

CHAPTER 1: INTRODUCTION

1.1 Background

Land-based marine pollution (LBMP) has been recognised as "... one of the most critical marine protection issues"¹ which needs to be addressed as a matter of urgency. This is as applicable in South Africa as it is elsewhere:²

The major threats to the health, productivity and biodiversity of the marine environment result from human activities on land - in coastal areas and further inland. Some 80 per cent of the pollution load in the oceans originates from land-based activities. This includes municipal, industrial and agricultural wastes and run-off, as well as atmospheric deposition. These contaminants affect the most productive areas of the marine environment, including estuaries and near-shore coastal waters.

It is internationally recognised that the state of the coastal and marine environment is mainly and directly dependent on land-based activities, also referred to as LBMP:³

The state of the coastal and marine environment is mirrored by the activities carried out on land. Clearing vegetation, mining, and the building of roads, homes and hotels can destroy habitats and till rivers and estuaries with mud and silt. Everyday living produces solid waste and sewage that poison groundwater, rivers and lakes, and eventually oceans. Industrial and agricultural production causes pollution of rivers and coastal waters, which can result in algal blooms and contaminated seafood products. Clearly, land-based activities generate harmful impacts and together affect the health of the invaluable salt and brackish water ecosystems and of the people who depend on them as a source of wealth, beauty and recreation.

The impacts associated with LBMP are commonly categorised into three types: economic, social and ecological/environmental.⁴ For example, unregulated LBMP

1 VanderZwaag, Wells and Karau 1998 *Ocean Yearbook* 183. LBMP can be compared to atmospheric pollution, due to its various sources, including point and non-point sources, and its wide geographical impacts on the environment. "Land-based pollution represents the single most important cause of marine pollution. It is suggested that land-based sources contribute approximately 80 per cent of marine pollution. In accordance with the Report, sewage remains the largest source of contamination". Tanaka 2006 *ZaöRV* 535.

2 The global programme of action for the protection of the marine environment from land-based activities (GPA) 2006 <http://www.gpa.unep.org/bin/php/home/index.php>. See 2.4.2 for an analysis of LBMP in France and 2.4.1 for South Africa.

3 United Nations Environmental Programme (UNEP) *Protecting coastal and marine environments* 24.

4 Taljaard *Baseline assessment of sources and management of LBMP* 1. Also see 2.2.3 for further information on such impacts.

can pose a major risk to human health,⁵ to the marine environment,⁶ to the livelihood of communities⁷ and/or to economic activity.⁸

Considering the economic, social and ecological value of the marine and coastal environment,⁹ it is essential to ensure that its main source of degradation, namely

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- 5 Such a risk is illustrated by the infamous case of the "Minamata Disease". From 1932 to 1968, Chisso Corporation, a company located in Kumamoto, Japan, dumped an estimated 27 tons of mercury compounds into Minamata Bay. The uncontrolled release by the factory of chemicals (including mercury) poisoned marine life and caused a degeneration of the nervous system (known as the "Minamata Disease") of people who consumed marine resources (including shellfish and algae) from the bay. Over 3 000 victims have been recognised as having "Minamata Disease". For further information consult Minister of Environmental Government of Japan 2002 <http://www.env.go.jp/en/chemi/hs/minamata2002/>.
- 6 One example is the impact of marine debris on the marine and coastal environment. Land-based activities are the largest source of marine litter. The main cause of marine debris is commonly unsound waste management on land. "The impact of marine debris is clear and dramatic; dead and injured wildlife, littered beaches that discourage tourism and choked ocean ecosystems. Marine debris is one of the most widespread pollution threats facing our ocean and it is completely preventable". Plastic is regarded as the most pervasive type of marine litter around the world. "Plastic debris accumulates in terrestrial and marine environments worldwide, slowly breaking down into tinier pieces that can be consumed by the smallest marine life at the base of the food web. Plastics collect toxic compounds that can get into the bodies of organisms that eat the plastic. Plastics can be mistaken as food by numerous animals, including marine mammals, birds, fish and turtles. A five-year survey of fulmars found in the North Sea region found that 95 percent of these seabirds contained plastic in their stomachs". Sivasothi 2009 <http://coastalcleanup.wordpress.com/2009/06/10/unep-marine-litter-a-global-challenge/>. Another major issue related to marine debris is the "entanglement" of marine mammals and other marine animals. "Entanglement is a more visible impact of litter and in general affects a much smaller proportion of populations. For the individuals affected, however, the impact can be severe, often resulting in death. Several threatened species have been recorded as having been entangled, and although not a major threat in itself, it adds to the pressures facing these species". Enviromark 2007 http://www.cleanup-sa.co.za/images/Marine_entanglement.pdf. For further information on marine debris, see UNEP *Marine Litter: A Global Challenge*.
- 7 For example, LBMP might affect coastal fish population and coastal fish reproduction patterns, jeopardising the livelihood of small and subsistence fishermen dependent on such fish, especially in the South African context. Taljaard *Baseline assessment of sources and management of LBMP* Appendix A. Also see 2.2.3 for further information on such impacts.
- 8 LBMP might have an important negative impact on marine aquaculture and tourism-related activities, which ultimately will affect the Gross Domestic Product (GDP) of the country concerned. For example, oyster producers for commercial purposes in Arcachon, France, and elsewhere around the French coast lost 80 per cent of their baby oysters after an especially virulent outbreak of a common herpes virus in 2008. As a result a ban followed on the harvesting, transport, sale and consumption of full-grown oysters from the shallow Arcachon bay, west of Bordeaux. It seemed local shellfish may have been tainted by poisonous microalgae. There has been a series of scares around the French coast in the summer of 2008, including the closure of several bathing beaches which were invaded by poisonous algae and the ninth successive mass jellyfish invasion of the Mediterranean coast. Marine scientists have suggested that the common factor in all these problems may be a slight rise in water temperature linked to global warming. Lichfield 2008 <http://www.independent.co.uk/news/world/europe/arcachon-bay-oysters-banned-after-health-scare-889292.html>.

