

CHAPTER 5: THE SOUTH AFRICAN REGULATORY FRAMEWORK

Using the methodological framework developed and presented in Chapter 2,¹²³⁸ this Chapter strives to conduct a critical legal appraisal of the South African regulatory framework pertaining to LBMP. In order to do so it presents an overview of South Africa and its associated constitutional, economic and social characteristics. It then provides an introductory background on the current South African environmental regulatory framework pertaining to LBMP. In this context it identifies and analyses the most relevant environmental statutes involved in the regulation of LBMP. It then conducts a critical analysis of the regulatory scope and objectives of South African environmental legislation relating to LBMP regulation, and presents the incorporated law principles. The Chapter then conducts a legal analysis of the most relevant regulatory instruments (direct and indirect) in terms of LBMP regulation implemented by South African environmental law as well as a legal appraisal of the current South African institutional structures involved in LBMP regulation. The LBMP-related regulatory priorities in the South African context and their associated regulatory instruments are assessed in Chapter 6.

5.1 Overview of South Africa

South Africa is still experiencing and managing the political, social, economic and environmental heritage of the Apartheid era. Apartheid officially ended in 1994 and the new South African Constitution¹²³⁹ established the Republic of South Africa. The political, economic and social transformation of the country is fairly recent, having taken place in only the last 16 years. For this reason South Africa is often referred to as a "young democracy"¹²⁴⁰ or "immature democracy".¹²⁴¹ South Africa is an upper middle-income country with the characteristics of both a developed and developing

1238 The methodological framework involves a legal assessment of the following regulatory features: law principles, regulatory scope, regulatory objectives/purpose, regulatory instruments, institutional structure, and priority areas. Refer to Chapter 2 for further information.

1239 *Constitution of the Republic of South Africa*, 1996.

1240 Bawa 2005 *Social Research* vii.

1241 Gorton *SA Blook: a piece of significance* Chapter 3.

nation, however in the UN system, the country is still categorised as a developing country.

5.1.1 Current state of LBMP in South Africa

The *Coastal Policy Green Paper*¹²⁴² of 1996 identified some of the main sources of LBMP in South Africa.¹²⁴³ A report analysing LBMP in the BCLME region was subsequently conducted in 2006¹²⁴⁴ and identified some additional activities contributing to LBMP namely the refining of oil, mining, the generation of power, and agricultural activities amongst others. The following industries were identified as the main releasers of effluents/waste water into the marine environment: fish processing plants, pulp and paper mills, fertiliser plants, petroleum refineries, fruit and vegetable processing plants, textile mills and aluminium production plants.¹²⁴⁵ The latest data in terms of LBMP in South Africa is contained in the South African National Programme of Action for the Protection of the Marine Environment from Land-Based Activities, first edition 2008.¹²⁴⁶ Table 10 provides an overview of the main sources of LBMP in South Africa.¹²⁴⁷

In the Provinces of KwaZulu-Natal, Western Cape and Northern Cape, discharges (of effluents and waste water) are still occurring in estuaries,¹²⁴⁸ which are very sensitive environments in terms of marine pollution, especially LBMP,¹²⁴⁹ and very important ecological assets (providing valuable environmental services) for the marine environment.¹²⁵⁰ Most of the pollution affecting estuaries is derived from land-based

1242 DEAT *White Paper Towards Sustainable Coastal Development in South Africa* 1998.

1243 As stated in 1.4. For further information refer to DEAT *Coastal Policy Green Paper* 1998 6 37.

1244 Taljaard *Baseline assessment of sources and management of LBMP*.

1245 Water Research Commission *Guide for the Marine Disposal of Effluent through Pipelines* also provides very useful information on the priority issues in terms of LBMP, including habitat degradation/ecosystems degradation; industry and mining; sediments; POPs and heavy metals.

1246 DEAT *NPA*.

1247 DEAT *NPA* iv.

1248 DEAT *Monitoring the state of the coast in South Africa* 7.

1249 Refer to 2.3.6.2.

1250 DEAT *Monitoring the state of the coast in South Africa* 7. For further information consult 2.4 of DEAT *NPA*.

sources.¹²⁵¹ In terms of the *NPA*, 65 per cent of South Africa's marine biozones are threatened. Of these, 12 per cent are critically endangered, 15 per cent are endangered and 38 per cent are vulnerable.¹²⁵² Table 11 provides further information on the main sources of LBMP affecting marine biozones in South Africa.

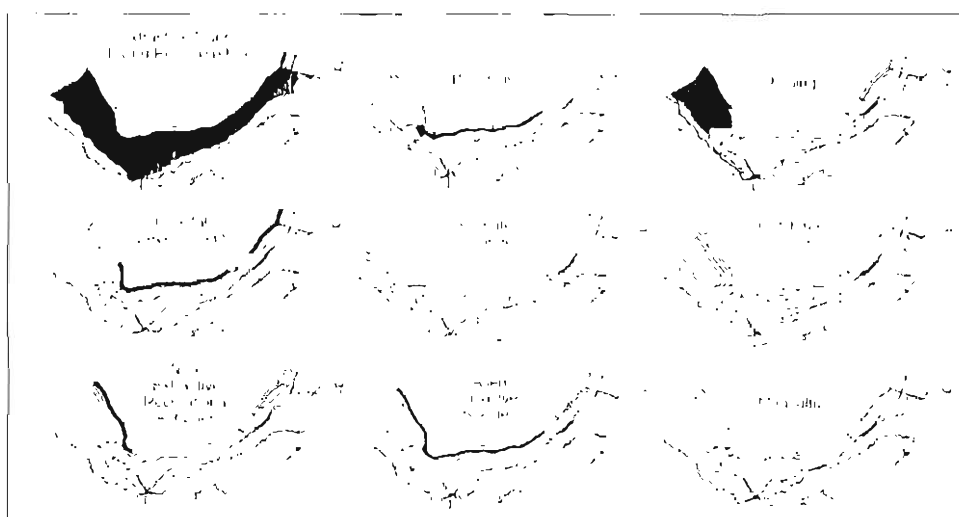


Table 11. Threats to South Africa's marine biozones

Land-use of the coastal environment, which is regarded as an LBMP related issue, is a concern in the following coastal municipalities: Cape Town (with more than 60 per cent¹²⁵³ of transformed land), eThekweni (with more than 65 per

1251 South Africa's estuaries are particularly sensitive to land-based activities. As a result, almost all of South Africa's estuaries have been altered from their original state. "The deterioration in the health of estuaries in urban areas is probably related to pollution and habitat destruction, while in rural systems it is mainly the result of reduction in freshwater inflow, although pollution from agriculture activities cannot be excluded. Estuaries act as purifying systems where nutrients from the catchment are absorbed by water weed and plankton, resulting in cleaner water entering the sea. This nutrient removal function is manifested in excessive weed growth or phytoplankton blooms in estuaries, rather than in the adjacent marine environment". *DEAT NPA v.*

1252 Over-exploitation of living marine resources was rated as the greatest problem. However, problems linked to land-based activities such as coastal development, mining, climate change, pollution and catchment management/utilisation issues were also considered to contribute significantly to the deterioration of the marine environment, *DEAT NPA v.*

1253 In relation to the total area of the city.

cent¹²⁵⁴ of transformed land), O.R Tambo¹²⁵⁵ (with more than 20 per cent¹²⁵⁶ of degraded land-cover) and Ugu (with more than 16 per cent¹²⁵⁷ of degraded land-cover).¹²⁵⁸ It seems therefore that a localised regulatory approach will be required to effectively address LBMP from the use of land in South Africa. Specific regulatory intervention in these areas will have to take place to address the issue. The areas most vulnerable to LBMP include estuaries, wetlands, bays and the surf zone, and they therefore require specific protection from LBMP.¹²⁵⁹ 27 South African beaches have been awarded the

international Blue Flag status¹²⁶⁰ for the 2010/11 year for excelling in safety, cleanliness, the provision of amenities and the maintenance of environmental standards. There is a strive for continual improvement in terms of the water quality of beaches, but more needs to be done to ensure the safe water quality of the rest of the beaches on the South African coastline.

Finally, Barry¹²⁶¹ states as follows:

By international standards coastal waters around South Africa are considered to have very low levels of pollution. However, there are as many as 67 discharge points through which as much as 1.3 million cubic meters of wastewater is discharged into the marine environment on a daily basis.

1254 In relation to the total area of the city.

1255 In relation to the total area of the city.

1256 In relation to the total area of the city.

1257 In relation to the total area of the city.

1258 DEAT *South African Environmental Outlook* 174.

1259 S 2 of the NEMA states that "sensitive, vulnerable, highly dynamic or stressed ecosystems such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure".

1260 The Blue Flag Programme is owned and run by the independent non-profit organisation Foundation for Environmental Education (FEE). The Blue Flag Programme works towards sustainable development at beaches/marinas through strict criteria dealing with water quality, environmental education and information, environmental management, and safety and other services. The Blue Flag Programme includes environmental education and information for the public, decision makers and tourism operators. For further information, consult: <http://www.blueflag.org/>.

1261 Atkinson and Clark *Marine and Coastal Ecosystems* 24.

It therefore seems that LBMP might not be the current key environmental issue. However considering the rate of development of coastal areas, social, the present economic trends and the current pressures on the marine and coastal environment from LBMP, it could become a major environmental concern. LBMP has the potential to jeopardise sustainable development in South Africa and therefore it is essential for the environmental regulatory framework to address this issue comprehensively and proactively before it becomes a major environmental concern. The lack of comprehensive data in terms of LBMP might also impair the assessment of the state of LBMP in South Africa, not enabling a realistic and informed appraisal.

5.1.2 Government and administrative structures

South Africa is a democratic Republic.¹²⁶² There are three spheres of government, national, provincial¹²⁶³ and local, which are distinctive, interdependent and interrelated.¹²⁶⁴ The President is the Head of State and of the national executive.¹²⁶⁵ The President is therefore responsible for the effective implementation of law as well as for developing and implementing national policy.¹²⁶⁶ The executive authority of a Province is vested in the Premier, who exercises such authority together with the other members of the Executive Council.¹²⁶⁷ Their main mandate is to prepare, initiate and implement provincial legislation.¹²⁶⁸ They also have to implement or administer national legislation, depending whether it is within the functional areas listed in Schedules 4 and 5 of

1262 S 1 of the Constitution. For further information on the South African Constitutional organisation see Woolman, Roux and Bishop *Constitutional law of South Africa* and Currie and De Waal *New constitutional & administrative law*.

1263 There are nine Provinces, namely the Eastern Cape, the Western Cape, the Free state, Gauteng, KwaZulu-Natal, Mpumalanga, the Northern Cape, the Northern Province, and the North West Province. S 103 of the Constitution. For further information about provincial and local governments see Ndlela *A practical guide to local government in South Africa* see Bekink *Principles of South African Local Government Law*.

1264 S 40 of the Constitution.

1265 S 83 of the Constitution.

1266 S 85 of the Constitution.

1267 S 125(1) of the Constitution.

1268 S 125(2) of the Constitution.

the Constitution¹²⁶⁹ (with some exceptions addressed under the Constitution) and if it has been assigned to the provincial executive.¹²⁷⁰ They also have a co-ordination function between the Province and other government spheres as well as with the various sectoral provincial departments.¹²⁷¹ The Provinces also have an essential role to play regarding the supervision of local government.¹²⁷² In terms of the Constitution, when a municipality cannot or does not fulfil an executive obligation in terms of legislation, the relevant provincial executive may intervene by taking any appropriate steps to ensure fulfilment of that obligation.¹²⁷³ The executive authority of a municipality is vested in its municipal council.¹²⁷⁴ A municipality has executive power in respect of, and has the right to administer local government matters prescribed by the Constitution and any other matters assigned to it by national or provincial government.¹²⁷⁵ Provinces and municipalities also have legislative competences in their respective spheres of jurisdiction. The legislative powers of each governmental sphere are prescribed by the Constitution.¹²⁷⁶ The functional areas of concurrent and exclusive legislative competence of the governmental spheres are presented in schedules 4 and 5 of the Constitution. The Parliament consists of the National Assembly (representing the people) and the National Council of Provinces (representing the Provinces), and it holds the national legislative authority.¹²⁷⁷ The provincial legislative powers are held by the provincial legislature, which has the power to pass a provincial Constitution and provincial legislation.¹²⁷⁸ The legislative authority of a municipality is vested in its municipal council, which may make and

1269 See 5.6 for more information on the implications of Schedule 4 and 5 for the administration and regulation of LBMP.

1270 S 125(2)(b) of the Constitution.

1271 S 125(2) of the Constitution.

1272 S 139 of the Constitution.

1273 S 139(1) of the Constitution.

1274 S 151(2) of the Constitution.

1275 S 151 (3) and 156 of the Constitution.

1276 S 42 - 82 of the Constitution have to do with national government, S 104 to 124 with provincial government, and S 151 to 154 with local government.

1277 S 42-43 of the Constitution.

1278 S 104-124 of the Constitution.

administer bylaws for the effective administration of the matters which it has the right to administer.¹²⁷⁹

Since the first democratic elections in 1994, one political party has dominated the political scene, namely the African National Congress (ANC).¹²⁸⁰ This party was re-elected in 2009. It is recognised that there is a lack of a constructive and organised political opposition on the South African political scene, a fact which might jeopardise the legitimacy of the young democracy (as there is actually no real choice between parties to elect into government, and there is no effective "political guard dog" to monitor the governing party).¹²⁸¹

5.1.3 Economic situation

South Africa has since the end of the Apartheid managed to implement sound economic and monetary policies which have enabled a constant but accelerating economic growth (fluctuating between 3 per cent and 5 per cent in the last five years).¹²⁸² According to the economic indicators used by the Organisation for Economic Co-operation and Development (the OECD), these figures

1279 S 104-124 of the Constitution.

1280 The ANC has seen its supreme position challenged due to the lack of delivery regarding some critical items of its political agenda, including housing, unemployment, HIV-AIDS, and security, amongst other factors. Corruption scandals have also challenged the structural organisation of the party. See Zamikhaya Maseti *Challenges facing the ANC-led administration post the 2009 general election*, The Times 2009 <http://www.the-times.co.za/News/Article.aspx?id=1039011>, IFP 2009 <http://www.ifp.org.za/Speeches/150309sp.htm> and Polity 2009 <http://www.polity.org.za/>.

1281 Otaleye *Political parties*. Also see The Dinokeng Scenario 2008. http://www.dinokengscenarios.co.za/sa_lia_political.php "The country has benefited from a 'single dominant party system' that saw the ANC dominate Parliament with more than a two-thirds majority for the past ten years. A weak ruling party or fractured coalition in the early phase of our democratisation would have strained our fragile democracy. The benefits of a strong single party, with a reasonable approach to national issues and a reconciliatory approach to the opposition, formed the backbone of the new democracy. However, this 'single dominant party system' comes at a cost. In the long term, it generates potential threats to democracy; a sense in the dominant party that 'power is its birthright'. Moreover, political studies have demonstrated that the existence of a political counter power is a very effective check to other actions of the party in power, to ensure effective delivery of its political programme. A strong opposition party will also frequently effectively monitor and assess the performance and modalities of the performance of the party in power.

1282 OECD *African economic outlook* 1.

demonstrate major macroeconomic achievements in South Africa since 1994.¹²⁸³ The budget deficit was reduced "progressively through both revenue measures and expenditure restraint, and for the last two years the budget has been in surplus".¹²⁸⁴ The turnaround in budgetary performance has brought the public debt burden down to moderate levels.¹²⁸⁵ The government has been able to control the inflation rate, which has fluctuated between 3 per cent and 7 per cent (excluding the years 2009 and 2010).¹²⁸⁶ The economic policies have succeeded in establishing the confidence of foreign investors, which is a critical element to ensure the sustainability of the current economic growth.¹²⁸⁷ South Africa has seen a remarkable increase in development and capital expenditure in the last years.¹²⁸⁸

It is estimated that the main sectors contributing to South African economic growth are the following:¹²⁸⁹ financial and business services (about 22 per cent of the GDP); manufacturing (about 19 per cent of the GDP); government services (about 15 per cent of the GDP); wholesale and retail trade (about 14 per cent of the GDP); transport, storage and communication (about 10 per cent of the GDP); mining (about 7 per cent of the GDP) and agriculture (about 3 per cent of the GDP). In the last years, strong emphasis has been placed on the restructuring of state-owned entities (including Transnet, Telkom and Eskom, among others) to improve their competitiveness, efficiency and effectiveness.¹²⁹⁰ Strong emphasis has been given to increase capital expenditure with the purpose of developing the infrastructure necessary to support economic growth. This includes transport-related infrastructure (rail, ports and roads), telecommunication and energy.¹²⁹¹

1283 OECD *Évaluation économique de l'afrique du sud* 2-5.

1284 OECD *Economic assessment of South Africa* 1-6.

1285 OECD *Economic assessment of South Africa* 1-3.

1286 OECD *African economic outlook* 1-3.

1287 OECD *Évaluation économique de l'afrique du sud* 7.

1288 OECD *Évaluation économique de l'afrique du sud* 7.

1289 OECD *African economic outlook* 1-5.

1290 OECD *African economic outlook* 1-5.

1291 OECD *African economic outlook* 1-5.

5.1.4 Social situation

As a direct consequence of the Apartheid legislative framework, there are still strong inequalities between racial groups, especially between the White and Black populations. An OECD report¹²⁹² refers to a strong "economic dualism", meaning that there is an unequal distribution of the benefits of economic growth.¹²⁹³ There is still a large disparity between the poor and the rich, and unemployment (since 1994 the annual average ratio of work seekers as against those in employment has been about 24 per cent)¹²⁹⁴ is still a critical economic and social challenge.¹²⁹⁵ Addressing unemployment and poverty is a priority for the government, especially in the difficult current economic situation. Another critical social challenge faced by South Africa is HIV-AIDS.¹²⁹⁶ HIV-AIDS is commonly seen as the most important and urgent issue the nation needs to address if South Africa wishes to ensure sustainable economic growth.¹²⁹⁷ The lack of appropriate skills is also a major challenge.¹²⁹⁸ It is still difficult, especially for the relevant organs of the state, to source skilled staff.¹²⁹⁹

5.1.5 Preliminary implications for LBMP regulation

The constitutional dispensation of executive and legislative powers affects the responsibilities and interrelationship between the three spheres of government for the implementation of regulation related to LBMP.¹³⁰⁰ The fact that each governmental sphere has a specific, exclusive or/and concurrent, legislative and executive jurisdiction lends a certain level of complexity to the institutional and

1292 OECD *African economic outlook* 1-5.

1293 Buaneews 2008 <http://www.southafrica.info/about/social/poverty-021008.htm>.

1294 Buaneews 2008 <http://www.southafrica.info/business/economy/development/lfs-280308.htm>.

1295 OECD *African economic outlook* 1-5.

1296 Human immunodeficiency virus / Acquired immune deficiency syndrome or acquired immunodeficiency syndrome.

1297 OECD *African economic outlook* 1-5.

1298 DEAT *NPA* the Chapter on governance.

1299 DEAT *NPA* the Chapter on governance.

1300 See 5.6 for further information.

regulatory framework related to LBMP,¹³⁰¹ especially considering the cross-sectoral nature of LBMP regulation.¹³⁰² The nature of the executive and administrative framework also implies that co-operation¹³⁰³ and co-operative governance¹³⁰⁴ will be essential to facilitate the integrated management and regulation of LBMP. The constitutional dispensation in terms of executive powers, especially as it relates to legislation (including policy implementation and administration), could hamper the effective regulation of LBMP, which requires integrated and cohesive implementation of various sectoral legislation.¹³⁰⁵ The different legislative jurisdictions might make it difficult to ensure the effective and integrated regulation of LBMP, as it might be a challenge to ensure that all relevant legislation, in all spheres of government, is developed cohesively and in a complementary way, to support and assist each legislative intervention. Due to the cross-sectoral nature of LBMP, its regulation relates to functional areas of both concurrent legislative competence (such as agriculture and the environment) and exclusive legislative competence (such as beaches and cleansing), as per schedule 4 and 5 of the Constitution.

Generally, like most other emerging/developing economies, South Africa is confronted by the challenge of attaining sustainable development.¹³⁰⁶ Economically the country is at a stage where important infrastructural investments and industrial developments are required to maintain economic growth and initiate social development. This economic and industrial development entails the intensive exploitation of natural resources and the concomitant generation of various types of pollution. The government will need to manage and integrate the social and economic needs in such a way as to ensure

1301 See 5.6 for more information on the institutional framework related to LBMP regulation.

1302 Refer to 2.2.

1303 S 40 and 41 of the Constitution.

1304 See 5.6.2 for further information.

1305 Refer to Chapter 6.

1306 Ukaga and Afoaku *Sustainable Development in Africa* and Adelzadeh *South Africa: The Challenge of Sustainable Development*.

continuous and efficient economic growth while protecting the environment in a cost-effective way.¹³⁰⁷

The nature of this infrastructure programme (e.g. the development of the country's rail system, its ports and its roads) might unfortunately have a direct impact on LBMP. In addition, it might be a challenge for the government in charge of such an infrastructure programme to ensure delivery within a set period of time, and there will be cost constraints while managing environmental considerations, including LBMP, during the construction and operational phases of such projects. The need for growth in industrial production entails the development of new industrial infrastructure which, if LBMP is not effectively managed, will have associated environmental impacts, including the production of effluents, waste generation, atmospheric pollution, soil pollution, ground-water pollution and land degradation. The agricultural sector is still causing significant pollution.¹³⁰⁸ Soil degradation, including erosion, is also a direct outcome of unsound agricultural practices. Sugar cane cultivation has been identified as a major cause of marine pollution (through run-off or atmospheric emission, due to the situation of most cane-fields on the coast).¹³⁰⁹ Coastal tourism development places major pressure on the marine and coastal environment. Coastal/urban development (residential, industrial or commercial) is a major source of land-based marine pollution.¹³¹⁰ The development of ports, harbours and marinas and the subsequent activities related to them have been identified as a further source of LBMP.¹³¹¹ The state stimulates certain economic sectors like marine aquaculture, fishing, or coastal tourism, which present a high risk of pollution for the marine environment.¹³¹² The lack of appropriate basic infrastructure to support such economic growth (such as sewage systems, treatment plants, stormwater

1307 Ukaga and Afoaku *Sustainable Development in Africa* and Adelzadeh *South Africa: The Challenge of Sustainable Development*.

1308 DEAT *Environmental outlook 2007* 174.

1309 DEAT *White paper towards sustainable coastal development in South Africa*.

1310 DEAT *White paper towards sustainable coastal development in South Africa*.

1311 DEAT *White paper towards sustainable coastal development in South Africa*.

1312 DEAT *White paper towards sustainable coastal development in South Africa*.

reticulation systems) also generates pressure on the marine environment.¹³¹³ At this stage, the cost of the protection of the environment might therefore be seen as a limitation on economic development.¹³¹⁴

Internalisation of environmental costs has not yet taken place effectively in South Africa.¹³¹⁵ The current government has commenced an assessment of the cost of implementing environmental economic instruments to protect the environment.¹³¹⁶ The main pressure from the current social situation is the level of poverty in the country as a whole.¹³¹⁷ Considering the large percentage of the population living in poverty, governmental priorities are mainly focused on housing, access to services (water and electricity) and unemployment.¹³¹⁸ Consequently, even if it is regarded as an important matter environmental protection is not being addressed as matter of urgency by the government, possibly with the exception of climate change.¹³¹⁹ However, it must be noted that the government has implemented several poverty relief programmes centred on the protection of the environment, for example the "coast care programme".¹³²⁰ Many efforts have also been made to increase environmental awareness, especially in schools, such as the "eco-school programmes".¹³²¹ However, the level of awareness and understanding of

1313 DEAT *White paper towards sustainable coastal development in South Africa*.

1314 Adelzadeh *South Africa The Challenge of Sustainable Development 2*.

1315 See 5.4.3.

1316 National Treasury *Draft Policy Paper: Framework for Considering Market-Based Instruments to support Environmental Fiscal Reform in South Africa* 2006.

1317 In 2004, the South African government committed itself to halving poverty and unemployment by 2014 under the Accelerated and Shared Growth Initiative for South Africa (AsgiSA). Since 2001 the headcount poverty rate has decreased from 51 per cent to 43 per cent. This has largely been attributed to the expansion of social grants, and the creation of more jobs in the economy. But poverty alleviation remains one of the most important concerns for the country. The Southern African NGO Network (SANGONeT) 2009 <http://www.ngopulse.org/article/poverty-remains-priority-sa>.

1318 The *Framework for South Africa's Response to the international economic crisis* 19 February 2009 found on SA Government Information 2009 <http://www.info.gov.za> also see ANC 2009 <http://www.anc.org.za>.

1319 SA Government Information 2009 <http://www.info.gov.za> and ANC 2009 <http://www.anc.org.za>.

1320 For further information see DEA 2009 <http://www.environment.gov.za/ProjProg/CoastCare/index.htm>.

1321 For further information see WESSA 2008 <http://www.wessa.org.za/index.php/Programs/Eco-Schools.html>.

environmental protection is still inadequate.¹³²² The location of numerous informal settlements with non-existent or inappropriate sanitation infrastructure and waste disposal facilities on the coast represents a major source of pollution for the marine environment.¹³²³

Furthermore, most of the population is of the opinion that they have the "right" to freely use natural resources (i.e. fish, water, trees and soil).¹³²⁴ Obviously, if a community's livelihood depends on the marine environment, for example, it will be difficult to make them understand that due to various pressures on this environment it needs to be protected, and that their access' to and use of that environment will have to be limited. This would have a direct negative impact on their main source of income and/or food. The readiest solutions to social problems are sometimes unfortunately directly opposed to the objectives of environmental protection. As the main issues to address as a matter of political urgency are housing, the health system, unemployment, security, and economic

1322 See the approved third revised Tshwane IDP (May 2009) for 2009/2010, Tshwane Municipality 2008 <http://www.tshwane.gov.za/documents/idp2020/chap4/4chap5.htm>, and Environmental monitoring group 2001 <http://www.emg.org.za/documents/mining.pdf>.

1323 DEAT *White paper towards sustainable coastal development in South Africa*.

1324 It is not the purpose of this research to debate such an opinion and to determine if free access to natural resources is actually a constitutional right. But it seems that the position is based mainly on an interpretation of the South African Bill of Rights, especially S 27, which prescribes that: "everyone has the right to have access to...sufficient food and water... The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of each of these rights", and S 24, which prescribes that "everyone has the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that... secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development". It is possible, while avoiding the debate, to recognise that access to a modicum of free resources is necessary for survival, and that such access has to be limited by considerations of effective environmental management. The common opinion is also that the "potential right" to environmental resources is an "absolute right". But the Constitution prescribes in S 36 that "the rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors, including the nature of the right; the importance of the purpose of the limitation; the nature and extent of the limitation; the relation between the limitation and its purpose; and less restrictive means to achieve the purpose". For further information also see Du Plessis *Fulfilment of South Africa's constitutional environmental right* in particular Chapter 6.

growth, protecting the environment is not regarded as a priority on the political agenda.¹³²⁵ This situation might make the management of the uses of the coastal and marine environment a difficult challenge.

5.2 Law principles, regulatory scope and objectives

5.2.1 Premise: a fragmented regulatory framework

Due to the nature and origins of LBMP,¹³²⁶ many South African statutes are (directly or indirectly) relevant for the regulation of LBMP.¹³²⁷ Diagram 1 provides an overview of the most relevant statutes in the context of LBMP pollution in South Africa. All of the statutes identified in the diagram are not similarly important in the regulation of LBMP. The *National Environmental Management Act* 107 of 1998 (NEMA), the *National Water Act* 36 of 1998 (NWA), the *National Environmental Management: Integrated Coastal Management Act* 24 of 2008 (NEM:ICMA) and the *National Environmental Management: Waste Act* 58 of 2008 (NEM:WA) can be regarded as the four main statutes that are of importance in the regulation of LBMP. There are also various specific environmental management acts¹³²⁸ which contain some relevant provisions for the regulation of LBMP. Some sectoral acts (aimed at the regulation of agriculture, mining, development-related activities, products and substances, health and safety, nuclear activities, and planning) prescribe regulatory measures

1325 See the ANC's election Manifesto of 2009, where environmental management and protection is mentioned in only one sentence. ANC, 2009 <http://www.anc.org.za/show.php?doc=lections/2009/manifesto/manifesto.html&title=2009+Election+Manifesto>.

1326 Refer to 2.2.

1327 Strydom and King note that at the national level (South Africa), three legislative mechanisms exist to afford protection to the environment. The first mechanism is the constitutional entrenchment of environmental issues through either a rights-based or a regulatory approach to the Constitution. The second legislative mechanism is to protect the environment through environmental framework legislation, and the third mechanism is to adopt specific environmental legislation that can cover a range of environmental media. Strydom and King *Environmental management* 193.

1328 Namely the *National Environmental Management: Air Quality Act* 39 of 2004 (NEM:AQA), the *National Environmental Management: Protected Areas Act* 57 of 2003 (NEM:PAA), and the *National Environmental Management: Biodiversity Act* 10 of 2004 (NEM:BA).

and instruments which can assist in the regulation of LBMP, a fact which fragments the overall regulatory framework pertaining to LBMP.

The critical assessment in this Chapter concentrates chiefly on the provisions of these four main statutes, as they are thought to be the regulatory instruments that have the most direct implications for the regulation of LBMP in South Africa. The most relevant sectoral statutes are also critically appraised in Chapter 6. It is important to understand that all of the statutes identified in diagram 1 are relevant to regulate activities which can be sources of LBMP. However, only the statutes and provisions which are the most relevant in the context of LBMP management are dealt with in this Chapter.¹³²⁹ In the context of this research, it has been decided to also analyse the provisions of the newly enacted statutes, namely the NEM:ICMA and the NEM:WA, even if all their provisions are not yet in force.¹³³⁰ The following sub-sections present an analysis of the law principles, regulatory scope and objectives incorporated in the main four statutes regulating LBMP, in an attempt to assess whether or not they contribute towards effective LBMP regulation. International best practice is used as a benchmark in order to make such assessments possible.

1329 Please refer to 2.2 for further information on the scope and nature of LBMP.

1330 The rationale for this decision was to ensure that the critical assessment of the South African environmental regulatory framework takes into consideration the most recent statutes and legal provisions which reflect the paradigm shift and modernisation movement in South African environmental law, initiated about ten years ago. Most of the "old provisions" soon to be repealed have not been incorporated in this review.

