ Parts seven and eight deal with offences and penalty under effluent limitations,¹²⁷ while parts nine to 13 deal with emission limitations, noise pollution and control, guidelines and codes of practice, audiometric testing and compliance verification as well as interpretations and citations.¹²⁸ The schedules deal with effluent limitation standards, format for annual effluent monitoring reports, best practices, polluter pays principle, emergency response plans, monthly effluent discharge monitoring report format, incident report form, guidelines for preparing environmental management plan, fugitive emission sources, emission quality standards for conventional pollutants, emission limits for specific pollutants, operating procedures/measures for fugitive emission control plans and noise standards or permissible noise exposure levels.

I. The National Environmental (Food, Beverages and Tobacco Sector) Regulations, 2009

These Regulations are relevant in combating LBSA as the aim is to prevent and minimise pollution from all operations and ancillary activities of food, beverages and tobacco companies.¹²⁹ Part one deals with matters relating to environmental governance, planning, emergency response plans, installation of anti-pollution equipment, polluter pays principle, best practices, pollution control organisational systems, buy-back or extended products stewardship programme, chemical usage, banned or restricted chemicals, permits, management of oil station and fuel dump sites, effluent limitation standards, restrictions on the release of toxic effluent, treatment of effluent and sludge, disposal standards, emission and emission control, treatment technologies, noise standards and abatement and noise monitoring.¹³⁰ Part two deals with sampling procedures in relation to collection and analysis of samples, spot and composite sampling¹³¹ for physical or chemical parameters, sampling for licence classification, microbiological analysis, air analysis and for other parameters as well as noise measurements.¹³² Parts three to nine deals with the procedures for licensing and permits, industrial effluent or air

¹²⁶ Regulations 18-27.

¹²⁷ Regulations 28-29.

¹²⁸ Regulations 30-48.

¹²⁹ Regulation 1. These Regulations have nine parts and thirteen schedules.

¹³⁰ Regulations 1-25, This part also deals with issues such as hearing conservation program, equity and community relations.

¹³¹ Regulation 54 defines the term 'spot sampling' as 'sample of liquid or sediments obtained at a specific depth inside a tank using a bottle. Spot samples are analyzed to determine the gravity of oil, base sediment and water fluid in the tank'.

¹³² Regulations 26-33.

emission monitoring and reporting requirements, duty of the Agency to ensure compliance with conditions or enforce¹³³ the Regulations, the nature and scope of offences,¹³⁴ penalty, incentives, interpretation and citation.¹³⁵

The schedules provide for effluent limitation standards for the sector, permissible sludge disposal limit, air emission guidelines for the sector, soil quality standards, permissible noise exposure levels/standards, best practices, a list of banned and restricted chemicals, a guide template for emergency procedures in the industry, guidelines for preparing environmental management plan (EMP), guidelines for consumer products stewardship programmes, organisational system and the functions of pollution control manager(s), Agency compliance flag award and monthly discharge monitoring report.

Other Regulations enacted include the National Environmental (Textile, Wearing Apparel, Leather and Footwear Industry) Regulations, 2009, whose purpose is to prevent and minimise pollution from all operations and ancillary activities from the industry to the Nigerian environment.¹³⁶ It contains the same provisions enacted for the Food, Beverages and Tobacco sector outlined above. The National Environmental (Chemical, Pharmaceutical, Soap and Detergent Manufacturing Industries) Regulations, 2009, whose purpose is to prevent and minimize pollution from all operations and ancillary activities from the chemicals, pharmaceuticals, soap and detergent manufacturing sector into the Nigerian environment.¹³⁷ The National Environmental (Domestic and Industrial Plastic, Rubber and Foam Sector) Regulations, 2011, whose aim is to prevent and minimise pollution from all operations and ancillary activities of the domestic and industrial plastic, rubber and foam sector into the Nigerian environment, including the control of volatile organic compounds.¹³⁸ These Regulations also contain the same provisions enacted in Food, Beverages and Tobacco sector and in the chemicals, pharmaceuticals, soap and detergent manufacturing sector. The National Environmental (Coastal

¹³³ This includes enforcement notices and reminder as well as suspension of permit under Regulations 41-43.

¹³⁴ Offences include contravention of permit condition, false statement, discharge of effluent beyond permissible level. Regulations 44-48.

¹³⁵ Regulations 49-54.

¹³⁶ Regulation 1. The Regulations consists of nine parts and fifteen schedules.

¹³⁷ Regulation 1.

¹³⁸ Regulation 1.

and Marine Areas Protection) Regulations 2011, whose purpose is to provide the regulatory framework for preserving the natural ecological conditions of estuarine systems, barrier island systems and beaches so as to safeguard and perpetuate their natural productivity and their biological, economic and aesthetic values.¹³⁹

8.8 Policy frameworks on protection and preservation of the coastal and marine environment

A. National Policy on the Environment

This policy was formulated in 1989 after an extensive local and international consultation was carried out aimed at formulating a policy that will promote sustainable development. The Policy set in motion strategies for formulating environmental guidelines, standards and regulations for industrial pollution, effluent limitation and solid wastes management. This Policy was revised in 1999 to accommodate new and emerging environmental concerns at that time. This step was taken in response to advancements and developments taking place in areas of science and technology and the need to integrate environmental concerns into the activities of all sectors of the Nigerian economy.¹⁴⁰ The goals of the revised policy that are relevant to regulation of land-based sources and activities are:

- i. Conserve and use the environment and its natural resources for the benefit of present and future generations;
- ii. Restore, maintain and enhance ecosystems and ecological processes essential for the functioning of the biosphere and for the preservation of biological diversity and to adopt the principle of optimum sustainable yield in the use of living natural resources and ecosystems;
- iii. Raise public awareness and promote understanding of essential linkages between environment and development and to encourage individual and community participation in environmental improvement efforts; and

¹³⁹ MT Ladan (note 112) 136.

¹⁴⁰ AG Oludayo (note 11) 77.

- iv. Co-operate in good faith with other countries, international organizations and agencies to achieve optimal use of transboundary natural resources and effective prevention or abatement of transboundary environmental pollution.¹⁴¹

B. National Policy on Erosion, Flood Control and Coastal Zone Management, 2005

This policy seeks to protect the environment from degradation, loss of productive land and negative impacts of flood. It is aimed at ensuring co-ordinated and systematic measures in managing and controlling the hazards of erosion and flooding in order to reduce their impacts on people and the environment. Some of its objectives are relevant to regulating land-based sources and activities, namely subjecting resource users and developers to environmental guidelines in order to reduce vulnerability of the environment to flood and erosion-related disasters, and providing early warning systems to avert the escalation of flood and erosion hazards.¹⁴² In order to regulate soil and water conservation, technical guidelines were produced to ensure minimal soil, coastal and flood disasters. These technical guidelines provide necessary instructions that are to be observed in the execution of projects in order to minimize erosion and flood hazards. The guidelines also cover aspects of planning and location, design features, construction practice, maintenance, research and development.¹⁴³ To implement this policy, an Action Plan has been developed with the aim of promoting the involvement of stakeholders in the prevention and management of erosion and flooding, co-ordinate participation of all tiers of government in service delivery for erosion and flood control, create an efficient institutional arrangement and legal framework for erosion control and flood management, and facilitate sustainable funding mechanisms for effective erosion and flood management.¹⁴⁴

C. National Programme of Action for the Protection of the Marine Environment from Land based Activities (NPA)

The main objective of the NPA is *to ensure the health and sustainable use of coastal and marine resources by responding in a strategic and feasible manner, using targeted, integrated*

¹⁴¹ E Oladipo (note 109) 19.