LBMP, is efficiently and comprehensively regulated. However, the national regulation of LBMP is a challenging process, as described below.¹⁰

1.2 LBMP: A regulatory challenge

1.2.1 A difficult regulatory scope

Due to its complex nature and scope,¹¹ LBMP is not always easy to understand and define.¹² This creates challenges in the development and implementation of a suitable regulatory framework aimed at addressing such a matter.¹³ One of the first

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- 9 Direct benefits from coastal resources in South Africa are estimated at R350 billion (approximately 35 per cent of the GDP). Direct economic benefits include: the South African marine fishing industry, estimated to be worth about R2.4 billion every year, plus the value of secondary industries such as fish processing, boat building and transportation of fish products (it is estimated that in 2002, the total value of estuarine and estuary-dependent fisheries was R1.3 billion); the attractive lifestyle, recreational and tourism opportunities offered by a coastal location (estimated to generate R13.5 billion for the South African economy every year); and South Africa's ports and harbours (estimated at R4.2 billion every year). Furthermore the coast also provides indirect economic benefits that include: erosion control by coastal features which protect the coastal environment (including roads, buildings and farmlands) from the damaging effects of waves and wind (estimated to be worth R715 million); waste assimilation, detoxification and recycling by coastal wetlands, forests and grasslands (estimated to be worth R4 billion). In addition to economic value, the coastal marine environment provides enormous social benefits to many people. For some people, the coast is a place of cultural or spiritual significance and many South Africans also see the coast as a place of recreation. Furthermore, the coast provides many educational and scientific opportunities, but it is not easy to place a monetary value on these. Tourism, recreation and leisure activities have grown into a global growth industry and South Africa's coast has particular value in this regard. Department of Environmental Affairs and Tourism (DEAT) *The National Programme of Action to Protect Marine Environment from Land-based Activities* NPA 2.5 and 2.6.
- 10 From a research and academic perspective, a lot has been generated regarding the international and regional regulation and management of LBMP. In comparison, the study and analysis of national legal interventions to address LBMP can be regarded as limited. The choice to focus this research on national legal framework is mainly motivated by the fact that "the activities which may cause land-based pollution are in essence within the territorial sovereignty of each state", as highlighted by Tanaka 2006 ZaöRV 548.
- 11 See 2.2.
- 12 In this context, Hassan refers to the "vague and general nature" of LBMP, see Hassan 2003 *Australian International Law Journal* 62.
- 13 Tanaka notes that "due to its nature, the regulation of land-based pollution is more complex than that of pollution from other sources. In the case of the vessel-source pollution, for instance, sources and substances to be regulated – which are mainly oil and oily mixtures – can be clearly identified. Yet the regulation of land-based pollution involves more substances than oil and oily mixtures. Furthermore, land based sources are variable in their nature over time. Some may be chronic sources causing a low-level but steady pressure on the marine environment, while others may be episodic, such as the pulse of pollutants flushed into the ocean after heavy rain. Each source requires different measures to prevent environmental damage, and this requirement makes regulatory measures complex. Moreover, in the case of vessel-source pollution, ships are the only actor, and the shipping industry is the major

challenges is the determination of the regulatory scope. The main questions regarding the regulatory scope relate to where such a regulatory framework should apply, and what should be regulated and protected.¹⁴ Another challenge is the fact that there is currently no internationally-agreed definition for LBMP, as most of the international conventions related to LBMP regulation set out their own definitions of LBMP.¹⁵ The lack of a uniform definition of LBMP makes its national regulation difficult. Without a consistent definition of LBMP, it is difficult to align the related regulatory frameworks from one country to the other. The different definitions will also create disparities in the associated regulatory scope. The definition of LBMP is directly related to the nature, scope and sources of such type of pollution.¹⁶ Various activities, contaminants/substances are directly or indirectly causing or contributing to LBMP.¹⁷ LBMP also use different pathways¹⁸ to reach the coastal and marine environment. It is also important to understand and assess the various impacts associated with LBMP and to identify the types of environment most vulnerable to LBMP¹⁹ in order to ensure that they are adequately protected by the regulatory framework pertaining to LBMP.²⁰ All of these elements have implications regarding

economic sector to be regulated. By contrast, many actors and activities, such as pollution-generating industrial, agricultural and municipal activities, are involved in pollution from land-based activities. It follows that the regulation of land-based pollution concerns various economic sectors in the state. Thus, arguably the regulation of land-based marine pollution at the global level is more problematic than in the case of vessel-source pollution because, in the former case, it is more difficult to balance the regulation of such pollution with various national economic policies than vessel-source pollution", Tanaka 2006 *ZaoRV* 548. For more information on the international and regional law regulating LBMP, see Tanaka 2006 *ZaoRV* and Hassan 2003 *Australian International Law Journal* 61-94.

14 See 2.3.2 for further discussion pertaining to the regulatory scope in terms of LBMP.

15 See 2.1 for further information on the definition of LBMP. Various conventions provide various definitions.

16 Meng *Land-based marine pollution* 52.

17 Tanaka notes that LBMP involves various substances, sources and actors...Accordingly, in certain circumstances, it is difficult to clearly identify sources and activities which threat to the marine environment, Tanaka 2006 *ZaoRV* 539. The main pollutants/contaminants responsible for LBMP commonly include sewage, persistent organic pollutants, radioactive substances, heavy metals, oils, nutrients, sediments mobilisations and litter. UNEP *Protecting coastal and marine environments* 20. Also see 2.2.2 for further information about the contaminants related to LBMP.