MOST RELEVANT ENVIRONMENTAL ACTS

- *National Environmental Management Act 107 of 1998 (NEMA)*
- *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)*

MOST RELEVANT SPECIFIC ENVIRONMENTAL ACTS

- *NEM: Protected Areas Act 57 of 2003 (NEM PAA)*
- *NEM: Biodiversity Act 10 of 2004 (NEM BA)*
- *NEM: Air Quality Act 39 of 2004 (NEM:AQA)*

MOST RELEVANT SECTORAL ACTS

AGRICULTURE

- *Conservation of Agricultural Resources Act 43 of 1983*
- *Agricultural Pest Act 36 of 1983*
- *Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947*
- *Genetically Modified Organism Act 15 of 1994*

MINING

- *Mineral and Petroleum Resources Development Act 28 of 2002*
- *Petroleum Pipelines Act 61 of 2003*
- *Gas Act 48 of 2001*

DEVELOPMENT RELATED ACTIVITIES

- *Development Facilitation Act 67 of 1995*
- *National Building Regulations and Building Standards Act 103 of 1977*
- *Environmental Impact Assessment Regulations GN R 543,544, 545 and 546 of 2010 as amended*

PRODUCTS AND SUBSTANCES

- *Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972*
- *Hazardous Substances Act 15 of 1973*
- *Petroleum Product Act 120 of 1977*

HEALTH AND SAFETY

- *National Health Act 61 of 2003*
- *International Health Regulations Act 28 of 1974*
- *Occupational Health and Safety Act 85 of 1993*

NUCLEAR ACTIVITIES

- *Nuclear Energy Act 46 of 1999*
- *National Nuclear Regulator Act 47 of 1999*

WASTE WATER AND SANITATION

- *Water Services Act 108 of 1997*

LOCAL GOVERNMENT AND PLANNING

- *Local Government: Municipal Systems Act 32 of 2000*
- *Local Government: Municipal Structures Act 117 of 1998*

OTHER RELEVANT STATUTES

- *Disaster Management Act 57 of 2002*
- *Maritime Zone Act 15 of 1994*
- *National Heritage Resources Act 25 of 1999*
- *National Ports Act 12 of 2005*
- *Environmental Conservation Act 73 of 1989*
- *Marine Living Resources Act 18 of 1998*

Diagram 1. Overview of the most relevant statutes for LBMP regulation in South Africa.

5.2.2 The NEMA: regulatory objectives and law principles

The NEMA is the environmental framework Act in South Africa.¹³³¹ The NEMA is the first statute produced as a result of the legal reform of environmental law in South Africa, in an attempt to rationalise, update and streamline the environmental legal framework of the country.¹³³²

The NEMA is a statute in resonance with the "environmental right"¹³³³ introduced by the Constitution. It is also the Act which legally introduced the concept of "sustainable development",¹³³⁴ prescribing that "everyone has the right to have the environment protected, for the benefit of present and future generations". The Preamble of the Act also refers to the need for reasonable legislative and other measures that prevent pollution and ecological degradation, that promote conservation, and that secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development. The NEMA recognises the environment as a functional area of concurrent national and provincial legislative competence, and all spheres of government and all organs of state must co-operate with, consult and support one another in managing the environment. One of the objectives of the Act is to

1331 For further information about NEMA refer to Strydom and King *Environmental management* Chapter 7, Glazewski *Environmental Law* 159-192, Nel and Du Plessis 2004 *SA Public Law*, Sampson *legal Framework to Pollution Management in South Africa* 53-57 and Feris *African Journal on Human Rights* 29-49.

1332 DEAT *White Paper on Environmental Management Policy for South Africa* envisages that the law reform programme affecting all existing and new environmental laws will be guided by general principles, and supported by institutions and decision-making and management mechanisms, as well as compliance instruments. DEAT May 1998 http://www.info.gov.za/speeches/1998/98904_2559810886.htm and <http://www.environment.gov.za/soer/nsoer/issues/politic/state.htm>. Also see Sowman and Brown 2006 *Journal of Environmental Planning & Management* 695-712 and Scott and Oelofse 2005 *Journal of Environmental Planning & Management* 445-467.

1333 The Bill of Rights, S 24: "Everyone has the right (a) to an environment that is not harmful to their health or well-being and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other 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."

1334 In terms of the NEMA, "sustainable development" means the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.

facilitate the integration of good environmental management into all development activities.

In this context, the Act prescribes national environmental management principles and sets out the broad objectives of integrated environmental management,¹³³⁵ which are to guide and align the exercise of functions affecting the environment by all organs of state.¹³³⁶ The NEMA only incorporates some of the recommended law principles by international best practice.¹³³⁷ However most of law principles recommended by international best practices are actually incorporated in policy documents.¹³³⁸ LBMP regulation. Some of the main legal definitions and concepts introduced by the NEMA are relevant in this context. In the NEMA, an "ecosystem" is a dynamic system of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit, a definition which is aligned with the definition adopted for the implementation of the ecosystem-based approach.¹³³⁹ The NEMA also introduces a definition of the "best practicable environmental option",¹³⁴⁰ which is an important concept in the context of regulatory instruments based on the sources-directed approach.¹³⁴¹ The Act is also relevant in the context of the relevant institutional structure, as it

1335 For further information about integrated environmental management see Strydom and King *Environmental management* 7-12, 29 and 198-201.

1336 It is important to note that most of the principles referenced in NEMA are in alignment with the principles informing international best practice, as described in 2.3.1 of this research.

1337 Including the precautionary principle, polluter pays principle, precautionary principle, risk-based approach, equity, transparency, adaptative approach, integrated management and co-operative governance.. Also see Strydom and King *Environmental management* 198-201 for further information about such principles.

1338 See Appendix 4 for a full list of the law principles incorporated in the South African environmental policy framework.

1339 Refer to 2.3.1.

1340 In terms of the NEMA, the "best practicable environmental option" (BPEO) means the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.

1341 Refer to 2.3.4 for further analysis of the regulatory instruments based on the sources based approach implemented in South Africa.

strives to facilitate and implement "environmental co-operative governance"¹³⁴² in South Africa.¹³⁴³

5.2.3 The NWA: regulatory objectives and law principles

The NWA is the cornerstone statute in terms of integrated water management in South Africa.¹³⁴⁴ It is regarded as a very sophisticated Act¹³⁴⁵ as it prescribes the use of a modern and "comprehensive" management approach, aligned with most

1342 See Chapter 3 of the NEMA. Kotzé indicates that "co-operative governance is thus a new approach to governance that shifts from a narrow concern with government to a wide range of governance mechanisms. It is primarily concerned with the growing role of association, and different agencies and partnerships that reflects the dynamic and interactive nature of coordination". Kotzé *Integrated environmental governance* 35. In this context, he argues that governance should be aimed at regulating society in a coherent, orderly and structured manner, in order to satisfy the interests and fulfil the needs of all people. He defines environmental co-operative environmental governance (CEG) as "the integration of the different spheres of government and line functionaries at international, intra-regional and intra-governmental level; co-operation between individual government officials in each sphere/line functionary; co-operation between government officials in different sphere/line functionaries; integration of policy, regulation methods and tools, service provisions and scrutiny, and co-operation with industry and the public in order to achieve the principles of sustainability". In this context, he indicates that governance is not only an integral part of public administration but that it also serves as a fundamental process to execute public administration. In terms of DEAT *state of the environment report in South Africa*, "environmental governance" refers to the processes of decision making involved in controlling and managing the environment and natural resources. Principles such as inclusivity, representivity, accountability, efficiency, and effectiveness, as well as social equity and justice, are the foundations of good governance. Good environmental governance should reflect the best understanding of the structure, function, processes, and variability that typify natural systems. Without this understanding, it is possible for inappropriate decisions to be made (even with the best possible intentions) that carry disastrous environmental consequences. The report also indicates that governance is a joint responsibility. Although governments, through their policies, laws, and strategies, are important players in directing the way in which the environment is managed, exploited and conserved, actors outside government are equally important, DEA 2005 <http://soer.deat.gov.za/themes.aspx?m=27>. Also refer to 5.6 for further information. Also see Du Plessis *Fulfilment of South Africa's constitutional environmental right* 105.

1343 Refer to 5.6.2 for further information.

1344 For further information about the Act see Strydom and King *Environmental management* 442-454 and 653-692; Glazewski *Environmental Law* 507-542; Muleza and Tucker 2009 *Without Prejudice* 42-43; Kapfudzaruwa and Sowman 2009 *Water SA* 683-692; Kader *Water SA: IWRM Conference* 662-664 and Van Vuuren 2008 *Water Wheel* 35.

1345 Van Reenen *An Evaluation of Water Resource Management Institutions in South Africa* ELA 2007 and Asmal *Reflections on the Birth of the National Water Act, 1998* : appendix".

of the internationally recognised principles¹³⁴⁶ for water resource management. It strives to introduce "Integrated Water Resources Management (IWRM)" into South Africa. IWRM can be defined as:

A process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. IWRM therefore aims to strike a balance between the use of resources for livelihoods and conservation of the resource to sustain its functions for future generations, and promotes social equity, environmental sustainability and economic efficiency. Because the resource cannot be considered separately from the people who use and manage it, a balanced mix of technological and social approaches must be used to achieve integrated management.¹³⁴⁷

The Preamble of the Act makes reference to the need to implement "integrated management" of all aspects of water resources, meaning water- and land-related aspects (biological, chemical, and physical). Such an approach is necessary for the effective regulation of LBMP.¹³⁴⁸ The Preamble also promotes the delegation of management functions to a regional or catchment level so as to enable everyone to participate. It also states that sustainability and equity are the central guiding principles in the protection, use, development, conservation, management and control of water resources.¹³⁴⁹ The purpose of this Act "is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account various factors".¹³⁵⁰ The regulatory objectives of the Act are comprehensive, addressing

1346 It is internationally recognised that "integrated water resources management, including the integration of land- and water-related aspects, should be carried out at the level of the catchment basin or sub-basin", as stated in S 9 of Agenda 21. See 2.3.1 of this research for further information.

1347 DWAF *National Water Resource Strategy* 2004 10.

1348 Cicin-Sain and Knetch *Integrated Coastal and Ocean Management* 39.

1349 All of these principles are in line with internationally recognised principles. See 2.3.1 of this report for further information.

1350 The factors to be considered include: (a) meeting the basic human needs of present and future generations; (b) promoting equitable access to water; (c) redressing the results of past racial and gender discrimination; (d) promoting the efficient, sustainable and beneficial use of water in the public interest; (e) facilitating social and economic development; (f) providing for growing demand for water use; (g) protecting aquatic and associated ecosystems and their biological diversity; (h) reducing and preventing

most of the main aspects related to water management, including the protection,¹³⁵¹ use, development, conservation,¹³⁵² control and management of the nation's water resources.¹³⁵³ The direct reference to "the reduction and the prevention of pollution and degradation of water resources" as the main objectives of the Act justifies its central role for the regulation of LBMP in South Africa. This Act could be the main statute in terms of LBMP. However, as demonstrated below,¹³⁵⁴ the scope of the Act does not include coastal and marine waters *per se*, or the sea. Its direct relevance to LBMP is therefore currently limited. Nevertheless, given its regulatory approach to water resource management and the fact that it contributes to the regulation of some specific sources of LBMP, it is still an essential statute for LBMP. The Act introduces specific legal definitions and concepts which are relevant in the context of LBMP.¹³⁵⁵ The concept of "catchment"¹³⁵⁶ is introduced and defined in relation to a watercourse or watercourses or a part of a watercourse, as meaning the area from which any rainfall will drain into the watercourse or watercourses or part of a watercourse, through surface flow, to a common point or common points. The

pollution and degradation of water resource; (i) meeting international obligations; (j) promoting dam safety; (k) managing floods and droughts, and for achieving this purpose, to establish suitable institutions and to ensure that they have appropriate community, racial and gender representation"

1351 NWA (S 1) defines "protection", in relation to a water resource, as meaning "(a) maintenance of the quality of the water resource to the extent that the water resource may be used in an ecologically sustainable way; (b) prevention of the degradation of the water resource; and (c) the rehabilitation of the water resource".

1352 NWA (S 1) defines "conservation" in relation to a water resource as "the efficient use and saving of water, achieved through measures such as water saving devices, water efficient processes, water demand management, and water rationing".

1353 Such a regulatory scope is aligned with international best practice. For further information, consult 2.3.2 of this research.

1354 Refer to 5.2.6.

1355 Refer to 5.2.5 for an analysis of the definition of "pollution" provided by NWA (S 1). The legal definition of "waste" is also important and analysed in 5.2.5. The concept of "water management area", which is "an area established as a management unit in the national water resource strategy within which a catchment management agency will conduct the protection, use, development, conservation, management and control of water resources", is aligned with international best practice. Refer to 2.3.5.

1356 This definition is aligned with international best practice, as illustrated in 2.3.1 of this research. It is also a concept similar to that of "river basin management", which is used in the French (3.4.3.2) and EU regulatory framework (4.3.1.3).

concepts of reserve¹³⁵⁷ and resource quality¹³⁵⁸ are also very important in the context of the resource-directed approach. In terms of the regulatory scope, the following legal definitions are very important: "estuary",¹³⁵⁹ "watercourse",¹³⁶⁰ "water resource",¹³⁶¹ "water courses",¹³⁶² and "wetland".¹³⁶³

5.2.4 The NEM:ICMA: regulatory objectives and law principles

The aim of the NEM:ICMA is to establish a system of integrated coastal and estuarine management in the Republic.¹³⁶⁴ The Act provides for the development of norms, standards and policies in order to promote the conservation of the coastal environment and maintain the natural attributes of coastal landscapes and seascapes. One of the main objectives of the Act is to ensure that development and the use of natural resources within the coastal zone are socially and economically justifiable and ecologically sustainable. For this purpose, the

1357 This is defined in NWA (S 1) as meaning "the quantity and quality of water required: (a) to satisfy basic human needs by securing a basic water supply, as prescribed under the *Water Services Act* 108 of 1997, for people who are now or who will, in the reasonably near future, be: (i) relying upon; (ii) taking water from; or (iii) being supplied from, the relevant water resource; and (b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource".

1358 This is defined in NWA (S 1) as meaning "the quality of all the aspects of a water resource including: (a) the quantity, pattern, timing, water level and assurance of in-stream flow; (b) the water quality, including the physical, chemical and biological characteristics of the water; (c) the character and condition of the in-stream and riparian habitat; and (d) the characteristics, condition and distribution of the aquatic biota".

1359 NWA (S 1) defines it as meaning "a partially or fully enclosed body of water: (a) which is open to the sea permanently or periodically and (b) within which the sea water can be diluted, to an extent that is measurable, with fresh water drained from land".

1360 In terms of NWA (S 1) this means "(a) a river or spring; (b) a natural channel in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) 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".

1361 This includes a watercourse, surface water, estuary, or aquifer.

1362 In terms NWA, a watercourse is "a river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows; 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".

1363 In terms of NWA (S 1) a wetland is "land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil".

1364 Also see Strydom and King *Environmental management* 897-906.

Act defines rights and duties in relation to coastal areas and determines the responsibilities of organs of state in relation to coastal areas. The Act also prescribes regulatory instruments and measures to manage pollution in the coastal zone, inappropriate development of the coastal environment, and other adverse effects on the coastal environment.¹³⁶⁵ In terms of section 2 of the Act, the objectives of this Act are:

- to determine the coastal zone of the Republic;
- to provide, within the framework of the NEMA, for the coordinated and integrated management of the coastal zone by all spheres of government in accordance with the principles of co-operative governance;
- to preserve, protect, extend and enhance the status of coastal public property as being held in trust by the state on behalf of all South Africans, including future generations;
- to secure equitable access to the opportunities and benefits of coastal public property; and
- to give effect to the Republic's obligations in terms of international law regarding coastal management and the marine environment.

The NEM:ICMA is very relevant to the regulation of LBMP. Firstly, it legally implements integrated coastal management in South Africa, which is an essential planning management instrument for the regulation of LBMP.¹³⁶⁶ The Act also regulates the discharge of effluent in the marine environment.¹³⁶⁷ The Act introduces new legal definitions and concepts which will have implications for the regulation of LBMP. In terms of the regulatory scope (material and geographical) the following legal definitions are very important: "coastal activities",¹³⁶⁸ "coastal

1365 This Act aims to implement integrated coastal management in South Africa as reflected in international best practice for the regulation of LBMP, as illustrated in 2.3.1 and 2.3.4.1.

1366 Refer to 2.3.4.1.

1367 Refer to 5.3.2.3.

1368 This means the coastal activities listed or specified in terms of Chapter 5 of the NEMA, which take place in the coastal zone. In this context, NEM:ICMA defines "development" in relation to a place as meaning any process initiated by a person to change the use, physical nature or appearance of that place, and includes (a) the construction, erection, alteration, demolition or removal of a structure or building, (b) a process to rezone,

environment",¹³⁶⁹ "coastal resources",¹³⁷⁰ "coastal waters",¹³⁷¹ "coastal wetland",¹³⁷² "estuary",¹³⁷³ "littoral active zone",¹³⁷⁴ "sea",¹³⁷⁵ "seashore",¹³⁷⁶ "wetland"¹³⁷⁷ and "coastal zone".¹³⁷⁸ The NEM:ICMA also introduces the legal concept of "coastal management" which, in terms of the Act, refers to the regulation, management, protection, conservation and rehabilitation of the coastal environment; the regulation and management of the use and development of the coastal zone and coastal resources; the monitoring and enforcing of compliance with laws and policies that regulate human activities within the coastal zone; and planning in connection with these activities. This approach is important for LBMP regulation

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- subdivide or consolidate land, (c) changes to the existing or natural topography of the coastal zone, and (d) the destruction or removal of indigenous or protected vegetation.
- 1369 The coastal environment is the environment within the coastal zone, in terms of the NEM:ICMA.
- 1370 Coastal resources are defined in terms of the NEM:ICMA as "any part of (a) the cultural heritage of the Republic within the coastal zone, including shell middens and traditional fish traps; or (b) the coastal environment that is of actual or potential benefit to humans".
- 1371 In terms of the NEM:ICMA, coastal waters are "marine waters that form part of the territorial waters or the internal waters of the Republic as defined in the *Maritime Zones Act* 15 of 1994 and (b) subject to S 26, any estuary".
- 1372 In terms of the NEM:ICMA, a coastal wetland is "any wetland in the coastal zone and includes (i) land adjacent to coastal waters that is regularly or periodically inundated by water, salt marshes, mangrove areas, inter-tidal sand and mud flats, marshes, and minor coastal streams regardless of whether they are of a saline, freshwater or brackish nature; and includes the water, bed and banks of, and the subsoil and substrata beneath, any such wetland".
- 1373 An estuary is defined as "a body of surface water that is part of a water course that is permanently or periodically open to the sea; and in which a rise and fall of the water level as a result of the tides is measurable at spring tides when the water course is open to the sea; or the salinity is measurably higher as a result of the influence of the sea". Also see 5.2.6 for further legal analysis.
- 1374 A littoral active zone is "any land forming part of, or adjacent to, the seashore that is unstable and dynamic as a result of natural processes; and characterised by dunes, beaches, sand bars and other landforms composed of unconsolidated sand, pebbles or other such material which is either unvegetated or only partially vegetated".
- 1375 The sea is defined as "all marine waters, including: (a) the high seas; (b) all marine waters under the jurisdiction of any state; and (c) the bed, subsoil and substrata beneath those waters, but does not include estuaries".
- 1376 The seashore is "the area between the low-water mark and the high-water mark".
- 1377 A wetland is "land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil".
- 1378 In terms of the NEM:ICMA, the coastal zone is "the area comprising: coastal public property, the coastal protection zone, coastal access land, and coastal protected areas, the seashore, coastal waters, the exclusive economic zone and includes any aspect of the environment on, in, under and above these areas".

and is aligned with international best practice with regard to the regulatory objectives.¹³⁷⁹ In terms of pollution regulation and especially waste water and effluent discharge, the NEMA introduces a legal definition of "effluent"¹³⁸⁰ and "waste".¹³⁸¹ Another new and progressive legal concept introduced by the NEM:ICMA is the "interests of the whole community", which means "the collective interests of the community determined by (a) prioritising the collective interests in coastal public property of all persons living in the Republic over the interests of a particular group or sector of society; (b) adopting a long-term perspective that takes into account the interests of future generations in inheriting coastal public property and a coastal environment characterised by healthy and productive ecosystems and economic activities that are ecologically and socially sustainable; (c) taking into account the interests of other living organisms that are dependent on the coastal environment; and (d) taking into account any interests of persons or other living organisms outside the Republic that may be affected by the decision".

5.2.5 The NEM:WA: regulatory objectives and law principles

The NEM:WA aims to reform the law regulating waste management in South Africa in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.¹³⁸² The Preamble is also relevant in the context of LBMP, as it specifies that the "minimisation of pollution and the use of natural resources through vigorous control, cleaner technologies, cleaner

1379 Refer to 2.3.3.

1380 Effluent is defined as "(a) any liquid discharged into the coastal environment as waste, and includes any substance dissolved or suspended in the liquid or (b) liquid which is a different temperature from the body of water into which it is being discharged".

1381 Waste is defined as "any substance, whether or not that substance can be reused, recycled or recovered that (i) is surplus, unwanted, rejected, discarded, abandoned or disposed of; (ii) the generator has no further use of for the purposes of production, reprocessing or consumption; (iii) is discharged or deposited in a manner that may detrimentally impact on the environment". This definition of waste is different from the one provided by NEM:WA and NWA. Refer to 5.2.6 for further legal analysis.

1382 Also see Young 2009 *Environment Emergency Services SA / Occupational Risk* 24-25.

production and consumption practices, and waste minimisation" are crucial to ensuring that the environment is protected from the impact of waste. The Preamble also acknowledges that management practices relating to waste require strategies, norms and standards within a system of co-operative governance. One of the main objects of the Act is to protect the environment by providing reasonable measures for avoiding and minimising the generation of waste, reducing, re-using, recycling and recovering waste; treating and safely disposing of waste as a last resort; preventing pollution and ecological degradation; securing ecologically sustainable development while promoting justifiable economic and social development; and remediating land where contamination presents, or may present significant risk of harm to health or the environment. This Act is relevant in terms of the regulation of LBMP related to waste management, which is the major source of LBMP.¹³⁸³ The Act introduces new relevant definitions and concepts which will have legal implications for the regulation of LBMP with regard to the regulatory scope, the regulatory objectives and the direct and indirect regulatory instruments. The first set of definitions relating to the material regulatory scope of the Act includes waste¹³⁸⁴ and waste-related sub-categories, such as "building and demolition waste",¹³⁸⁵ "business waste",¹³⁸⁶ "general waste",¹³⁸⁷ "domestic waste",¹³⁸⁸ "hazardous waste",¹³⁸⁹ "by-product",¹³⁹⁰ "waste management activity"¹³⁹¹ and other such terms.¹³⁹²

1383 Refer to 2.2 and 2.4.1.

1384 In terms of NEM:WA, waste is "any substance, whether or not that substance can be reduced, re-used, recycled and recovered (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; (b) which the generator has no further use of for the purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but (i) a by-product is not considered waste; and (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste".

1385 This is defined as "waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition".

1386 In terms of the Act, this is "waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes".

1387 General waste is "waste that does not pose an immediate hazard or threat to health or to the environment, and includes (a) domestic waste; (b) building and demolition waste; (c) business waste; and (d) inert waste".

Then the Act introduces a legal concept which is very relevant in terms of regulatory instruments based on the resource-directed approach,¹³⁹³ namely, the concept of "acceptable exposure" which is defined as the exposure of the maximum permissible concentration of a substance to the environment that will have a minimal negative effect on health or the environment. The Act also introduces legal concepts which are relevant in terms of the sources-directed approach, including: "best practicable environmental option",¹³⁹⁴ "clean

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- 1388 In terms of the Act, domestic waste is "waste, excluding hazardous waste that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes".
- 1389 Hazardous waste is "any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment".
- 1390 In terms of the Act, a by-product is "a substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material".
- 1391 Waste management activity is "any activity listed in Schedule 1 or published by notice in the Gazette under S 19, and includes (a) the importation and exportation of waste; (b) the generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste; (c) the accumulation and storage of waste; (d) the collection and handling of waste; (e) the reduction, re-use, recycling and recovery of waste; (f) the trading in waste; (g) the transportation of waste; (h) the transfer of waste; (i) the treatment of waste; and (j) the disposal of waste".
- 1392 Including "contaminated" in relation to Part 8 of Chapter 4, which means "the presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely". "Disposal" means "the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land"; "high-risk activity" means "an undertaking, including processes involving substances that present a likelihood of harm to health or the environment"; "holder of waste" means "any person who imports, generates, stores, accumulates, transports, processes, treats, or exports waste or disposes of waste"; "inert waste" means "waste that (a) does not undergo any significant physical, chemical or biological transformation after disposal; (b) does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which it may come into contact; and (c) does not impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is insignificant".
- 1393 Refer to 5.3.1 for further analysis of the concept.
- 1394 In terms of NEM:WA, this is "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term".

production",¹³⁹⁵ "environmentally sound management",¹³⁹⁶ "extended producer responsibility measures",¹³⁹⁷ and "life cycle assessment".¹³⁹⁸

5.2.6 An inappropriate regulatory scope

The regulatory scope of the NEMA is not expressly determined in the Act. It is understood that the Act applies to the environment of the Republic and is limited by the definition of the environment provided by the Act, which is "the surroundings within which humans exist and that are made up of (i) the land, water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being". The definition of the "environment" provided by the NEMA makes reference to "water" without providing a definition for it. In this context, it is not clear if it includes only inland waters, or/and "coastal waters", or/and marine waters. Such uncertainty is reinforced by the fact that the definition of water resources under the NWA does not include coastal or marine waters. However, section 58(1) of the NEM:ICMA clarifies this ambiguity to some extent by prescribing that the "environment" in terms of section 28 of the NEMA must be read as including the coastal environment. Therefore, it seems that the intention of the NEM:ICMA is to establish a clear jurisdiction of the NEMA (or at least section 28 of the NEMA)

1395 In terms of the Act, this is "the continuous application of integrated preventative environmental strategies to processes, products and services to increase overall efficiency and to reduce the impact of such processes, procedures and services on health and the environment".

1396 This is defined as "the taking of all practicable steps to ensure that waste is managed in a manner that will protect health and the environment".

1397 These are "measures that extend a person's financial or physical responsibility for a product to the post-consumer stage of the product, and includes (a) waste minimisation programmes; (b) financial arrangements for any fund that has been established to promote the reduction, re-use, recycling and recovery of waste; (c) awareness programmes to inform the public of the impacts of waste emanating from the product on health and the environment; and (d) any other measures to reduce the potential impact of the product on health and the environment".

1398 This is "a process where the potential environmental effects or impacts of a product or service throughout the life of that product or service is being evaluated".

over coastal waters¹³⁹⁹ and potentially over marine waters of the "coastal zone", as defined in the NEM:ICMA (including the exclusive economic zone),¹⁴⁰⁰ but less probably over the totality of the sea.¹⁴⁰¹ The phrasing of section 58 of the NEM:ICMA does not provide complete legal clarity, as it could be argued that the jurisdiction of the NEMA over coastal water only applies in relation to section 28 of the NEMA. It would have been clearer if the following phrasing or something similar had been used: "the definition of environment in terms of the NEMA must be read as including the coastal and marine environment". In terms of the activities regulated, the scope of the NEMA is wide as it applies to all activities on the South African territory, which should in the opinion of the author include the land-based territory under the jurisdiction of the state and the territorial waters as well.

The regulatory (geographical) scope of the NEM:WA is also not specified. It is the opinion of the author that the Act should at least have a regulatory scope similar to that of the NEMA. In terms of the material scope in relation to LBMP regulation, various water uses and activities which take place on the Republic's territory are regulated by NEM:WA.

As prescribed in section 2 of the NWA, the purpose is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled. In this context, water resource includes a watercourse, surface water, an estuary, or an aquifer. This definition limits the scope and relevancy of the Act in terms of LBMP as the definition of water resource and a watercourse¹⁴⁰² does

1399 "Coastal waters" means "marine waters that form part of the territorial waters or the internal waters of the Republic as defined in the *Maritime Zones Act* 15 of 1994 and (b) subject to S 26, any estuary".

1400 "Coastal zone" means "the area comprising: coastal public property, the coastal protection zone, coastal access land, and coastal protected areas, the seashore, coastal waters, the exclusive economic zone and includes any aspect of the environment on, in, under and above these areas".

1401 "Sea" means "all marine waters, including: (a) the high seas; (b) all marine waters under the jurisdiction of any state; and (c) the bed, subsoil and substrata beneath those waters, but does not include estuaries".

1402 A "water resource" includes "a watercourse, surface water, estuary, or aquifer". A watercourse is "(a) a river or spring; (b) a natural channel in which water flows regularly

not include coastal and marine waters *per se*. However, the following components of marine water resources are included in the ambit of the Act: estuaries¹⁴⁰³ (which are regarded as very sensitive coastal ecosystems which have essential ecological functions to maintain the quality, integrity and equilibrium of coastal water resources) and coastal wetlands¹⁴⁰⁴ (which are included in the definition of water courses,¹⁴⁰⁵ which are also an essential component of the coastal ecosystem.)

Consequently, most of the provisions of the NWA related to the protection of water resources are not applicable to coastal and marine waters *per se*. However, the NWA is still very relevant for the regulation of LBMP as it enables the indirect regulation of LBMP which reaches the marine environment through watercourses. Moreover, section 21, especially sub-sections (h) and (g) of the Act have been commonly used as a legal rationale to give the mandate to the former Department DWAF to regulate to some extent the disposal/discharge of water containing waste/waste water in the marine environment.¹⁴⁰⁶

or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) 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".

1403 As defined in NWA, "estuary" means "a partially or fully enclosed body of water which is open to the sea permanently or periodically; and within which the sea water can be diluted, to an extent that is measurable, with fresh water drained from land".

1404 In terms of NWA, "wetland" means "land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil". "Coastal wetland" means "any wetland in the coastal zone; and includes: (i) land adjacent to coastal waters that is regularly or periodically inundated by water, salt marshes, mangrove areas, inter-tidal sand and mud flats, marshes, and minor coastal streams regardless of whether they are of a saline, freshwater or brackish nature; and (ii) the water, the subsoil and substrata beneath, and bed and banks of, any such wetland".

1405 A watercourse as defined in NWA includes "a river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows; 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".

1406 See 5.3.2.2 and 5.3.3.2 for further information.

However, such regulatory intervention addresses only the regulation of specific sources of LBMP (through the regulation of specific types of water use), and does not implement the comprehensive water resource protection regime provided by the NWA to the coastal and marine waters and resources. In terms of the activities regulated, the regulatory scope is wide as it includes all inland activities within the territory under national jurisdiction.

In terms of section 4 of the NEM:ICMA, this Act applies to the Republic, including (a) its internal waters, territorial waters, its exclusive economic zone and its continental shelf as described in the *Maritime Zones Act* 15 of 1994 and the Prince Edward Islands referred to in the *Prince Edward Islands Act* 43 of 1948. The activities regulated are mainly activities and pollution taking place in the coastal zone, which is too limited to be effective for LBMP regulation.¹⁴⁰⁷ The geographical scope of the coastal zone, from the seaward perspective, is regarded as being wide and comprehensive in terms of integrated coastal management¹⁴⁰⁸ and LBMP regulation. However, the geographical scope from a landward perspective is considered to be limited.¹⁴⁰⁹

5.3 Key direct regulatory instruments

This section sets out and provides a legal analysis of the key direct and indirect regulatory instruments prescribed by the South African environmental regulatory framework relevant in the context of LBMP regulation.

5.3.1 Key regulatory instruments based on the resource-directed approach

5.3.1.1 The public trust doctrine¹⁴¹⁰

1407 Refer to 2.3.2 for further information on international best practice regarding regulatory scope.

1408 Refer to 5.3.3.2.

1409 Refer to 2.3.2.1.

1410 For further information about the public trust doctrine see Van der Schyff and Viljoen 2008 *The Journal for Transdisciplinary Research in Southern Africa* 339-354 and Stein 2006 *SAJELP* 181-195.

In alignment with international trends, the NEMA prescribes that "the environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage". Consequently, the state must act as the custodian holding the environment in public trust for the people, which is a resource protection measure. This might apply to the marine and coastal environment, but because the regulatory scope of the NEMA is unclear¹⁴¹¹ this is not certain, especially in terms of its application to marine waters and the sea.