¹⁴² D Bashir and M Garba., Mainstreaming Disaster Risk Reduction into Sustainable National Water Resources Development Programmes (2007) 5, www.nwri.gov.ng/userfiles/file/, Accessed 2011; E Oladipo (note 109) 24.

¹⁴³ D Bashir and M Garba. (note 142) 6.

¹⁴⁴ Ibid (note 142) 6; E Oladipo (note 109) 24.

*and adequately resourced measures, to both sustained and short term pressures caused by human activities on land*¹⁴⁵. Thus, its fundamental goals include:

- Identifying resources and threats to the environment from land-based sources and activities;
- Providing a flexible mechanism for identifying and addressing priority problems through partnerships and consensus amongst stakeholders;
- Strengthening the public sector's ability to effectively respond to causes of environmental degradation from land-based sources and to ensure the sustainability of the actions and projects in addressing the problem;
- Mobilizing resources and partners (including the private sector) for implementation of specific projects in addressing the problems; and
- Heightening awareness and understanding of the values, benefits and vulnerability of the coastal and marine environment.

In order to realise these goals, the programme came up with an Action Plan that will:

- Compile basic political, socio-economic and demographic information on all littoral states;
- Identify traditional and contemporary occupations as well as dominant industrial activities;
- Evaluate housing, sanitation and health needs;
- Identify key environmental problems and their impacts in the coastal area of littoral states and beyond;
- Identify extant initiatives to address problems so identified;
- Develop problem-solving-specific projects including means of funding; and
- Execute developed projects in order to ameliorate the existing situation.¹⁴⁵

8.9 State legislation regulating pollution emanating from land-based sources and activities

In the exercise of their residual legislative powers, state governments have enacted legislation governing environmental matters within their respective jurisdictions and have established what

¹⁴⁵ UNEP/GPA/LBA (note 4) 1-3.

have been described as ‘complementary enforcement agencies’, typically called State Ministries of Environment and State Environmental Protection Agencies as well as.¹⁴⁶ There are 36 states in Nigeria, nine out of these states are situated on the coast.¹⁴⁷ Each coastal state has established a State Ministry of Environment and a State Environmental Protection Agency with powers to enact laws, regulations, standards, guidelines and procedures for the protection and preservation of the environment. Each coastal state however, has an array of laws that have been enacted to prevent and control pollution of the coastal and marine environment, conserve biodiversity and promote sustainable development. Laws that have been established in these coastal states include:

- Lagos State Environmental Protection Agency Law,
- Lagos State Environmental Pollution Control Law,
- Akwa Ibom State Environmental Protection and Waste Management Agency Law,
- Delta State Environmental Protection Agency Edict,
- Bayelsa State Environment and Development Planning Authority Edict,
- Cross River State Environmental Protection Law,
- Ondo State Environmental Protection Agency Law 2006,
- Ondo State Waste Management Law 2002,
- Ondo State Waste Management (Enforcement and Offences) Provisions Regulations, 2002.

However, the legal framework structures in these states are highly sectoral in nature as laws are enacted in a piece meal fashion. For instance, separate laws have been enacted for waste management, waste disposal, forest management, biodiversity conservation, pollution prevention, pollution control, and so on. Several regulations, standards and procedures have also been enacted to provide guidelines on implementation of these laws, but the resultant effect of enacting laws in a piece meal fashion and also promulgating regulations, standards and procedures is duplication, overlap and fragmentation, which eventually leads to weak enforcement and implementation.

¹⁴⁶ A Ingelson and C Nwapi (note 50) 42.

¹⁴⁷ They are Lagos, Ogun, Ondo, Edo, Bayelsa, Akwa Ibom, Cross River, Rivers and Delta States.

8.10 Institutional frameworks regulating land based-sources and activities

The federal government has established various agencies/ministries to oversee the protection and development of the environment. The institutions relevant to the regulation of land-based sources and activities include the National Environmental Standards and Regulation Enforcement Agency (NESREA), the Federal Ministry of Environment, Federal Ministry of Agriculture and Water Resources, Forestry Research Institute of Nigeria (FRIN), Nigerian National Park Service (NPS), and National Inland Waterways Authority (NIWA). The federal Ministry of Environment is the lead agency over all environmental matters, while state ministries of environment have jurisdiction over environmental issues occurring in their jurisdiction.

A. Federal Ministry of Environment (FME)

The illegal dumping of toxic waste at Koko port in the former Bendel State of Nigeria in 1988 propelled the federal government to establish the Federal Environmental Protection Agency (FEPA) and other environmental agencies for administration of the environment. In 1999, the federal government decided to merge these other environmental agencies with FEPA and renamed it the Federal Ministry of Environment in order to eliminate duplication.¹⁴⁸ The ministry is legally vested with the responsibility of protecting the environment and promoting sustainable development through formulation and implementation of regulatory frameworks.¹⁴⁹ The National Policy on the Environment¹⁵⁰ is one of the instruments developed by the agency to carry out its tasks. The Ministry is made up of the following five departments, namely environmental assessment department, erosion flood control and coastal zone management department, pollution control and environmental health department, forestry department and drought and desertification amelioration department.¹⁵¹

B. The National Environmental Standards and Regulation Enforcement Agency (NESREA)

NESREA is a parastatal under the FME. It is charged with the enforcement of environmental laws, policies, regulations, standards, rules and guidelines in deterring people, industries and

¹⁴⁸Olawunmi Ayodele, Environmental Considerations in Nigerian Agricultural Policies, Strategies, and Programs (2009) 4, www.ifpri.org/sites/default/files/, Accessed 2011.

¹⁴⁹ Collins N. C. Ugochukwu, Jürgen Ertel and Michael Schmidt, Environmental Sustainability and Sustainable Development Issues in the Niger Delta Region of Nigeria, (2008) 155, www.docs.tu-cottbus.de/ Accessed 2011.

¹⁵⁰ See page 213 for more discussion on the Policy.

¹⁵¹ O Ayodele (note 148) 4.

organizations from polluting and degrading the environment.¹⁵² Its objectives are to protect the environment, enforce laws and regulations on the environment, maintain environmental standards, create environmental awareness and engage in partnership for the protection of the environment.¹⁵³ The Agency is headed by a director-general who serves as both the chief executive and chief accounting officer.¹⁵⁴ The agency consists of five departments, each headed by a director.¹⁵⁵ There is also a governing council which is the supreme organ of the agency, headed by a chairman.¹⁵⁶ The agency is empowered to make and enforce regulations regarding national water quality standards,¹⁵⁷ establish effluent limitations for new point sources and review existing ones, watershed quality and discharge of hazardous substances,¹⁵⁸ prohibit processes and use of equipment or technology that undermine environmental quality, establish mobile courts to expeditiously dispense cases of environmental infringements and compel public investigations.¹⁵⁹

In exercising these powers, an officer of the agency, with a court warrant can enter and search any premises he reasonably believes is being used to contravene environmental standards or legislation.¹⁶⁰ The officer may also seize and detain any article, obtain a court order to suspend activities and also seal and close down premises including land, vehicles, tents, vessels, floating craft or any inland waterway.¹⁶¹ Obstructing an officer from carrying out its duties under the NESREA Act carries a stiff penalty. Any obstruction caused by an individual is punishable by a minimum fine of N200, 000 (equivalent of R10, 000) or a maximum sentence of one year imprisonment. There is an additional fine of N20, 000 (equivalent of R1, 000) for each day the offence continues. Also, any corporate body that obstructs an officer of the agency will

¹⁵² Section 12(1)(a) of NESREA Act, 2007.