18 See 2.2.1 for further information about the pathways of LBMP.

19 See 2.1, especially 2.2.3, 2.3.2.3 and 2.3.6.2 for further information about the environments most vulnerable to LBMP.

20 The *Convention for the Protection of the Marine Environment of the North-East Atlantic* (OSPAR Convention) Annex II and UNEP *Protecting coastal and marine environments* 53. Also see 2.3.4 and 2.3.6.2 for further information.

the selection of the most appropriate regulatory instruments, and ultimately the overall regulatory scope and framework pertaining to LBMP.²¹

In the context of this study, the following definition for LBMP is proposed:²²

- (1) Any change in the marine and/or coastal environment directly or indirectly caused by any:
 - a. substances;
 - b. radioactive or other waves;
 - c. noise, odours;
 - d. heat;
 - e. energy; or
 - f. any other factors (including contributing factors),generated by land-based activities
- (2) and where that change has or is likely to have adverse effects on the coastal and/or marine environment, associated living resources and marine life, human health, marine and coastal activities, including fishing; other legitimate uses of the coastal and marine environment; related amenities; and the suitability for use of sea water.

1.2.2 A cross-sectoral issue

Due to the diversity of the sources of LBMP and its impacts, and in response to a variety of institutional considerations, various governmental spheres and organs of state commonly have to be involved in the regulation of LBMP.²³ Moreover, the traditional institutional sectoral approach results in various governmental spheres and organs of state having specific legislative and/or executive area(s) of jurisdiction regarding the regulation of LBMP, which generally relate either to a particular

21 Osborn and Datta 2006 *Ocean & Coastal Management* 576-596. Also see 2.2 for further information.

22 For further information about the rationale for this definition see 2.1.

23 Meng *Land-based marine pollution* 50.

activity, a type of pollutant/substance, an environmental medium, a pathway for LBMP or a geographical area.

Different statutes are directly or indirectly involved in the regulation of LBMP.²⁴ The regulatory framework pertaining to LBMP is generally complex and fragmented as a direct result of the nature of LBMP.²⁵ Considering the nature and scope of LBMP and its related impacts, it seems not possible and/or suitable to have a national single law regulating such a matter.²⁶ Most commonly, pollution, water, and coastal management legislation address the direct regulation of LBMP. The laws pertaining to the following sectoral issues seem to be regarded as the most relevant in the context of LBMP regulation: coastal and marine waters, fresh waters, agriculture, forest management (including mangroves), biodiversity, protected areas, tourism, mining, and health.²⁷ Various other laws (i.e. related to atmospheric pollution or products control) have an indirect regulatory function in terms of LBMP, which most probably was not considered in the original development of such laws.²⁸ Consequently, a certain level of vertical²⁹ and horizontal³⁰ legislative and institutional fragmentation seems inevitable in the context of LBMP regulation. However, it is recognised that integrated management can facilitate efficient LBMP regulation.³¹

1.3 Regulation of LBMP: guidance from international best practice

24 Osborn and Datta 2006 *Ocean & Coastal Management* 576-596. Also see 2.2 and 2.3.5 for further information.

25 See Chapter 2.

26 As demonstrated in the French and South African analysis, see respectively Chapters 4 and 5, also chapter 6 for the EU framework as well as from guidance from international best practices as analysed in Chapter 2 and more specifically 2.2.

27 Based on the review of international best practice-related documents as identified in Appendix 1, especially in terms of the GPA.

28 For example, air quality related legislation is relevant for marine pollution from atmospheric sources. Therefore air quality standards will be relevant for LBMP, even so most of the time when they were being developed, marine pollution from air pollution was not considered.

29 Between governmental spheres of government, mainly between national, provincial and municipal.

30 Between different sectoral departments, i.e.: water, environment, mining, and planning.

31 UNEP *Protecting coastal and marine environments* 32. Also see 2.3.1 and 2.3.5 for further information on this view.

International best practice provide guidance regarding the following main regulatory features,³² which could be considered in the development, implementation and/or assessment of a regulatory framework pertaining to LBMP, including law principles,³³ the regulatory scope,³⁴ regulatory objectives,³⁵ regulatory instruments,³⁶ the institutional structure³⁷ and regulatory priorities.³⁸ Generically, and in accordance with international practice,³⁹ the efficient regulation of LBMP requires the development and implementation of specific regulatory instruments.⁴⁰ The regulatory instruments may be divided into two main categories: direct and indirect.⁴¹ Direct instruments refer to the regulatory instruments and/or measures which are primarily involved in the prevention, reduction, control and management of LBMP. For example, a direct instrument based on the planning management approach is an environmental impact assessment (EIA). Another direct instrument based on the resource-directed approach is the determination of environmental quality objectives. Indirect instruments can be regarded as regulatory instruments and/or measures in support of direct regulatory instruments, indirectly supporting the prevention, control and

32 In this context, Hassan refers to "international legal and policy instruments that provided a more tailored legal framework while international management principles were absorbed into or applied within this framework", Hassan 2003 *Australian International Law Journal* 62.

33 For example, it is internationally recognised that in order to protect the marine environment from LBMP effectively, the adoption of an ecosystem-system based management approach is critical. Hilderling, Keessen and Van Rijswijk 2009 *Utrecht Law Review* 80. Also see 2.3.1 for further information.