The NWA recognises the "public legal nature" of the nation's water resource, and implements the public trust doctrine¹⁴¹² in this context. The Act prescribes that:

(...) as the public trustee of the nation's water resource the National Government, acting through the Minister, must 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.¹⁴¹³

In terms of the NWA the main legal consequence of the public trust doctrine is that the responsible authority¹⁴¹⁴ becomes ultimately "responsible to ensure that

1411 Refer to 5.3.1.

1412 "The assertion that the public trust doctrine (PTD) applied to South Africa's water law only by dint of the Constitution and to equate it to expropriation strikes the author as very odd. PTD, a cornerstone of modern environmental law, relates to the ownership, protection and the use of essential natural and cultural resources. It holds that certain natural resources are held by the sovereign in trust and on behalf of all the citizens because of their unique characteristics and central importance. This follows the realisation that certain assets are inherently public and not subject to ownership by either the state or private actors. It relates to the ownership, protection and use of essential natural and cultural resources, serving as a check against allocation mistakes by the government with regard to public natural resources". Kameri-Mbote 2007 *Environment and Development Journal* 195. Public trust doctrine can also be defined as "the title of public trust property vests in the state as the Trustee with the nation as the beneficiary thus the state holds the property solely as representative of the nation for the benefit of the nation". Van der Schyff and Du Plessis *Equitable and Effective Management of Shared Watercourses through the Public Trust Doctrine*.

1413 S 3 of NWA.

1414 This department used to be the Department of Water Affairs and Forestry (DWAF), but since 11 May 2009 it has been entitled the Department of Waters and Environmental (DWEA). On that date the new South African President, Jacob Zuma, unveiled a new administrative team comprising of 34 Ministers, with a Cabinet and government

water is allocated equitably and used beneficially in the public interest, while promoting environmental values",¹⁴¹⁵ creating its legal mandate to manage the nation's water resource. These provisions have a limited effect in terms of LBMP as coastal and marine waters are not included in the scope of the nation's water resource as defined here, except for coastal wetlands and estuaries.

NEM:ICMA also applies the doctrine to coastal public property,¹⁴¹⁶ which includes coastal waters (encompassing the seashore, the territorial waters or the internal waters of the Republic and estuaries generally), which might be too limited a scope, as it does not include the exclusive economic zone (the EEZ). The situation with regard to coastal wetlands is unclear. The NEM:ICMA prescribes that the coastal protection zone includes all coastal wetlands within such a specific zone, but the Act is insufficiently clear regarding wetlands located in the coastal public property. Are they part of the coastal public property or not?¹⁴¹⁷ The EEZ is also excluded, but not the natural resources in or on the EEZ. NEM:ICMA

departments reorganised in a bid to achieve "visible and tangible socio-economic development" within the next five years. The Department of Water Affairs was merged with the Department of Environmental Affairs in the Department of Water and Environmental Affairs under the new Minister. A new Department of Agriculture, Fisheries and Forestry was created.

1415 S 3 of NWA.

1416 In terms of the NEM:ICMA (S 1) coastal public property consists of: "(a) the coastal waters; (b) land submerged by the coastal waters, including: (i) land invaded by coastal waters which subsequently becomes part of the bed of coastal waters; and (ii) the subsoil beneath such land; (c) any existing island, and any island that may in the future be created whether naturally or artificially, within the coastal waters, but excluding (i) any part of an island that was lawfully alienated before this Act commenced; or (ii) any part of an artificially created island (other than the seashore of that island) that is proclaimed by the Minister to be excluded from coastal public property; (d) the seashore, but excluding (i) any portion of the seashore below the high-water mark which was lawfully alienated before the *Sea-Shore Act* 21 of 1935, took effect or which was lawfully alienated in terms of that Act and which has not subsequently been re-incorporated into the seashore; and (ii) any portion of a coastal cliff that was lawfully alienated before this Act took effect and is not owned by the state. (e) the seashore of a privately owned island within the coastal waters; (f) any admiralty reserve owned by the state; (g) any state owned land declared in terms of S 8 to be coastal public property, (h) any natural resources on or in (i) any coastal public property of a category mentioned in Par. (a) to (g); or (ii) the exclusive economic zone, or in or on the continental shelf, within the meaning of the *Maritime Zones Act* 15 of 1994; (iii) any harbour, work or other installation on or in any coastal public property of a category mentioned in Par.s (a) to (h) that is owned by an organ of state".

1417 Art 16 of the NEM:ICMA.

further prescribes that coastal public property is held in trust by the state on behalf of all South Africans, including future generations. The ownership of coastal public property vests in the citizens of the Republic and coastal public property must be held in trust by the state on behalf of the citizens of the Republic. Other specific environmental management acts also praise for the public trust doctrine (including South Africa's biodiversity¹⁴¹⁸ and protected areas).¹⁴¹⁹

The reliance on the public trust doctrine is a regulatory approach which has the potential of assisting in the regulation of LBMP. However, the provisions of the NWA and the NEM:ICMA in this context create a dichotomy in the management of water resources (including coastal and marine waters), by constituting two distinct and independent legal regimes with originally two separate "operational public trustees",¹⁴²⁰ namely the former DEAT for the coastal water resources and the former DWAF for the other water resources. There is also a legal imbroglio around estuaries (which are included in the definition of "water resource" as per the NWA and the "coastal zone" as defined by the NEM:ICMA) and coastal wetlands, which are part of the coastal zone but may not be part of the coastal public property, yet which are also included in the definition of "water resource" as per the NWA. Such a situation might hamper the integrated and holistic management of water resources in South Africa (including coastal and marine waters and resources). It defeats the attempt to provide unified, integrated, effective protection and management of fresh (inland) and coastal/marine water resources and their associated ecosystems, as reflected in internationally recognised best practice and implemented in most western countries.¹⁴²¹ In this

1418 In terms of NEM:BA, S 3, the state must manage, conserve and sustain South Africa's biodiversity and its components and genetic resources.

1419 In terms of NEM:PAA, S 3, the state must act as the trustee of protected areas in the Republic.

1420 This situation has been rectified with the integration of the two departments under a single department and Minister, the DWEA.

1421 The GPA advocates the implementation of integrated coastal area and river basin management to address the ecological interconnectivity between fresh and marine waters, refer to Chapter 2 for further information.

context, it is important to note that the European Union WFD¹⁴²² recognises that "the physical interdependence of the various surroundings that make up the aquatic ecosystem, such as surface fresh water, groundwater and seawater, necessitates the coherent management of these resources".¹⁴²³ The French legislation on water also adopts a more integrated approach by implementing a single legal regime for all water resources (including inland surface waters, groundwater, transitional waters, and coastal waters).¹⁴²⁴

Finally, it is noteworthy that the provisions of the NEM:WA implement a "duty of care for the state" rather like the public doctrine approach, prescribing that:

In fulfilling the rights contained in section 24 of the Constitution, the state, through the organs of state responsible for implementing this Act, must put in place uniform measures that seek to reduce the amount of waste that is generated and, where waste is generated, to ensure that waste is re-used, recycled and recovered in an environmentally sound manner before being safely treated and disposed of.

The general legal approach recognised by the public trust doctrine should assist the regulation of LBMP through governmental interventions. However, to be effective such a regulatory approach needs to take into consideration the interdependency of fresh and marine/coastal waters.

5.3.1.2 *Resource-directed instruments prescribed in terms of the NWA*

The NWA is the most relevant statute as regards resource-directed measures and instruments for the regulation of LBMP.¹⁴²⁵ The NWA establishes a progressive regulatory approach to water quality management:

from the Uniform Effluent Standard approach (i.e. enforcing compliance to General and Special Standards) to the Receiving Water Quality Objectives approach (i.e. focusing on the fundamental water quality management goal,

1422 Refer to Chapter 4.

1423 Europedia 2008 http://www.europedia.moussis.eu/books/Book_2/5/16/03/01/index_tkl?all=1&pos=217.

1424 See 3.4.1.

1425 Also see Strydom and King *Environmental management* 446-454 and 658-659.

namely maintaining fitness for use). This change was necessary to counter the continuing deterioration of water quality and to meet the challenges of the future.¹⁴²⁶

The resource-directed instruments prescribed by the NWA are aimed at protecting the nation's water resource to give effect to the interrelated objectives of sustainability and equity. As stated in the current version of the National Water Resource Strategy (NWRS), 2004:

These measures focus on the quality of the water resource itself. Resource quality reflects the overall health or condition of the water resource, and is a measure of its ecological status. Resource quality includes water quantity and water quality, the character and condition of in-stream and riparian habitats, and the characteristics, condition and distribution of the aquatic biota. Resource quality objectives will be defined for each significant resource to describe its quality at the desired level of protection.¹⁴²⁷

In terms of the Act, "protection of water resource" means maintenance of the quality of the water resource to the extent that the water resource may be used in an ecologically sustainable way, prevention of the degradation of the water resource and the rehabilitation of the water resource where necessary, which is aligned with international best practice regarding LBMP regulation.¹⁴²⁸ The Act establishes a rather ecocentric management approach to protecting the water resource, including "ecological sustainability" as one of the main protection objectives. The approach is relevant in the context of LBMP, as it enables a customised protection regime which takes into consideration the characteristics and specific "needs" of the resource, as reflected in international best practice.¹⁴²⁹

The NWA provides various resource-directed instruments to facilitate the protection of the nation's water resource. However, these apply only to coastal wetlands and estuaries, in the context of coastal and marine environment. The instruments include the establishment of a classification system for all water

1426 DWAF *Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa* Executive Summary ii.

1427 DWAF *National Water Resource Strategy* 56.

1428 Refer to 2.3.3.

1429 Refer to 2.3.3 and 2.3.4.

resources; the establishment of the reserve¹⁴³⁰ for each water resource class identified under the classification system, and the establishment of water resource quality objectives for each class. Even if they are not directly applicable to coastal and marine waters, these resource-directed instruments are analysed in detail below, as it is believed that they could assist LBMP regulation if they were implemented coherently and in an integrated way to coastal and marine waters and resources.¹⁴³¹

a. The classification system

The establishment of a classification system is the first, necessary step in the implementation of integrated water resource management, as specified in the NWRS.¹⁴³²

A water resource classification system (...) will provide a consistent framework within which water resource can be classified, each class representing a different level of protection. The desired level of protection will be considered to have been achieved if the conditions appropriate to the designated class are achieved. The system will provide specifications against which management decisions can be made about the nature and extent of permissible, sustainable resource use (...) The classification system will apply to all surface water resource in South Africa, but will provide for the different characteristics of rivers, wetlands, impoundments and estuaries.

This approach is aligned with international best practice regarding the resource-directed regulatory approach.¹⁴³³ The classification system is currently being developed by the DWEA.¹⁴³⁴ It is proposed to establish three main classes for

1430 In terms of Part 3 of the Act, the reserve consists of two parts: the basic human needs reserve and the ecological reserve. The basic human needs reserve provides for the essential needs of individuals served by the water resource in question, and includes water for drinking, for food preparation, and for personal hygiene. The ecological reserve relates to the water required to protect the aquatic ecosystems of the water resource. The reserve refers to both the quantity and quality of the water in the resource, and will vary depending on the class of the resource.

1431 For further information about such resource-directed instruments, see 2.3.4.1.

1432 DWAF *National Water Resource Strategy* 58-59.

1433 Refer to 2.3.4.

1434 *Draft regulations for the establishment of a water resource classification system* GN R999 in GG 31417 19 September 2008. The latest development in this context is GN R810 in

every significant water resource.¹⁴³⁵ The draft regulations will establish the water resource classification procedure which should be used to determine the class of each significant water resource,¹⁴³⁶ the procedure to set the reserve of each water resource class¹⁴³⁷ and the procedure to establish the water users' quality requirements for each water resource class.¹⁴³⁸ The Regulations also introduce new managerial concepts for integrated water resource management,¹⁴³⁹ which

GG 33541 17 September 2010 *Regulations for the establishment of a Water Resource Classification System*.

- 1435 The regulations define a "significant water resource" as "a water resource that is deemed to be significant from an economic, social and ecological perspective. The three classes include:
- Class I for the water resources which are minimally used and when the configuration of ecological categories of the water resources within a catchment results in an overall water resource condition that is minimally altered from its pre-development condition.
- Class II for water resources moderately used and when the configuration of ecological categories of the water resources within a catchment results in an overall water resource condition that is moderately altered from its pre-development condition.
- Class III for water resources heavily used and when the configuration of ecological categories for the water resources within a catchment results in an overall water resource condition that is significantly altered from its pre-development condition".
- 1436 The procedure encompasses seven steps described in Regulation 4, including: (1) delineation of the units of analysis and description of the status quo of the water resources; (2) linking of the value and condition of the water resource; (3) quantifying the ecological water requirements and changes in non-water quality ecosystem goods, (4) services and attributes; (5) determining an ecologically sustainable base configuration scenario and establishing the starter configuration scenarios; (6) evaluating scenarios within the integrated water resource management process; (7) evaluating the scenarios with stakeholders; and gazetting the class configuration.
- 1437 Regulation 5 prescribes seven steps to follow in establishing the reserve: (1) initiating the ecological; water requirements assessment; (2) determining ecoregions; (3) delineating resource units, (4) electing study sites, and where appropriate, aligning with step 1 of the water resource classification procedure; (5) determining the reference condition of each of the selected study sites; determining the present ecological status of each of the selected study sites; (6) determining the ecological importance and sensitivity of each of the selected study sites; (7) determining the ecological water requirement scenarios for each of the selected study sites, and where appropriate, aligning with step 3 of the water resource classification procedure; designing appropriate monitoring programme.
- 1438 The procedure encompasses 5 distinct steps, as follows: identify water users within each water resource management unit, and where appropriate, align with step 1 of the water resource classification procedure; determine the present state per water user, and where appropriate, align with step 5 of the water resource classification procedure; determine the desired water quality per user, and where appropriate, align with step 6 of the water resource classification procedure; determine water user specifications, and where appropriate, align with step 6 of the water resource classification procedure; determine water users water quality requirements, and where appropriate, align with step 6 of the water resource classification procedure.
- 1439 Including:
- The ecological category, which is identified by a letter ranging from A to F that is assigned to a resource, that reflects the ecological condition of the water resource in

are relevant to LBMP regulation. According to the provisions of these regulations, the establishment of the classification system, the reserve and the users' water quality requirements must take into consideration social and economic situations and needs as well as the ecological requirements of the water resource. This approach is recommended for LBMP regulation.¹⁴⁴⁰ Section 12(2)(ii) and (iii) of the NWA prescribes that the system for classifying a water resource may in respect of each class of water resource "set out water uses for in-stream or land-based activities, which activities must be regulated or prohibited in order to protect the water resource". This is important for LBMP regulation.

b. The reserve and the resource quality objectives¹⁴⁴¹

The responsible authority has to determine the reserve and the "resource quality objectives" for each class identified by the water resource classification system. As prescribed in section 13(3) of the Act, the water resource quality objectives may relate to the reserve, the in-stream flow, the water level, the presence and concentration of particular substances in the water (i.e. nitrates, sediments or mercury), the characteristics and quality of the water resource and the in-stream

terms of the deviation of its biophysical components from a pre-development condition. In this context, "Pre-development condition" means the condition of a water resource prior to significant human water use, water resource infrastructural development or human land-use modification.

- The ecological Sustainability Base Configuration (scenario) which is the lowest acceptable level of protection required for the sustainable use of the entire Integrated Unit of Analysis.
- The ecological Water Requirements which refers to water that is specifically left in a water resource or released from an impoundment to maintain the said water resource in a desired ecological category.
- Ecosystem Goods, Services and Attributes, which are the goods, services and attributes that ecological systems provide that are critical to the functioning of the earth's life-support system, and which contribute both directly and indirectly to human welfare, and therefore have economic value.
- The Integrated Unit of Analysis, which represents a catchment that incorporates a socio-economic zone, but is defined by a watershed. In this context, a "socio-economic zone" is defined as a relatively homogenous area within which there are similar land-tenure patterns, similar land-use patterns, similar aquatic ecosystems and rainfall patterns, or within which there are similar socio-economic characteristics which create a pattern.

1440 See 2.3.4.1 for more information.

1441 For further information about the reserve see Still *et al* 2010 *Water SA* 371-378; Van Niekerk 2009 *CSIR Science Scope* and Palmer *et al* 2005 *Water SA* 161-170.

and riparian habitat, the characteristics and distribution of aquatic biota, the regulation or prohibition of in-stream or land-based activities which may affect the quantity of water in or quality of the water resource, and any other characteristic of the water resource in question. Such quality objectives, as introduced by the provisions of the Act, are pivotal for the effective management of water pollution, including LBMP.

Unfortunately, these regulations have adopted a more restricted and less holistic approach to resource-quality objectives than the approach prescribed by the Act, limiting the determination of resource-quality objectives to the water users' quality requirements, taking an anthropocentric approach which is not aligned with the aim of the Act. Currently, as water quality objectives have not yet been established, set guidelines (and not standards) apply.¹⁴⁴²

Section 15 of the Act prescribes the binding character of the classification system and the water resource quality objectives:

The Minister, the Director-General, an organ of state and a water management institution, when exercising any power or performing any duty in terms of this Act, must give effect to any determination of a class of a water resource and the resource quality objectives as determined in terms of this Part and any requirements for complying with the resource quality objectives.

The binding character of the classification system is limited in its scope only to powers and duty performed in terms of the NWA, from an implementation perspective, which will limit its effectiveness. Therefore, all planning and zoning documents,¹⁴⁴³ other development plans/strategies,¹⁴⁴⁴ Integrated Development

1442 *South African Water Quality Guidelines*, Second Edition, 1996 Volume 1: Domestic Use, Volume 2: Recreational Water Use; Volume 3: Industrial Water Use; Volume 4: Agricultural Water Use: Irrigation; Volume 5: Agricultural Water Use: Livestock Watering; Volume 6: Agricultural Water Use: Aquaculture; Volume 7: Aquatic Ecosystems; and Volume 8: Field Guide and *South African Water Quality, Guidelines for Coastal Marine Waters*, Volume 1: Natural Environment, Volume 2: Recreational Use, Volume 3: Industrial Use and Volume 4: Mariculture.

1443 For example in terms of the DFA and LGMSA.

1444 In terms of various environmental acts, e.g. NEM:PAA, NEM:BA, NEM:ICMA, and NEMA.

Plan (IDP),¹⁴⁴⁵ Environmental Management Frameworks (EMF),¹⁴⁴⁶ Spatial Development Frameworks (SDF),¹⁴⁴⁷ environmental authorisations (EIAs),¹⁴⁴⁸ mining authorisations,¹⁴⁴⁹ and any other relevant authorisations, statutory plans and strategies do not have to consider or comply with the classification system, the reserve and the quality objectives prescribed in terms of the NWA, which is regarded as a regulatory limitation affecting LBMP regulation. It would have been more effective if the legal status and binding status of the reserve, the classification system and the water quality objectives were stronger with a wider scope. In this context, section 15 would be more effective if it was drafted as follows: "all national and provincial departments, municipalities, organs of state and relevant statutory management authorities and agencies when exercising any power or performing any duty as per their respective functions and mandate must, when applicable, give effect to any determination of a class of a water resource, the associated reserve and the resource quality objectives as determined in terms of this Part and any requirements for complying with the resource quality objectives".

The resource-directed measures/instruments are necessary preliminary steps in the effective management of the water resource. The classification system, the reserve and the resource quality objectives are essential to ensure the design and implementation of effective "source-directed measures" and the regulation of the uses of water. However, resource-directed measures prescribed by the NWA are only directly relevant for coastal wetlands and estuaries, as they are not applicable to coastal and marine waters generally.

1445 In terms of LGMSA.

1446 In terms of the NEMA.

1447 In terms of LGMSA.

1448 In terms of the NEMA.

1449 In terms of MPRDA.

c. The NEM:ICMA and resource-directed measures: a regulatory gap

As described and analysed below,¹⁴⁵⁰ the NEM:ICMA is directly relevant for the regulation of LBMP originating from effluents being discharged in the coastal zone (source-directed measures). One of the stated objectives of the NEM:ICMA is to manage pollution in the coastal zone (which includes marine waters, estuaries and coastal wetlands). It is therefore noteworthy that the Act does not prescribe specific resource-directed regulatory instruments for the coastal zone, as per the NWA regulatory framework model, and especially in relation to coastal waters, marine waters, estuaries and wetlands (coastal and marine waters). As demonstrated in the previous section, the design and implementation of effective source-directed measures is dependent on the development and implementation of effective resource-directed measures (the reserve, the resource quality objectives and the classification system). This omission can be described as a "regulatory gap" which will ultimately impair the effective management of pollution in the coastal zone, including LBMP regulation.

d. Ambient air quality

The *National Environmental Management: Air Quality Act 39 of 2004* (NEM:AQA) is the main Act regarding air quality management. The object of this Act is to protect the environment (which might include coastal and marine waters) by providing reasonable measures for the protection and enhancement of the quality of air in the Republic; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting justifiable economic and social development. The NEM:AQA aims to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people. The aim of the Act is the "protection of the environment" and the promotion of the "health and well-being of people" through air quality

¹⁴⁵⁰ See 5.3.2.3.

management. Therefore such a regulatory objective can include the management and regulation of atmospheric pollution and quality to reduce related LBMP. The Act prescribes the establishment of national and provincial ambient air quality standards. In terms of sections 9 and 10, the Minister and/or MEC must identify substances or mixtures of substances in ambient air which, through ambient concentrations, bioaccumulation, deposition (for example in the marine and coastal environment) or in any other way, present a threat to health, well-being or the environment (which should include coastal and marine waters) or which the Minister reasonably believes present such a threat. In respect of each of those substances or mixtures of substances, the Minister must establish national standards for ambient air quality, including the permissible amount or concentration of each such substance or mixture of substances in ambient air. Such standards have been established.¹⁴⁵¹ It is currently uncertain if such standards have taken in consideration the impact of atmospheric pollution on coastal and marine waters. The *National Programme of Action for South Africa*¹⁴⁵² states that in terms of "atmospheric deposition", research programmes should be established to assess the extent to which atmospheric sources of pollution affect the coastal marine environment, which suggests that such scientific study has not yet been conducted and therefore has not informed the current air quality standards and limits, which would be a limitation in terms of LBMP regulation.

5.3.2 Key regulatory instruments based on the sources-directed approach

This section provides a legal analysis of the main regulatory instruments based on the sources-directed approach, including BPEO, BAT, BEP, minimum requirements, best practice, guidelines, strategies, norms, standards, the declaration of priority wastes and operational policies. The NWA is the statute which has the most evolved approach in terms of source-directed instruments

1451 Updated Air Quality Limits for Common Pollutants have been published by the South African Bureau of Standards (SABS) and DWEA, published in December 2009 in the *New National Ambient Air Quality Standards* in terms of the NEM:AQA, GN R1210 in GG32816 24 December 2009.

1452 DEAT NPA 7-8.

relating to LBMP. The NWA's source-directed instruments are aimed at regulating the sources (the use of water resources and the related activities) which might impact negatively on the quality of the water resource. The NWA defines these as:

Measures contribute to defining the limits and constraints that must be imposed on the use of water resources to achieve the desired level of protection. They are primarily designed to control water use activities at the source of impact, through tools such as standards and the situation-specific conditions that are included in water use authorisations. Source-directed controls are the essential link between the protection of water resources and the regulation of their use.¹⁴⁵³

5.3.2.1 BPEO, BAT and BEP in South Africa

Section 2 of the NEMA prescribes that environmental management must be integrated, acknowledging that all of the elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment "by pursuing the selection of the best practicable environmental option" (the BPEO). Section 23(2)(f) of the NEMA prescribes that integrated environmental management encompasses "the identification and employment of the modes of environmental management best suited to ensure that a particular activity is pursued in accordance with the principles of environmental management". Such a reference is generic and does not provide detailed guidance on the nature and scope of BPEO and BAT. The NEMA defines BPEO as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term". This definition does not provide any practical guidance on the implementation and interpretation of the concept. However, BPEO is referred to in other policy and legal documents.¹⁴⁵⁴ According to these documents, BPEO is the option which

1453 DWAF *National Water Resource Strategy* 56.

1454 DEAT *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste* Second Edition 1998; DEAT *Minimum Requirements for Waste Disposal by Landfill* Second Edition 1998, and DEAT *Minimum Requirements for Water Monitoring at*

"provides the most benefit and least damage to the environment as a whole, in both the long and the short term (...) It is arrived at by the due consideration of alternatives and costs".¹⁴⁵⁵ In terms of the Former DWAF *Minimum Requirements For The Handling, Classification And Disposal Of Hazardous Waste*, Second Edition, 1998, BPEO is defined as:

the outcome of a systematic consultative and decision-making procedure that emphasises the protection of the environment across land, air and water. It establishes, for a given set of objectives, the option that provides the most benefit or least damage to the environment as a whole at acceptable cost in the long term and as well as the short term.

Some Water Services Bylaws¹⁴⁵⁶ also refer to BPEO and BAT in terms of quality standards for the disposal of industrial effluent and specific effluents standards.¹⁴⁵⁷ The minimum requirements for waste management also refer to a related concept, the "Best Available Technology Not Entailing Excessive Cost" (BATNEEC), where excessive cost is determined by a cost/benefit analysis. The term "Best Available" implies "technology that is proven, accepted and accessible". Technology is the "process itself and how the process is implemented (including management)". A cost assessment has to be conducted to identify BATNEEC.

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- Waste Management Facilities Second Edition 1998. These documents prescribe that "the required processes and activities must meet the BPEO".
- 1455 Par. 1.4 of DEAT *Minimum requirements for the Handling, Classification and Disposal of Hazardous Waste* Second Edition 1998, and DEAT *Minimum requirements for Waste Disposal by Landfill* 1998.
- 1456 WSA regulations MN16 *Water Services Bylaws* 6 September 2001 and Water Services Bylaws of the Ugu District Council as water services authority adopted in terms of S 21 of the WSA.
- 1457 In this context, the bylaws prescribe in terms of standards "exemption/relax": "only if they are satisfied that any such relaxation represents the BPEO. In determining whether relaxing or varying the standards in Schedules A or B represents the best practicable environmental option an authority or the authorised provider, will consider whether the applicant's undertaking is operated and maintained at optimal levels; whether technology used by the applicant represents the best available option to the applicant's industry and, if not, whether the installation of such technology would entail unreasonable cost to the applicant; whether the applicant is implementing a program of waste minimisation which complies with national and local waste minimisation standards to the satisfaction of the authority or the authorised provider; the cost to the authority or the authorised provider, of granting the relaxation or variation; and the environmental impact or potential impact of such a relaxation or variation".

An operational guideline under the previous *Water Act* 54 of 1956¹⁴⁵⁸ also made reference to BAT in the context of effluent treatment by mines, prescribing that the Department expects BAT to be implemented for "water treatment by the mine to prevent unacceptable impacts on water users". The regulations also prescribe that:

A statement that the applicant cannot afford to implement a Best Available water treatment Technology (BAT) to bring the water/effluent to the prescribed water quality standard, must be accompanied by a financial statement from the financial auditors of the mine that shows the historical and projected profits of the mine. It must also include a cost/benefit analysis that compares the total cost (including the environmental cost) to the total benefit (for the country or community as a whole) indicating that it is in the best interest of the country to continue with the proposed discharge/disposal in spite of the impact on the users. Only after this, will the concept of BATNEEC (Best Available Technology Not Exceeding Excessive Cost) be considered.

The general policy in terms of *the Environment Conservation Act* 73 of 1989¹⁴⁵⁹ also made reference to such a concept, stating that:

In the first instance pollution, of whatever nature, should be prevented by formulating an effective comprehensive policy, the promulgation of appropriate legislation, the establishment and maintenance of norms and standards, the application of the best practicable environmental options based on the most suitable available technology, the fostering of positive attitudes among industrialists and the public, and participation in international co-operation.

The Department of Trade and Industry's first Environmental Management Plan (EMP),¹⁴⁶⁰ which was developed in terms of the NEMA, also referred to such concepts and introduced the concept of "best available affordable cleaner technology". With respect to incentives and industrial support, the document stated that:

In terms of the Technology Transfer Act that is currently being drafted, the Department of Trade and Industry's envisaged Technology Transfer Centre

1458 DWAF *Operational Guideline M4.0 Water Quality Management*: Operational guideline for the application by a mine for a permit.

1459 GN R51 in GG 15428 21 January 1994 *ECA General policy*.

1460 GN R40428 in GG 23254 March 2002.

will require "best available affordable cleaner technology" clearance for all technology transfer transactions, based on the principle of Best Available Technology Not Entailing Excessive Cost (BATNEEC).

The NEM:WA also introduces new legal concepts in this context, including "cleaner production measures" and "environmentally sound management".¹⁴⁶¹ During the performance of this research project it was not possible to identify governmental documents on BEP, BAP, BATNEEC and/or other similar concepts aimed at guiding their respective identification, development and/or implementation.¹⁴⁶² The former DWAF has developed various sectoral guidance documents which encompass indirect sectoral guidance on BEP, BAT and BATNEEC in terms of water pollution management.¹⁴⁶³ However, they are not regarded as binding *per se* and do not seem to be regularly updated. It can be concluded from the information given above that the South African approach in terms of BAT, BEP, BPEO and other similar concepts is not integrated (as it seems to rely on a sectoral approach) and rationalised.¹⁴⁶⁴ The government's approach in this context does not seem to facilitate co-operation with industry to identify (perhaps through research) and develop appropriate environmental practices and options, leaving the burden entirely on the private sector. As demonstrated above, the South African does not facilitate a uniform and cohesive approach to the implementation of BAT, BEP, BPEO and other similar concepts. It has been argued that "as South Africa starts consolidating its environmental standards and reviewing measures for ensuring compliance with such standards,

1461 Environmentally Sound Management, which means the taking of all practicable steps to ensure that waste is managed in a manner that will protect health and the environment.

1462 In the EU for example, there are reference documents formally adopted by the European Commission (BREF). In short, each document generally gives information on a specific industrial/agricultural sector in the EU, techniques and processes used in this sector, current emission and consumption levels, techniques to consider in the determination of BAT, and some emerging techniques. For further information about BREF see <http://eippcb.jrc.es/reference/>.

1463 Refer to Appendix 1 for a list of such guidance documents.

1464 For the difference between the EU system under the IPPC Directive and the BREF system, refer to Chapter 4 especially 4.1.1 and 4.6.2.

it would appear that BPEO is set to become the desired environmental standards".¹⁴⁶⁵

5.3.2.2 *Sources-directed measures to regulate water uses in terms of the NWA*¹⁴⁶⁶

The general and specific conditions of water use authorisation and/or licences granted in terms of the NWA can prescribe specific sources-directed measures/instruments. Section 22(2) of the NWA prescribes general conditions¹⁴⁶⁷ regarding water use which must be complied with by all water users. The most relevant general conditions in terms of LBMP regulation and sources-directed instruments include:

- In the case of the discharge or disposal of waste or water containing waste contemplated in section 21 (f), (g), (h) or (j), the water user must comply with any applicable waste standards or management practices prescribed under section 26(1)(h) and (i), unless the conditions of the relevant authorisation provide otherwise;
- Generally, water users must return any seepage, run-off or water containing waste which emanates from that use, to the water resource from which the water was taken, unless the responsible authority directs otherwise or the relevant authorisation provides otherwise.