¹⁵³ Section 12(1)(c) of NESREA Act, 2007.

¹⁵⁴ Section 11(2)(a) of NESREA Act, 2007.

¹⁵⁵ Directorate of legal services, Administration and finance, Planning and policy Analysis, inspection and enforcement and Environmental quality control. Section 10(1)(e) of NESREA Act.

¹⁵⁶ Section 3(1)(a) of NESREA Act.

¹⁵⁷ Section 23 of NESREA Act. The National Environmental (Guidelines on Waste disposal through Underground Injection) 2009 has been enacted. Discussion on this Regulation is found on pg 207, sub heading 8.7.D.

¹⁵⁸ Sections 24(1) and (2), 26 and 27 of NESREA Act. The National Environmental Protection (Effluent Limitation) Regulation 2009 has been enacted.

¹⁵⁹ Section 8 (d), (f) and (g) of NESREA Act.

¹⁶⁰ Section 30(1)(a) of NESREA Act.

¹⁶¹ Section 30(f) and (g).

be fined to the tune of N2 million and an additional fine of N200, 000 for each day the offence continues.¹⁶²

C. Federal Ministry of Agriculture and Water Resources (FMAWR)

This Ministry formulates policies aimed at developing the agricultural sector. Its stated goals are to foster an agricultural sector *„...with reduced drudgery”, create an effective workforce that will ensure national food security and meet the industrial raw material and export needs of the nation*“.¹⁶³

D. Forestry Research Institute of Nigeria (FRIN)

This institute was established in 1954 as a federal Department on Forest Research to conduct research into all aspects of forestry, forest product utilization and training of technical and sub-technical personnel. These objectives have since been broadened to include research in wildlife conservation, watershed management and agro forestry.¹⁶⁴ The institute is now under the supervision of the FME.

E. Nigerian National Park Service (NPS)

This parastatal has the responsibility to preserve, enhance, protect and manage vegetation and wildlife animals in national parks, advise the government on development and preservation policy of national parks and also advise the government on declaring areas that are for the purpose of protecting wildlife species, biotic communities, sites of special interests or of aesthetic value.¹⁶⁵ This parastatal is under the supervision of the FMEHUD.

F. National Inland Waterways Authority (NIWA)

This ministry deals with pollution matters emanating from land-based activities that affect rivers, creeks and the delta areas.¹⁶⁶

¹⁶² Section 31 of NESREA Act.

¹⁶³ O Ayodele (note 148) 4.

¹⁶⁴ Special FME Units (parastatal), www.climatechange.gov.ng/ Accessed 2011.

¹⁶⁵ Ibid.

¹⁶⁶ Natural Resources Aspects of Sustainable Development in Nigeria, www.un.org/agenda21/ Accessed 2011.

8.11 State and local government institutional frameworks

The nine states situated on Nigeria's coastline have all established a state ministry of environment. The ministries have further established agencies to regulate almost every sector of the coastal and marine environment. For instance, in Lagos state there are four agencies regulating the waste sector alone, namely the Lagos State Waste Disposal Board (LSWDB), Lagos State Environmental Protection Agency (LASEPA), Lagos State Waste Management Authority (LAWMA) and Lagos State Waste Management Agency operatives.¹⁶⁷ This situation applies to other sectors of the coastal and marine environment as well.¹⁶⁸ This is also the framework adopted in every other state located on the coast. These extra-ministerial agencies' actions are mostly unco-ordinated and fragmented. Even the state Ministry of Environment has no co-ordinated relationship with these extra ministerial agencies. Thus, the institutional framework is still largely sectoral.

Similarly, local government councils located in these coastal states have also established in-house structures to manage certain areas of the environment relevant to LBSA as set out in the fourth schedule of the Constitution. These include the collection, clearing and disposal of solid waste, construction and maintenance of road, public highways, parks, gardens and drains, and development of agriculture and natural resources other than their exploitation. These duties are not being carried out effectively as most local government waste treatment plants/facilities are partially functioning or not functioning at all and thus waste not collected or cleared is washed into open drains by rain and people have also turned these drains into dump sites as there are no dump sites established for this purpose. Hence, untreated wastes are washed into near-shore waters and the marine environment by flood. Furthermore, industries take advantage of this situation by also dumping their solid and liquid wastes (untreated) into the drains.¹⁶⁹ Local authorities are however, claiming that they are not to be blamed for the break down in infrastructure, as they are not getting support in the form of funds from state ministries of environments, since they are supposed to release funds for them to establish and keep dumpsites

¹⁶⁷ Compilation of Institutions and Waste Management Regulations in Nigeria, www.elri-ng.org/ Accessed 2011.

¹⁶⁸ Such as water, forestry, fishery, beach management and so on.

¹⁶⁹ CO Orubu., (note 37) 177.

and waste treatment facilities operational. This problem still persists due to unco-ordinated structure of the institutional framework at state government level.

8.12 Conclusion

The above survey shows that the Nigerian legislature has come to the full realisation that the coastal and marine environment is not only threatened by pollution emanating from oil and gas exploration and exploitation but also by pollution emanating from land-based sources and activities. It has thus responded by reviewing its environmental legal frameworks to reflect this and also enacting new laws and policies to reflect emerging trends as well as establishing institutions to enforce and implement the legislation enacted. But there are still a few gaps in the current legal and institutional frameworks.

It has the problem of two or more institutions regulating the same land-based source or activity, each performing roles that are not well co-ordinated. Conflicts sometimes arise between the three tiers of government as to which agency or institution has enforcement powers in a particular sector.¹⁷⁰ For instance, when the Federal Ministry of Environment (FME) attempted to bring the Department of Petroleum Resources (DPR) under the Ministry, the DPR firmly opposed it. In the opinion of a management staff of the DPR, the FME is required to play only *a supportive role as far as oil pollution is concerned*, but the Ministry frequently seeks to play the principal role.¹⁷¹ Furthermore, there is no federal/national legislation directed specifically at integrated coastal zone management, necessitating the enactment of policies. However, it is quite disappointing that despite the recent enactment of these policies, the same mistakes are being repeated. The policies are quite sectoral in nature, for instance, the provisions of the policies enacted for the National Environmental (Domestic and Industrial Plastic, Rubber and Foam Sector), the National Environmental (Chemical, Pharmaceutical, Soap and Detergent Manufacturing Industries), the National Environmental (Textile, Wearing Apparel, Leather and Footwear Industry) and the National Environmental (Food, Beverages and Tobacco Sector) are the same.¹⁷² The question that comes to mind is, why enact policies for the various sectors of the

¹⁷⁰ A Ingelson and C Nwapi (note 50) 54; CO Orubu., (note 37) 176.

¹⁷¹ Ibid.

¹⁷² See pgs 208-213 above for more discussions on these policies.

environment? Shouldn't integration be the main focus of effective management? Enacting policies for every sector of the environment causes fragmentation and disintegration, giving room for overlaps and confusion at interpretation, enforcement and implementation.¹⁷³ In addition, government needs to integrate these laws and policies so as to come up with an integrated legislative framework that will regulate sources of pollution of the coastal and marine environment effectively.

¹⁷³ JC Agunwamba, Solid Waste Management in Nigeria: Problems and Issues, *Environmental Management*, Vol. 22, No. 6 (1998) 849.