34 See 2.3.2.

35 See 2.3.3.

36 See 2.3.4.

37 See 2.3.5.

38 See 2.3.6.

39 Such as the GPA and the *Convention for the Prevention of Marine Pollution from Land-based Sources* 1974 (Paris Convention). See Appendix 1 for further information on the sources of international best practice consulted for this study.

40 Based on the review and analysis of international best practice-related documents as identified in Appendix 1, various "direct" and "indirect" regulatory instruments have been identified as important to develop and implement an effective regulatory regime related to LBMP. Also see 2.3.4 which provides a general review and analysis of the main direct and indirect regulatory instruments. Based on this general review, Chapters 3 and 4 provide an appraisal of the French direct and indirect regulatory instruments and Chapters 5 and 6 provide the same analysis for South Africa. For example, in terms of international best practice, the regulatory framework must ensure that national and provincial environmental quality objectives and management goals are set to preserve marine aquatic ecosystems and beneficial uses, in accordance with agreed national methodology and standards.

41 This classification is done for purposes of this study and is based on the review of international best practice as per Appendix 1.

management of LBMP.⁴² For example, a preliminary indirect regulatory instrument which is regarded as essential to support effective regulation of LBMP is the performance of a national ecological assessment of the marine/coastal ecological status (a baseline survey) to identify the sources and impacts of LBMP and to provide a report on the state of the marine environment.⁴³ Another important indirect instrument advocated by international best practice is the development and implementation of continuous and consistent monitoring and surveillance programmes, in accordance with agreed national (and possibly regional) methodologies and standards.⁴⁴ Due to the cross-sectoral and multi-disciplinary character of LBMP regulation, these regulatory instruments need to be incorporated into the environmental regulatory framework of a country.⁴⁵ International best practice recommends that such incorporation should be conducted taking into consideration the existing legal system in the country.⁴⁶

Osborn and Datta⁴⁷ advocate that a regulatory framework pertaining to LBMP should provide for the best combination of instruments and measures and assess the best mix of command and control, voluntary and economy-based instruments, taking into consideration the social, economic, legal, institutional, environmental and cultural characteristics of the country concerned as well as the local and national regulatory priorities and objectives in terms of LBMP. Effective enforcement and compliance with the regulatory framework pertaining to LBMP are also regarded as critical and essential to ensuring effective regulation of LBMP.⁴⁸

42 Own interpretation, based on the review of international best practice-related documents as identified in Appendix 1.

43 Based on the review and analysis of international best practice-related documents as identified in Appendix 1. Also see 2.3.4.2 (a) and (b).

44 Based on the review and analysis of international best practice-related documents as identified in Appendix 1. Also see 2.3.4.2.

45 Osborn and Datta 2006 *Ocean & Coastal Management* 576-596.

46 Based on the review of international best practice-related documents as identified in Appendix 1, especially in terms of the GPA.

47 Osborn and Datta 2006 *Ocean & Coastal Management* 576-596.

48 In this context, international best practice advocates the following to facilitate effective compliance and enforcement: effective integration of the polluter pays principle in the legal system; comprehensive inspections of development and activities; strict sanctions, fines and penalties; the creation of environmental crimes in terms of LBMP; the development of a comprehensive compensation regime; the implementation (by the private sector and the relevant authorities) of relevant monitoring programmes; and the effective reporting of

International best practice recommends further that a legal review and assessment of the environmental legal framework be conducted to assess its implications for the regulation of LBMP. This study uses guidance from international best practice to conduct such a legal review and assessment of the South African environmental regulatory frameworks pertaining to LBMP regulation.

1.4 The South African context

Few studies have assessed LBMP in South Africa.⁴⁹ In terms of these existing studies the main sources of LBMP in South Africa include industrial development, storm-water run-off, litter on beaches, poor catchment management, inappropriate planned sewage disposal and treatment, river pollution, sugarcane burning, coastal urbanisation, climate change, mining, freshwater abstraction and flow modification, municipal and industrial wastewater, agricultural practices, port and harbour operations and off-road vehicles.⁵⁰

There are four main statutes which are regarded as the most relevant for the regulation of LBMP in South Africa, namely: *National Environmental Management: Integrated Coastal Management Act* 24 of 2008 (NEM:ICMA); *National Water Act* 36 of 1998 (NWA); *National Environmental Management: Waste Act* 58 of 2008 (NEM:WA) and the *National Environment Management Act* 108 of 1998 (NEMA). There are other statutes indirectly addressing LBMP⁵¹ including the *Maritime Zones Act* 15 of 1994 (MZA); *Hazardous Substances Act* 15 of 1973 (HAS); *Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act* 36 of 1947 (FFASA);

contraventions. Based on the review of international best practice-related documents as identified in Appendix 1, especially in terms of the GPA. See Chapter 2 for further information on guidance from international best practice in this context. See 3.5.4 for analysis of the enforcement of compliance by the French regulatory framework pertaining to LBMP and 5.4.5 for the South African assessment.

49 Among others: the Department of Water and Environmental Affairs (DWEA) previously the Department of Environmental Affairs and Tourism (DEAT) *NPA* (latest and most comprehensive study on LBMP); Atkinson and Clark *Marine and Coastal Ecosystems*; DEAT *state of the Coast*; and DEAT *Coastal Policy Green Paper* 1998. For further information on LBMP in South Africa refer to 2.4.1.