1465 Paterson and Kotzé *Environmental compliance and enforcement* 46.

1466 For further information also see Strydom and King *Environmental management* 659-667.

1467 The general conditions include: "(a) must use the water subject to any condition of the relevant authorisation for that use; (b) is subject to any limitation, restriction or prohibition in terms of this Act or any other applicable law; (c) in the case of the discharge or disposal of waste or water containing waste contemplated in S 21 (f), (g), (h) or (j), must comply with any applicable waste standards or management practices prescribed under S 26(1)(h) and (i), unless the conditions of the relevant authorisation provide otherwise; (d) may not waste that water; and (e) must return any seepage, run-off or water containing waste which emanates from that use, to the water resource from which the water was taken, unless the responsible authority directs otherwise or the relevant authorisation provides otherwise.

Section 29 of the Act enables the relevant authority to attach conditions to general authorisations and licences.¹⁴⁶⁸

The most relevant development in the context of LBMP has been the development by former DWAF of an *Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa*, 2004.¹⁴⁶⁹ This policy and its associated documents are not binding. To be binding, environmental authorisations and water use licences have to include reference to the policy document in the conditions.¹⁴⁷⁰ In this operational policy, which is the most relevant in the context of LBMP, the former DWAF decided to establish a new approach to water quality management policy, setting out a new hierarchy of decision-making processes "which contains elements of the Receiving Water Quality Objectives approach, as well as the precautionary principle of environmental protection through source reduction, minimisation, treatment, re-use, etc". The purpose is to ensure that:¹⁴⁷¹

1468 Including as the most relevant ones in the context of LBMP: conditions relating to the protection of the water resource in question; conditions relating to water management by specifying management practices and general requirements; requiring the monitoring and analysis of and reporting on every water use and imposing a duty to measure and record aspects of water use, specifying measuring and recording devices to be used; requiring the preparation and approval of and adherence to, a water management plan; conditions relating to return flow and discharge or disposal of waste, by specifying a water resource to which it must be returned or other manner in which it must be disposed of; specifying permissible levels for some or all of its chemical and physical components; specifying treatment to which it must be subjected, before it is discharged; and specifying the volume which may be returned; In the specific context of the conditions attached to controlled activities, they could relate to waste treatment, pollution control and monitoring equipment to be installed, maintained and operated and the management practices to be followed to prevent the pollution of any water resource.

1469 Also see Oelofse *et al* 2004 *Water SA* 56-60. "To fulfil its legal obligation in terms of the management and control of land-derived wastewater under S 21 of the NWA, the DWAF commissioned this project to develop an operational policy, specifically focusing on the disposal of land-derived water containing waste (or wastewater) to the marine environment of South Africa (including estuaries, the surf zone and offshore marine waters), incorporating all relevant international and national principles, policies and legislation" DWAF *Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa* iii.

1470 For example, in the Port of Ngqura RoD and associated conditions and EMP, available from the National Ports Authority of South Africa.

1471 DWAF *Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa* Executive summary 20.

An application to dispose of wastewater to the environment must demonstrate that all reasonable efforts have been made, firstly to prevent waste, and secondly to minimise it. Only thereafter will minimum wastewater standards or standards based on the Receiving Water Quality Objective approach, whichever is strictest, be considered. Alternative options of managing wastewater must therefore be investigated. Disposal to the marine environment it is not the "default" option in coastal areas.

The hierarchical process of decision making involves the following:¹⁴⁷² pollution prevention, preventing waste production, and the minimisation of pollution wherever possible.¹⁴⁷³ For unavoidable waste, responsible disposal should be ensured, applying the precautionary approach. Wastewater standards should be applied as a minimum requirement. If wastewater standards are not sufficient, then fitness for use of the receiving body of water in accordance with the Receiving Water Quality Objective approach should be maintained, and exemption from compliance to wastewater standards will be considered only in exceptional circumstances, provided that the receiving body of water remains fit for use in accordance with the Receiving Water Quality Objective approach. The document contains some of the sources-directed measures most relevant to LBMP regulation. The NWRS also states that former DWAF is "preparing an amendment to the NWA to facilitate control of waste discharged into the marine environment".

5.3.2.3 *The NEM:ICMA: sources-directed measures and the discharge of effluent in the coastal zone*

In terms of section 69 (1) of the NEM:ICMA:

No person may discharge effluent¹⁴⁷⁴ that originates from a source on land into coastal waters except in terms of a general authorisation or a coastal

1472 DWAF *Operational policy for the disposal of land-derived water containing waste to the marine environment of South Africa* Executive summary 20.

1473 Minimisation of pollution and waste at source, minimising unavoidable waste through recycling, detoxification, neutralisation, treatment and re-use of waste streams, cleaner technologies and best management practices.

1474 In terms of the Act, "effluent" means any liquid discharged into the coastal environment as waste, and includes any substance dissolved or suspended in the liquid; or liquid which is a different temperature from the body of water into which it is being discharged". Firstly, it is noteworthy that the definition does not refer to the original terminology used

waters discharge permit issued under this section by the Minister after consultation with the Minister responsible for water affairs in instances of discharge of effluent into an estuary.

The Act proposes an approach similar to that currently implemented in terms of the NWA, which consists mainly of a "general authorisations" and "coastal permits" (licence under the NWA) system. Section 69(6) of the NEM:ICMA prescribes general obligations for any person who discharges effluent into coastal waters, which are similar to the general obligations currently prescribed by the NWA. They include avoiding wasting water; always trying to return any fresh water in effluent to the water resource from which it was taken, discharging effluent subject to any condition contained in the relevant authorisation, complying with any applicable waste standards or water management practices prescribed under this Act or under section 29 of the NWA or any Act of Parliament specifically dealing with waste, unless the conditions of the relevant authorisation provide otherwise, and registering the discharge with the department responsible for water affairs.

The provisions of the NEM:ICMA are considered to be insufficiently comprehensive to ensure effective management of effluent discharge in the marine environment. Considering the potential impacts of effluent on the quality of marine water resources, it is suggested that the Act should at least have provided for the implementation of "a hierarchy of decision making".⁴⁷⁵

(...) which contains elements of the Receiving Water Quality Objectives approach, as well as the precautionary principle of environmental protection through source reduction (pollution prevention), minimisation of pollution at source (including recycling, detoxification, neutralisation, treatment and re-use of waste streams, cleaner technologies and best management practices); and responsible disposal, applying the precautionary approach.

under NWA, "water containing waste", but extends the scope to "any liquid...discharged as waste". As previously mentioned under NWA, there is no limitation on the regulatory scope by reference to the potential impact of the liquid on the environment, i.e. it need not necessarily be potentially harmful to the marine environment.

1475 As advised in the following in DWAF *Operational policy for the disposal of land-derived water containing waste to the marine environment* 1-2.

The Act should explicitly prescribe a necessary "preliminary assessment" to ensure that an authorisation (general or specific) to dispose of effluent into the marine environment is granted only if it is proven that "all reasonable efforts have been made, firstly to prevent waste and/or pollution, secondly to minimise it and finally to dispose of it safely".¹⁴⁷⁶ Such an assessment could be based on the approach used for dumping at sea, and the guidelines prescribed by the NEM:ICMA to this effect. It should also provide for the identification of priority substances which should not be released in the coastal/marine environment.

The regulatory approach adopted by the NEM:ICMA towards the regulation of effluents and more generally towards marine and coastal pollution control is not integrated and coherent enough to enable effective protection of coastal and marine waters and resources, especially from LBMP. As demonstrated in the NWRS,¹⁴⁷⁷ the regulation of the use of water is only a limited aspect of integrated water resources management, and it is submitted that the effectiveness of the regulation, including effluent discharge, is entirely dependent on the implementation of effective resource-directed instruments,¹⁴⁷⁸ including as the main ones the establishment of a classification system, the establishment of the reserve, and the determination of water resources quality objectives. In this context, the instruments based on the source-directed approach established by the NEM:ICMA have limited effectiveness due to the absence of resource-directed instruments for coastal and marine waters.

1476 As advised in the following in DWAF *Operational policy for the disposal of land-derived water containing waste to the marine environment* 1-2.

1477 GN R65 in GG 27199 28 January 2005, First Edition 2004 *Establishment of the national water resource strategy*.

1478 GN R65 in GG 27199 28 January 2005, First Edition 2004 *Establishment of the national water resource strategy*.

5.3.2.4 *Minimum requirements, best practices, guidelines, strategies, operational policies, norms and standards*

It is generally recognised that many of the current environmental statutory standards in South Africa are outdated and/or inadequate.¹⁴⁷⁹ There are also problems in terms the lack of harmonised standards, especially in terms of the use of the effluent standards approach in relation to the resource quality objectives.¹⁴⁸⁰ Former DWAF has developed various types of general sources-directed measures, including sectoral requirements, best practice guidelines, minimum requirements, operational policies and strategies addressing the following sources: waste water or effluent, mining¹⁴⁸¹ and related activities, sewage effluent, waterborne epidemics, wastewater sludge, aquaculture and agriculture-related activities. However, with the exception of the ones directly provided for in a regulation,¹⁴⁸² all of the other general measures need to be incorporated in an authorisation and/or licence conditions to be binding for water users. Specific measures can also form part of a water-use licence. The table reproduced in Appendix 5 provides an overview of the most relevant requirements, best practice, guidelines, operational policies and strategies relevant in terms of LBMP and developed under the NWA. However, it is important to note that most of these sectoral requirements, best practice, guidelines, minimum requirements, operational policies and strategies under the NWA are not thoroughly binding, except if they are incorporated as a condition of an environmental authorisation and/or licence, which is regarded as a limitation. They have to be considered to some extent in terms of the regulation of the

1479 Paterson and Kotzé *Environmental compliance and enforcement* 44 and Glazewski *Environmental law* 622.

1480 Strydom and King *Environmental management* 689. Moreover the translation of a stricter "uniform effluent standard" into a "minimum threshold level" in general authorisation has not been appropriately affected.

1481 For example, a duty is imposed to confine clean water to a clean water system and dirty water to a dirty water system which must be designed so as not to spill into the clean water system more than once in 50 years. General duties are imposed to take measures to protect water resources. Also see Appendixes 5 and 6 for further information

1482 See appendix 5.

discharge of effluents in terms of the NEM:ICMA.¹⁴⁸³ They are some binding standards developed through the South African Bureau of Standards, they mainly relate to the requirements to conduct water quality test/determination,¹⁴⁸⁴ drinking water requirements, and technical standards for drainage and small treatment plants for waste water.¹⁴⁸⁵

In terms of the NEM:WA, the Minister must set national norms and standards¹⁴⁸⁶ (only those most relevant to LBMP are mentioned) for the classification of waste and storage, the treatment and disposal of waste, including the planning and operation of waste treatment, and waste disposal facilities. Such norms and standards have not yet been established. The Minister also has the faculty, but not the obligation, to set national norms and standards for the minimisation, re-use, recycling and recovery of waste, including the separation of waste at the point of generation, extended producer responsibility¹⁴⁸⁷ and the remediation of contaminated land and soil quality. It is also important to note that the MEC must ensure the implementation of national norms and standards and may also set provincial norms and standards.¹⁴⁸⁸ A municipality may set local standards related to waste services and solid waste management.¹⁴⁸⁹ Such standards and norms have the potential to reduce LBMP from waste and related activities. The

1483 Refer to 5.3.2.3 on the regulation of effluents as prescribed by the NEM:ICMA.

1484 I.e. SANS 163-1:1992/ISO 10304-1:1992 (SABS ISO 10304-1) Water quality - Determination of dissolved fluoride, chloride, nitrite, orthophosphate, bromide, nitrate and sulphate ions, using liquid chromatography of ions Part 1: Method for water with low contamination; or SANS 313:2004/ISO 6222:1999 Water quality - Enumeration of culturable micro-organisms - Colony count by inoculation in a nutrient agar culture medium.

1485 SANS 52566-1:2004/EN 12566-1:2000 Small wastewater treatment systems for up to 50 PT Part 1: Prefabricated septic tanks.

1486 The national and provincial norms or standards may differentiate on an equitable basis between (i) different users of waste management services; and (ii) different types of waste management services. The national norms and standards may ensure that funds obtained from waste services are used for waste management services, and provide for tariffs to be imposed to provide for waste management infrastructure or facilities.

1487 See 6.3.3.6 further information.

1488 Norms and standards contemplated to facilitate and advance the planning and provision of waste management services; minimisation, re-use, recycling and recovery of waste; and treatment and disposal of waste, including the planning and operation of waste treatment and waste disposal facilities licensed by provincial authorities.

1489 S9 of NEM:WA.

NEM:WA also prescribes general requirements for the storage,¹⁴⁹⁰ collection¹⁴⁹¹ and transportation¹⁴⁹² of waste. Such requirements should also assist in the minimisation of LBMP from such activities, especially from incidents arising from unsound management practices. The requirements prescribed by the NEM:WA in terms of the treatment, processing and disposal of waste are also relevant in the context of LBMP. Of specific importance are the general requirements regarding the disposal of waste. The Act prescribes that no person may dispose of waste, or knowingly or negligently cause or permit waste to be disposed of, in or on any land, body of water or at any facility unless the disposal of that waste is authorised by law (including authorisations or licences in terms of the NWA and/or the NEM:ICMA).¹⁴⁹³ It is also noteworthy that such the obligation prescribed by the NEM:WA as noted above, does not apply if "the most environmentally and economically feasible option for the management of the waste was adopted".¹⁴⁹⁴ But the Act does not make reference to BAT, BEP or BPEO, which might have been problematic in this context, as it creates an additional standard, which impairs legal coherence and uniformity.

In this context, the legal definition of a "water body" is currently unclear. The *Minimum Requirements for Waste Disposal by Landfill*¹⁴⁹⁵ used the terminology "body of water" specifying water courses or dams as examples. DEAT's first Environmental Management Plan (EMP), 2002, also uses the terminology "water bodies". The EMP specifies False Bay in the Western Cape (a marine water body) as an example of a water body. Obviously, the uncertainty in the legal definition of a body of water might impair the direct application of this provision in the context of the discharge/disposal of waste in coastal or marine waters.

1490 S 21 and 22 of NEM:WA.

1491 S 23 and 24 of NEM:WA.

1492 S 24 and 25 of NEM:WA.

1493 Refer to 5.3.2.1.

1494 This concept is new to BAT, BEP and other related instruments, as analysed in 5.3.2.1

1495 DWAF *Waste Management Series Minimum Requirements for Waste Disposal by Landfill* Second Edition 1998.

The Act also prescribes specific requirements¹⁴⁹⁶ in terms of littering, which should ultimately reduce the amount of solid waste entering the coastal and marine environment. (Such litter is also referred to as "marine debris".) However, for the purposes of regulating LBMP such requirements have limited point as they only prohibit a person from throwing, dropping, depositing, spilling or in any other way discarding any litter into a watercourse. Reference is not made to marine or coastal waters.

Various sources-directed instruments established under the NWA are relevant in the context of waste management, especially in terms of the guidelines developed in this context.¹⁴⁹⁷ Such guidelines can assist in regulation water pollution, including LBMP is they are made legally binding. However, they also should be regularly updated in terms of technological and environmental practices progress.

5.3.2.5 *Declaration of priority wastes and waste management measures*

In terms of the NEM:WA, the Minister may declare¹⁴⁹⁸ a waste to be a priority waste if on reasonable grounds he or she believes that a waste poses a threat to the environment because of its quantity or composition and that specific waste management measures are required to address the threat or that the imposition of specific waste management measures in respect of the waste may improve reduction, re-use, recycling and recovery rates or reduce environmental impacts.¹⁴⁹⁹ Such waste management measures have the potential to effectively

1496 In terms of the Act, no person may (a) throw, drop, deposit, spill or in any other way discard any litter into or onto any public place, land, vacant erf, stream, watercourse, street or road, or on any place to which the general public has access, except in a container or a place specifically provided for that purpose; or allow any person under that person's control to do any of the acts contemplated in Par. (a).

1497 Refer to Appendix 5.

1498 It is noteworthy that if the declaration of a waste as a priority waste is likely to have a significant impact on the national economy, such a declaration may be made only after consultation with the Minister of Trade and Industry and the Minister of Finance.

1499 These waste measures may include the requirement for identified persons falling within a category of persons to prepare an industry waste management plan in respect of the declared priority waste; a prohibition on the generation of the priority waste; measures for

assist the regulation of LBMP from sources related to waste management and specific substances generated as waste from a process, activities or product. It is internationally recognised that reduction at source (prevention) of pollution is more effective (especially more cost effective) than reactive measures.

5.3.2.6 Sources-directed measures contained in environmental authorisations/ permits/licences

As previously stated, general or specific conditions attached to water licences and environmental authorisations might prescribe specific source-directed instruments, including BAT, BEP, BPEO and/or BATNEEC,¹⁵⁰⁰ and might encompass conditions which include source-directed instruments. An Environmental Management Programme (EMP) developed in terms of an EIA process may contain source-directed instruments, which will then be binding on the project developer. National and provincial guidelines (as prescribed in sections 73 and 74 of the NEMA) could also prescribe specific source-based instruments to be considered in the EIA process. As stated in section 75 of the NEMA, these guidelines are not binding, but they need to be taken into consideration in the preparation, submission, processing and consideration of any EIA applications. Such guidelines could provide sectoral guidance for the identification and implementation of BEP, BAT, and other related environmental techniques/practices for specific listed activities. Other environmental authorisations, licences, and permits and their related conditions may also prescribe specific source-directed instruments.¹⁵⁰¹

the management of the priority waste; measures for the minimisation, storage, re-use, recycling and recovering, treatment and disposal of the priority waste; requirements for the registration and monitoring of, and reporting on priority waste; and any other measures that the Minister believes are necessary to manage the threat that is presented by the waste or to achieve the objects of the Act.

1500 Refer to 5.3.2 for further information.

1501 6.3 provides a detailed analysis of the main source-directed instruments relevant to the regulation of LBMP from specific substances and products, 6.1 analyses source-directed instrument in terms of agriculture-related activities, and 6.2 assesses source-directed instruments for water services-related sources of LBMP.

5.3.3 Key regulatory instruments based on planning management

This section provides a critical assessment of the most relevant regulatory instruments based on planning management provided by the South African environmental framework, namely:

- Instruments based on activities regulation including: EIA, the regulation of coastal activities, the regulation of activities to protect marine and coastal biodiversity, the regulation of waste management activities, controlled activities in terms of the NWA, the regulation of the erection of buildings, the regulation of specific dangerous activities (transport, the loading and storage of petroleum, nuclear installations) and the regulation of activities in protected areas.
- Instruments based on use management and designation, including the management of the use of water in terms of the NWA and in terms of the NEM:ICMA.
- Instruments based on area planning, including the management of catchment areas and of integrated coastal zones, integrated development plans, land development management,¹⁵⁰² environmental management framework (EMF) and the determination of sensitive zones.

1502 Kidd notes that the manner in which land is used clearly impacts upon the environment, and therefore land-use planning is a vital component of environmental management. He also states that historically, environmental concerns were not directly addressed in land-use planning legislation, Kidd *Environmental law* 153. Van Wyk also notes that a variety of land-use management plans exist in the form of policy plans containing statements of policy, which are applicable as higher-level plans, structural plans, integrated developments plans, land development objectives, town planning schemes and zoning schemes, Van Wyk *Planning law* 21. Van Wyk also states that until recently South Africa knew little of forward planning in terms of land management. For further information see, Van Wyk *Planning law*. Only the most relevant plan development management and planning instruments in terms of LBMP regulation are analysed in the following sections.

5.3.3.1 Control of activities¹⁵⁰³

This section provides a legal analysis of most relevant planning instruments which could be used to regulate activities identified as potential sources of LBMP. Such instruments include EIA in terms of the NEMA and NEM:ICMA, coastal protection notices in terms of the NEM:ICMA, repair and removal notices in terms of the NEM:ICMA, controlled activities in terms of the NWA, waste management licences in terms of the NEM:WA, the control of building construction in terms of the *National Building Regulation and Building Standards Act 103 of 1977* (NBRBSA), the control of dangerous activities through various statutes, the control of water pollution from mining-related activities, and the regulation of activities to protect marine and coastal biodiversity.

a. General regime for EIA¹⁵⁰⁴

Chapter 5 of the NEMA deals with integrated environmental management, including EIA. Since 2006, NEMA is the primary statute that regulates the so-called "listed activities" and "specified activities" for which environmental authorisation are required prior to commencement, typically following some form of environmental impact assessment. The provisions of Chapter 5 of the NEMA have been amended over time, including most recently by the *National Environmental Management Amendment Act 62 of 2008*. In terms of section 24 of the NEMA,¹⁵⁰⁵ in order to give effect to the general objectives of integrated

1503 For further information also see Strydom and King *Environmental Management* 1201-122.

1504 Since 1997, the requirement has existed in South African law to conduct an "EIA" before undertaking certain activities. The provisions of S 21 and 22 of the *Environment Conservation Act 73 of 1989* (ECA) and their associated regulations established the main legal framework in terms of EIA. With the environmental law reform process, NEMA has been established as the framework act and came to be the primary statute in terms of environmental authorisations, especially in the context of EIA. In July 2006, NEMA "EIA Regulations" came into effect and the ECA "EIA Regulations" were repealed simultaneously. Also refer to 5.3.3.2(f) below for an assessment of the requirement for impacts assessment in the context of land development applications. For further information about the history of the legal regime related to EIA in South Africa see Van Wyk *Planning law* 239-242 and Strydom and King *Environmental Management* 1201-122.

1505 As amended by the *National Environmental Management Amendment Act 62 of 2008*.

environmental management, the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority charged by this Act with granting the relevant environmental authorisation. Such an approach is aligned with international best practice.¹⁵⁰⁶ The NEMA prescribes "minimum requirements" for the scope and contents of the EIA that must be submitted with every application for an environmental authorisation,¹⁵⁰⁷ which prescriptions are aligned with international best practice in this context.¹⁵⁰⁸ New regulations in terms of Chapter 5 of the NEMA (GN R543), were promulgated on 18 June 2010 and were subsequently amended and came into operation on 2 August 2010.¹⁵⁰⁹

The NEMA EIA Regulations *inter alia* deal with criteria to be taken into account by the competent authorities when considering applications (regulation 8); timeframes for competent authorities (regulation 9); and the procedure for applications for environmental authorisations (Chapter 3).

1506 Refer to 2.3.4.1(d).

1507 The procedures for the investigation, assessment and communication of the potential impact of activities must provide for as a minimum with respect to every application for an environmental authorisation: investigation of the environment likely to be significantly affected by the proposed activity and alternatives thereto; investigation of the potential impact of the activity and its alternatives on the environment and assessment of the significance of that potential impact; investigation of mitigation measures to keep adverse impacts to a minimum, as well as the option of not implementing the activity; public information and participation which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in such information and participation procedures; reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information; investigation and formulation of arrangements for the monitoring and management of impacts, and the assessment of the effectiveness of such arrangements after their implementation; coordination and co-operation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state, that the findings and recommendations flowing from such investigation, the general objectives of integrated environmental management laid down in NEMA and the principles of environmental management set out in S 2 of the NEMA are taken into account in any decision made by an organ of state in relation to the proposed policy, programme, plan or project; and that environmental attributes identified in the compilation of information and maps as contemplated in subsection (3) are considered.

1508 Refer to 2.3.4.1(d).

1509 With these EIA Regulations coming into operation, the previous EIA Regulations (GN R385), were repealed, subject to certain the transitional provisions.

The new NEMA EIA regime, 2010, establishes a distinction between two categories of environmentally based assessment, depending on the listed activities intended to be undertaken: a "basic assessment" or "a scoping and EIA". Listed activities for which a "basic assessment" is required (regulation 21) include the one listed in Listing Notice 1 (GN R544) and Listing Notice 3 (GN R546). The procedure to be followed is dealt with in regulation 21 to regulation 25 of the EIA Regulations. Listed activities for which submission of a scoping report and Environmental Impacts Report is required (regulation 26) are set out in Listing Notice 2 (GN R545) and the procedure to be followed is dealt with in regulation 26 to regulation 35 of the EIA Regulations. The Act prescribes specific criteria that the authority should take into consideration when deciding applications, which too are aligned with international best practice.¹⁵¹⁰ Such criteria are relevant in the context of LBMP, enabling to some extent the proactive identification of LBMP and management measures to prevent and manage LBMP from the proposed activity.¹⁵¹¹ Such instruments enable a

1510 Such criteria include: any pollution, environmental impacts or environmental degradation likely to be caused if the application is approved or refused; the impact on the environment of the activity which is the subject of the application, whether alone or together with existing operations or activities; measures that could be taken to protect the environment from harm as a result of the activity which is the subject of the application; and to prevent, control, abate or mitigate any pollution, environmental impacts or environmental degradation; the ability of the applicant to implement mitigation measures and to comply with any conditions subject to which the application may be granted; any feasible and reasonable alternatives to the activity which is the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment; any information and maps compiled in terms of S 24 (3) of the NEMA, including any environmental management frameworks to the extent that such information and maps and frameworks are relevant to the application.

1511 In terms of LBMP, it is also noteworthy that an application for basic assessment will provide a description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity; a description and assessment of the significance of any environmental impacts, including cumulative impacts, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the activity; and any environmental management and mitigation measures. An application for scoping and EIA will also provide a description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity; a description and assessment of the significance of any environmental impacts, including

thorough and comprehensive EIA and the identification of proposed management measures, especially in the context of pollution management. However, the environmental impacts which may be potentially identified through an EIA process are mostly limited to direct impacts from the proposed activity on a specific environmental medium (air, water or soil) and in a limited geographical zone. For example, in the context of a proposed activity in the Limpopo Province, the assessment process will not necessarily consider the potential impacts of the activity on the coastal and marine environment, through different "environmental pathways". It will for example assess only direct impacts on water resources in close proximity of the proposed activity. The EIA application will not assess how the pollution of water resources in the Limpopo Province could ultimately impact on the coastal environment or how atmospheric pollution from the proposed activity in the Limpopo Province could affect the coastal and marine environment of South Africa or its neighbouring countries.¹⁵¹² There is no generic legal requirement to assess the impact and/or contribution of all proposed listed activities on the marine and coastal environment, especially in terms of LBMP. However, the proposed management measures (including mitigation measures) proposed in the applications (the basic assessment or scoping/EIA), especially in the EMP, could and should ultimately reduce pollution, including potential LBMP

the cumulative impacts, that may occur as a result of the undertaking of the activity or identified alternatives; a description of all of the environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures; an assessment of any potentially significant impact, including (i) cumulative impacts; (ii) the nature of the impact; (iii) the extent and duration of the impact; (iv) the probability of the impact occurring; (v) the degree to which the impact can be reversed; (vi) the degree to which the impact may cause irreplaceable loss of resources; and (vii) the degree to which the impact can be mitigated. An application for scoping and EIA will include an environmental management programme (EMP). The content of an EMP is prescribed by GN R543. An EMP must contain information on any proposed management or mitigation measures that will be taken to address the environmental impacts (including environmental impacts or objectives in respect of planning and design; pre-construction and construction activities; operation or undertaking of the activity; rehabilitation of the environment; and closure); and proposed mechanisms for monitoring compliance with the environmental management plan and reporting thereon.

1512 Based on a review of EIA documentation relating to proposed mining activities and the construction and operation of coal power plants.

from the proposed activity. In terms of LBMP, it is also noteworthy that the Minister, and every MEC with the concurrence of the Minister, may identify:¹⁵¹³

- activities which may not commence without environmental authorisation from the competent authority;
- geographical areas based on environmental attributes, and as specified in spatial development tools adopted in the prescribed manner by the environmental authority, in which specified activities may not commence without environmental authorisation from the competent authority;
- individual or generic existing activities which may have a detrimental effect on the environment and in respect of which an application for an environmental authorisation must be made to the competent authority, and activities that may commence without an environmental authorisation, but that must comply with prescribed norms or standards.

These provisions could enable the regulation of specific activities identified as the main sources of LBMP in South Africa and/or regulate the development of activities close to sensitive coastal and marine areas which are vulnerable to LBMP. Generic norms and standards could also be developed in terms of pollution management, especially water pollution and LBMP.

b. The NEM:ICMA and EIA¹⁵¹⁴

"Coastal activities" are defined in the NEM:ICMA as meaning "coastal activities listed or specified in terms of Chapter 5 of the NEMA"¹⁵¹⁵ which take place in the coastal zone".¹⁵¹⁶ The new EIA regulations, 2010, do refer to the coastal zone.

1513 S 24 of the NEMA.

1514 The EIA regime has been adapted to incorporate considerations related to the protection of the coastal zone, by extending and amending the lists of coastal activities (in GN R544, GN R545 and GN R546). Certain amendments to the EIA regulations have been conducted to assist with the implementation of the NEM:ICMA and the achievement of its objectives.

1515 Chapter 5 makes reference to the listed activities. Refer to 5.3.3.1(a) above for further information.

1516 The "coastal zone" is defined in NEM:ICMA as "the area comprising coastal public property, the coastal protection zone, coastal access land and coastal protected areas, the sea-shore, coastal waters and the exclusive economic zone and includes any aspect of the environment on, in, under and above such area". Also see Strydom and King *Environmental management* 904-905.

The NEM:ICMA prohibits any organ of state from authorising the use of land within the coastal protection zone for any activity that may have an adverse effect on the coastal environment without first considering an EIA report. Part 3 of Chapter 7 of the NEM:ICMA deals with environmental authorisations for coastal activities, which include EIAs. section 63 prescribes relevant factors required to be considered by competent authorities in terms of EIA for coastal activities, which are additional to those prescribed in section 24 of the NEMA and GN R543. The competent authority must take into account all relevant factors, including:¹⁵¹⁷

- Whether coastal public property (including coastal waters), the coastal protection zone or coastal access land will be affected and, if so, the extent to which the proposed development or activity is consistent with the purpose of establishing and protecting those areas;
- The estuarine management plans, coastal management programmes and coastal management objectives applicable in the area;
- The socio-economic impact if the activity is authorised or is not authorised;
- The likely impact of the proposed activity on the coastal environment (including marine waters), including the cumulative effect of its impact together with those of existing activities;
- The likely impact of coastal environmental processes on the proposed activity; and
- The objects of the Act (NEM:ICMA), where applicable.

Of particular importance is the reference to the likely impact of the proposed activity on the coastal environment (including marine waters), including the cumulative effect of its impact together with those of existing activities. Such factors should assist the proactive regulation of LBMP from coastal activities. Section 63(2) of the NEM:ICMA specifically prohibits¹⁵¹⁸ the environmental authorisation of a development¹⁵¹⁹ or activity which is:

1517 S 62 of NEM:ICMA.

1518 Such a prohibition can be relaxed if the activity for which the environmental authorisation is required is overwhelmingly in the interests of the whole community, despite the adverse effect it is likely to have on the coastal zone, and on condition that any

- Situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations;
- Situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone was established;
- Likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated;
- Likely to be significantly damaged or prejudiced by dynamic coastal processes;
- Would substantially prejudice the achievement of any coastal management objective; or
- Would be contrary to the interests of the whole community.¹⁵²⁰

Such provisions should also proactively partially assist in the prevention and regulation of LBMP from coastal activities. The NEM:ICMA also prescribes that the competent authority must ensure that the terms and conditions of any environmental authorisation must be consistent with any applicable coastal management programmes and must promote the attainment of coastal management objectives in the area concerned. It is unclear whether this provision applies to all environmental authorisation including activities which may have an impact on the coastal zone but which are located outside of the coastal zone, or if it applies only to environmental authorisations for coastal activities as defined in the NEM:ICMA. The NEM:ICMA prescribes a comprehensive EIA regime for coastal activities, which ultimately should assist in the prevention of

irreversible or long-lasting adverse effects must be mitigated as far as is reasonably possible.

1519 The Act defines "development" as meaning, "in relation to a place, any process initiated by a person to change the use, physical nature or appearance of that place, and includes: the construction, erection, alteration, demolition or removal of a structure or building; a process to rezone, subdivide or consolidate land; changes to the existing or natural topography of the coastal zone; and the destruction or removal of indigenous or protected vegetation".