PART FOUR: CONCLUSIONS AND RECOMMENDATIONS

CHAPTER NINE

CONCLUSIONS AND RECOMMENDATIONS

9.1 General conclusion

This final chapter firstly summarises the main findings of this study, and secondly, makes recommendations in particular as regards the challenges encountered by the three case study countries: South Africa, Kenya, Nigeria in regulating land-based sources and activities causing pollution of the coastal and marine environment. It is suggested that in so-doing, this work could serve as an example for the whole of sub-Saharan Africa. The main findings must be seen not only against the backdrop of international law and pertinent regional law developments, which were outlined in chapters 3 and 4, but also in the context of the fast-developing notion of integrated coastal zone management that has taken hold in some coastal states but not yet in others. The recommendations in this chapter accordingly focus on the national laws and institutions of the three case study countries.

9.2 Research findings

Part one: General background

- Chapter one generally examined the definition of marine pollution defined in article 1(4) of the United Nations Convention on the Law of the Sea (UNCLOS), 1982 and land-based sources and activities defined in article 1(a) of Montreal Guidelines for the Protection of the Marine Environment from Land Based Sources, 1985. It identified the pathways of these sources and activities, pollutants that arise from these sources and activities and their impacts on the coastal and marine environment.

The chapter introduced the efforts made internationally, regionally and domestically (nationally) in regulating land-based sources and activities causing pollution of the coastal and marine environment. It also explained the advent of integrated coastal zone management. The chapter further explained the reasons for choosing South Africa, Kenya and Nigeria as subject matter of this study,¹ the research problems, objectives of the study, importance and method of research.

¹ See chapter one, pgs 8-13, sub heading 1.4-1.5.3.

- Chapter two provided an overview of the marine environment as a whole, pointing out the benefits derived from uses of the coasts and oceans, the causes of degradation to the coastal and marine environment, major threats confronting them and the various sources and activities causing pollution that are threatening the coastal and marine environment. This chapter, identified actual land-based sources and activities causing pollution. These include household activities, industrial activities, agricultural activities, municipal sources, military activities, and oil and gas exploration and exploitation. These sources and activities produce pollutants that impact negatively on the coastal and marine environment necessitating their regulation. The extent to which these sources and activities are harmful to the coastal and marine environment is a contributing factor in analysing how and to what extent their negative impact may be alleviated or minimised in sub-Saharan Africa.

In addition, the chapter outlined and provided an overview of the literature that established the problem, namely, that various blends of anthropogenic activities taking place on, or in proximity to the sea are adversely affecting the coastal and marine environment. This is due to a number of reasons, including insufficient understanding of this environment, unregulated access to coastal and marine resources and lack of effective management methods, all of which are beginning to have adverse impacts such as over-exploitation, alteration and destruction of habitats, degradation and pollution. However, these blends of anthropogenic activities have produced many economic benefits such as improved food production, improved transportation links, increased revenue and rapid urban and industrial development. But the aftermath of these benefits have given rise to raging conflicts between conserving and preserving coastal and marine resources and ecosystems for present and future generations, and reaping the benefits of economic development.

The chapter concluded that regulating land-based sources and activities, developing coastal areas and managing coastal resources sustainably are issues that require controlling the actions of human society, integrating various sectoral interests and encouraging co-operative governance at management level. Therefore, it emerged from

the study that in resolving the conflict of reaping the benefits of economic development as well as conserving and preserving the coastal and marine environment and their resources, it is necessary to enact suitable legal frameworks that will regulate land-based sources and activities, and establish appropriate institutional governance structures that will develop comprehensive and holistic management strategies, which will efficiently manage economic developments and conserve coastal and marine resources for present and future generations.

Part two: Theoretical and historical development of regulating LBSA and ICZM

- Chapter three outlined the various international conventions developed to protect and preserve the marine environment from pollution. It commenced by examining the historical development of both soft and hard law rules meant to control and regulate the various land-based sources and activities causing pollution of the coastal and marine environment. These soft and hard law rules include United Nations Conference on Human Environment (UNCHE), the United Nations Conference on Environment and Development (UNCED), the 1985 Montreal Guidelines, the 1992 Earth Summit, Agenda 21 and Chapter 17, the 1995 Global Programme of Action and the Washington Declaration on Protection of the Marine Environment from Land Based Sources and Activities of Marine Pollution (GPA), those contained in part XII of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), and so on. It also considered the extent to which these soft and hard law rules were successful in controlling land-based marine pollution.

From the above survey of the historical development of international soft and hard law rules, the study found that a soft law rule (the GPA) has been developed on the regulation of pollution emanating from land-based sources and activities. The study then considered why only a soft law rule has been developed internationally for regulating LBSA, and it emerged that regulation of land-based sources and activities is more effective at regional

and national levels due to the fact that this form of pollution affects coastal areas/zones (under national jurisdictions) more than the open sea.²

- Chapter four outlined and assessed the effectiveness of regional controls in regulating pollution emanating from land-based sources and activities. It examined the Regional Seas Programme's (RSP) approach in tackling the problem of land-based marine pollution and identified regions under the RSP that have put into practice the approach laid down by it in regulating LBSA. It emerged that the RSP simply adopted the approach of basically developing framework conventions and protocols for regions under its control for combating land-based sources and activities. These conventions and protocols were briefly discussed,³ while paying particular attention to the Western Indian Ocean (WIO) region⁴ and West and Central African (WACAF) region⁵ as they are the main focus of the thesis. Two conventions and protocols have been established for these regions, namely, the Abidjan Convention (WACAF region) and Nairobi Convention (WIO region), and both Conventions cover the three countries chosen as case studies in the thesis. The Nairobi Convention has adopted a protocol on regulating land-based sources and activities, while the Abidjan Convention secretariat is still drafting a protocol for this same purpose at the time of writing this thesis.

The chapter further analysed the two regional conventions and the adopted LBSA protocol for the WIO region, and it emerged that these regional hard laws encouraged their contracting parties to develop domestic legal and institutional frameworks for regulating land-based sources and activities, since land-based marine pollution is more prevalent in national jurisdictions. Furthermore, the regional Conventions considered the concept of integrated coastal zone management (ICZM) and the manner and extent it will be useful in effectively regulating the problem of land-based marine pollution. The chapter showed that laws and policies are not sufficient to regulate this form of pollution without a comprehensive management concept that will integrate legal and institutional

² See chapter three, pgs 56-57, sub heading 3.3.

³ See chapter four, pgs 63-72, sub heading 4.4.1-4.4.6.

⁴ See chapter four, pgs 78-85, sub heading 4.5.2.

⁵ See chapter four, pgs 72-78, sub heading 4.5.1.

frameworks with management strategies/approaches to achieve a healthy and sustained coastal and marine environment.

- In light of the above, chapter five analysed the concept of ICZM, its historical development, how it functions in protecting the coastal and marine environment from land-based sources and activities, their resources, uses and development. It concluded that ICZM is the most effective tool for regulating land-based marine pollution while maintaining a relatively developed and healthy environment. This is made possible by the fact that it embraces an open and transparent process, engages all sectors and scales of management and builds local and national ownership of coastal and marine resources.