50 For further information about LBMP in South Africa see 2.4.1.

51 See Chapters 5 and 6 for further information.

Agricultural Pest Act 30 of 1983 (APA); Conservation of Agricultural Resources Act 43 of 1983 (CARA); Foodstuffs, Cosmetics and Disinfections Act 54 of 1972 (FCDA); Marine Living Resources Act 18 of 1998 (MLRA); Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA); as well as relevant local authority bylaws and provincial legislation. It is important to note that South Africa does not have a dedicated statute dealing with pollution, and more specifically Integrated Pollution Prevention and Control (IPPC). This study will analyse the potential implications of this potential regulatory gap for the regulation of LBMP.⁵²

The environmental regulatory framework in South Africa provides some of the direct⁵³ and indirect⁵⁴ regulatory instruments advocated by international best practice.⁵⁵ However, the South African legislative framework is generally regarded as fragmented and characterised by legislative gaps, confusion, overlaps and inefficiency,⁵⁶ which might affect the development and implementation of an integrated regulatory framework pertaining to LBMP.⁵⁷ One example of the effect of such fragmentation on the regulation of LBMP is the exclusion from the regulatory scope of the NWA of coastal and marine waters (with the exception of coastal wetlands and estuaries).⁵⁸ However, the discharge of effluent through sea outfalls is to some extent regulated by the Act, as is the disposal of land-derived water containing waste into some part of the marine environment of South Africa,⁵⁹ which is also regulated by the NEM:ICMA. The regulatory fragmentation and the inter-

52 See Chapters 5 for further information on this matter.

53 For example direct regulatory instruments include water emissions standards, the water classification system, and the requirement for environmental impact assessments (EIA). For further information about the direct instruments in the South African context, refer to 5.3.

54 For example, indirect regulatory instruments include water quality monitoring programmes, financial provisions, and ecological assessments like a state of the environmental report. For further information about the indirect instruments in the South African context, refer to 5.4.

55 See 5.3 and 5.4 which provide a detailed legal appraisal of the South African direct and indirect regulatory instruments pertaining to LBMP.

56 Kotzé *Integrated Environmental Governance* 16-17.

57 GPA/UNEP *Protecting coastal and marine environments* 32. For further information see Chapters 5 and 6, which provide a detailed legal appraisal of the South African regulatory framework pertaining to LBMP.

58 In terms of NWA, "water resources" include a watercourse, surface water, estuary or aquifer. The sea, including coastal and marine waters, is excluded from the scope of the Act.

59 See 5.3.3.1 for a detailed legal analysis.

relationship between the NEMA, the NEM:WA, the NEM:ICMA and the NWA are carefully analysed in this study to assess their implications for LBMP regulation.⁶⁰

In terms of the institutional framework, the South African government is divided into three autonomous, yet interdependent governmental spheres.⁶¹ Schedules 4 and 5 of the *Constitution of the Republic of South Africa*, 1996 prescribe the main functional areas of concurrent and exclusive legislative competence between the governmental spheres. Such repartition of competencies and jurisdiction may create some confusion as to which sphere might be responsible for LBMP or for which regulatory aspects of LBMP regulation they might be respectively responsible. Similarly, the main functional areas of exclusive provincial and/or local legislative competence identified in Schedule 5 of the Constitution may further exacerbate the confusion.⁶² To add to such complexity, there are various sectoral departments and organs of State directly or indirectly involved in the regulation of LBMP, including the Department of Water and Environmental Affairs (DWEA),⁶³ the Department of Health (DH), the Department of Agriculture and Fisheries (DAF), the Department of Minerals Resources (DM), the Department of Energy (DE) and the Department of Trade and Industry (DTI), as well as their provincial counterparts (provincial departments) and municipalities.⁶⁴

Some of the main issues faced by South Africa in implementing a cohesive, comprehensive and effective regulatory framework to address coastal and marine protection⁶⁵ include a lack of commitment by the authorities, the collapse of governmental structures in certain areas (i.e. the Wild Coast), inadequate conflict

60 See 5.2 and 5.3 for a detailed legal analysis.

61 The national, provincial and local/municipal governmental spheres, which are distinctive, interdependent and interrelated, in terms of s 40 of the Constitution. For further information see 5.6.1.

62 See 5.6 for a legal analysis of the South African institutional organisation regarding the regulation of LBMP.

63 DWEA is a newly created national Ministry (2009) which in principle combines the previous Department of Environmental Affairs and Tourism (DEAT) and the Department of Waters Affairs and Forestry (DWAF). The Ministry of Water and Environmental Affairs comprises two separate departments: the Department of Environmental Affairs and the Department of Water Affairs. The operational modalities of this new department are currently unclear. See 5.6 for a more detailed legal analysis on this matter.

64 See 5.6.3 for a more detailed legal analysis on this matter.

65 Identified in Chapter 6 DEAT *Coastal Policy Green Paper* 1998.

resolution mechanisms, confusion due to the overlapping of roles and poor co-operation among different levels of government, limited institutional capacity, the absence of efficient coastal management forums, the need for more accountable resource management, the fact that management authorities are located far from the coast, the lack of enforcement of existing laws, and legislative and institutional fragmentation.⁶⁶ Such issues also have the potential to impact on the regulation of LBMP. Therefore, it seems that there is room for improvement in facilitating the development and implementation of a comprehensive national regulatory framework pertaining to LBMP.