1520 The Act defines "interests of the whole community" as meaning "the collective interests of the community determined by: Prioritising the collective interests in coastal public property of all persons living in the Republic over the interests of a particular group or sector of society; adopting a long-term perspective that takes into account the interests of future generations in inheriting coastal public property and a coastal environment characterised by healthy and productive ecosystems and economic activities that are ecologically and socially sustainable; and taking into account the interests of other living organisms that are dependent on the coastal environment".

LBMP. However, the NEM:ICMA regime, which is comprehensive in terms of EIA, will have limited effects on LBMP as it does not include potential sources of LBMP outside of the coastal zone. Some of the additional requirements prescribed by the Act should also be applicable to EIAs for activities or developments which might affect the coastal zone, even if they are located outside of the coastal zone.

Finally, the introduction in the NEM:ICMA of the concept of the protection of the "interests of the whole community" in relation to EIA is progressive but it might create difficulties in implementation and legal interpretation. Such a concept has the potential to assist the competent authority in the protection of the coastal environment. However, it is submitted that the concept should be incorporated into all environmental management legislation in a consistent manner to allow for clarity and ease of implementation and application. Moreover, the practical application and implications of such a concept are uncertain, and as previously stated such a concept might be currently too sophisticated for South Africa. The reference to "cumulative impacts" is also regarded as an essential component of an effective regulatory framework in terms of LBMP. However, the provisions of the NEM:ICMA seem to create a "new" level of EIA more complex than the one prescribed in terms of the NEMA, especially for coastal activities.

c. The NEM:ICMA and coastal protection notice

Section 59 of the NEM:ICMA prescribes that if the Minister has "reason to believe that a person is carrying out, or intends to carry out, an activity that is having, or is likely to have, an adverse effect on the coastal environment, then he or she may issue a written coastal protection notice to the person responsible for that activity". Such a coastal protection notice might prohibit the activity if it is not already prohibited in terms of this Act; instruct that person to take appropriate steps in terms of this Act or any other applicable legislation to protect the environment; investigate and evaluate the impact of an activity on an aspect of the coastal environment in accordance with Chapter 5 of the NEMA; or to stop or

postpone the activity for a reasonable period to allow for the investigation to be carried out and for the Minister to evaluate the report. The Act does not seem to limit the geographical scope of such an activity, but it is unclear if such a notice could be issued for an activity taking place outside of the coastal zone.

In the context of LBMP, a broader geographical scope would be more efficient for such an instrument, to effectively stop and/or minimise existing LBMP. This instrument would seem to be relevant and could be effective for the reactive regulation of activities which are sources of LBMP. It has a wide, adaptive and flexible regulatory scope (especially in terms of activities "likely to have an adverse effect on the coastal environment").

d. The NEM:ICMA: repair and removal notices

In terms of section 60 of the NEM:ICMA, the Minister may issue a written repair or removal notice to any person responsible for a structure on or within the coastal zone if that structure is having or is likely to have an adverse effect on the coastal environment by virtue of its existence, because of its condition, or because it has been abandoned; or has been erected, constructed or upgraded in contravention of any law. A removal or repair notice may instruct the person responsible for the structure to remove the structure from the coastal zone or place where it is situated within a specified period, to rehabilitate the site and as far as is reasonable to restore it to a natural state; to repair the structure to the satisfaction of the Minister or MEC within the time stated in the notice, or to take any other appropriate steps in terms of this Act or any other applicable legislation to secure the removal or repair of the structure. Such an instrument might assist reactive LBMP regulation from structures on the coastal zone which might be sources of LBMP. This instrument is regarded as flexible and as having a wide regulatory scope.

e. The NWA and controlled activities

Section 43 of the NWA enables the Minister to regulate activities having a

detrimental impact on water resources by declaring them to be controlled activities. Four activities are identified in the Act as being controlled activities and the most relevant in the context of LBMP is "irrigation using waste or water containing waste from certain sources". Moreover, the Minister may declare any other activities controlled, whenever as the need arises. Consequent to the identification or declaration of a controlled activity, an authorisation for that particular category of activity is required under this Act. This instrument might enable the regulation of the main sources of LBMP. However, such controlled activities will only be relevant to regulate LBMP directly affecting estuaries and coastal wetlands.

f. Waste management licences

The NEM:WA prescribes that the Minister (or MEC) may publish a list of waste management activities that have or are likely to have a detrimental effect on the environment.¹⁵²¹ For each such waste management activity the Minister will specify if a waste management licence is required or/and the requirements or standards that must be adhered to when conducting the activity. The Act also prescribes specific matters to be taken into consideration when considering an application for a waste management licence. These matters are very relevant in the context of LBMP.¹⁵²² This has the potential to limit LBMP originating from waste management activities. The reference to risks enables the adoption of a risk-based and precautionary approach to the licensing of waste management activities, which is ultimately beneficial for the regulation of LBMP. The conditions

1521 The list was published in GN R718 in GG 32368 3 July 2009.

1522 They include: the pollution caused or likely to be caused by the activity that is the subject of the application, whether alone or together with existing operations or pollution and the effect or likely effect of that pollution on the environment; the best practicable environmental options available and alternatives that could be taken to prevent, control, abate or mitigate pollution and to protect the environment from harm as a result of the undertaking of the waste management activity; any increased environmental risks that may arise as a result of the location where the waste management activity will be undertaken (i.e. location from a water resource including marine and coastal waters or sensitive coastal or marine ecosystems); any submissions received from organs of state, interested persons and the public; and any guidelines the licensing authority may wish to issue relevant to the application.

which may possibly be attached to a waste management activity licence¹⁵²³ might also assist in the regulation and minimisation of LBMP, especially those which relate to waste reduction, the decommissioning of a waste disposal facility, the development of an environmental management plan, remediation work, and financial arrangements. No requirements or standards have yet been published in terms of waste management activities under the Act.¹⁵²⁴

The NEM:WA prescribes that the Minister (or the MEC in respect of an area which affects the relevant Province) may after consultation with any other organ of state concerned identify as "investigation areas" any land on which high-risk activities have taken place or are taking place, that are likely to result in land contamination; or land that the Minister or MEC, as the case may be, on reasonable grounds believes to be contaminated.¹⁵²⁵ The regulation and rehabilitation of contaminated land is relevant in the context of LBMP, as it can assist in the minimisation of LBMP from storm-water, seepage and leaching from such contaminated land.

1523 S 51 of the Act prescribes that a waste management licence may: (a) specify conditions in respect of the reduction, reuse, recycling and recovery of waste; (b) specify conditions for the decommissioning of a waste disposal facility or cessation of the waste management activity; (c) require the holder of a waste management licence to establish committees for the participation of interested and affected parties; (d) provide that the licence is subject to the holder of a waste management licence providing an environmental management plan, contemplated in S 11 of the NEMA, to the satisfaction of the licensing authority; (e) require the holder of a waste management licence to undertake remediation work; (f) specify the financial arrangements that the holder of a waste management licence must make for the undertaking of remediation work during the operation of the waste management activity or on decommissioning of the waste management activity; (g) require the holder of the waste management licence to comply with all lawful requirements of an environmental management inspector carrying out his or her duties in terms of the NEMA; (h) include any other matters which are necessary for the protection of the environment.

1524 See 6.3.3.6 for an analysis of the provisions of NEM:WA related to products and producers' responsibility in the context of LBMP.

1525 In respect of each investigation area, a site assessment will have to be conducted, either by DEAT, the land owner, or the person who has or is undertaking the high risks activity. On consideration of a site assessment, the Minister will decide that (a) the investigation area is contaminated, presents a risk to health or the environment, and must be remediated urgently; (b) the investigation area is contaminated, presents a risk to health or the environment, and must be remediated within a specified period; (c) the investigation area is contaminated and does not present an immediate risk but that measures are required to address the monitoring and management of that risk; or (d) the investigation area is not contaminated.

g. The erection of a building

The *National Building Regulation and Building Standards Act* 103 of 1977 prescribes that "no person shall without the prior approval in writing of the local authority in question, erect any building in respect of which plans and specifications are to be drawn and submitted in terms of this Act". The Act also prescribes specific prohibitions and/or conditions for the erection of buildings in certain circumstances, mainly regarding the provision of water and of sewerage and drainage services in respect of buildings, including the compulsory connection with the supply, distribution or sewerage disposal works. In this context, the national building regulations promulgated in terms of section 17(1) of the Act¹⁵²⁶ prescribe that any person intending to erect any building shall submit to the local authority specific plans and particulars, together with the application, including as the most relevant in terms of LBMP information regarding the cleaning of the site, waste material on the site, sanitary facilities, the control of objectionable matters, the discharge industrial effluent, stormwater disposal, and refuse disposal. This authorisation process, if effectively used, could proactively regulate LBMP, reducing pollution at source.

h. The control of dangerous activities

Various sectoral acts are aimed at regulating specific activities which could be source of LBMP. The most relevant ones are analysed in this section.

- The control of nuclear installations

The *National Nuclear Regulator Act* 47 of 1999 (NNRA) prescribes that no person may site, construct, operate, decontaminate or decommission a nuclear installation, except under the authority of a nuclear installation licence.¹⁵²⁷ The Act also prescribes that any person wishing to engage in any action which is capable

1526 These regulations were published in GN R2378 in GG 12780 12 October 1990 and were amended and brought into operation with effect from 8 March 1991 by GN R432 in GG 13054 of 8 March 1991.

1527 S 20 of the NNRA.

of causing nuclear damage may apply in the prescribed format to the chief executive officer for a certificate of registration or a certificate of exemption.¹⁵²⁸ The chief executive officer, as prescribed by the Act, may establish standard conditions applicable to one or more categories of certificates of registration.¹⁵²⁹ He also may impose in a nuclear installation licence specific conditions necessary to ensure the protection of persons, property and the environment against nuclear damage, or to provide for the rehabilitation of the site.¹⁵³⁰ The holder of a nuclear authorisation must implement an inspection programme to ensure compliance with all of the conditions of the nuclear authorisation and be satisfied that any method or material used or to be used in the erection of any building will not be detrimental to the public interest or dangerous to life or property.¹⁵³¹ In this context the regulations in terms of section 36, read with section 47 of the NNRA, on safety standards and regulatory practices, GN R388¹⁵³², declare certain substances, materials and equipment as restricted material, source material, special nuclear material and nuclear-related equipment and material. These instruments could assist the control of LBMP from nuclear related activities and material. The standard conditions and special conditions could be aimed at avoiding LBMP from nuclear facilities or they could be aimed at ensuring the treatment of waste water. The *National Radioactive Waste Disposal Institute Act* 53 of 2008, section 23, prescribes that any person who has to dispose of radioactive waste must apply to the chief executive officer for a radioactive waste disposal certificate in the prescribed format and must furnish such information as the board may require. Any necessary conditions can be attached to a certificate. Section 5 of the Act also prescribes that radioactive waste acceptance and disposal criteria in compliance with applicable regulatory health safety environmental requirements and any other technical and operational requirements should be developed. However, such criteria have not

1528 S 20 and 22 of the NNRA.

1529 S 23 of NNRA.

1530 S 23 of NNRA.

1531 S 26 of NNRA.

1532 GN R388 in GG 28755 28 April 2006.

yet been developed. Such a regulatory approach should enable the regulation of LBMP, especially from waste water, to be avoided.

- The control of the transport, loading and storage of petroleum

The *Petroleum Pipeline Act* 61 of 2003 prescribes that a person may not, without a licence issued by the Authority, construct a petroleum pipeline, a loading facility or a storage facility, or operate a petroleum pipeline, a loading facility or a storage facility. Such an authorisation may include conditions regarding standards of construction and operation approved by the Authority and health, safety, and environmental standards required by the Authority. The Act also prescribes generic requirements for licensees.¹⁵³³ Such proactive regulation could assist LBMP regulation from related activities and structures.

- Major hazard installations

Regulation GN R692¹⁵³⁴ prescribes various regulatory instruments and measures pertaining to the control of major hazard installations. The primary regulatory objective of this regulation is to protect human safety and health from the risks related to such installations. However, the prescribed measures and instruments also have the potential to reduce, to an extent, the risk of LBMP (or to minimise LBMP) from such installations. The most relevant measures and instruments for LBMP regulation regulate the notification of installation, specific requirements for temporary installations,¹⁵³⁵ specific requirements regarding risk assessment,¹⁵³⁶

1533 For example, licensees must submit to the authority annually an emergency plan for implementation; train the appropriate operating and maintenance employees; establish liaison with the appropriate emergency response officials in the event of system failures, accidents and other emergencies; have a plan for reviewing changes in conditions affecting the integrity and safety of their pipelines, including periodic patrolling and reporting of construction activities.

1534 GN R692 in GG 22506 30 July 2001, under S 43 of the *Occupational Health and Safety Act* 85 of 1993.

1535 In terms of Regulation 4, an employer, self-employed person and user shall ensure that a risk assessment for the storage and discharge procedure be carried out for a temporary installation prior to the risk coming into existence. An employer, self-employed person and user shall, after taking into consideration the risk assessment, take the reasonably

on-site emergency plans, requirements regarding the reporting of risk and emergency occurrences, the general duties of suppliers;¹⁵³⁷ and the general duties of local government. These regulations shall apply to employers, self-employed persons and users, who have on their premises, either permanently or temporarily, a major hazard installation or a quantity of a substance which may pose a risk that could affect the health and safety of employees and the public.¹⁵³⁸ The scope of these regulations is regarded as too limited as they do not pertain to the owner of the installation or substance(s), the person in control of the installation or substance(s), the person in charge of the transport of the substance(s), and the person in charge of the construction of the installation.

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- practicable steps that may be necessary to reduce the risks attached to the storage and discharge of a temporary installation.
- 1536 In terms of Regulation 5, the risk assessment is the process of collecting, organising, analysing, interpreting, communicating and implementing information in order to identify the probable frequency, magnitude and nature of any major incident which could occur at a major hazard installation, and the measures required to remove, reduce or control the potential causes of such an incident. It should at least include: a general process description of the major hazard installation; a description of the major incidents associated with that type of installation and the consequences of such incidents, which shall include potential incidents; an estimation of the probability of a major incident; a copy of the site emergency plan; an estimation of the total result in the case of an explosion or fire; in the case of toxic release, an estimation of concentration effects of such release; the potential effect of an incident on a major hazard installation or part thereof on an adjacent major hazard installation or part thereof; the potential effect of a major incident on any other installation, members of the public and residential areas; meteorological tendencies; the suitability of existing emergency procedures for the risks identified; any requirements laid down in terms of the *Environment Conservation Act 73* of 1989; and any organisational measures that may be required.
- 1537 In terms of Regulation 8, every supplier of the relevant substance shall assess the circumstances and substance involved in an incident or potential incident, and inform all persons being supplied with that substance of the potential dangers associated with it.
- 1538 In terms of Regulation 3, the information submitted by an employer, self-employed person and user shall include:
- (a) the physical address of the installation;
 - (b) the complete material safety data sheets of all substances that resulted in the installation being classified as a major hazard installation;
 - (c) the envisaged maximum quantity of such a substance that may be on the premises at any one time;
 - (d) the risk assessment of the major hazard installation as contemplated in regulation 5(1); and
- any further information that may be deemed necessary by an inspector in the interests of the health and safety of the public.

i. Water pollution and mining-related activities

Some of the NWA regulations relating to measures aimed at the prevention of water pollution resulting from mining and related activities¹⁵³⁹ are also relevant in this context.¹⁵⁴⁰ Restrictions are imposed on the locality of certain infrastructures like residue deposits, dams, boreholes, sanitary conveniences, and fuel deposits¹⁵⁴¹ as well as the carrying out of mining, the temporary or permanent cessation of mining activities and other related activities within certain distances of water resources.¹⁵⁴² Such provisions have the potential to reduce LBMP from mining-related activities.

j. Regulation of activities to protect marine and coastal biodiversity

This section analyses legal provisions related to biodiversity management which could be used to regulate activities potentially source of LBMP. In terms of NEM:BA, section 53, the Minister may identify any process or activity in a listed

1539 For example, GN R704 in GG 20119 4 June 1999, *Regulations on use of water for mining and related activities aimed at the protection of water resources*, and associate guideline document for implementation and lately GN R77 in GG 20119 12 February 2010. For further information also see Strydom and King *Environmental management* 670-674.

1540 The regulation applies to any mining related process on the mine (including the operation of washing plants, mineral processing facilities, mineral refineries and extraction plants) and the operation of mineral loading zones, transport facilities and mineral storage yards (whether situated at the mine or not) where a substance is stockpiled, accumulated or stored, transported for use in such process or out of which process any residue is derived, stored, stockpiled, accumulated, dumped, disposed of or transported. "Stockpile" is defined to include any heap, pile, slurry pond and accumulation of any substance where such a substance is stored as a product or stored for use at any mine or activity.

1541 More specifically, regulation 4(a) provides that one may not locate any residue deposit, dam or reservoir together with any associated structure or any other facility within the 1:100 year flood-line or within a horizontal distance of 100 m of any watercourse or estuary, borehole or well, excluding boreholes or wells drilled specifically to monitor the pollution of groundwater, or on water-logged ground, or on ground likely to become water-logged, undermined, unstable or cracked. Regulation 4(b) imposes a restriction on carrying on any underground or opencast mining, prospecting or any other operation or activity under or within the 1:50 year flood-line or within a horizontal distance of 100 metres of any watercourse or estuary, whichever is the greatest. Regulation 4(d) contains yet another restriction on locality i.e. no fuel depot or other depot, or reservoir that may cause pollution of a water resource may be located within the 1:50 year flood-line of any watercourse or estuary.

1542 Restrictions are placed on the use of residues and other potentially polluting substances for the purpose of constructing dams, impoundments, etc.

ecosystem as a threatening process.¹⁵⁴³ A threatening process is regarded as a specified activity contemplated in section 24(2)(b) of the NEMA and a listed ecosystem is regarded as an area identified for the purpose of that section. The Minister may also prohibit the carrying out of any activity that may negatively impact on the survival of a listed, threatened or protected species or prohibit the carrying out of such an activity without a permit issued in terms of the Act.¹⁵⁴⁴ Such an instrument could enable the identification and regulation of processes or activities which are sources of LBMP and which have the potential to impact on a coastal/marine listed ecosystem, and threatened or/and protected species. The Minister may also issue norms and standards for the restriction of activities which impact on biodiversity and its components, including marine biodiversity.¹⁵⁴⁵

NEM:BA also provides for the regulation of activities involving alien and invasive species. In terms of LBMP, it is not clear that the introduction of alien and/or invasive species can be legally regarded as "pollution".¹⁵⁴⁶ In this context, it is important to refer to the definition of pollution provided by the NEMA.¹⁵⁴⁷ According to this definition, it would be difficult to argue that activities involving invasive and/or alien species might be qualified as pollution considering that they cannot be regarded as a substance. However, in terms of the definition of pollution provided by the NWA,¹⁵⁴⁸ if activities involving alien/invasive species had

1543 In terms of NEM:BA, a "threatening process" means a process which threatens, or may threaten (a) the survival, abundance or evolutionary development of an indigenous species or ecological community; or (b) the ecological integrity of an ecosystem, and includes any process identified in terms of S 53 as a threatening process.

1544 S 57.

1545 S 9 of NEM:BA.

1546 Refer to 2.2 and 2.3.2.1.

1547 Pollution means any change in the environment caused by (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or wellbeing or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or where it will have such an effect in the future.

1548 In terms of the NEMA, pollution means the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it (a) less fit for any beneficial purpose for which it may reasonably be expected to be used; or (b) harmful or

as a consequence the alteration of water's physical, chemical or biological properties, then those activities could be regarded as causing pollution. In the context of this research, activities involving alien/invasive species are regarded as a potential source of LBMP and therefore the provisions of NEM:BA in this context are relevant. NEM:BA prescribes that a person may not carry out a restricted activity involving a specimen of an alien species and/or a specimen of a listed invasive species without a permit, which may be issued only after a prescribed assessment of risks and potential impacts on biodiversity is carried out. The Minister may also prohibit restricted activities involving a specimen of an alien species. Section 75 of NEM:BA prescribes that any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.¹⁵⁴⁹

NEM:PAA prescribes various provisions to regulate activities taking place in marine and protected areas,¹⁵⁵⁰ special nature reserves, national parks or nature reserves.¹⁵⁵¹ Activities (and land uses) in protected areas might also be regulated or restricted, and the restricted activities could include activities identified as

potentially harmful (aa) to the welfare, health or safety of human beings; (bb) to any aquatic or non-aquatic organisms; (cc) to the resource quality; or (dd) to property.

1549 The environment is not defined by the NEM:BA. Therefore the definition of environment which would apply would be the one in the NEMA, which is, as analysed previously in 5 2.6, rather unclear. However S 4 of NEM:BA prescribes that the Act applies "(a) in the Republic, including (i) its territorial waters, exclusive economic zone and continental shelf described in the *Maritime Zones Act*, 15 of 1994; and (ii) the Prince Edward Islands referred to in the *Prince Edward Islands Act*, 43 of 1948; and (b) to human activity affecting South Africa's biological diversity and its components". Therefore, the marine and coastal environment could be included in the environment covered by the NEM:BA.

1550 Such provisions are relevant only to marine protected areas which are included in a special nature reserve, national park or nature reserve.

1551 For example, in terms of S 48, despite other legislation, no person may conduct commercial prospecting or mining activities in special nature reserves, national parks, world heritage sites; marine protected areas; specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the *National Forests Act*, 84 of 1998; in nature reserves; or in a protected environment without the written permission of the Minister and the Cabinet member responsible for minerals and energy affairs.

potential sources of LBMP.¹⁵⁵² The Minister or the MEC may restrict or regulate in a protected environment developments that may be inappropriate for the area, given the purpose for which the area was declared, and may regulate or restrict the carrying out of other activities that may impede that purpose. Such activities could be regulated due to their impact on the environment as sources of LBMP in coastal sensitive areas.

5.3.3.2 *Instruments for the the management of uses and areas*

Based on the categorisation developed in Chapter 2, there are specific regulatory instruments which are aimed at managing water and land uses and other planning instruments which can assist in the pro-active regulation of LBMP. In the South African context, the following instruments are regarded as the most relevant in terms of LBMP regulation: the water use legal regime established by the NWA, the coastal uses regulation established by the NEM:ICMA, the catchment management areas, integrated coastal zone management in terms of the NEM:ICMA, integrated development plans, spatial development frameworks, land development related instruments, environmental management frameworks and the determination of sensitive zones.

a. The NWA and the management of the water uses¹⁵⁵³

The NWA regulates the use of water, and is therefore relevant of the regulation of LBMP.¹⁵⁵⁴ The NWA (section 21) defines "water use" as including: (a) taking water from a water resource; (b) storing water; (c) impeding or diverting the flow of water in a watercourse; (d) engaging in a stream flow reduction activity; (e)

1552 To the extent prescribed by regulations made by the Minister, regulations made by the MEC in the case of provincial and local protected areas; bylaws made by the relevant municipality, in the case of local protected areas; and internal rules made by the managing authority. The management authority of a national park, nature reserve and world heritage site may, despite any regulation or bylaw, but subject to the management plan of the park, reserve or site may set norms and standards for any commercial and community activities allowed in a national park, nature reserve and world heritage site.

1553 Also see Still *et al* 2010 *Water* SA 371-378; Strydom and King *Environmental Management* 425-454.

1554 Also see Strydom and King *Environmental management* 447-449 and 676-687.

engaging in a controlled activity; (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; (g) disposing of waste in a manner which may detrimentally impact on a water resource; (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process; (i) altering the bed, banks, course or characteristics of a watercourse; (j) 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; and (k) using water for recreational purposes.

In this context, the Act establishes three main types of authorisations: permissible uses of water¹⁵⁵⁵ identified in Schedule 1 of the Act; a general authorisation¹⁵⁵⁶ (which allows limited, but conditional, water use without a licence); or a licence (a standard or a compulsory licence). Schedule 1 of the NWA sets out the permissible uses,¹⁵⁵⁷ which include as the most relevant in the

1555 S 22 of the Act and Schedule 1 set out the "permissible use of water" in terms of the Act. Schedule 1 prescribes that a person may (a) take water for reasonable domestic use in that person's household, directly from any water resource to which that person has lawful access; (b) take water for use on land owned or occupied by that person, for (i) reasonable domestic use; (ii) small gardening not for commercial purposes; and (iii) the watering of animals (excluding feedlots) which graze on that land within the grazing capacity of that land, from any water resource which is situated on or forms a boundary of that land, if the use is not excessive in relation to the capacity of the water resource and the needs of other users; (c) store and use run-off water from a roof; (d) in emergency situations, take water from any water resource for human consumption or fire fighting; (e) for recreational purposes: (i) use the water or the water surface of a water resource to which that person has lawful access; or (ii) portage any boat or canoe on any land adjacent to a watercourse in order to continue boating on that watercourse; (f) discharge (i) waste or water containing waste; or (ii) run-off water, including stormwater from any residential, recreational, commercial or industrial site, into a canal, sea outfall or other conduit controlled by another person authorised to undertake the purification, treatment or disposal of waste or water containing waste, subject to the approval of the person controlling the canal, sea outfall or other conduit.

1556 S 39 of the Act.

1557 These uses permit a person: "to take water for reasonable domestic use in that person's household, directly from any water resource to which that person has lawful access; take water for use on land owned or occupied by that person, for reasonable domestic use; small gardening not for commercial purposes; and the watering of animals (excluding feedlots) which graze on that land within the grazing capacity of that land, from any water resource which is situated on or forms a boundary of that land, if the use is not excessive in relation to the capacity of the water resource and the needs of other users; in emergency situations, take water from any water resource for human consumption or fire

context of the LBMP the "discharge of waste or water containing waste; or run-off water, including stormwater from any residential, recreational, commercial or industrial site, into a canal, sea outfall or other conduit controlled by another person authorised to undertake the purification, treatment or disposal of waste or water containing waste, subject to the approval of the person controlling the canal, sea outfall or other conduit". Such a permissible use might not fully implement the precautionary principle and the polluter pays principle, especially in the context of LBMP.¹⁵⁵⁸ Such an authorisation can be explained by practical reasons, in terms of sanitation and water services. However, it is suggested that the discharge of water containing waste, stormwater and run-off needs to be closely regulated and monitored as they may still cause significant LBMP. Therefore they need to be closely monitored and assessed, especially due to their potential cumulative effect.

In terms of LBMP, sections 21(f),¹⁵⁵⁹ (g)¹⁵⁶⁰ and (h)¹⁵⁶¹ of the Act have traditionally been used as the legal rationale by the former DWAF to regulate, to some extent, the discharge/disposal of water containing waste/waste water into the marine environment. The Operational Policy indicates that:

Discharges to estuaries, with estuaries being included in the definition of a water resource under the NWA, are covered under these sub-sections. However, although section 21(f) specifies 'discharging through a sea outfall' as a water use, the 'sea' (i.e. the surf zone and offshore marine environment) is currently not defined as a water resource under the NWA. To rectify this inconsistency, the DWAF is in the process of

fighting; for recreational purposes: use the water or the water surface of a water resource to which that person has lawful access; or portage any boat or canoe on any land adjacent to a watercourse in order to continue boating on that watercourse; discharge of waste or water containing waste; or run-off water, including stormwater from any residential, recreational, commercial or industrial site, into a canal, sea outfall or other conduit controlled by another person authorised to undertake the purification, treatment or disposal of waste or water containing waste, subject to the approval of the person controlling the canal, sea outfall or other conduit".

1558 Also see Strydom and King *Environmental management* 677.

1559 Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit.

1560 Disposing of waste in a manner which may detrimentally impact on a water resource.

1561 Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.

amending the NWA (Suzan Oelofse, Water Quality Management, DWAF, Pretoria, pers. comm.). In the interim, section 21(h) of the NWA covers the disposal of land-derived wastewater originating from industrial processes (including contaminated stormwater run-off from industrial premises) to the marine environment in that it specifies 'disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.

Coastal wetlands and estuaries are also included in the scope of water resource as currently defined under the NWA. They are therefore covered by the regulation of water used in terms of section 21 (f) and (g). In this context, it is important to note the definition of waste provided by the Act:

Waste includes any solid material or material that is suspended, dissolved or transported in water (including sediment) and which is spilled or deposited on land or into a water resource in such volume, composition or manner as to cause, or to be reasonably likely to cause, the water resource to be polluted.

This definition has the legal consequence of creating a wide scope of applicability of the Act in terms of regulation of the discharge/disposal of water containing waste/waste water into the marine environment. However, there are currently some legal difficulties surrounding the definition of "waste" in the South African legal framework, due to inconsistencies between the various definitions of waste. Other statutes¹⁵⁶² define "waste" differently, and so impair clarity and consistency in the implementation of the law. These discrepancies might lead to legal disputes. It would be in the interest of the environmental legal framework to reconcile the terminology used (and the associated definitions) and ultimately LBMP regulation.

The NWA (section 27) prescribes that the responsible authority must take into account a set of "considerations" before deciding to issue a general authorisation or licence.¹⁵⁶³ The consideration related to "the likely effect of the water use to be

1562 NEM:WA and ECA.

1563 The following considerations are the most relevant to the regulation of LBMP: existing lawful water uses; the efficient and beneficial use of water in the public interest; the socioeconomic impact of the water use or uses, any catchment management strategy applicable to the relevant water resource; the likely effect of the water use to be

authorised on the water resource and on other water users" is the most important in terms of LBMP. As it takes a comprehensive approach to manage the "requirements" of the water resource itself and of its users. It is important to note that the maintenance of the reserve will always supersede water-use requirements.¹⁵⁶⁴ The applicant or the relevant authority may/or may have to conduct an investigation into the likely effect of the granting of the proposed license on the protection, use, development, conservation, management and control of the water resource.¹⁵⁶⁵ In terms of the *South African Water Quality Guidelines for Coastal Marine Waters*, as developed by the former DWAF, four main uses are recognised: natural environment; recreational use; industrial use; and mariculture. The recognition of these uses is aligned with international best practice.¹⁵⁶⁶

b. The NEM:ICMA and the management of the use of the coastal zone¹⁵⁶⁷

The NEM:ICMA prescribes the establishment of coastal set-back lines¹⁵⁶⁸ (situated wholly or partially in the coastal zone) as established by an MEC to protect coastal public property, private property, public safety, to preserve the

authorised on the water resource and on other water users; the class and the resource quality objectives of the water resource; the quality of water in the water resource which may be required for the reserve and for meeting international obligations.

1564 Also see 5.3.3 which analyses in detail the sources-directed measures/instruments which are closely related to water use licences, general authorisations and/or permissible uses.

1565 It is also interesting to note that S 43 of the Act permits the responsible authority to issue a notice requiring persons to apply for licenses for one or more types of water use contemplated in S 21, if it is desirable that water use in respect of one or more water resource within a specific geographic area be licensed. The section refers to specific criteria which might justify the implementation of compulsory licences, including as the most relevant ones in the context of LBMP: to promote the beneficial use of water in the public interest; to facilitate the efficient management of the water resource; or to protect water resource quality.

1566 Refer to 2.3.4.1(e).

1567 Before the entry into force of the NEM:ICMA, the most important existing legislation dealing with the coastal zone was the *Sea-shore Act* 21 of 1935. Kidd *Environmental Law* 161. The *Sea-shore Act* should shortly be repealed as prescribed by NEM:ICMA. The *Sea-shore Act* subjects the sea-shore to land-use control. Kidd *Environmental Law* 161. However, Kidd indicates that the *Sea-shore Act* falls short of a coastal management statute since the sea-shore is only part of the coastal zone. Also see Strydom and King *Environmental management* 901-902.