The chapter further analysed the development of ICZM in sub-Saharan Africa. It emerged that sub-Saharan Africa had also been developing the concept by organising various conferences and workshops to discuss its effectiveness in tackling pollution of the coastal and marine environment. These conferences include: the 1993 Arusha Conference, the 1998 Pan-African Conference on Sustainable Integrated Coastal Management (PACSICOM), the 1998 Conference on Cooperation for Development and Protection of the Marine and Coastal Environment in Sub-Saharan Africa (ACOPS) and the African Ministerial Conference on Environment (AMCEN). It also emerged that these conferences and workshops produced various programmes to promote the application and implementation of the concept in the region. These programmes include the East African Action Plan (including the Nairobi Convention and its Protocols), the Indian Ocean Commission under its Regional Programme for the Sustainable Management of the Coastal Zone of the Countries of the Indian Ocean (ReCoMaP), the Secretariat for Eastern African Coastal Area Management (SEACAM), the Project addressing land-based activities in the Western Indian Ocean (WIO-LaB) and the Gulf of Guinea Large Marine Ecosystem project.

The chapter concluded that ICZM plays an important role in regulating land-based sources and activities by boosting the effectiveness of sectoral policies, harmonizing

development actions of different sectors and filling the existing gaps in addressing emerging economic opportunities.

Part Three: Domestic regulation of land-based sources and activities within the context of ICZM

- Part three of the thesis critically evaluated the legal and institutional frameworks of South Africa, Kenya and Nigeria regulating land-based sources and activities causing pollution within the context of ICZM. The chapter outlined and assessed the various legislative and institutional frameworks that have been enacted by the three countries in dealing with land-based marine pollution in order to determine the extent to which each country has incorporated the concept of ICZM in its frameworks. It emerged that: firstly, the enactment of legislation for regulating land-based sources and activities was done in a piecemeal fashion, resulting in a myriad of sectoral laws and policies, some directly and others indirectly relevant in dealing with LBSA. For instance, South Africa has over 30 national laws besides national regulations, provincial laws and municipal bye-laws that are directly or indirectly relevant to the regulation of LBSA.⁶ Kenya has over 20 national laws besides policies that are directly and indirectly relevant to the regulation of LBSA.⁷ Nigeria has over 15 national laws, 14 national regulations, myriad state laws and local government bye-laws that are directly and indirectly relevant to the regulation of LBSA.⁸

Moreover, some of these laws have become archaic and may not be able to handle new and upcoming trends of pollution and degradation and thus ought to be amended. For instance, South Africa's Hazardous Substances Act 15 of 1973, Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972, and Fertilizers and Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947; Kenya's Agricultural Act, Cap 318, 1980, Irrigation Act,

⁶ Marie Parramon, Regulation of Land-Based Marine Pollution in South Africa and France (2010) 274, North West University, www.dspace.nwu.ac.za/, Accessed 2014. See also chapter six above.

⁷ See chapter seven above.

⁸ See chapter eight above.

Cap 347, 1967, Mining Act, Cap 306, 1940 and Fertilizer and Animal Food Stuffs Act, Cap 345; and Nigeria's Water Resources Decree 101, LFN 1993.⁹

Secondly, though, some of these out-dated laws are now in the process of revision in order to make them more effective in handling new trends of pollution, these changes have become so frequent that their enforcement mechanisms have also become weak and new loopholes have been created, which encourages the continuous occurrence of pollution. For example, penalties stipulated in these amended laws for polluting coastal areas and resources are not punitive enough to deter polluters. An example is section 8 of Nigeria's Water Resources Decree 101 of 1993, which stipulates that the Minister has the power to prohibit and/or regulate the carrying out of activities on land or water which is likely to interfere with the quantity and quality of water in any watercourse or groundwater. Any person found to be guilty of this section is liable to pay a fine not exceeding N2,000 (an equivalent of R100) or an imprisonment period of six months. Also, the offender is liable to pay N100 (an equivalent of R5) for every day the activity is carried out.¹⁰ In addition, section 3 of Oil in Navigable Waters Act, Cap 6, LFN 2004 makes it an offence for a master of a ship, occupier of land or operator of any apparatus for transferring oil, to discharge such into Nigerian waters. This offence is punishable by paying a meagre sum of N2,000 (an equivalent of R100).¹¹

Thirdly, the set of new laws that are being enacted for regulating LBSA do not impose stringent guidelines or standards for reasons of encouraging economic development.¹² Hence, imposing stringent rules and regulations may impede development economically. For instance, Kenya's Forest Act, Cap 7, 2005 now prohibits the dumping of wastes in mangrove forests but still allows oil spills coming from Kilindini harbour to flow into the

⁹ For South African laws that may have become archaic see chapter six, pgs 139-141 sub heading 6.4.4.C-E. For Kenyan laws that may have become archaic see chapter seven, pgs 175-177, sub heading 7.6.B-E and for Nigerian laws that may have become archaic see chapter eight, pgs 199-200, sub heading 8.5.B.

¹⁰ Section 18 of the Water Resources Decree. See also, chapter eight, pgs 199-200, sub heading 8.5.B above.

¹¹ See chapter eight, pg 202, sub heading 8.6.B for more discussion on the Oil in Navigable Waters Act, Cap 6, LFN 2004.

¹² Such as food and beverage processing industries, petro-chemical industries, mining industries, agricultural related industries, engineering, port development, coastal developments, shipping activities, etc.

creek and which will eventually flow into the mangrove forest near it. This action has reduced the quality of water of the creek and has also destroyed the habitat of the mangrove forest.¹³ This then calls into question the competence of the various committees,¹⁴ responsible for advising authorities on the importance of establishing procedures, standards and guidelines for many of the activities causing pollution.

Fourthly, laws with adequate provisions are either partially implemented or not implemented at all as there have been no offenders charged or prosecuted under them. This is particularly prevalent in Kenya and Nigeria.

The chapter further pointed to the fact that each case country study has established institutional frameworks to enforce and implement these laws and also manage coastal areas. But, these institutional frameworks are largely fragmented and unco-ordinated as a result of the fact that too many institutions/departments, by virtue of the many sectoral laws and policies enacted, manage one land-based source and/or activity, thus creating confusion as to which institution/s is mainly responsible for managing and/or regulating that land-based source and activity causing pollution. Also, no specific institution/department has been established for championing the cause of regulating land-based sources and activities. However, the practice is that each institution connected with managing and/or regulating activities of the coastal and marine environment have developed in-house structures with their own rules of administration to manage issues related to this environment. As a result of this, it is found that these in-house structures do not usually have good working relations with each other, which can lead to inefficiency and ineffectiveness.¹⁵

¹³ For more discussion on the Kenyan Forest Act, Cap 7, see chapter seven, pg 175, sub heading 7.6.A.

¹⁴ Such as the NEC, PEC, DEC, PCC, SERC and NET. For more discussion on these committees, see chapter seven, pgs 181-185, sub heading 7.9.A-F.