1.5 The French context

Various studies, general and specific, have been conducted to assess LBMP in France, and generally in Europe.⁶⁷ LBMP has been identified as the major contributor to marine pollution in France.⁶⁸ The main sources of LBMP in France include urban waste water (including effluents and sewage), run-off, storm water, nitrates mainly from agricultural activities, erosion caused by extensive coastal urban development, nuclear activities, climate change and coastal tourism.⁶⁹

In terms of French law, the following provisions of the *Code de l'Environnement* (the environmental code) are regarded as the most relevant in terms of LBMP regulation: *Titre 1* "Water and Aquatic Environment", articles L210-1 to L218-86 and *Titre 2* "*Littoral*" articles L321-1 to 322-14 as well as the associated "*provisions réglementaires*" (reglementary provisions) of the Code. National government (centralised and decentralised) and *collectivités territoriales* (*Régions, Départements*

66 Refer to 5.6 for further analysis of these matters.

67 Refer to 2.5.4 and 3.5.1 for further information on LBMP in France and for further information on the studies undertaken in this context.

68 As identified by the "*Grenelle de la mer*" and also in related specific documentation including, *Ministère de l'Ecologie, de l'Energie, du développement durable et de la Mer, en charge des Technologies vertes et des Négociations sur le climat* (MEEDDM) 2009 http://www.legrenelle-mer.gouv.fr/IMG/pdf/Livre_bleu_anglais_web.pdf and MEEDDM 2009 http://www.legrenelle-mer.gouv.fr/IMG/pdf/compil3dossiers_syntheses70709.pdf.

69 MEDD *L'environnement en France* 200-210. For further information about LBMP in France, see 2.5.4.

and *Communes*)⁷⁰ are involved in the regulation of LBMP.⁷¹ Each of these spheres has specific legislative, regulatory and executive competences regarding LBMP. Since 1982, the date of the introduction of the Act on Territorial Decentralisation ("*Loi relative aux droits et libertés des communes, des départements et des régions*"), local government has been given greater executive power and independence. At the central government level there is one main ministry responsible for the regulation and management of marine pollution, namely the *Ministère de l'écologie, du développement durable, des transports et du logement* (Ministry of ecology, sustainable development, transport and housing).⁷²

To provide the most comprehensive and complete legal analysis of the French regulatory framework pertaining to LBMP it is necessary to analyse the relevant European Union (EU) Directives⁷³ involved in the regulation of LBMP, especially those which have not yet been implemented or are in the process of being implemented in France.⁷⁴ In this context, two Directives have been identified as the most relevant for the regulation of LBMP, namely the *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy* (Water Framework Directive or WFD) and the *Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the*

70 Territorial collectivities (regions, departments and municipalities).

71 See 3.7 for further information in the institutional organisation in France related to LBMP regulation.

72 It was created by *Décret* 18 May 2007, and it is referred to as MEDDTL.

73 An EU Directive is a form of law that is "directed" at the Member states. It will set out the objective of the policy which needs to be attained. The Member states must then pass the relevant domestic legislation to give effect to the terms of the Directive within a time frame set in the Directive, usually two years. Directives can be used to set minimum EU standards to be applied at national level, but may also leave Member states free to apply more stringent national measures, provided these do not conflict with free movement and free market rules. European law monitor 2009 <http://www.europeanlawmonitor.org/EU-Information/What-Is-Guide-to-Key-EU-Terms/EU-Legislation-What-is-an-EU-Directive.html>. See Chapter 3 for further information.

74 France has an obligation, in terms of the European Union (EU) legal framework, to incorporate (transpose, implement and enforce) in the national legal framework the provisions of EU law, as per the timeframe prescribed in the Directives and related implementation guidelines (if applicable) and other prescriptions. See 3.2.2 and 4.1 for further explanation of the importance of European environmental law for French environmental law

field of marine environmental policy (Marine Strategy Framework Directive or MSFD).⁷⁵

The WFD creates a holistic management framework for the protection of all water bodies including rivers, lakes, coastal waters, dams, transitional waters and ground water. The Directive provides for the establishment of river basin districts, meaning an area of land and sea, consisting of one or more neighbouring river basins including associated groundwater and coastal water. The Directive provides for the development of the following regulatory instruments: river basin management plans, pollution prevention and control measures, monitoring, "programmes of measures", water use management principles, and water quality objectives and standards.⁷⁶ The aim of the MSFD is to promote sustainable use of the seas and conserve marine ecosystems. The Directive provides an overall framework for action and strives to ensure that the action taken is coordinated, consistent and properly integrated taking into account other community legislation as well as international agreements. The Directive also prescribes the development of the following regulatory instruments: marine strategies to provide for marine waters assessment, the determination of good environmental status and targets, the establishment of monitoring programmes, the development of "programmes of measures", and co-ordination and co-operation between Member states. All of these are recognised by international best practice as important features of a regulatory framework pertaining to LBMP.⁷⁷ The transposition of these Directives into the French legal framework is influencing and guiding the development and/or amendment of national legislation,⁷⁸ regulatory mechanisms⁷⁹ and institutional organisation regarding the regulation of LBMP.⁸⁰

75 See Chapter 4 for the legal analysis of these two Directives and others in the context of the regulation of LBMP.

76 Refer to 4.3 for further information about each of these regulatory instruments.

77 Refer to Chapter 2 for further information.

78 For example, Law n° 2004-338 of April 21, 2004 transposed the EU Water Framework Directive (WFD) and amended the relevant provisions of the *Code de L'Environnement*.

79 For example the *Schéma Directeur D'Aménagement et de Gestion des Eaux* (SDAGE).

80 Refer to 3.7.

The motivation and explanation for the selection of the French (including European) regulatory framework is provided below.⁸¹

1.6 Research aim

The aim of this study is to conduct a critical analysis of the South African regulatory framework pertaining to LBMP in comparison to international best practice and the French regulatory framework in order to identify the key South African challenges in this regard and to make recommendations to address them.