1568 S 25 of the Act.

aesthetic values of the coastal zone, or for any other reason consistent with the objectives of this Act; and prohibits or restricts the building, erection, alteration or extension of structures that are wholly or partially seaward of that coastal set-back line. This approach is aligned with international best practice in terms of planning-related instruments.¹⁵⁶⁹

The NEM:ICMA also prescribes the possibility of establishing coastal zoning schemes¹⁵⁷⁰ (by the Minister, an MEC, a management authority of a protected area, a municipality, or the management authority of a special management area) to facilitate the attainment of coastal management objectives by defining areas within the coastal zone or coastal management area which may be used exclusively or mainly for specified purposes or activities; or may not be used for specified purposes or activities, and prohibiting or restricting activities or uses of areas that do not comply with the rules of the scheme. This approach, too, is aligned with international best practice in terms of planning-related instruments, as it should enable the rationalisation of the uses of the coastal zone (marine and land based) for specific reasons and set objectives.¹⁵⁷¹ Moreover, section 57 prescribes that a coastal zoning scheme of a municipality may form, and be enforced as part of, any land-use scheme adopted by the municipality. A municipality may not adopt a land use scheme that is inconsistent with a coastal zoning scheme made in terms of the NEM:ICMA, and if there is a conflict between a municipal land use scheme established after the commencement of this Act and a coastal zoning scheme made in terms of this Act, the coastal zoning scheme shall prevail. This is very relevant for LBMP regulation and coastal zone management, as it should enable the alignment of the various land-use instruments on the coastal zone, simplifying land-use planning and regulation and ultimately facilitating the pro-active regulation of LBMP from such coastal zone related uses.

1569 Refer to 2.3.2.1.

1570 S 56 of the Act.

1571 Refer to 2.3.4.1.

In terms of section 62 of the NEM:ICMA, an organ of state that is responsible for implementing national, provincial or municipal legislation that regulates the planning or development of land must apply that legislation in relation to land in the coastal protection zone in a way that gives effect to the purposes for which the protection zone was established. An organ of state may not authorise land within the coastal protection zone to be used for any activity that may have an adverse effect on the coastal environment, including LBMP, without first considering an environmental impact assessment report. Section 65 of the NEM:ICMA prescribes that no person may occupy any part of, or site on, or construct or erect any building, road, barrier or structure on or in coastal public property except under and in accordance with a coastal lease awarded by the Minister.

c. The management of catchment areas¹⁵⁷²

The NWA defines a "water management area" as:

An area established as a management unit in the national water resources strategy within which a catchment management agency will conduct the protection, use, development, conservation, management and control of water resources.

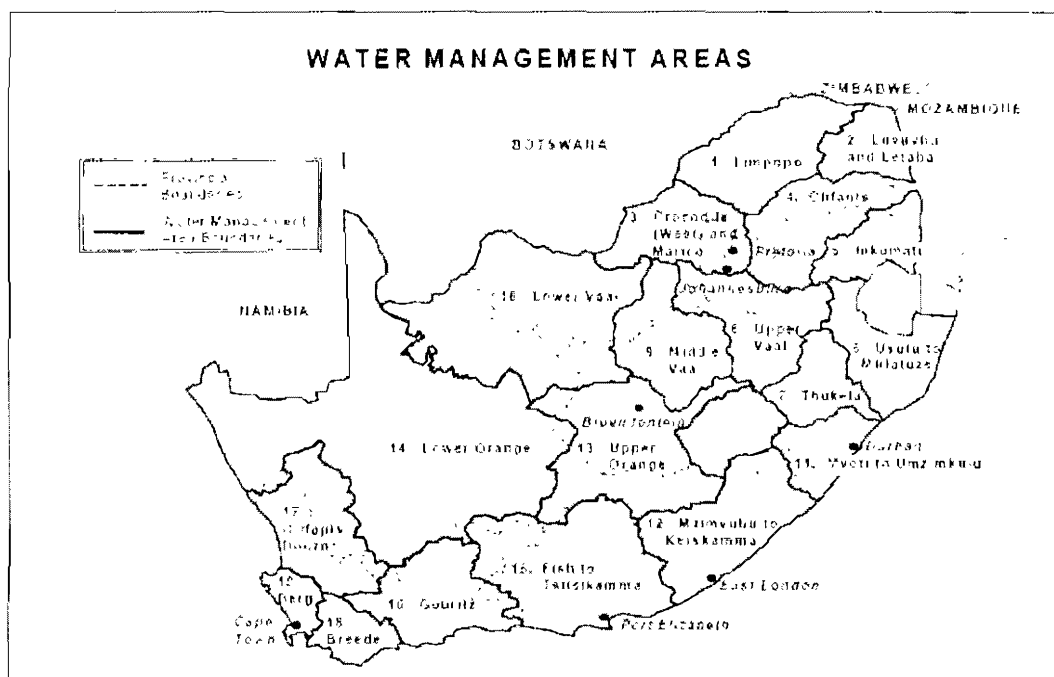
In this context "catchment" is defined in relation to a watercourse or watercourses or part of a watercourse, as the area from which any rainfall will drain into the watercourse or watercourses or part of a watercourse, through surface flow to a common point or common points. In terms of section 5 of the NWA, the NWRS must establish water management areas and determine their boundaries.¹⁵⁷³ The country is divided into 19 catchment-based water management areas.¹⁵⁷⁴ Map 3 presents the 19 water management areas.¹⁵⁷⁵

1572 For further information also see Strydom and King *Environmental management* 443-446.

1573 GN R1160 in GG 20491 1 October 1999 *establishing the water management areas and their boundaries as a component of the NWRS*.

1574 The water management areas and their associated boundaries were determined taking into consideration the following factors: the institutional efficiency of creating a large number of catchment management agencies, each managing a relatively small area, compared with a small number of agencies, each managing a larger area; the potential

This approach is aligned with international best practice, in which the whole catchment basin (or sub-basin) is often the unit for integrated ecosystem water management.¹⁵⁷⁶ However, the catchment management approach implemented by the Act fails to include the relevant coastal and marine waters for each catchment-based management area. This omission is crucial especially for "coastal catchment areas", which have an interface with coastal and marine waters.¹⁵⁷⁷ The omission impairs effective regulation of LBMP.



Map 3 The 19 water management areas in South Africa.

for a catchment management agency to become financially self-sufficient as a result of receiving revenue from water-use charges; the location of centres of economic activity; social development patterns; the location of centres of water-related expertise from which the agency may source assistance; and the distribution of water resources infrastructure. The water management areas are also based on the ecological characteristics of the catchments of the country, establishing the preliminary level of an eco-system-based approach for freshwater resources in South Africa.

1575 DWAF *National Water Resource Strategy* 40.

1576 *Agenda* 21 9 and 2.3.4.1.

1577 This is referred to as "horizontal connectivity" in terms of catchment management, Strydom and King *Environmental management* 443.

The French system¹⁵⁷⁸ adopts a similar approach to that established by the NWA, with the exception that coastal and marine waters are included in the delimitation of the rivers basin districts, given the fact that rivers and surface waters in these specific districts will end up in the coastal and marine waters. The catchment management approach is essential for the regulation and management of LBMP.¹⁵⁷⁹ However, it can be effective in the context of LBMP only if the catchment-based management areas incorporate the relevant coastal and marine waters.

d. Integrated coastal zone management¹⁵⁸⁰

The main achievement of the NEM:ICMA is to legally create the "coastal zone of South Africa" and to provide for its protection and use. According to the NEM:ICMA, the coastal zone includes: coastal public property¹⁵⁸¹ (the boundaries of which are determined or adjusted by the Minister); the coastal protection zone¹⁵⁸² (the boundaries of which are determined or adjusted by an MEC);

1578 See 3.4.3.2.

1579 See 2.3.1 and 3.4..3.2 for the French approach.

1580 See Strydom and King *Environmental management* 876-896 for further information about coastal management in South Africa.

1581 S 17(f) the Act states that coastal public property includes: "(a) the coastal waters; (b) land submerged by the coastal waters, including (i) land flooded by coastal waters which subsequently becomes part of the bed of coastal waters; and (ii) the substrata beneath such land; (c) any existing island, and any island that may in the future be created whether naturally or artificially, within the coastal waters, but excluding (i) any part of an island that was lawfully alienated before this Act commenced; or (ii) any part of an artificially created island (other than the seashore of that island) that is proclaimed by the Minister to be excluded from coastal public property; (d) the seashore, but excluding (i) any portion of the seashore below the high-water mark which was lawfully alienated before the *Sea-Shore Act* 1935 21 of 1935 took effect or which was lawfully alienated in terms of that Act and which has not subsequently been re-incorporated into the seashore; and (ii) any portion of a coastal cliff that was lawfully alienated before this Act took effect and is not owned by the state; (e) the seashore of a privately owned island within the coastal waters; (f) any admiralty reserve owned by the state; (g) any state owned land declared in terms of S 8 to be coastal public property; (h) any natural resources on or in (i) any coastal public property of a category mentioned in Par. (a) to (g); or (ii) the exclusive economic zone, or in or on the continental shelf, within the meaning of the *Maritime Zones Act* 15 of 1994; (iii) any harbour, work or other installation on or in any coastal public property of a category mentioned in Par.s (a) to (h) that is owned by an organ of state". Also see S 7-15 of the NEM:ICMA.

1582 See S 16 and 17 of the NEM:ICMA. NEM:ICMA prescribes (S 1) "the coastal protection zone consists of (a) land falling within an area declared in terms of the ECA as a sensitive

coastal access land (the boundaries of which are determined and adjusted by the relevant municipality);¹⁵⁸³ coastal waters (as established by the Act);¹⁵⁸⁴ coastal protected area; and the sea shore and any aspects of the environment on, in, under and above these areas. The coastal public property, the coastal protection zone and the coastal access land are established for particular purposes and uses.¹⁵⁸⁵ Section 21 also states that an organ of state that is legally responsible

coastal area within which activities identified in terms of S 17(1) of that Act may not be undertaken without an authorisation; (b) any part of the littoral active zone that is not coastal public property; (c) any coastal protection area, or part of such area, which is not coastal public property; (d) any land unit situated wholly or partially within one kilometre of the high water mark which, when this Act came into force (i) was zoned for agricultural or undetermined use; or (ii) was not zoned and was not part of a lawfully established township, urban area or other human settlement; (e) any land unit not referred to in Par. (d) that is situated wholly or partially within 100 metres of the high water mark (f) any coastal wetland, lake, lagoon or dam which is situated wholly or partially within a land unit referred to in Par (d)(i) or (e)(i); (g) any part of the seashore which is not coastal public property, including all privately owned land below the high water mark; or (h) any admiralty reserve which is not coastal public property".

1583 See S 18-20 of the NEM:ICMA.

1584 See S 21 of the NEM:ICMA.

1585 In terms of the Act, the purpose of maintaining coastal public property is (a) to improve public access to the seashore; (b) to protect sensitive coastal ecosystems; (c) to secure the natural functioning of dynamic coastal processes; (d) to facilitate the achievement of any of the objectives of this Act; or (e) to protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea level rise. In terms of S 13 of the Act any natural person in the Republic (a) has a right of reasonable access to coastal public property; and (b) shall be entitled to use and enjoy coastal public property, provided such use (i) does not adversely affect the rights of members of the public to use and enjoy the coastal public property; (ii) does not prejudice the performance by the state of its duty to protect the environment; and (iii) does not cause an adverse effect. In terms of S 11 of the Act, the ownership of coastal public property vests in the citizens of the Republic and coastal public property must be held in trust by the state on behalf of the citizens of the Republic. Coastal public property is inalienable and cannot be sold, attached, or acquired by prescription and rights over it cannot be acquired by prescription. The Act also provides for the state to extend the coastal public property (S 8), designate state owned land for certain purposes (S 13), and acquire private land for the purpose of declaring the land as coastal public property. In terms of S 17 of the Act, the coastal protection zone is established for the purpose of enabling the use of land that is adjacent to coastal public property or that plays a significant role in a coastal ecosystem to be managed, regulated or restricted in order:

- (a) to protect the ecological integrity, natural character and the economic, social and aesthetic value, of coastal public property;
- (b) to avoid increasing the incidence or severity of natural hazards in the coastal zone;
- (c) to protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise;
- (d) to maintain the natural functioning of the littoral active zone;
- (e) to maintain the productive capacity of the coastal zone by protecting the ecological integrity of the coastal environment; and

for controlling or managing any activity on or in coastal waters must control and manage that activity in the interests of the whole community¹⁵⁸⁶ and in accordance with the Republic's obligations under international law.

e. Integrated development plans¹⁵⁸⁷

In terms of section 25 of the *Local Government: Municipal Systems Act* 32 of 2000 (LGSA) each municipal council must, within a prescribed period after the start of its elected term, adopt a single, inclusive and strategic plan for the development of the municipality.¹⁵⁸⁸ Such a plan is named an Integrated Development Plan (IDP) and must contain prescribed information,¹⁵⁸⁹ including a

(f) to make land near the seashore available to organs of state and other authorised persons for:

(i) performing rescue operations; or

(ii) temporarily depositing objects and materials washed up by the sea or tidal waters.

Coastal access land has to be designated by relevant municipalities in order to secure public access to that coastal public property. Coastal access land is subject to a public access servitude in terms of which members of the public may use that land to gain access to coastal public property. Municipalities have specific responsibilities with regard to coastal access land as prescribed by S 20 of the Act.

1586 The definition of the "interests of the whole community" is the collective interests of the community determined by (a) prioritising the collective interests in coastal public property of all persons living in the Republic over the interests of a particular group or sector of society; (b) adopting a long-term perspective that takes into account the interests of future generations in inheriting coastal public property and a coastal environment characterised by healthy and productive ecosystems and economic activities that are ecologically and socially sustainable; (c) taking into account the interests of other living organisms that are dependent on the coastal environment; and (d) taking into account any interests of persons or other living organisms outside the Republic that may be affected by the decision.

1587 Also see Strydom and King *Environmental management* 921-935, Du Plessis *Constitutional environmental right* 345-351, Phago 2009 *Journal of Public Administration* 483-491.

1588 In terms of the LGSA (S 26 of the LGSA), an IDP should "(a) link, integrate and co-ordinate plans and take into account proposals for the development of the municipality; (b) align the resources and capacity of the municipality with the implementation of the plan; (c) form the policy framework and general basis on which annual budgets must be based; (d) comply with the provisions of this Chapter; and (e) is compatible with national and provincial development plans and planning requirements binding on the municipality in terms of legislation".

1589 An IDP (S 27 of the LGSA), must reflect: the municipal council's vision for the long-term development of the municipality with special emphasis on the municipality's most critical development and internal transformation needs; an assessment of the existing level of development in the municipality, which must include an identification of communities which do not have access to basic municipal services; the council's development priorities and objectives for its elected term, including its local economic development

Spatial Development Framework (SDF), which must include the provision of basic guidelines for a land-use management system for the municipality. An IDP adopted by the council of a municipality¹⁵⁹⁰ is the principal strategic planning instrument which guides and informs all decisions with regard to planning, management and development in the municipality.¹⁵⁹¹ It binds the municipality in the exercise of its executive authority, except to the extent of any inconsistency between a municipality's integrated development plan and national or provincial legislation, in which case such other legislation prevails.¹⁵⁹² It also binds all other persons to the extent that those parts of the integrated development plan that impose duties or affect the rights of those persons have been passed as a bylaw.¹⁵⁹³ A municipality must give effect to its IDP and conduct its affairs in a manner which is consistent with its IDP.¹⁵⁹⁴ The SDF contained in an IDP¹⁵⁹⁵ is also a very important tool of an IDP:

A Spatial Development Framework is required to describe in words and illustrations how the Municipality sees desirable future patterns of land use and development in its area of jurisdiction. In essence, it is the Municipality's spatial "Vision" ... The Spatial Development Framework is a legally enforceable component of the IDP, which indicates both to the Municipality (councillors and officials) and to the public (developers, land owners etc.) where certain types of land use and associated developments are permissible, and where certain activities are unlikely to be permitted. As such, it forms the basis for land-use management and serves as a guideline to inform the ... Municipality in its decisions on land development (new development and changes to existing land uses) in its area of jurisdiction.¹⁵⁹⁶

aims and its internal transformation needs; the council's development strategies, which must be aligned with any national or provincial sectoral plans and planning requirements binding on the municipality in terms of legislation; a Spatial Development Framework (SDF) which must include the provision of basic guidelines for a land-use management system for the municipality; the council's operational strategies; applicable disaster management plans; a financial plan, which must include a budget projection for at least the next three years; and the key performance indicators.

1590 See S 28 of the LGSA.

1591 See S 35 of the LGSA.

1592 See S 35 of the LGSA.

1593 See S 35 of the LGSA.

1594 See S 35 of the LGSA.

1595 See S 26 of the LGSA.

1596 Buffalo City IDP 2002 section D Chapter 12 spatial development framework.

A SDF must also contain a SEA.¹⁵⁹⁷ The IDP approach is aligned with international best practice, and has the potential to contribute to the proactive regulation of LBMP.¹⁵⁹⁸

f. Instruments regarding land development¹⁵⁹⁹

The DFA¹⁶⁰⁰ provides for nationally uniform procedures for the subdivision and development of land in urban and rural areas so as to promote the speedy provision and development of land for residential, small-scale farming or other needs and uses. The Act sets out the general land development procedures and the specific procedures dealing with the development of small-scale farming (which could assist in the regulation of LBMP). The Act prescribes the conditions and process for land development applications. A land development applicant¹⁶⁰¹ shall give notice of a land development application to the prescribed persons or bodies. In approving a land development application the relevant tribunal may, either of its own accord or in response to that application, impose any condition. In the context of LBMP, it is noteworthy that such conditions might relate to the environment or environmental evaluations, and therefore could address LBMP-

1597 See 2.3 for further information on SEA.

1598 Refer to 2.3.4.1.

1599 Also see Strydom and King *Environmental management* 122-124 for further information about land-use planning instruments, including land-use zoning.

1600 The Act is aimed at introducing extraordinary measures to facilitate and speed up the implementation of reconstruction and development programmes and projects in relation to land and in so doing to lay down general principles governing land development throughout the Republic: to facilitate the formulation and implementation of land development objectives by reference to which the performance of local government bodies in achieving such objectives may be measured; to provide for nationally uniform procedures for the subdivision and development of land in urban and rural areas so as to promote the speedy provision and development of land for residential, small-scale farming or other needs and uses; and to promote security of tenure while ensuring that end-user finance in the form of subsidies and loans becomes available as early as possible during the land development process. For further information about the Act consult Kidd *Environmental law* 159-160 and Van Wyk *Planning law* 141-150.

1601 In terms of the Act, the following land development applicants may apply for establishment of a land development area: an owner of land, including the state or a local government body, in respect of land owned by it; an agent or independent contractor acting on behalf of the owner of land; a person acting with the consent of the owner of land; a person to whom land has been made available by the state or a local government body in terms of a land availability agreement; or a person acting on behalf of the owner of land in any other capacity.

related matters. In this context, the provisions of the FDA do not seem comprehensive enough to ensure effective regulation of LBMP. A land development applicant must include in his or her application an environmental scoping report, prepared in accordance with the EIA guidelines or other requirements.¹⁶⁰² The designated officer must make a recommendation to the tribunal as to whether or not an EIA should be prepared. The tribunal may, on the basis of the environmental scoping report, impose a condition of establishment, or require the land development applicant to prepare an EIA¹⁶⁰³ in accordance with the EIA guidelines or other requirements. The scoping report must indicate the extent to which the proposed activity or development will impact on the environment and where appropriate deal with the following specific aspects of the environmental impact, including as the most relevant in the context of LBMP:

- The physical and landscape characteristics of the land development area and its surroundings.
- The ecological characteristics of the land development area and its surroundings.
- The existing infrastructure and/or services in or around the land development area (which is very relevant in the context of sanitation-related services and LBMP from sewage).
- The levels of present and possible pollution, including noise pollution, in the future as a result of the proposed development.
- Any risks or hazards to the environment posed by the development.
- The medium- and long-term environmental sustainability of the proposed development.

1602 In terms in terms of S 31 GN R1 in GG 20775, 7 January 2000 under the DFA.
1603 Refer to 5.3.3.1(a).

- What mitigating measures could be implemented to reduce negative impacts and enhance positive impacts and, where appropriate, to what extent alternative sites for the development were investigated.

This instrument may be used in the proactive management of LBMP. The application process provides an opportunity to identify potential sources of LBMP in a proactive manner, at the feasibility stage of an activity/development. The approval may also impose specific conditions to address or reduce LBMP at source by requiring the implementation of specific source-based instruments or by not allowing a land use which would cause an unsustainable level of LBMP.

g. The environmental management framework (EMF)

The legal origin of the environmental management framework (EMF) is embedded in section 24(3) of the NEMA, which states that the Minister, and every MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes, which must be taken into account by every competent authority. In terms of section 24(4)(i) of the NEMA, the procedures for the investigation, assessment and communication of the potential impact of activities must ensure, as a minimum, with respect to every application for an environmental authorisation, that the environmental attributes identified in the compilation of information and maps as contemplated in subsection 24(3) are considered. GN R547 (of 18 June 2010) dealing with Environmental Management Framework¹⁶⁰⁴ prescribes that EMF are aimed at: (a) promoting sustainability; (b) securing environmental protection; and (c) promoting cooperative environmental governance. The regulations state that an EMF means a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where

1604 GN R447 in GG 33306 18 June 2010 *Environmental Management Framework Regulations*.

specific land uses may best be practiced and to offer performance standards for maintaining appropriate use of such land.

The DWEA draft guideline dealing with the EMF¹⁶⁰⁵ is relevant as it provides further detailed information on the nature, status, scope and development of an EMF. It is stated in the guideline document that an EMF is a:

strategic level decision support instrument that assist environmental impact assessment in the following ways:

- It provides detailed environmental information to all stakeholders;
- It indicates environmental management priorities and targets;
- It highlights opportunities and constraints;
- It helps to facilitate co-operative government.

It is currently unclear if an EMF might also include the coastal and marine environment in its scope. However, it is submitted that such instruments could be useful for the regulation of LBMP, especially in coastal provinces and areas. However, it is noteworthy that the legal status of an EMF is limited, as it has to be considered only in the context of an EIA, and the targeted authority does not have to comply with the provisions and objectives set out in an EMF, a fact which significantly limits its relevance and efficiency. It also seems to create a new instrument for land-use which does not facilitate streamlining and alignment of statutory planning and land-use instruments.

h. The determination of sensitive zones¹⁶⁰⁶

Various statutes provide for the determination of sensitive zones. Only those relevant to the regulation of LBMP are presented and analysed below.¹⁶⁰⁷ The concept is that such a regulatory instrument could be used to identify priority

1605 DEA Draft Guideline Document: *Environmental Management Frameworks* August 2010.

1606 Also see Strydom and King *Environmental management* 99-124

1607 For further information also refer to Strydom and King *Environmental management* 114-120.

zones in regards to LBMP which require focused protection and possibly rehabilitation from LBMP.

- Protected areas¹⁶⁰⁸

In terms of the NEM:PAA, the system of protected areas in South Africa consists of the following kinds of protected areas: special nature reserves, national parks, nature reserves (including wilderness areas) and protected environments; world heritage sites; marine protected areas; specially protected forest areas; forest nature reserves and forest wilderness areas declared in terms of the *National Forests Act* 84 of 1998 and the Mountain Catchment Areas declared in terms of the *Mountain Catchment Areas Act* 63 of 1970. The purposes of the declaration of areas as protected areas are:

- to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;
- to preserve the ecological integrity¹⁶⁰⁹ of those areas;
- to conserve biodiversity in those areas;
- to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
- to protect South Africa's threatened or rare species;
- to protect an area which is vulnerable or ecologically sensitive;
- to assist in ensuring the sustained supply of environmental goods and services;¹⁶¹⁰

1608 Also see Paterson 2007 *SA Public Law* 1-33 and Strydom and King *Environmental management* 99-124.

1609 In terms of NEM:PAA, "ecological integrity" is the sum of the biological, physical and chemical components of an ecosystem, and their interactions which maintain the ecosystem and its products, functions and attributes.

1610 In terms of NEM:PAA, "environmental goods and services" includes:
(a) benefits obtained from ecosystems such as food, fuel and fibre and genetic resources;
(b) benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification; and

- to provide for the sustainable use of natural and biological resources;
- to create or augment destinations for nature-based tourism;
- to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;
- generally, to contribute to human, social, cultural, spiritual and economic development; or
- to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

In terms of marine protected areas, which are the most relevant in the context of LBMP, they can either be declared as separate marine protected areas¹⁶¹¹ or be included in a special nature reserve, national park or nature reserve, in which case the area must be managed and regulated as part of the special nature reserve, national park or nature reserve. The Act also regulates activities in protected areas and the respective management plans might also control activities authorised in the area, which could include activities identified as potential sources of LBMP.¹⁶¹² Specific norms and standards¹⁶¹³ are applicable for the management and development of protected areas, which might relate to the management of run-off, stormwater, and waste water management to prevent LBMP.¹⁶¹⁴ It is argued that the protection of South Africa's marine species and habitats is achieved largely through marine protected areas.¹⁶¹⁵ Marine protected

(c) cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature.

1611 In that case, in terms of S 14 of NEM:PAA, only Chapters 1, and 2 and S 48 apply to such marine protected areas and the other provisions of this Act do not apply to marine protected areas.

1612 Refer to 2.3.6.

1613 S 11 of NEM:PAA.

1614 Appendix 6 provides further information on marine protected areas in South Africa.

1615 Strydom and King, *Environmental management* 492. Moreover Strydom and King argue that no-take marine protected areas or areas closed to extractive marine resources use are considered as the only effective means of protecting entire marine ecosystems.

areas have a role to play in the regulation of LBMP, especially in protecting specific environmental zones from pollution.¹⁶¹⁶

- Listed ecosystems

In terms of section 52 of NEM:BA, the Minister or MEC may publish a national/provincial list of ecosystems that are threatened and in need of protection, possibly from LBMP.¹⁶¹⁷ The Act provides for the regulation of activities in listed ecosystems, which could include activities identified as potential sources of LBMP.¹⁶¹⁸

- Bioregions

In terms of action 40 of NEM:BA, the Minister or the MEC for environmental affairs in a province may determine a geographic region as a bioregion if that region contains whole or several nested ecosystems and is characterised by its landforms, vegetation cover, human culture and history, and may publish a plan for the management of biodiversity and the components of biodiversity in such region. This instrument could be used to protect a coastal geographical region and indirectly could address LBMP in the management plan of the bioregion in question, if relevant. However, it is considered that the direct relevance of the instrument for LBMP regulation is limited, as its regulatory objective is limited to

1616 Also refer to 4.3.1.3 in the EU context. Also refer to Appendix 6 of marine protected areas in South Africa.

1617 The following categories of ecosystems may be listed:

- critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;
- endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;
- vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and
- protected ecosystems, being ecosystems that are of high conservation value or high national or provincial importance, although they are not listed in terms of Par.s (a), (b) or (c).

1618 Refer to 4.3.1.3 and 2.3.6.

the conservation, protection and sustainable development of a geographical area, rather than pollution management.

- **Estuaries**

Sections 33 and 34 of NEM:ICMA prescribe the development of a national estuarine management protocol (to be developed by the Minister) and estuarine management plans. Such a protocol and plans could enable the development of a strategic response to address LBMP affecting estuaries.

- **Special Management Areas** (totally or partially located in the coastal zone, declared as such by the MEC)

In terms of section 23(3) of the NEM:ICMA, an area may be declared as a special management area only if environmental, cultural or socio-economic conditions in that area require the introduction of measures which in the opinion of the MEC are necessary in order to more effectively:

- (a) attain the objectives of any coastal management programme in the area;
- (b) facilitate the management of coastal resources by a local community;
- (c) promote sustainable livelihoods for a local community; or
- (d) conserve, protect or enhance coastal ecosystems and biodiversity in the area.

The measures could address LBMP which affects the area to be managed. However, it is considered that the direct relevance of this instrument for LBMP regulation is limited, as its regulatory objective is limited to the conservation, protection and sustainable development of a geographical area, rather than pollution management.

5.4 Key indirect regulatory instruments

This section aims to provide a legal analysis of the main indirect instruments encompassed in the South African regulatory framework pertaining to LBMP

regulation, including instruments related to the assessment of ecological status, information management, monitoring the effectiveness assessment, financial management, and capacity building.

5.4.1 The assessment of ecological status, information management and monitoring¹⁶¹⁹

The *National State of the Environment Report*¹⁶²⁰ (also referred as SOER) is the most comprehensive assessment of ecological status in South Africa.¹⁶²¹ The SOER is based on a consolidated approach to the "pressure–state–response model" for state-of-the-environment reporting developed by the Organisation for Economic Cooperation and Development (OECD) in the early 1990s.¹⁶²² Environmental indicators have been developed to form the basis of this reporting and they enable a comprehensive assessment of the environment, impacts and pressures on the environment, the governance framework and the identification of trends in the state of the environment. They are also used to assess the effectiveness of measures and actions to deal with environmental pressures.¹⁶²³ The SOER is well established in South Africa at the national, provincial and municipal levels.¹⁶²⁴ Sectoral national departments also report on their specific

1619 Pietersen 2010 *Water&Sanitation* Africa.

1620 DWEA 2007 <http://soer.deat.gov.za/frontpage.aspx?m=2>.

1621 The first direct evidence of state of the environment reporting in South Africa was in 1992 with the National Report to the United Nations Conference on Environment and Development produced by the Council for Scientific and Industrial Research (CSIR) on behalf of DEAT. In 1994, a second document named "Environment South Africa" was published by DEAT, which identified major environmental issues. The first National state of the Environment report was released in 1999. The second and most current report was published in 2006, "*Environmental Outlook, a Report on the state of the Environment of South Africa*". This report presents a picture of the condition of the environment and natural resources in South Africa, the socio-economic factors and external pressures affecting the environment and its management, human vulnerability to environment changes, an analysis of the future of the environment twenty years from now, and an overview of the protection and management measures implemented in South Africa to promote sustainable development and co-operative governance.

1622 DEAT *State of the Environment of South Africa* 2006 10.

1623 DEAT *State of the Environment of South Africa* 2006 10.

1624 For example, provincial reports include those from the North West Province, Mpumalanga, Eastern Cape, Gauteng, Western Cape, Northern Cape, Limpopo, Free state, and KwaZulu-Natal. Metropolitan reports include those from Cape Town, Durban, Johannesburg, Midrand and Pretoria. Local reports include those from Mogale Bombela,

environment-related matters within their respective areas of executive and legislative responsibility.¹⁶²⁵ In terms of LBMP, two specific sectoral reporting initiatives are important: "the state of river systems", and "the state of our coast".¹⁶²⁶ However, as stated in the 2006 report, the SOER in South Africa has limitations:¹⁶²⁷

Relatively few integrated assessments have been conducted in South Africa. Furthermore, there are serious gaps in the environmental data and, together with differences in scientific interpretation, any reader should realise that the analysis published is not infallible. For many environmental questions of global importance, such as climate change and genetically modified organisms, expert opinion is not always unanimous. As a result, it is difficult to present data and information in a definitive way, or in a way that is accepted by all. There is much work to be done to ensure that there is appropriate and reliable data and information for decision-making. An integrated approach to collecting, managing, sharing, and reporting on environmental and other data involving all relevant government departments and research institutions is urgently required. There is also a need to improve the translation of science and research into practical policy for decision-making, and for raising the awareness of the public. State of the environment reports have an important role to play.