¹⁵ South Africa has established the Department of Environmental Affairs (DEA) as the lead institution for environmental governance while the Department of Water and Sanitation (DWA), the Department of Mineral Resources and Department of Energy, provincial environmental departments of its nine provinces and some parastatals such as the South African National Biodiversity Institute (SANBI) charged with biodiversity conservation, as secondary institutions; Kenya has established the National Environmental Management Authority (NEMA) as the lead institution with the Coast Development Authority as the corresponding secondary institution; and Nigeria has also established the Federal Ministry of Environment as the lead primary institution, the State

The chapter also considered regulation of land-based sources and activities at municipal levels, and it seems that regulation of LBSA in the three countries at municipal level is quite ineffective as a result of lack of involvement, contribution and communication between national and provincial institutions with municipal councils in matters of management, governance and conservation of resources. This situation is more prevalent in Kenya¹⁶ and Nigeria¹⁷ than South Africa.¹⁸ Also, most municipalities or local government councils lack technical expertise in research and compilation of necessary data on one hand, while on the other there is shortage of skilled personnel in the area of enforcement. This problem is further compounded by financial inabilities of municipal councils to train personnel or employ more workforce (as providing adequate services are becoming an overwhelming task due to the ever increasing growth in population).¹⁹

Lastly, the countries chosen as subject matter of this study have embraced the concept of ICZM and have started incorporating it into their legal and institutional frameworks by amending enacted legislation relating to the protection and preservation of the coastal and marine environment, developing specific coastal zone management laws and examining ways of enhancing integration and co-operative governance. For instance, most of the environmental laws enacted from 1994 by South Africa seem to have incorporated integration and co-operative governance principles in them and it has enacted an integrated coastal management Act.²⁰ Kenya and Nigeria have adopted the approach of incorporating integration principles into their legislative frameworks by enacting regulations and policies on coastal management.²¹ But despite these efforts, the practical application of ICZM in regulating LBSA in South Africa, Kenya, Nigeria and other

Ministries of Environment and parastatals such as the National Environmental Standards and Regulation Agency (NESREA) charged with the enforcement of environmental laws, policies, standards, rules and guidelines as corresponding secondary institutions.

¹⁶ See chapter seven, pgs 185-188, sub heading 7.10.

¹⁷ See chapter eight, pgs 219-220, sub heading 8.11.

¹⁸ See chapter six, pgs 152-153, sub heading 6.7.C.

¹⁹ For Nigeria, see chapter eight, pgs 219-220, sub heading 8.11 and Kenya, pgs 185-188, sub heading 7.10.

²⁰ These laws include: NEMA, NEM: ICM, NWA and MPRDA. See chapter six above.

²¹ For Nigeria, see chapter eight, pgs 204-213, subheading 8.7. For Kenya, see chapter seven, pgs 178-179, sub heading 7.7.

coastal states in sub-Saharan Africa still present challenges. Hence, recommendations are made below on how these challenges can be surmounted.

9.3 Recommendations on integrating legislative frameworks in South Africa, Kenya and Nigeria

In accordance with the concept of integrated coastal zone management, regulating land-based sources and activities effectively entails enacting appropriate legislative frameworks that will regulate every sector of the environment in an integrated manner. This criterion coupled with co-ordinated institutional frameworks and comprehensive management strategies/approaches can effectively regulate the problem of LBSA. Thus, there is the need for South Africa, Kenya and Nigeria to enact laws and policies that are integrated in scope. To achieve this, the three countries may have to either amend and integrate existing bodies of legislation while repealing old and unsustainable laws, or enact a new body of legislation for the protection, conservation and management of the coastal and marine environment that will incorporate the ICZM concept.

South Africa

While this study has shown that South Africa has an existing large legislative framework on the management of the environment (including the coastal and marine environment), this existing framework is still largely fragmented. For instance, as there are national legislation regulating one environmental issue, so too are there provincial and local government by-laws regulating the same issue, and various cross-sectoral laws regulating the same pressure too.²² This fragmentation is intensified by disjointed and separate, state departments that often operate independently from one another at different levels of governance.²³ However, the significance of the Constitutional provisions on co-operative governance presupposes and emphasises the necessity by all spheres of government to work together. For this to happen in reality, it is

²² Louis J. Kotzé, Revisiting the South African Integrated Pollution Prevention and Control (IPPC) Regime: A Critical Survey of Recent Developments, *South African Public Law*, vol. 22 (2007) 36.

²³ Johan Nel and Willemien du Plessis Unpacking Integrated Environmental Management – A Step Closer to Effective Co-operative Governance? *South African Public Law*, vol. 19 (2004) 183.

essential that conflict between laws is avoided, and the administration of the implementation of these laws is clearly regulated by way of co-ordination.²⁴

Furthermore, there is one law specifically geared towards enhancing effective coastal zone management, which is the National Environmental Management: Integrated Coastal Management Act of 2008. South Africa needs to dedicate more resources and capacity to enforce and implement the NEM: ICM Act as the Act has been promulgated to establish the statutory requirements for integrated coastal and marine management in South Africa.²⁵ The Act also prescribes the inclusion of norms, standards and policies for further elaboration and guidance on coastal management provisions within legislation and specific scenarios and/or issues.²⁶ The enforcement and implementation of this Act may improve co-ordination in institutional structures, achieve common purpose in legislative framework, accountability and defined responsibilities in management, reduction in coastal pollution and destruction of resources, and hopefully stop degradation of the marine environment.

Kenya

As is the case with most countries, Kenya's environmental legislative framework is sectoral in nature as has been shown in this study. Because of this, a number of its laws have been found to be either weak or partially implemented, while legislation does not exist to regulate certain land-based sources and activities.²⁷ It is suggested that Kenya amends those laws that have been identified in the study as weak and strengthen their regulatory capacity. It should also develop effective strategies for enforcing and implementing laws that have been identified as being partially been implemented. Specific legislation on integrated coastal zone management should be enacted in addition to the Environmental (Prevention of Pollution in Coastal Zone and Other Segments of the Environment) Regulations already promulgated and other existing regulatory

²⁴ Carin Bosman, Louis J. Kotzé and Willemien du Plessis, The Failure of the Constitution to ensure Integrated Environmental Management from a Co-operative Governance Perspective, *South African Public Law*, vol. 19 (2004) 413.

²⁵ South Africa's National Coastal Management Programme (2014) iii, Department of Environmental Affairs, Cape Town, www.environment.gov.za/, Accessed 2014.

²⁶ Ibid.

²⁷ See chapter seven, pgs 181-185, subheading 7.9.

policies in place so as to effectively protect, conserve and manage its coastal and marine environment, and regulate the problem of LBSA.

Nigeria

It is apparent from the discussion in chapter eight that Nigeria's priority has always been to prevent pollution emanating from oil and gas exploration and exploitation, which necessitated enacting laws for this purpose. As such, the federal/national government focused its attention on enacting laws for petroleum drilling and production, harmful wastes emanating from oil and gas exploration and exploitation, mineral mining, oil in navigable waters, petroleum product distribution, re-injection of associated gas, and so on, while not paying attention to other activities the impacts of which affect the coastal and marine environment adversely.²⁸ Although, regulatory policies have been enacted recently to combat effluent limitation, sanitation and waste, coastal and marine area protection and pollution prevention, no specific federal law has been enacted that is geared towards integrated coastal zone management, because LBSA is not an area of priority for the federal government.²⁹ Furthermore, the regulatory policies enacted appear to be sectoral in nature, as policies have been enacted to cover almost every sector of the environment, particularly anthropogenic activities that may have adverse impacts on the environment (including the coastal and marine environment). Some of these policies also seem to overlap as some of them contain the same provisions.³⁰ The question thus is why enact policies for every sector with overlapping regulations?

9.4 Recommendations on integrating institutional frameworks and enhancing co-operative governance in South Africa, Kenya and Nigeria

An effective institutional framework is an important supporting element for the successful implementation and co-ordination of management programmes and actions in terms of managing the coastal and marine environment efficiently.

²⁸ See chapter eight, pgs 202-203, sub heading 8.6.

²⁹ See chapter eight, pgs 204-215, sub heading 8.7-8.8.

³⁰ See chapter eight pgs 211-212.