The specific objectives of this thesis are to:

- Conduct a legal analysis of LBMP in order to understand its legal implications in relation to the development and implementation of a regulatory framework in this context.⁸²
- Conduct a thorough legal review and analysis of international best practice in terms of LBMP regulation with a view to identifying and assessing the main features and characteristics of a legal and regulatory framework in this context.⁸³
- Develop a methodological assessment tool in order to conduct a comparative assessment between the French and South African legal and regulatory framework pertaining to LBMP.⁸⁴
- Conduct a legal appraisal of the French⁸⁵ regulatory framework pertaining to LBMP (including the relevant European Directives).⁸⁶
- Conduct an in-depth legal appraisal of the South African regulatory framework related to LBMP, to identify and assess the various regulatory features.⁸⁷

81 See 1.8.

82 Refer to Chapter 2.

83 Refer to Chapter 2.

84 Refer to Chapter 2.

85 Refer to Chapter 3.

86 Refer to Chapter 4.

87 Refer to Chapters 5 and 6.

- Assess which are the features of the South African regulatory framework which need to be improved to facilitate effective and efficient regulation of LBMP.⁸⁸
- Determine whether or not lessons can be learnt from the French⁸⁹ and European⁹⁰ regulatory frameworks to improve the South African regulatory framework in terms of LBMP.⁹¹
- Provide recommendations to improve the South African regulatory framework in terms of LBMP.⁹²

1.7 Research methodology

This research commences by providing an analysis of the premises of the study, namely LBMP and the theoretical foundations associated with LBMP regulation, as identified in international best practice.⁹³ Through this analysis, the study strives to analyse the nature, sources, scope and definitions of LBMP and their implications in terms of the associated regulatory framework.

Then the study identifies and assesses the main regulatory features as identified by international best practice,⁹⁴ to be considered in the development, implementation and/or assessment of a regulatory framework pertaining to LBMP as advocated by international best practice, including the law principles, regulatory scope, regulatory objectives, regulatory instruments, institutional structure, and regulatory priorities.

These features will form the methodological framework to conduct the comparative legal assessment of the French and South African regulatory frameworks pertaining

88 Refer to Chapters 5 and 6.

89 Refer to Chapter 3.

90 Refer to Chapter 4.

91 Refer to Chapters 3, 4 and 7.

92 Refer to Chapter 7.

93 For the purposes of this study, a wide range of documents, including international and regional conventions addressing LBMP, has been reviewed to extract and analyse current international best practice relating to the regulation of LBMP. Appendix 1 provides an overview of the different sources of such international best practice and the various documents which have been analysed and used in this context. Also see Chapter 2 which provides a detailed legal analysis of such international best practice and distils a "methodological framework" to conduct the comparative legal appraisal of the French and South African regulatory framework pertaining to LBMP.

94 Refer to Chapter 2.

to LBMP. They have been identified through an in-depth legal review and analysis of relevant international best practice, which provides guidance on the characteristics and importance of each of the regulatory features. They also provide guidance on how to address most of the challenges identified above, pertaining to the regulation of LBMP.

It also became evident through the initial research about LBMP regulation (mainly with the analysis of the work of GESAMP and GPA) that the legal analysis of another national regulatory framework could provide useful information and guidance for the assessment of the South African regulatory framework.⁹⁵ In this context, France was selected as the country in which to conduct such a comparative legal analysis for the following reasons:

- Its institutional and governance framework which can be regarded in some aspects as very similar to the South African ones.
- The advanced stage of governmental and administrative decentralisation in France and the increasing role of local government in environmental management and regulation, which could assist such a process in South Africa.
- Its sophisticated institutional structure in terms of water management and regulation.

95 "To understand law, even as it is within that country, one must look beyond its boundaries, indeed, beyond one's own time", James Gordley *Comparative legal research: its function in the development of harmonized law* 1995 <http://www.jstor.org/pss/840607>. "Comparative law plays a significant role in the harmonization and unification of the law in modern societies. Comparative law has become a valuable tool for legal analysis of national legal systems, stimulating awareness of the cultural and social character of the law in any given country. Comparative law provides a unique understanding of the way law develops and works in different cultures", Berkeley 2010 <http://www.law.berkeley.edu/147.htm>. "Foreign and comparative legal research involves researching on foreign countries' domestic laws and law principles. The challenges lie in many aspects: different legal traditions, the lack of efficient legal information systems or the lack of access to certain fee based databases from that jurisdiction, language barriers, etc" Wang *Foreign and Comparative Legal Research Guide* 25. However, the danger and limitations of comparative legal research must also be noted. As previously mentioned, the local circumstances will have to be taken into consideration in the comparative assessments and related recommendations. Moreover, the determination of the scope of the comparative assessment is also important; in the context of this research the scope is limited to national LBMP regulation. The comparative assessment process is also important, and to minimise the risks linked to this matter, a methodological tool has been developed. For further information see Legrand and Munday *Comparative legal studies*.

- The innovative planning and integrated regulatory instruments assisting water management including LBMP regulation.
- The importance allocated to financial planning and management related to environmental regulatory interventions, including the implementation of an elaborated system of environmental taxes and fees.
- The legal importance allocated to the principle "*l'eau paye l'eau*" (water pays for water), which is aimed at ensuring that water related tariffs/fees enable the recovery of the "real costs" of water related services.
- Its status as a EU Member state, guiding its approach to the regulation of LBMP within a regional context.
- Its well-known water law, internationally regarded as very comprehensive; similarly the South Africa's NWA is internationally recognised as one of the best of its kind.
- Its well-known littoral law and its international leadership role regarding integrated coastal management, marine pollution management, littoral protection and general coastal and marine resources management.
- The characteristic social⁹⁶ and economic⁹⁷ dependence on the coastal and marine environment in France, which is in alignment with trends in South Africa.
- The value⁹⁸ attached to the marine and coastal environment in France, which is similar to that in the South African situation.
- The common pressures on the French marine environment from LBMP, which are to some extent similar to the South African ones.