The 2006 report recognises that "the increasing complexity of environmental challenges and emerging issues requires sound thematic and integrated

Sedibeng, Ekurhuleni and Mangaung. For further information see DWEA 2010 <http://www.environment.gov.za/soer/>.

1625 Sectoral reports include State of Coasts, State of Air, State of Rivers, State of Estuaries and Catchments. For further information see DWEA 2010 <http://www.environment.gov.za/soer/>.

1626 Atkinson and Clark *Marine and coastal ecosystems*. For further information see DWEA 2010 <http://www.environment.gov.za/soer/soer/sector.htm#coasts>.

1627 "State of the Environment reporting, although a relatively new environmental tool in South Africa, has already made some progress in highlighting the importance of understanding environmental issues and incorporating this information into decision making. However, many factors currently limit the effectiveness of SoE reporting and in the worst case scenario, this could lead to the reports not being compiled or used at all. As has been shown in this essay, links can be improved through interventions in institutional arrangements and the scientific/technical process behind the SoE reporting process. Both activities will facilitate enhanced value of the reporting products in planning/reporting processes, allowing SoE reporting to support these other established planning/reporting processes to a greater extent", DEAT *Emerging issues paper: state of environment reporting and other planning/reporting tools* 2009 10.

assessments that produce policy-relevant findings for decision-makers".¹⁶²⁸ There is a lack of a dedicated, focused and regular assessment of the ecological, social and environmental status of the coastal and marine environment. However, progress has been made in terms of section 93 of the NEM:ICMA, which prescribes that the Minister must progressively, and within the available resources of the department, make available and accessible to the public sufficient information concerning the protection and management of the coastal zone to enable the public to make an informed decision of the extent to which the state is fulfilling its duty in terms of section 3 of the NEM:ICMA. The Minister must also prepare and regularly update a national report on the state of the coastal environment based on provincial reports submitted to the Minister.¹⁶²⁹ Section 93 also prescribes that an MEC must prepare a report on the state of the coastal environment in the Province every four years, and that it must contain any information prescribed by the Minister.¹⁶³⁰

In terms of monitoring and information management, various environmental statutes prescribe the development of specific information and monitoring systems which are relevant in the context of LBMP. For example, Chapter 14 of the NWA prescribes the establishment of national monitoring systems¹⁶³¹ and national information systems¹⁶³² in terms of water resources. The NWA also prescribes the establishment of mechanisms to co-ordinate the monitoring of

1628 For example, it is acknowledged that South Africa's marine taxonomic groups are under-represented on the World Conservation Union Red List (see IUCN 2010 <http://www.iucnredlist.org/>) due to a lack of baseline information on species biology, population and distribution. It is also noted that the monitoring efforts have focused largely on the commercial status of valuable marine resources instead of the ecological wellbeing of the marine environment. Strydom and King *Environmental management* 491.

1629 S 93 of the NEM:ICMA.

1630 Such reports do not need to be published in the provincial or national gazette. Coastal committees as prescribed by NEM:ICMA have to be consulted in the development of such reports.

1631 NWA prescribes that national monitoring systems must provide for the collection of appropriate information and data to assess the quantity, quality, rehabilitation and the use of water resources, compliance with resource quality objectives, the health of aquatic ecosystems, and atmospheric pollution which may influence water resources.

1632 National information systems may relate to hydrological information, water resource quality, groundwater information, and a register of water use.

water resources. Section 143 of the NWA prescribes that the Minister may make regulations related to the monitoring and data collection and analysis. Moreover, regulations¹⁶³³ under the NWA require most authorised water uses to be registered.¹⁶³⁴ This registration system is very important to enable informed decision making relating to the management and monitoring of the use of water resources. In terms of the NEMA, the competent authority must keep a registry of applications and a record of environmental authorisations.¹⁶³⁵ The NEM:WA prescribes the establishment of national waste information system(s).¹⁶³⁶ The national information system(s) must also include a register of waste management activities that have been licensed, specifying the holders of licences and the locations where the licensed waste management activities are or may be conducted. The MEC may also establish a provincial waste information system, which must at least include the information required by the national information system. It is also important to note that the NEM:WA enables the Minister to require any person to provide, within a reasonable time or on a regular basis, any data, information, documents, samples or materials to the Minister that are reasonably required for the purposes of the national waste information system or the management of waste.¹⁶³⁷ South Africa currently does not have a comprehensive emissions/pollutions release register, but significant progress has

1633 In terms of regulation 3(b) of GN R1352 12 November 1999 a person who uses water as contemplated in S 21 of the NWA must, when called upon by the responsible authority to do so, register the water use.

1634 Refer to 5.3.3.2(a).

1635 S 11 of the NEMA.

1636 S 60 of NEM:WA prescribes that the waste information system must provide for the recording, collection, management and analysis of data and information that must include data on the quantity and type or classification of waste generated, stored, transported, treated, transformed, reduced, re-used, recycled, recovered and disposed of and may include information on the levels and extent of waste management services provided by municipalities; information on compliance with this Act; and any other information that is necessary for the purposes of effective administration of this Act. The objective of the national waste information system is to (a) store, verify, analyse, evaluate and provide data and information for the protection of the environment and management of waste; (b) provide information for the development and implementation of any integrated waste management plan required in terms of the Act and (c) provide information to organs of state and the public.

1637 The MEC or a municipality may also require any person or organ of state to provide any relevant data, information, documents, samples or materials.

been made in the development of a National Waste Information System (WIS), which will contain information on the quantities, types and sources of waste of the country's landfill sites.¹⁶³⁸ Significant progress has also been made in developing a digital register of protected areas. Various environmental legislation also prescribe a sectoral ecological status assessment, monitoring and information management, for example in terms of biodiversity,¹⁶³⁹ protected areas,¹⁶⁴⁰ nuclear activities¹⁶⁴¹ and ambient air quality.¹⁶⁴² EIAs and other environmental authorisation also require an assessment of the environment where the proposed activity should take place or which it might affect.

5.4.2 Effectiveness assessment

The SOER is one of the tools used to perform effectiveness assessment of environmental management programmes and measures, including regulatory instruments. Various acts encompass generic obligations to conduct

1638 DEAT *State of the Environment of South Africa* 2006 34.

1639 S 49(1) of NEM:BA prescribes that the Minister must designate monitoring mechanisms and set indicators to determine the conservation status of various components of South Africa's biodiversity, and any negative and positive trends affecting the conservation status of the various components. The Minister may require any person, organisation or organ of state involved in terms of subsection (1) in monitoring the matters referred to in that subsection to report regularly to the Minister on the results of such monitoring measured against the predetermined indicators. In terms of S 50 (1), the Minister must promote research and other institutions on biodiversity conservation, including the sustainable use, protection and conservation of indigenous resources. Research on biodiversity conservation may include: (a) the collection and analysis of information about (i) the conservation status of the various components of biodiversity; (ii) negative and positive trends affecting the conservation status of various components; and (iii) threatening processes or activities likely to impact on biodiversity conservation; (b) the assessment of strategies and techniques for biodiversity conservation; (c) the determination of biodiversity conservation needs and priorities; and (d) the sustainable use, protection and conservation of indigenous biological resources.

1640 In terms of S 50(3) of the NEM:PAA, the management authority of the national park, nature reserve or world heritage site must establish systems to monitor (a) the impact of activities allowed in terms of subsection (1)(a) or (b) on the park, reserve or site and its biodiversity; and (b) compliance with (i) any agreement entered into in terms of subsection (1)(b); and (ii) any norms and standards set in terms of subsection (1)(c).

1641 In terms of the NNRA, the national nuclear regulator must keep a record of the particulars; a map showing the location; and where applicable, diagrams showing the position and limits of nuclear installations in respect of which a nuclear installation licence has been granted. In terms of S 40, a record of nuclear accidents and incidents must be kept.

1642 In terms of S 8 of the NEM:AQA.

effectiveness assessment of programmes, instruments and measures, including the most relevant ones in terms of LBMP, which are effectiveness assessment prescribed by coastal management programmes,¹⁶⁴³ catchment management strategies,¹⁶⁴⁴ integrated waste management plans,¹⁶⁴⁵ and industries waste management plans.¹⁶⁴⁶ The EMP and EIP as prescribed by the NEMA¹⁶⁴⁷ must also provide a certain level of effectiveness assessment of programmes, instruments and measures. However, most of these obligations are rather generic, and no specific guidance is provided to conduct such assessments. They also do not prescribe the process to improve effectiveness after such assessments.

5.4.3 Financial management

As reflected in international best practice,¹⁶⁴⁸ there are various types of financial management-related instruments, including financial planning and financial mobilisation and provision.

5.4.3.1 Financial planning

All relevant national departments, but especially DWEA, have to prepare their annual budget through a business plan and strategic plan exercise that they have to present to the parliament and cabinet for approval.¹⁶⁴⁹ The former DEAT engaged in "a budget reform process in order to articulate its needs and the constraints it experience[d] in giving effect to policy, and to articulate what ought to be taken into account when government sets budget priorities and decides

1643 In terms of S 44-49 of the NEM:ICMA.

1644 S 8 of the NWA.

1645 In terms of S 13 of the NEM:WA.

1646 In terms of S 40 of the NEM:WA.

1647 In terms of S 16 of the NEMA.

1648 See 2.3.4.2(c).

1649 PMG 2008 <http://www.pmg.org.za/report/20080507-department-environmental-affairs-20089-strategic-plan-budget> for further information on 2008/9 DEAT *Strategic plan and budget*.

how to allocate resources".¹⁶⁵⁰ The Strategic Plan for the Environmental Sector 2008–2013 and the Strategic Plan 01 April 2008–31 March 2011¹⁶⁵¹ formed part of this reform, to ensure that the implementation priorities and plans of national, provincial, and local departments were aligned in future. Improvement has been observed in the alignment of national, provincial and municipal priorities in terms of environmental management. However, there are still some important disparities between Provinces and between municipalities. There is still a need for rationalisation and standardisation. There was significant growth in the budgets allocated for environmental quality and protection that is due to the implementation and enforcement of pollution and waste management policy and legislation, and the expenditure for the biodiversity programme was increasing steadily.¹⁶⁵² The total former DEAT budget allocation for the 2008/9 financial year was given as R3.01 billion, increasing to R3.4 billion by 2009/10.¹⁶⁵³ The total budget allocation for public entities was R1,2 billion, increasing to R1.4 billion in the following year.¹⁶⁵⁴ But this also included tourism-related matters. As specified above, most financial sources were from public finances. The DWEA budget had traditionally been below 0.2 per cent of national budget expenditure.¹⁶⁵⁵ Transfers¹⁶⁵⁶ and subsidies made up a significant component of the department's

1650 DEAT *State of the Environment of South Africa* 70. These reforms include the development of a common budget structure for the sector, the drafting of an environmental Chapter for the Intergovernmental Fiscal Review (IGFR), the development of a medium-term sector plan, and a policy review of the key areas of work in the sector. The IGFR environmental Chapter analyses expenditure and budget trends and the contribution of provincial budgets to the sector's development. The medium-term plan sets out the sector's implementation priorities and challenges for the next Medium Term Expenditure Framework period (2006/2007–2008/2009).

1651 DEAT 2009 <http://www.deat.gov.za/AboutUs/StratDoc/stratPlan.html>.

1652 DEAT *State of the environment of South Africa* 70.

1653 The proposed budget baseline for 2010/2011 is 3.88 billion. See PMG 2010 <http://www.pmq.org.za/report/20100309-department-environmental-affairs-their-strategic-plan-and-budget-2010> and DWEA 2010 <http://www.pmq.org.za/files/docs/100309stratplan.ppt>.

1654 Consult PMG 2008 <http://www.pmq.org.za/report/20080507-department-environmental-affairs-20089-strategic-plan-budget> for further information on the 2008/9 Strategic Plan and Budget.

1655 DEAT *State of the environment of South Africa* 70.

1656 These transfers go to a range of bodies promoting tourism and managing national parks and gardens, to fisheries, to social responsibility projects and to the weather service.

budget, taking up almost 70 per cent of the total allocation in 2005/2006.¹⁶⁵⁷ South Africa was a beneficiary of foreign aid for the environmental sector in particular and, since 1994, for a variety of environmental programmes. Donor assistance to the former DEAT constituted less than 4.5 per cent of its annual budget in 2004/2005. Donor assistance would decline over the next couple of years.¹⁶⁵⁸ Moreover, most Provinces had declining environmental budgets, even if Gauteng, the Western Cape, and KwaZulu-Natal had relatively adequate budgets to do their work.¹⁶⁵⁹

An alarming decrease in the marine and coastal management programme expenditure estimates can be observed in Table 12 taking into consideration that most of the budget of this programme is in any case allocated to fisheries management. It demonstrates that marine and coastal management is not a priority in terms of financial planning.

Moreover, many integrated regulatory instruments lack a comprehensive financial management instrument related to financial planning.¹⁶⁶⁰ Financial planning for activities related to LBMP regulation needs to take place in each governmental sphere. Most of the environmental statutes do not address the question of financial management, so no initial financial assessment is conducted to assess the cost (for the public and private sectors) of the implementation of a specific statute, instrument and/or measure.

1657 DEAT *State of the environment of South Africa* 70.

1658 DEAT *State of the environment of South Africa* 70.

1659 DEAT *State of the environment of South Africa* 70.

1660 Refer to 5.5.

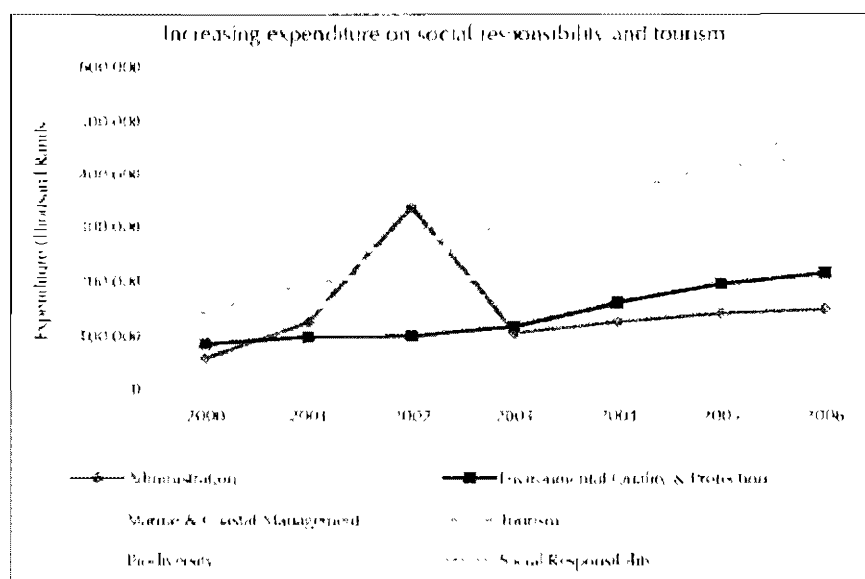


Table 12. Former DEAT programme expenditure estimates, 2000–2006¹⁶⁶¹

5.4.3.2 Financial mobilisation and provision

The NWA is one of the main acts in this context.¹⁶⁶² It prescribes financial mobilisation/provision instruments¹⁶⁶³ in terms of water resources. The NWA, section 56, prescribes the design of a "pricing strategy for water use charges".¹⁶⁶⁴

The pricing strategy may contain a strategy for setting water use charges:

- (a) for funding water resource management, including the related costs of gathering information; monitoring water resource and their use; controlling water resource; water resource protection, including the discharge of waste and the protection of the reserve; and water conservation;
- (b) for funding water resource development and use of waterworks, including the costs of investigation and planning; the costs of design and construction; pre-financing of development; the costs of operation and maintenance of waterworks; a return on assets; and the costs of water

¹⁶⁶¹ DEAT *State of the environment of South Africa*, and for latest figures see DWEA 2010 <http://www.pmg.org.za/files/docs/100309stratplan.ppt>.

¹⁶⁶² For further information refer to Strydom and King *Environmental management* 667-670.

¹⁶⁶³ Refer to 2.3.4.2(c).

¹⁶⁶⁴ For further information refer to Kotzé and Bosman 2005 *Obiter* 128-145.

distribution; and for achieving the equitable and efficient allocation of water.

The scope of funding is aligned with international best practice, as it includes monitoring, control activities, protection, waterworks planning, operation and maintenance. This is a fairly broad scope in comparison to international best practices.¹⁶⁶⁵ The pricing strategy may differentiate on an equitable basis between different types of geographic areas, different categories of water use and different water users. The pricing strategy may also provide for a differential rate for waste discharges, taking into account the characteristics of the waste discharged; the amount and quality of the waste discharged; the nature and extent of the impact on a water resource caused by the waste discharged; the extent of permitted deviation from prescribed waste standards or management practices; and the required extent and nature of monitoring the water use. This approach is flexible, adaptative, takes into consideration local circumstances, and is aligned with international best practice.¹⁶⁶⁶ In setting a pricing strategy for water use charges, the Minister must consider the class and resource quality objectives for different water resources and may consider incentives and disincentives to promote the efficient use and beneficial use of water and/or to reduce detrimental impacts on water resources and/or to prevent the waste of water. This approach is aligned with international best practice in terms of financial mobilisation, especially in terms of the elements to be considered to determine the extent of the finance required.¹⁶⁶⁷

In terms of section 61 of the Act, the Minister may, subject to a regulation made under section 62, provide financial assistance to any person for the purposes of this Act, including assistance for making licence applications, in the form of grants, loans or subsidies, which may be made subject to such conditions as the Minister may determine. The pricing strategy for water use charges in terms of

1665 Refer to 2.3.4.2(c).

1666 See 2.3.4.2(c).

1667 See 2.3.4.2(c).

section 56(1) of the NWA was established in 1999.¹⁶⁶⁸ The NWRS states that "the charging system will be based on the polluter-pays principle and will address point and diffuse sources of pollution". The National Strategy also specifies that the structure of tariffs currently being considered encompasses a basic charge, a load-base charge proportional to the waste load, charges for excess loads, and incentives. It is also noteworthy that according to the National Strategy, "revenues from charges will be used to fund water quality management activities related to waste discharge or disposal". The National Strategy also confirms that the Act allows water users to trade water use entitlements in terms of a policy developed under section 25 of the Act, which is very comprehensive in this context. The provisions of the WSA are also relevant in terms of financial management instruments.¹⁶⁶⁹

However, the NEM:ICMA, which regulates the discharge of effluents into coastal waters does not provide for a pricing system for the discharge of such effluents which is regarded as a limitation of the Act in this regard.

Finally it is important to note the National Treasury *Draft Policy Paper Framework for Considering Market-Based Instruments to support Environmental Fiscal Reform in South Africa*, 2006.¹⁶⁷⁰ The Draft Policy Paper is a step forward in South Africa, as there has been a lot of hesitation and reticence towards the development and implementation of economic-based instruments in the context of environmental management.¹⁶⁷¹ The Draft Policy Paper is mainly aimed at identifying, analysing and assessing the different available instruments and providing recommendations towards an environmental fiscal reform in terms of environmental taxes and incentives. As stated in the document, the Draft Policy Paper seeks to "explore how environmentally-related taxes and charges could

1668 GN R1353 12 November 1999.

1669 See 2.3.4.2(c).

1670 For further information about the use of environmental market based instruments in South Africa see Paterson 2005 SAJL 182-216.

1671 For further information see Paterson Pruning the money-tree to ensure sustainable growth: Facilitating sustainable development through market-based Instruments PERPELJ 2006(9)3.

assist in progressing towards the achievement of environmental goals and objectives in a cost effective manner". As a preliminary statement the Draft Policy Paper states that the rationale behind market-based instrument is to correct environmentally-related market failures, like the cost to use . The focus of the policy is mainly on revenue-raising instruments (specifically environmentally-related taxes and charges) in opposition to expenditure instruments (e.g. direct and indirect subsidies). The Draft Policy Paper states that the current environment-related taxes in South Africa account for approximately 2 per cent of the GDP and just under 40 per cent of total tax revenue. The Draft Policy Paper provides a formal definition of environment-related tax "as tax whose base is a physical unit (or proxy of it) that has a proven specific negative impact on the environment".¹⁶⁷² The Draft Policy Paper emphasises the fact that market-based instruments are only one option to correct market failures. There are other options encompassing appropriate regulations, tradable permits or information strategies.¹⁶⁷³ The Draft Policy Paper provides a very comprehensive overview of the current environmentally-related taxes and charges, covering mainly the

1672 While assessing the framework for environmentally-related taxes, the policy states the overarching objectives which are to guide the assessment and recommendation process: revenue-raising objectives; the "double dividend" hypothesis; maintenance of a coherent tax policy framework; improving markets and the allocation of resources; equity issues; and the impact on the poor. The paper also emphasises the importance of tax incidence, formal and effective.

1673 The draft policy demonstrates that in the choice of policy instruments, "a tailored and stylised" solution is necessary for each environmental objective. The document provides useful guidelines to facilitate the choice of instruments. The policy document provides a list of criteria which should always be considered during the selection process, including negative environmental externalities; positive environmental externalities; the under-provision of public goods; information uncertainty; static efficiency; varying damage costs over different locations; dynamic efficiency; complexity; distributional and competitiveness issues. The draft policy highlights the need to assess the most appropriate level of government for each market-based instrument in consideration of the nature, source, location, impact, and intergovernmental relations issues. Then the document provides information regarding the policy development process, which should include the following steps: goals and objectives setting; justification of governmental intervention; government's intent; options assessment; and design issues. The draft policy paper also provides an assessment matrix to select the most adequate and appropriate environmentally-related taxation, mainly based on the following assessment criteria: neutrality; equity; certainty; cost minimisation; environmental effectiveness; support to tax; legislative aspects; technical and administrative viability; competitiveness effects; distributional impacts; and adjoining policy areas.

following areas: transport fuels, vehicle taxation, aviation levies, electricity, water supply and waste water, mining, and waste. Overall, there are very few environmental taxes and/or incentives in South Africa which can assist in the regulation of LBMP. The most relevant in terms of LBMP are those related to water supply and waste water. However, the regulatory instruments related to financial mobilization provided by the South African regulatory framework and relevant in the context of LBMP seem to be limited. For example, no concrete budget was developed for the implementation of the *South African National Action Plan* (NPA) and no financial mobilization measures were consequently adopted.

5.4.4 Public participation and capacity building

The South African environmental legal framework places a strong emphasis on public participation.¹⁶⁷⁴ Most environmental statutes encompass comprehensive and extensive public participation requirements.¹⁶⁷⁵ Public participation is required for most environmental policy¹⁶⁷⁶ and legislation¹⁶⁷⁷ developments, environmental authorisations,¹⁶⁷⁸ plans,¹⁶⁷⁹ programmes,¹⁶⁸⁰ strategy development and implementation.¹⁶⁸¹

1674 NEMA prescribes in its Preamble that law should establish procedures and institutions to facilitate and promote public participation in environmental governance. Also see Pollard and Du Toit 2008 *Water SA* 707-713. Also see Murombo 2008 *PER* 1-32; Du Plessis 2008 *PER* 1-34; Field 2005 *SALJ* 748-765; Sowman 1994 *Town and Regional Planning* 20-30; Bray 2003 *SA Public Law* 121-138; Kidd 1999 *SAJELP* 21-31.

1675 For example NEMA and S 9 of NWA.

1676 For example the stakeholder engagement process required in the development of policy documents like White Papers.

1677 For example the extensive public participation (stakeholder consultation) process conducted for the NEM:ICMA.

1678 The EIA public participation process is regarded as very comprehensive GN R385, the sections on "interested and affected parties consultation".

1679 For example, public participation for the development of the integrated waste management plans in terms of NEM:WA.

1680 For example, public participation for the development of coastal management programmes in terms of the NEM:ICMA.

1681 For example, public participation for the development of the catchment management strategies, S 9 of NWA.

In terms of capacity building, the lack of government capacity is a great challenge for environmental management in South Africa.¹⁶⁸² Many statutes prescribe capacity building.¹⁶⁸³ EIP and EMP in terms of the NEMA also prescribe focused capacity building. However, it is recognised that "there is a critical lack of capacity in the implementation arms of government, particularly at local government level. An environmental capacity-building programme for local government should be rolled out nationally".¹⁶⁸⁴ The former DEAT announced in August 2005 that R10 million would be set aside in 2006 for an environmental awareness campaign to implement more environmentally friendly practices. Existing awareness initiatives would be combined to give the single campaign greater prominence.

5.4.5 Compliance and enforcement¹⁶⁸⁵

The lack of effective enforcement and compliance, especially at the municipal and provincial government level, may impair the efficiency and effectiveness of the regulatory framework in terms of environmental management generally, and more specifically LBMP regulation. Most environmental legislation provides that the failure to comply with the legislated provisions is an offence and prescribes maximum penalties to be imposed.¹⁶⁸⁶ It is also recognised that South Africa's current environmental regime encompasses "elements of both the rationalist and normative theories of compliance".¹⁶⁸⁷ Environmental law in South Africa encompasses a suite of environmental compliance and enforcement

1682 For further information on capacity building consult DEAT *State of the environment of South Africa* 2006 Chapter 3.

1683 MPRDA, MLRA, NEMA, and NWA. For further information on public participation consult DEAT *Environmental outlook* 2006 Chapter 3.

1684 DEAT *State of the environment of South Africa* 2006 70.

1685 For an overview of environmental compliance and enforcement in South Africa, see Paterson and Kotzé *Environmental compliance and enforcement* Chapter 3 S 2.3; Burnel 2008 *Without Prejudice* 52-54; Stokes 2008 *ReSource* 13-14; Furter 2004 *IMIESA* 25-26.

1686 Kidd *Environmental law* 33. For further information consult Kidd, *Environmental law* 21-33.

1687 Paterson and Kotzé *Environmental compliance and enforcement* 45.

mechanisms. Command-and-control instruments¹⁶⁸⁸ include (a) criminal measures,¹⁶⁸⁹ for example criminal offences and sanctions; (b) administrative measures,¹⁶⁹⁰ for example compliance notices, abatement notice procedures, the withdrawal/suspension of authorisations, and directives; and (c) civil measures,¹⁶⁹¹ that include interdicts and judicial review. Alternative compliance instruments include incentive-based measures,¹⁶⁹² for example economic instruments, financial security, market-based instruments, regulatory incentives and information-based incentives; and voluntary measures,¹⁶⁹³ for example self-regulatory measures and co-regulatory measures. It is also noteworthy that in addition to the compliance and enforcement functions of the state, individuals also have access to legal mechanisms to ensure the effective implementation, compliance and enforcement of environmental law. The main statutory instrument in this regard is *locus standi*, as prescribed by the Constitution.¹⁶⁹⁴

1688 In this context, the command-and-control approach involved two main process, the prescription of legal obligations and then the compelling of compliance with the use of enforcement mechanisms. For further information see Paterson and Kotzé *Environmental compliance and enforcement* 50-61.

1689 For further information refer to Paterson and Kotzé *Environmental compliance and enforcement* 53-55. It is noteworthy that Strydom and King in *Environmental management* 243-257 argue that there are inherent weaknesses to criminal sanctions including: burden of time and costs, reactive nature of criminal law, problem of proof, procedural safeguard, preparation of cases for prosecution, officials' attendance in court, and the "moral" aspect of criminal law. They also refer to the "contingent weaknesses" of criminal law including: inadequate policing, lack of public awareness, difficulties of investigation, lack of expertise of court officials, and inadequate penalties.

1690 They are potentially more expedient and cost effective for environmental enforcement than criminal measures. For further information refer to Paterson and Kotzé *Environmental compliance and enforcement* 55-56.

1691 For further information refer to Paterson and Kotzé *Environmental compliance and enforcement in South Africa* 57-58.

1692 For further information refer to Paterson and Kotzé *Environmental compliance and enforcement in South Africa* 58-59.

1693 For further information refer to Paterson and Kotzé *Environmental compliance and enforcement in South Africa* 60.

1694 S 38 states that "anyone listed in this S has the right to approach a competent court, alleging that a right in the Bill of Rights has been infringed or threatened, and the court may grant appropriate relief, including a declaration of rights. The persons who may approach a court are: anyone acting in their own interest; anyone acting on behalf of another person who cannot act in their own name; anyone acting as a member of, or in the interest of, a group or class of persons; anyone acting in the public interest; and an association acting in the interest of its members". For further information consult Kidd *Environmental law* 26-33, Paterson and Kotzé *Environmental compliance and enforcement* Chapter 6 and Strydom and King *Environmental management* 263-267.

Kidd¹⁶⁹⁵ indicates that the effectiveness of legislation depends on its enforcement, and that the role of the state is therefore vital for implementation. He also indicates that "despite the extensive provision of criminal sanctions in South African environmental legislation, there have not been many successful prosecutions in the environmental sphere".¹⁶⁹⁶ He also indicates that there is a number of shortcomings in the use of criminal sanctions in this context.¹⁶⁹⁷ It is also recognised that South Africa's environmental compliance and enforcement regime has "thus far unfortunately developed in a rather piecemeal manner, focusing on various regulatory priorities and relying heavily on traditional criminal and administrative measures".¹⁶⁹⁸

However, enforcement and compliance have lately been given special attention with the reinforcement and extension of the powers of the environmental management inspectorate (the EMI or Green scorpions)¹⁶⁹⁹ and Blue

1695 Kidd *Environmental law* 18.

1696 Kidd *Environmental law* 22.

1697 Kidd identifies the following shortcoming: sanctions are based on a reactive rather than pro-active regulatory approach, inadequate policing, difficulties in investigation, the cost of prosecution, the problem of proof, the lack of expertise, the inadequacy of penalties, the attitude of the public, the dependence on administrative efficiency, and delay. Kidd *Environmental law* 22.

1698 "Moreover pressing capacity and resource constraints, fragmented institutional structures and political pressures for immediate and visual results have effectively stunted not only the implementation of these traditional measures but also undermined the opportunity for relevant authorities to step back from their regulatory functions in order to think critically about how to formulate a more effective environmental compliance and enforcement regime in South Africa". Paterson and Kotzé *Environmental compliance and enforcement* 61. It was recently indicated that "SA's water crisis is real, with a slew of recent reports warning that remedial action is imperative; this as the Water Department reveals that it is understaffed and ill-equipped to enforce government policy, writes Legalbrief. Water Affairs Minister Edna Molewa says the Water Affairs Department has less than a third of the officials it needs to enforce compliance with water quality and pollution laws. A report in The Times notes that in a written reply to a parliamentary question, she said the department had only 31 full-time staff for enforcement, monitoring and compliance across SA", for further information see The Times 2010 <http://www.timeslive.co.za/local/article781645.ece/Huge-shortage-of-enforcement-officials--Water-minister>.

1699 As created in terms of S 31 A of the NEMA. "South Africa's highly specialised environmental police unit, known as the 'Green Scorpions,' has embarked on a national drive to crack down on contraventions of environmental laws". Engineering News 2007 <http://www.engineeringnews.co.za/article/green-scorpions-conduct-national-enforcement-drive-2007-03-16>. For further information on the EMI refer to Paterson and Kotzé *Environmental compliance and enforcement* 37-38 and 88-96.

scorpions.¹⁷⁰⁰ The EMI is a "body appointed from different government departments in all three spheres of government" which have specific compliance and enforcement power and powers¹⁷⁰¹ in terms of specific environmental management acts.¹⁷⁰² Moreover the *National Environment Laws Amendment Act* 44 of 2008, which authorises the inclusion of the NWA in the definition of "a specific environmental management act"¹⁷⁰³ and which extends the scope of the EMI to the NWA¹⁷⁰⁴ is regarded as a comprehensive legal progression to address water pollution, including LBMP. Specific efforts have also been undertaken to rationalise the environmental enforcement framework in South Africa, in terms of powers, capacity, environmental offences, crimes, and adequate fines. Fines for environmental offences have been significantly increased for specific environmental acts.¹⁷⁰⁵ Moreover, new and innovative compliance and enforcement instruments are being established. For example, the NEM:WA introduces a "waste impact report".¹⁷⁰⁶ The main enforcement/compliance entities in terms of the Act are the EMI appointed in terms of the NEMA, the waste management officers (as prescribed by the NEM:WA) and the Minister of DWEA.