South Africa

Co-operative governance is an elegant policy strategy to overcome the divisions created by divided governance structures and arrangements. South Africa has demonstrated that arrangements have been made to facilitate increased co-operation and integration of policy processes at strategic or policy level of government, but little evidence is available to suggest that co-operation and integration has been successfully introduced at the operational level of government.³¹ There are various competent authorities including, inter alia, the Department of Environmental Affairs (DEA), the Department of Water and Sanitation (DWS), the Department of Mineral Resources (DMR) and Department of Energy (DE), the Department of Agriculture, Forestry and Fisheries (DAFF), the South African Maritime Safety Authority (SAMSA), and the Department of International Relations and Cooperation. These co-existing governmental agencies need to first of all collaborate and co-ordinate their policies, regulation, service provision and scrutiny or assessment functions before co-operation and integration can take place in an effort to achieve integrated governance.³²

In enforcing and implementing laws affecting the coastal and marine environment, the Department of Environmental Affairs (DEA) has been identified by quite a number of national laws (such as the National Environmental Management Act (NEMA) and the National Environmental Management: Integrated Coastal Management Act)³³ to act as a ‘_lead institution’. These laws have gone further to provide for additional institutional structures and arrangements that will enhance integration and co-operative governance by way of providing support to the DEA in effectively coordinating environmental activities and formulating environmental regulations and guidelines.³⁴ The national coastal committee (NCC) should be established as none has been created yet by the Minister of Environmental Affairs in accordance with section

³¹ Louise J. Kotzé, Johan G. Nel, Willemien du Plessis and Esmé Snyman, Strategies to Integrate Environmental Policy at the Operational Level: Towards an Integrated Framework for Environmental Authorisations, *South African Journal of Environmental Law and Policy*, vol. 14 (2007) 76; LJ Kotzé, Integrating Pollution Regulation Regimes: A Comparative Survey of the Finnish and South African Legal Systems, *OBITER* (2007) 463.

³² Louis J Kotzé, Improving Unsustainable Environmental Governance in South Africa: The case for Holistic Governance, *PER*, vol. 1 (2006) 22.

³³ Chapter 1 of NEM: ICM Act.

³⁴ These additional institutional arrangements include the national coastal committee (NCC) created by section 35 of NEM: ICM Act, provincial coastal committee (PCC) created by section 39 of NEM: ICM Act and municipal coastal committee (MCC) created by section 42 of NEM: ICM Act. Chapter 5 of NEM: ICM Act. See also chapter six, pgs 153-157, sub heading 6.8 for more discussion on these additional institutional structures and arrangements.

35 of NEM: ICM Act, and maybe the Working Group 8 (WG8) that deals with oceans and coasts, which is established by the MinTEC could metamorphose into the NCC as they are already fulfilling the roles of the NCC.³⁵ An official provincial coastal committee (PCC) is yet to be established by the MEC of any coastal province according to section 49 of the NEM: ICM Act, but most coastal provinces already have in place structures similar to the PCC (such as coastal working groups). These similar structures can be metamorphosed into a PCC by the MECs of coastal provinces instead of establishing a new PCC. Also, no municipal coastal committee (MCC) has been established yet at municipal level but there are similar structures (such as water quality forums, catchment management forums, estuarine forums and pipeline monitoring forums) in place already that can be converted into an MCC.³⁶

In addition, the DEA's oceans and coasts sub-directorate whose function is to handle issues specifically relating to the coastal and marine environment, ought to co-operate with other national and provincial departments³⁷ that have been vested with legal mandates to regulate pollution of the coastal and marine environment, manage coastal area developments and their resources in order to reduce the confusion that exists in the area of processes³⁸ and identify which department regulates what land-based source and/or activity.

To complement the above, training programmes should be conducted for environmental managers and enforcement officers with these departments so as to increase their knowledge base on the interpretation of legislative frameworks, their application and effective implementation of them.³⁹ It is also recommended that the DEA ought to increase its involvement at municipal levels, as capacity development of local spheres of government is also an important aspect of co-operative governance.⁴⁰ Thus, training should be conducted more often with municipal councils on environmental enforcement, coastal management and conservation of

³⁵ See chapter six, pg 153.

³⁶ National Programme of Action for Protection of the Marine Environment from Land based Activities (2008): 104-106, www.environment.gov.za/ Accessed 2011.

³⁷ Departments such as Department of Water and Sanitation (DWS), Department of Energy, South African Maritime Safety Authority (SAMSA) etc. See chapter six, pgs 167-150, sub heading 6.5.

³⁸ Processes such as application for licences and permits, EIA processes, granting of authorisations etc.

³⁹ LJ Kotzé (note 32) 11.

⁴⁰ Ibid.

coastal natural resources. It is also suggested that the national government should allocate more funds for coastal management and conservation of coastal natural resources so that the DEA and other departments involved in coastal and marine governance can employ more skilled personnel and conduct trainings for their staff to increase their knowledge base. This should also be done at provincial level for provincial environmental departments and municipal councils. However, the mere existence of these structures and mechanisms for co-operative governance and integration may not guarantee the adherence to the principles of integrated coastal zone management. It is only their effective and efficient functioning and their commitment to developing a mind-set of co-operation that may promote sound integration and co-operative governance.⁴¹

Kenya

As indicated in chapter seven, Kenya had no lead agency dedicated to managing its coastal and marine environment before 1999. The regulation and management of its coastal and marine environment was carried out by several institutions/departments that were related in one way or another to these environments. These institutions include the Kenya Wildlife Service (KWS), Kenya Marine and Fisheries Research Institute (KMFRI), Tana and Athi Rivers Development Authority (TARDA), the Coast Development Authority (CDA), and so on. The problem with these institutions was that they were largely fragmented and unco-ordinated. In-house structures were created in these institutions to handle issues affecting management of the coastal and marine environment. But the establishment of the Environmental Management Coordination Act (EMCA) in 1999 brought about the evolution of Kenya's environmental governance framework. The EMCA aimed to improve Kenya's environmental co-ordination and fill gaps that existed in the previous legal and institutional dispensation.⁴² It tried to achieve this by establishing more institutional structures for sectors of the coastal and marine environment that had been neglected in the previous legal and institutional dispensation, and harmonising sectoral approaches that existed. Still, no lead national institution/agency has been designated to combat land-based sources and activities, and also manage the coastal and marine environment effectively.

⁴¹ LP Malan., Co-operative Environmental Management: The Applicability of a Multi-dimensional Model, *Journal of Public Administration*, Vol. 44, no 4, (2009) 1145.

⁴² Preamble of EMCA.

Nonetheless, the EMCA has established structures such as the National Environment Council (NEC),⁴³ the National Environmental Management Authority (NEMA),⁴⁴ provincial environment committees and district environment committees,⁴⁵ the Public Complaints Committee (PCC),⁴⁶ the Standards and Enforcement Review Committee (SERC)⁴⁷ and the National Environmental Tribunal (NET).⁴⁸ The EMCA's shortcoming in trying to revolutionize Kenya's environmental sector is not identifying a lead institution for managing the coastal and marine environment. Thus, in regulating land-based sources and activities, and managing the coastal and marine environment effectively, Kenya needs to identify the lead institution/s that will be responsible for this. The writer suggests that the Coastal Development Authority (CDA) may be identified as the lead agency to regulate land-based sources and activities and also manage coastal areas and resources sustainably. The reason for this is that the CDA is the main institution responsible for regulating and managing Kenya's coastal areas, as its main goal is to ensure marine resource conservation and utilization, resource management through promotion of ecological principles, preservation of coastal zone from land-based sources and promotion of sustainable coastal agriculture.⁴⁹ The Standards and Enforcement Review Committee (SERC)⁵⁰ established by EMCA can be identified to support the CDA in providing technical advice on how to establish environmental standards, guidelines, policies and procedures for regulating land-based sources and activities and managing the coastal and marine environment. Thus, creating or establishing a separate institution for regulating land-based sources and activities and coastal zone management in my own view may further create fragmentation and unco-ordination in governance. Also, the CDA need to institute strategies that will enable it to co-operate with other agencies on enforcing and implementing the concept of integrated coastal zone management.