The French regulatory framework (including the most relevant European Directives in this context) is analysed focusing on the main regulatory features in terms of LBMP. A detailed appraisal of the South African regulatory framework pertaining to LBMP is then given, providing a detailed legal analysis and assessment of each of

96 For example, a large percentage of the French population lives on the coast and many industrial nodes are also located on the coast.

97 For example, ports, tourism and marine aquaculture have an important influence on the French GDP.

98 The economic, social, cultural, environmental, historical and emotional value.

the above regulatory features. The study also provides an overview of the subject matter of the comparative legal appraisal, namely France and South Africa, and of their respective economic, social and environmental features.⁹⁹ It is important to note that there are similarities and differences regarding the social, economic, political and environmental characteristics of France and South Africa.¹⁰⁰ Despite the disparities, the legal analysis of the French regulatory framework pertaining to LBMP should assist the overall legal appraisal of the South African legal framework. The disparities will be taken into consideration in the determination of possible guidance from the French regulatory approach to controlling LBMP.¹⁰¹

The scope of this study is limited to national legislation in France and in South Africa. This should not be taken as an indication that sub-national legislation, regional or international laws are not important in the regulation of LBMP. The decision to limit the scope of this study to national legislation is explained by the need to limit and

99 As will be shown in Chapter 2, the economic, social and environmental features of a country have an impact on the regulatory framework related to LBMP, especially in terms of the selection of the most suitable regulatory instruments and the institutional structure in this context. Tanaka argues that activities (sources of LBMP) are "closely bound up with crucial national programmes for economic, industrial and social development of those countries. The economic costs of measures to regulate land-based pollution are seen as high, and inevitably affect economic development. Hence, states are often reluctant to approve any attempts at restricting their economic developments by legally binding instruments. States will accept legal regulation only if a global legal instrument will adequately reflect their need for the development and if it will benefit their national interests. It would seem that at the global level, these conditions are not yet fulfilled with respect to land-based marine pollution". She further notes that "owing to the economic, technological and geographical divergence in the world, it appears difficult, if not impossible, to establish uniform and detailed rules regulating land-based pollution at the global level. Accordingly, it becomes necessary to tailor any rules preventing marine pollution from land-based sources to the particular needs and circumstances of the states and regions", Tanaka 2006 *ZaöRV* 549.

100 See 3.1 and 5.1 for further information about France and South Africa.

101 Tanaka argues that activities which cause LBMP are "closely bound up with crucial national programmes for economic, industrial and social development of those countries. The economic costs of measures to regulate land-based pollution are seen as high, and inevitably affect economic development. Hence, states are often reluctant to approve any attempts at restricting their economic developments by legally binding instruments. States will accept legal regulation only if a global legal instrument will adequately reflect their need for the development and if it will benefit their national interests. It would seem that at the global level, these conditions are not yet fulfilled with respect to the land-based marine pollution", Tanaka 2006 *ZaöRV* 548. It seems therefore important to take into consideration the economic, social and environmental features of a country when assessing its regulatory framework pertaining to LBMP. See 2.3.6 and 3.1.1 for further information. In a comparative assessment, the economic, social and environmental features of a country will affect its ability to implement a regulatory instrument used by another country. It is also important to note in this context the limitation of comparative law generally and of this comparison specifically.

focus the legal enquiry in such a way as to be able to conduct a detailed and in-depth legal analysis.¹⁰² Moreover, due to the comparative nature of this study it was decided that it would be more appropriate and relevant to assess and compare national legislation.

In an attempt to supply a context for this study, data has been gathered from the relevant government bodies and organs of state to analyse their respective legislative and executive authority to regulate and manage LBMP as well as to identify their current strategies, plans, programmes, policy and projects dealing with LBMP.

Unstructured interviews were conducted in France and South Africa with identified representatives of the relevant national, provincial, local and inter-governmental forums as well as with representatives of relevant governmental spheres, organs of state and experts, to address the research problem. The aim was to conduct a gap analysis, assessing the weaknesses and strengths of the actual regulatory framework pertaining to LBMP. The interviews were also aimed at assessing and testing the different regulatory options available for improving the situation.¹⁰³

1.8 Structure of the research

Chapter 2 introduces the premises of the research, including the theoretical foundations of the study. It introduces the phenomenon of LBMP, presents the outcomes of the legal review and the analysis of the international best practice in the context of the regulation of LBMP. Chapter 2 also introduces the methodological assessment tool developed to conduct the comparative legal analysis between France and South Africa. Chapter 3 provides an in-depth legal appraisal of the French regulatory framework pertaining to LBMP, also providing an overview of the state of LBMP in France and South Africa. Chapter 4 presents and analyses the

102 However, in the French situation, it has been decided for completeness sake to include a legal analysis of the most relevant European Directives regarding LBMP regulation which influence the French regulatory framework, refer to 3.2.2 and 4.1 for further information.

103 See the bibliography section for further information on the interviews conducted for this research.

most relevant European Directives pertaining to LBMP. Chapter 5 and 6 present the outcomes of the legal analysis of the South African environmental regulatory framework pertaining to LBMP. Chapter 7 concludes with a critical assessment of the South African regulatory framework pertaining to LBMP and recommendations based on the premises of the research and theoretical foundations as presented in Chapter 2 and the comparative assessment conducted in Chapters 3, 4, 5 and 6, to improve the South African regulatory framework pertaining to LBMP.