Furthermore, the National Environmental Management Authority (NEMA) whose functions include the *„...coordination of various environmental activities being undertaken by*

⁴³ Section 4 of EMCA. See chapter seven, pg 181 for more discussion on the NEC.

⁴⁴ Section 7 of EMCA. See chapter seven, pg 182 for more discussion on NEMA.

⁴⁵ Section 29 of EMCA. See chapter seven, pg 183 for more discussion on PEC's and DEC's.

⁴⁶ Section 31 of EMCA. See chapter seven, pg 183 for more discussion on PCC.

⁴⁷ Section 70 of EMCA. See chapter seven, pg 184 for more discussion on SERC.

⁴⁸ Section 125 of EMCA. See chapter seven, pgs 185 for more discussion on NET.

⁴⁹ Section 8 of Coastal Development Authority Act, 1990. Also, see chapter seven, page 179 above for more discussion on Coastal Development Authority.

⁵⁰ See chapter seven, pg 184 for more discussion on SERC.

*lead agencies to ensure promotion and integration of environmental considerations into developmental plans, policies, programmes and projects with a view to ensuring the proper management and rational utilization of natural resources in Kenya...*⁵¹ needs to increase its level of effectiveness in co-ordinating environmental activities being undertaken by other lead agencies so as to promote co-operative governance, since most of the existing institutions that have relations with the coastal and marine environment have in-house structures that handle issues affecting their legal mandates. NEMA also should increase its involvement with district municipal councils in order to strengthen capacity building required to effectively carry out their functions. In addition, Kenya should encourage adequate participation from stakeholders such as the private, civil and other sectors in developing consolidated approaches towards the development, protection and conservation of the coastal and marine environment.

Nigeria

The current state of institutional frameworks in Nigeria is highly fragmented and unco-ordinated as most institutions/agencies focus only on their area of legal mandate without giving thought to cross-cutting environmental issues. It also has the problem of two or more institutions regulating the same land-based source or activity. There are considerable areas of overlap between the functions of different agencies, leading to deep rivalry among them.⁵² This problem is further aggravated due to the fact that these institutions don't fully understand their roles and responsibilities under the enabling laws that create and empower them.⁵³ One way to integrate the role of the different agencies/bodies is for them to enter into a Memorandum of Understanding (MOU), identifying areas of conflict and outlining lines of authority.⁵⁴ There is also the need to conduct training programmes and workshops with the various

⁵¹ Section 9(2) of EMCA.

⁵² Allan Ingelson and Chilenye Nwapi, Environmental Impact Assessment Process for Oil, Gas and Mining Projects in Nigeria: A Critical Analysis, *Law Environment and Development Journal*, vol. 10, No. 1 (2014) 54; CO ORUBU., Water Resources, Environment and Sustainable Development in Nigeria, *J. Hum. Ecol.*, vol. 19, no. 3 (2006) 176.

⁵³ A Ingelson and C Nwapi (note 52) 54.

⁵⁴ Ibid.

agencies/institutions involved, on effective compliance monitoring mechanisms and legislation enforcement strategies.⁵⁵

In addition, the National Environmental Standards and Regulation Enforcement Agency (NESREA)⁵⁶ in carrying out its functions should not neglect the provisions of section 7(1).⁵⁷ This according to Ladan is an important provision in light of the fact that the use of law as an instrument to obtain compliance has its limits.⁵⁸ He further opined that the mere existence of law (and a regulatory body/institution) does not in itself create or bring about a change in behaviour as a *‘clean and healthy Nigeria’* cannot be obtained solely by statutes. There is the added need for information, environmental education and enlightenment of the public, which is the best form of prevention of environmental harm.⁵⁹ Ladan further said that this must be instilled in the minds of a sizeable number of the population an unambiguous message clearly urging the need for a healthy environment. This environmental consciousness will enable the law to function better, and the persistent use not only of the media but also education and social institutions to force a change of thinking and behaviour in conformity with the demands of a healthy environment, will ease the duty of enforcement bodies. It will make it possible for the environmental agencies to succeed and not to collapse under the severe pressure of trying to contain large-scale disobedience of the laws.⁶⁰

Furthermore, state/provincial⁶¹ and local government councils⁶² are allowed by the Constitution to enact legislation and create institutional frameworks on environmental

⁵⁵ Muhammed Tawfiq Ladan, *Review of NESREA Act 2007 and Regulations 2009-2011: A New Dawn in Environmental Compliance and Enforcement in Nigeria*, *Law Environment and Development Journal No. 128*, (2012) 125.

⁵⁶ Section 12(1) of NESREA Act, 2007 empowers NESREA to enforce environmental laws, policies, regulations, standards, rules and guidelines in deterring people, industries and organizations from polluting and degrading the environment.

⁵⁷ Section 7(1) of NESREA Act, 2007 state that *‘the Agency should create public awareness and provide environmental education on sustainable environmental management, promote private sector compliance with environmental regulations and publish general scientific or other data resulting from the performance of its functions’*.

⁵⁸ MT Ladan (note 55) 126.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Section 4(7) of the 1999 Constitution refers to the concurrent legislative list set out in the 1st column of Part II of the Second Schedule to the Constitution, which contain matters that state government are empowered to enact legislation on. The list includes making laws to establish research centres for agricultural, industrial, commercial,

governance in their various jurisdictions and, often times, the laws enacted by state and local government councils do overlap with laws enacted by the federal government. Although, the Constitution provides that in cases like this, the federal government laws should supersede state and local government laws⁶³ problems usually arise on interpretation of the law, as quite a number of these laws are vague and ambiguous, thus causing confusion as to where the powers of the federal government stops on issues that the Constitution says are wholly under the authority of state and local government councils.

In conclusion, this study has shown that the regulation of land-based sources and activities causing pollution of the coastal and marine environment in the three case study countries has made some progress but will be further enhanced if combined with the concept of integrated coastal zone management. Such incorporation will lead to major improvements in developing legislative and institutional frameworks which will reduce, eliminate and hopefully prevent further pollution and degradation of the coastal and marine environment in sub-Saharan Africa.

scientific and technology studies; making laws for the health, safety and welfare of persons employed to work in factories, offices or other premises and making laws for the establishment of institutions and bodies for promoting or financing agricultural, commercial or industrial projects.

⁶² The Fourth Schedule to the 1999 Constitution stipulates the main functions of a local government to include licensing canoes; constructing and maintaining drains, roads, streets, other public highways, parks, gardens, open spaces, or such public facilities as may be prescribed from time to time by the House of Assembly of a State; providing and maintaining public conveniences, sewage and refuse disposal; and developing agriculture and natural resources, other than the exploitation of materials, providing and maintaining health services.

⁶³ Section 4(5) of the 1999 Constitution state that *„If any Law enacted by the House of Assembly of a State is inconsistent with any law validly made by the National Assembly, the law made by the National Assembly shall prevail, and that other Law shall, to the extent of the inconsistency, be void“*.

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