1700 Strydom and King *Environmental management* 865.

1701 For further information about their powers and functions see S 31A of the NEMA and Paterson and Kotzé *Environmental compliance and enforcement* 93-94.

1702 Paterson and Kotzé *Environmental compliance and enforcement* 37-38.

1703 S 3 of the Amendment Act.

1704 S 3 of the Amendment Act, "insertion of 31BA (1) The Minister of Water Affairs and Forestry may (a) designate as an environmental management inspector, any staff member of (i) the Department of Water Affairs and Forestry; or (ii) any other organ of state; and (b) at any time withdraw a designation made in terms of Par. (a). (2) A designation in terms of subsection (1)(a)(ii) may only be made by agreement between the Minister of Water Affairs and Forestry and the relevant organ of state".

1705 *National Environmental Laws Amendment Act* 14 of 2009.

1706 In terms of S 66 of NEM:WA, an environmental management inspector appointed in terms of the NEMA may in writing, require any person to submit a waste impact report in a specified form and within a specified period to the environmental management inspector if the environmental management inspector on reasonable grounds suspects that such person has on one or more occasions contravened or failed to comply with this Act or any conditions of a waste management licence or exemption and that the contravention or failure has had or is likely to have a detrimental effect on health or the environment, including social conditions, economic conditions, ecological conditions or cultural heritage, or has contributed to the degradation of the environment. A waste management officer may, in writing, require any person to submit a waste impact report in a specified form and within a specified period to the waste management officer if a review of a waste management licence is undertaken.

The NEM:WA prescribes specific offences in terms of waste management and specific penalties and fines. The highest penalty is a R10 000 000 fine and imprisonment not exceeding 10 years. The NEM:WA also specifies that a fine contemplated in terms of this Act must be determined with due consideration of the severity of the offence in terms of its impact or potential impact on the health, well-being and safety of the public, the state of the environment, and the monetary or other benefits that accrued to the convicted person through the commission of the offence. Moreover, the latest statements from the Minister of DWEA indicate that the effort to strengthen environmental enforcement and compliance will carry on with the new administration.¹⁷⁰⁷ It is also noteworthy that specialist environmental courts were created (one of which in Hermanus was dedicated to prosecuting marine-related offences), but they have since been disbanded. However, recent statements by the DWEA Minister indicate that such specialist environmental courts are going to be re-established.¹⁷⁰⁸ The range of potential offences in the coastal zone is extremely diverse¹⁷⁰⁹ and can assist LBMP regulation. However, the development of compliance and enforcement in terms of pollution, waste and EIA has been slow "mainly due to inadequate legislative framework, inappropriate skills, lack of functional specialisation and inadequate human resource capacity".¹⁷¹⁰ DWEA is the pivotal department in terms of environmental compliance and enforcement. The provincial environmental departments are also very important. Lately, the phenomenon of

1707 "We are re-opening the [environment] courts... We are looking at partnerships with all the law enforcement agencies because this is a big issue - we are dealing with [international crime] syndicates. The courts need to be re-opened". She noted that the biggest issues pertaining to the re-establishment for the dedicated courts were funding arrangements and skills development. However, she noted that the DWEA had been hard at work to develop the necessary skills. News 24 2009 <http://www.news24.com>. She also indicated that between April 2008 and March 2009, the number of environmental management inspectors had increased from 866 to 903. Engineering News 2009 <http://www.engineeringnews.co.za/article/sa-to-have-dedicated-environmental-courts-next-year-sonjica-2009-11-25>.

1708 DWEA Minister indicated that dedicated courts to deal specifically with infringements against the South African environmental acts were likely to become effective in 2010, Engineering News 2009 <http://www.engineeringnews.co.za/article/sa-to-have-dedicated-environmental-courts-next-year-sonjica-2009-11-25>.

1709 Paterson and Kotzé *Environmental compliance and enforcement* 29.

1710 Paterson and Kotzé *Environmental compliance and enforcement* 81.

decentralisation¹⁷¹¹ in terms of environmental compliance and enforcement has been observed, in which various functions relating to waste management, air quality and coastal zone management have been statutorily¹⁷¹² allocated to local government.¹⁷¹³ However, the lack of human resource capacity at local government level is still a concern.¹⁷¹⁴ Local government also has an important role in terms of compliance and enforcement regarding local land-use and planning.¹⁷¹⁵

The executive branch is "the branch of government" which makes decisions pertaining to environmental authorisations and it has a vital role to play in terms of compliance enforcement.¹⁷¹⁶ The judiciary also plays a critical role in terms of compliance and enforcement.¹⁷¹⁷ All spheres of government (national, provincial and local) have "a key role to play in environmental enforcement and compliance".¹⁷¹⁸ However, Du Plessis¹⁷¹⁹ thinks that this role has been undermined to a degree by significant overlap in the responsibilities of the various spheres, which has resulted in legislative and institutional fragmentation, and has ultimately created functional duplication and confusion. In this context, Du Plessis¹⁷²⁰ also argues that co-operative governance is regarded as a necessary precursor for the development of effective environmental compliance and enforcement in South Africa.¹⁷²¹

It is recognised that South Africa has a progressive regulatory framework for environmental management at national level, but the "lack of enforcement and

1711 Refer to 3.1.2.

1712 By the NEM:ICMA, the NEM:WA and the NEM:AQA.

1713 Also see Paterson and Kotzé *Environmental compliance and enforcement* 85-87.

1714 Refer to 5.4.4.

1715 Paterson and Kotzé *Environmental compliance and enforcement* 87.

1716 Paterson and Kotzé *Environmental compliance and enforcement* 29.

1717 Paterson and Kotzé *Environmental compliance and enforcement* 30. Also see pages 34-37 for further information about the role of the judiciary role in terms of environmental compliance and enforcement.

1718 Paterson and Kotzé *Environmental compliance and enforcement* 33.

1719 Paterson and Kotzé *Environmental compliance and enforcement* 33.

1720 Paterson and Kotzé *Environmental compliance and enforcement* 33. Refer to 5.6.2 for further information on co-operative governance.

1721 Paterson and Kotzé *Environmental compliance and enforcement* 33.

implementation of policy and legislation on the ground is a major hindrance to ensuring environmentally sustainable development".¹⁷²² It is argued that the content of the terms "environmental compliance and enforcement" has adopted its "own peculiar flavour in South Africa",¹⁷²³ by addressing compliance with statutory environmental requirements and other non-binding standards.¹⁷²⁴

5.5 Integrated regulatory instruments

Environmental legislation in South Africa also prescribes various integrated regulatory instruments, most of which combine direct and indirect instruments.

5.5.1 Duty of care

5.5.1.1 Duty of care and the NEMA: "reasonable measures"¹⁷²⁵

Section 28 of the NEMA prescribes that:

28 (1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

(1A) Subsection (1) also applies to a significant pollution or degradation 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.

This duty of care is regarded as "far reaching", especially in terms of its retrospective effect, as it includes "historic pollution",¹⁷²⁶ which might be relevant in terms of historic sediment-related pollution of the marine and coastal

1722 Paterson and Kotzé *Environmental compliance and enforcement* 45.

1723 Paterson and Kotzé *Environmental compliance and enforcement* 45.

1724 For further information see Paterson and Kotzé *Environmental compliance and enforcement* 45-46.

1725 For further information about NEMA and the duty of care see Strydom and King *Environmental Management* 211-212.

1726 Strydom and King *Environmental Management* 211. The authors also point out that unfortunately NEMA does not *minimis* change in ecological processes in any environmental medium would not constitute "significant pollution".

environment due to LBMP. The persons on whom the NEMA imposes an obligation to take reasonable measures include an owner of land or premises, a person in control of land or premises, or a person who has the right to use the land or premises on which or in which any activity or process is or was performed or undertaken or any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment. The "reasonable measures" may include direct or indirect regulatory instruments, including: the investigation, assessment and evaluation of impacts; awareness raising and training for employees; cessation, modification or control of any activity or process causing pollution or degradation; control of pollution movements or the cause of degradation; the elimination of any source of pollution or degradation; or the remediation of the effects of the pollution or degradation. The duty of care might assist in the regulation of LBMP. However, it is noteworthy that the practical implementation and enforcement of the duty of care has proved difficult. It is understood that the determination of the "reasonable measures" is not always an easy task, and that further practical and possibly sectoral guidance could assist effective implementation. Section 28(14) is also relevant in this context, and might be more useful in terms of LBMP regulation, as it has a broader scope.¹⁷²⁷

5.5.1.2 The NEM:ICMA: a new degree of duty of care for the coastal environment

As previously stated, section 58(1) of the NEM:ICMA prescribes that the term "environment" as it occurs in section 28 of the NEMA must be read as including the coastal environment. Section 58(1) of the NEM:ICMA prescribes that section 28 of the NEMA applies to any impact caused by any person, which has an

¹⁷²⁷ Inserted by the *National Environmental Laws Amendment Act 14 of 2009*. S 28(14) prescribes that "No person may (a) unlawfully and intentionally or negligently commit any act or omission which causes significant or is likely to cause significant pollution or degradation of the environment; (b) unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to affect the environment in a significant manner; or (c) refuse to comply with a Directive issued under S 28.

adverse effect on the coastal environment.¹⁷²⁸ The NEM:ICMA also prescribes that the definition of "significant pollution or degradation of the environment" in terms of the NEMA must be read to include an "adverse effect on the coastal environment". The definition of "pollution" in the NEMA makes reference to "any change" in the environment which has an "adverse affect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future". However, the NEMA does not provide a definition for "adverse effects". In this context, it is noteworthy that the NEM:ICMA provides a definition for "adverse affect" as meaning:

... any actual or potential impact on the environment that impairs, or may impair, the environment or any aspect of it to an extent that is more than trivial or insignificant and, without limiting the term, includes any actual or potential impact on the environment that results in a detrimental effect on the health or well-being of a person; an impairment of the ability of any person or community to provide for their health, safety or social and economic needs; or a detrimental effect on the environment due to a significant impact or cumulative effect of that impact taken together with other impacts.

Considering the above, the following preliminary comments can be made. Firstly, the legal introduction of the definition of "adverse effects" in the NEM:ICMA might create interpretation challenges. The interrelationship between "pollution" and an "adverse effect" in terms of the NEM:ICMA is unclear. Secondly, in terms of the legal and practical implications of this "extension" of the scope of section 28 of the NEMA, the scope of the duty of care seems to have been significantly extended. The scope in relation to the coastal environment seems not to be restricted to "significant pollution or degradation of the environment", as prescribed under the NEMA, but would include "any actual or *potential impact* ... that is *more than trivial or insignificant*". It can therefore be argued that this definition within the NEM:ICMA creates two degrees of the statutory environmental duty of care; a general one and a "stricter and extended" one

1728 The terminology used is different from that used in NEMA, a discrepancy which might cause problems in implementation.

applicable only to the coastal environment. The statutory reference to a "cumulative effect" in the definition is considered to be a progressive legal advancement, especially in the context of the regulation of LBMP. It is anticipated that the terminology used in the definition of an "adverse affect" might present certain practical and legal challenges, such as the indeterminate nature of the assessment of an impact to determine if it is more than "trivial" or "insignificant".

In terms of section 58(2) of the NEM:ICMA, the persons to whom the abovementioned duty of care in relation to the coastal environmental applies include:

- a user of coastal public property;
- the owner, occupier, person in control of or user of land or premises on which an activity that caused or is likely to cause an adverse effect occurred, is occurring or is planned;
- the owner or person in charge of a vessel, aircraft, platform or structure at sea, or the owner or driver of a vehicle, in respect of which any activity that caused or is likely to cause an adverse effect, occurred, is occurring or is planned;
- the operator of a pipeline that ends in the coastal zone; and
- any person who produced or discharged a substance which caused, is causing or is likely to cause, an adverse effect.

Therefore in the context of the coastal environment, the onus of the duty of care has also been extended to a wider range of persons. For example, the onus is now extended to the producer or discharger of a product (e.g. a producer or discharger of pesticides or chemicals) who must take reasonable measures to prevent any adverse effect (occurring, continuing or recurring) on the coastal environment from the substance/product produced or discharged.¹⁷²⁹ The "extension" of the duty of care prescribed by section 28 of the NEMA to the

¹⁷²⁹ See 6.3.2 which analyses in detail the provisions of the NEM:ICMA in the context of LBMP from products and substances.

coastal environment is a progressive legal achievement which is necessary to ensure the protection, conservation and sustainable development and use of South Africa's coastal zone, and ultimately LBMP regulation. However, the provisions of the NEM:ICMA in this regard could create certain legal inconsistencies and challenges. A direct amendment of section 28 of the NEMA might have been more prudent and appropriate and/or an alignment of the two duties of care could have been more effective.

5.5.1.3 The NWA: a special duty of care in terms of water resource pollution

Section 19 of the Act prescribes a general duty of care to prevent and remediate effects of pollution on the nation's water resource. This section prescribes that an owner of land, a person in control of land or a person who occupies or uses the land on which any activity or process is or was performed or undertaken; or any other situation exists, which causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. This duty of care has a strong focus on pollution.

Currently, the duty of care is directly linked to the land from which an activity, process or situation causes, might cause or has caused pollution. In order to be more effective in terms of LBMP, such a duty of care should at least be extended to the following category of potentially responsible persons:

- Producers, manufacturers and users of products containing substances which might affect the water quality;
- Persons responsible for a process or an activity; and
- Any other person involved in the event which causes, has caused or is likely to cause pollution of a water resource.

Such a duty of care is relevant only in the context of coastal wetlands and estuaries. The interrelationship between the NWA and the NEM:ICMA in terms of the duty of care for pollution of coastal wetlands and estuaries is currently

unclear. The superposition of duty of care between the NEMA, the NWA and the NEM:ICMA might also impair integrated environmental management and pollution control.

5.5.1.4 The duty of care in terms of waste management

In terms of the NEM:WA, a holder of waste must, within the holder's power, take all reasonable measures:

- To avoid the generation of waste and where such generation cannot be avoided;
- to minimise the toxicity and amounts of waste that are generated;
- to reduce, re-use, recycle and recover waste;
- where waste must be disposed of, to ensure that the waste is treated and disposed of in an environmentally sound manner;
- to manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts;
- to prevent any employee or any person under his or her supervision from contravening this Act; and/or
- to prevent the waste from being used for an unauthorised purpose.

Such a duty of care in terms of waste has the potential to reduce LBMP. The NEM:WA prescribes that the reasonable measures contemplated in this section may include measures: (a) to investigate, assess and evaluate the impact of the waste on health or the environment; (b) to cease, modify or control any act or process causing the pollution, environmental degradation or harm to health; (c) to comply with any norm or standard or prescribed management practice; (d) to eliminate any source of pollution or environmental degradation; and (e) to remedy the effects of the pollution or environmental degradation. The duty of care will ultimately reduce LBMP related to waste. The "reasonable measures", which are focused on pollution management from waste-related activities, have the potential to effectively regulate and reduce LBMP. However, from a legal

perspective this duty of care seems limited to the reasonable measures within the waste holder's power, which is a new legal concept introduced in this context by the NEM:WA. This new concept might introduce interpretation issues which might impair the effective control of LBMP from waste.

Overall, in terms of the duty of care, it is suggested that each form of duty of care has its own merits, but their superposition might ultimately create a level of complication in environmental law which may ultimately impair effective pollution management, including LBMP regulation and integrated environmental regulation and management.

5.5.2 National Water Resource Strategy

The National Water Resource Strategy, 2005 (NWRS) provides the framework for the protection, use, development, conservation, management and control of water resources for the country as a whole. It also provides for the framework within which water will be managed at regional or catchment level, within defined water management areas, as stated in the strategy document itself:

The National Water Resource Strategy must provide information about the ways in which water resources will be managed and the institutions to be established. It must also provide quantitative information about the present and future availability of and requirements for water in each of 19 water management areas and propose interventions by which these may be reconciled. The National Water Resource Strategy must also quantify the proportion of available water in each water management area that falls under the direct control of the Minister in terms of her or his national responsibilities.¹⁷³⁰

Section 6 of the NWA prescribes that the NWRS must:¹⁷³¹

- Set out the strategies, objectives, plans, guidelines and procedures and institutional arrangements relating to the protection, use, development,

1730 DWAF *National Water Resource Strategy* 8.

1731 Only the most relevant contents of the *National Water Resource Strategy* in terms of LBMP are referred to here.

conservation, management and control of water resources within the framework of existing relevant government policy.

- Provide for at least: the requirements of the reserve; water resources from which particular requirements must be met; actions to be taken to meet projected future water needs; water use of strategic importance; establish water management areas and determine their boundaries; contain estimates of present and future water requirements; state the objectives in respect of water quality to be achieved through the classification system for water resources provided for in this Act; determine the inter-relationship between institutions involved in water resource management; and promote the management of catchments within a water management area in a holistic and integrated manner.

GN R65 of 2005 established the NWRS.¹⁷³² The NWRS is a strategic document setting out broad objectives and principles.¹⁷³³ It does not *per se* operationalise and facilitate the practical implementation of the NWA. It can be regarded as a guide to develop the various regulatory instruments and tools prescribed by the NWA. The exact legal nature and binding character of the strategy is also limited. Section 7 of the NWA prescribes that the former DWAF (now the DWEA) Minister, the DWAF Director-General, any organs of state and water management institutions must give effect to the NWRS when exercising any power or performing any duty in terms of the NWA. Section 7 does not require that they comply, are aligned with, or ensure the compatibility of their actions, measures, decisions or programme with the NWRS. The practical implications of the obligation "to give effect" are unclear, especially when we considered that the catchment management strategies have not yet been developed for example. The legal effects and status of the NWRS are further limited in two other ways.

1732 GN R65 in GG 27199 28 January 2005.

1733 For further information about the National Water Resource Strategy see Strydom and King *Environmental management* 655-657.

In terms of the entities and persons which must consider and give effect to the NWRS, only the DWEA Minister, the Director-General, an organ of state and water management institution must consider and give effect to the NWRS. Therefore, other government departments at national and provincial levels, Ministers and possibly organs of state with no relation with water management do not seem to have to give effect to the NWRS' provisions.

In terms of the ambit/scope within which the former DWAF Minister, the Director-General, an organ of state and a water management institution must consider and give effect to the NWRS. They have to consider and give effect to the NWRS only when exercising any power or performing any duty in terms of the NWA. Therefore, the NWRS is relevant only within the scope of the NWA. It does not have any legal implications in any other regulatory sectoral areas, *inter alia*, mining, agriculture, or planning. Moreover, the NWRS does not *per se* address the protection, use, development, conservation, control and management of coastal and marine waters and resources.

This limited scope and lack of integration might impair the regulatory importance of the NWRS and its provisions in terms of LBMP regulation. Moreover, it noteworthy that the NWRS has limited provisions in terms of financial management instruments, a fact which is regarded as a further limitation.¹⁷³⁴

5.5.3 Catchment management strategies¹⁷³⁵

Section 8 of the NWA prescribes that every catchment management agency (established for each water management area) must "progressively develop a catchment management strategy for the water resources within its water management area". According to section 9 of the NWA, a catchment management strategy must:

1734 Only Chapter 4 of the strategy addresses water pricing, water users' charges and financial assistance, but in a very limited way. There is no reference to a financial provisions instrument *per se*.

1735 Also see Pollard and Du Toit 2008 *Water SA* 671-679 and Pollard and Du Toit 2008 *Water SA* 707-713.

- take into account the class of water resources and resource quality objectives, the requirements of the reserve and, where applicable, international obligations;
- not be in conflict with the NWRS;
- set out the strategies, objectives, plans, guidelines and procedures of the catchment management agency for the protection, use, development, conservation, management and control of water resources within its water management area;
- take into account the geology, demography, land use, climate, vegetation and waterworks within its water management area;
- contain water allocation plans which must set out principles for allocating water;
- take account of any relevant national or regional plans prepared in terms of any other law, including any development plan adopted in terms of the *Water Services Act* 108 of 1997;
- enable the public to participate in managing the water resources within its water management area;
- take into account the needs and expectations of existing and potential water users; and
- set out the institutions to be established.

These strategies should integrate direct and indirect regulatory instruments and establish an integrated approach for each catchment management area, which is regarded as being aligned with international best practice in this context. However, section 11 of the NWA prescribes that only the Minister and the catchment management agency concerned must give effect to any catchment

management strategy established when exercising any power or performing any duty in terms of this Act. Therefore, the legal effects and/or status of a catchment management strategy are limited to the same extent as the NWRS, as demonstrated above. All catchment management agencies (CMAs) have been established,¹⁷³⁶ but none has yet adopted its respective catchment management strategy. "At present the CMAs have not assumed responsibilities for managing the water resources of their respective water management area".¹⁷³⁷

It is currently uncertain if the catchment management strategies (especially for the catchments directly connected to the coastal environment) will include a section dealing with the interconnection between the catchment water resources and the coastal and marine environment. Such an inclusion could be regarded as a progressive approach, but it could also be legally challenged. In terms of section 8 of the NWA, a catchment management agency must, by notice in the *Government Gazette*, establish a catchment management strategy "for the protection, use, development, conservation, management and control of water resources within its water management area". In terms of the NWA, coastal and marine waters are excluded from the nation's water resources. Therefore, it could be submitted that if a catchment management agency provides for the protection, use, development, conservation, control and management of coastal and marine waters in its catchment management strategy, it is actually doing so without a legal mandate and without the appropriate authority.

Moreover, the catchment management strategies do not have to encompass financial management instruments, a fact which is regarded as a limitation.

1736 See 5.3.3.2(b) for an analysis of the CMA.

1737 In the interim, DWAF's regional offices continue to manage the water resources in their area of jurisdiction until such time as they can hand over these management functions to established and fully operational CMAs. Ethekwini Municipality 2009 <http://www.durban.gov.za/durban/services/engineering/cscm/index>.

5.5.4 Coastal management programmes

The Act prescribes three types of integrated regulatory instruments for the coastal zone, namely:

- A national coastal management programme
- Provincial coastal management programmes
- Municipal coastal management programmes

All of these programmes are legally qualified as "policy directives".¹⁷³⁸ The legal nature of a "policy directive" is currently unclear. The opposability to private persons and administrative decisions is not ascertained, which is a weakness in the provision. Most of these management programmes will have to include:

- a national, provincial or municipal vision for coastal management, including the sustainable use of coastal resources;
- coastal management objectives;
- priorities and strategies to achieve those objectives; and
- performance indicators to measure progress with the achievement of those objectives.

The coastal management plans combine direct (e.g. coastal management objectives as resource-directed instruments) and indirect instruments (e.g. performance indicators). The national coastal management plan also has to include norms and standards for the management of the coastal zone generally and the specific components of the coastal zone. However, the Act does not prescribe the scope and nature of such standards and norms. It will also have to provide a framework for co-operative governance to implement measures concerning coastal management. The provincial and municipal programmes may also include a programme of projected expenditure and investment in order to implement the provincial coastal management plan, but it is only a faculty, not an

¹⁷³⁸ S 45, 47 and 49 of the Act.

obligation, a weakness which is regarded as a limitation in comparison with international best practice in this context.

The NEM:ICMA prescribes the co-ordination and alignment of plans and coastal management programmes. In terms of section 51, an environmental implementation or environmental management plan in terms of Chapter 3 of the NEMA, an IDP, and a provincial or municipal land development plan must:

- be aligned with the national coastal management programme and any applicable provincial coastal management programme;
- contain those provisions of the national coastal management programme and any applicable provincial coastal management programme that specifically applies to it; and
- give effect to the national coastal management programme and any applicable provincial coastal management programme.

With reference to the terminology used in this provision, it seems that the national and provincial coastal management plans have a higher legal status than environmental implementation plans, environmental management plans, IDPs or provincial or municipal land development plans, which is regarded as a progressive approach to ensure that the coastal management plans and their respective provisions are to an extent (the test is "alignment" not "compliance") integrated with other statutory plans or strategies, ultimately facilitating integrated coastal management and an integrated regulatory approach, in alignment with international best practice.¹⁷³⁹ However, section 52 of the NEM:ICMA creates uncertainty in this matter. In terms of section 52(2), (3) and (4) the relevant authority (the Minister, an MEC or a municipality) must ensure that there is consistency among their respective coastal management programmes¹⁷⁴⁰ and

1739 Refer to 2.3.4.1.

1740 The Minister must ensure that there is consistency between the national coastal management plan and other statutory plans adopted by a national organ of state. The MEC must ensure that there is consistency between the provincial coastal management plan and other statutory plans adopted by either a national or a provincial organ of state.

other relevant "statutory plans".¹⁷⁴¹ It is therefore currently difficult to determine the legal hierarchy among coastal management programmes and other statutory plans. Such uncertainty has the potential to create implementation issues which will impair the effectiveness of the coastal management plans, and ultimately LBMP regulation.

5.5.5 The national waste management strategy (NWMS)

The NWMS, required in terms of the NEM:WA, has not yet been finalised.¹⁷⁴² According to the provisions of the NEM:WA, the NWMS will bind all organs of state in all spheres of government and all persons. The binding character of the NWMS is a notable legal advance,¹⁷⁴³ a fact which will have positive implications for the regulation of LBMP.¹⁷⁴⁴ An organ of state must also give effect to the NWMS when exercising a power or performing a duty in terms of the NEM:WA or any other legislation regulating waste management (which should include the NEM:ICMA in terms of effluent discharge and the NWA in terms of the uses of water involving waste disposal or the discharge of waste water/water containing waste). This approach should facilitate integrated regulation and management.

Each municipality in the coastal zone must ensure that its integrated development plan (including its spatial development framework) is consistent with other statutory plans adopted by either a national or a provincial organ of state.

1741 For the purposes of this section, a statutory plan is defined by the Act as meaning a plan, policy or programme adopted by an organ of state, that may affect coastal management, and without limitation may include (a) an environmental implementation or environmental management plan prepared in terms of Chapter 3 of the NEMA; (b) an integrated development plan adopted by a municipality in terms of the *Municipal Systems Act*; (c) the national biodiversity framework referred to in S 38 of the NEM:BA and a bioregional plan prepared in terms of that Act; (d) a provincial or municipal land development plan; (e) a provincial strategic policy and plan concerned with promoting sustainable development; and (f) the National Estuarine Management Protocol. NEM:ICMA also prescribes that if there is a conflict between the provisions of a coastal management programme and the provisions of another statutory plan, the responsible authority for ensuring consistency must discuss the conflict with the organ of state responsible for that statutory plan in order to resolve the conflict, failing which the conflict must be dealt with in accordance with Chapter 4 of the NEMA.

1742 The first draft dated March 2010 was submitted for public comments in GN R575 in GG 33277 *Draft National Waste Management Strategy*. For further information see <http://www.wastepolicy.co.za/nwms>.

1743 Especially compared to other statutory strategies like the National Water Resources Strategy.

1744 S 6.3 of the Act.

The prescribed content¹⁷⁴⁵ of the NWMS seems to be comprehensive, as it includes direct and indirect measures.

5.5.6 The integrated waste management plan (IWMP)

In terms of the NEM:WA, the DWEA, the provincial departments responsible for waste and the municipalities must prepare an IWMP.¹⁷⁴⁶ The content of an IWMP¹⁷⁴⁷ is comprehensive, incorporating direct and indirect instruments, a fact

1745 In terms of S 6 of the Act the NWMS must include: (a) objectives, plans, guidelines, systems and procedures relating to the protection of the environment and the generation (including the avoidance and minimisation of such generation), re-use, recycling, recovery, treatment, disposal, use, control and management of waste in order to achieve the objects of this Act; (b) mechanisms, systems and procedures for giving effect to the Republic's obligations in terms of relevant international agreements; (c) practical measures for achieving co-operative governance in waste management matters; (d) guidance on raising awareness regarding the impact of waste on health and the environment; (e) approaches for securing compliance with the requirements of this Act, including the monitoring of compliance; and (f) any other matter that the Minister considers necessary for achieving the objects of this Act. The national waste management strategy may include targets for waste reduction.

1746 In terms of S 11 of NEM:WA.

1747 In terms of S 12, an integrated waste management plan must at least (a) contain a situation analysis that includes (i) a description of the population and development profiles of the area to which the plan relates; (ii) an assessment of the quantities and types of waste that are generated in the area; (iii) a description of the services that are provided, or that are available, for the collection, minimisation, re-use, recycling and recovery, treatment and disposal of waste; and (iv) the number of persons in the area who are not receiving waste collection services; (b) within the domain of the Department, provincial department or municipality, set out how that Department, provincial department or municipality intends (i) to give effect, in respect of waste management, to Chapter 3 of the NEMA; (ii) to give effect to the objects of this Act; (iii) to identify and address the negative impact of poor waste management practices on health and the environment; (iv) to provide for the implementation of waste minimisation, re-use, recycling and recovery targets and initiatives; (v) in the case of a municipal integrated waste management plan, to address the delivery of waste management services to residential premises; (vi) to implement the Republic's obligations in respect of any relevant international agreements; (vii) to give effect to best environmental practice in respect of waste management; (c) within the domain of the Department or provincial department, set out how the Department or provincial department intends to identify the measures that are required and that are to be implemented to support municipalities to give effect to the objects of this Act; (d) set out the priorities and objectives of the Department, provincial department or municipality in respect of waste management; (e) establish targets for the collection, minimisation, re-use and recycling of waste; (f) set out the approach of the Department, provincial department or municipality to the planning of any new facilities for disposal and decommissioning of existing waste disposal facilities; (g) indicate the financial resources that are required to give effect to the plan; (h) describe how the Department, provincial department or municipality intends to give effect to its integrated waste management plan.

which should ultimately facilitate the regulation of LBMP from waste-related sources. The DWEA may incorporate its IWMP in a relevant national environmental plan, which might include EIPs and EMPs as defined in the NEMA. Provincial departments may integrate their IWMPs in any relevant provincial plan. Municipalities must include their IWMPs in their Integrated IDPs. This approach is also regarded as very comprehensive and effective in ensuring the implementation of such plans and the integration of regulation and management. The NEM:WA prescribes that municipal IWMPs must be coordinated and aligned with the plans, strategies and programmes of the DWEA and provincial departments. This latest obligation is very broad ("all plans, strategies and programmes") and might create implementation challenges. It is also unclear how a conflict between a provincial and a municipal IWMP would be resolved.

5.5.7 Industry waste management plans

The NEM:WA prescribes¹⁷⁴⁸ that where any activity results in the generation of waste that affects more than one Province or where such an activity is conducted in more than one Province, the Minister may require a person or a category of persons or an industry that generates waste to prepare and submit an industry waste management plan to the Minister for approval.¹⁷⁴⁹ In the context of LBMP, it is noteworthy that before requesting the development of an industry WMP the Minister or MEC must consider the impact or potential impact of the waste on the environment that is generated by the applicable person, category of persons or industry and the environmentally sensitive nature of a natural resource. Such consideration could therefore assist in the regulation of LBMP, to protect sensitive or endangered coastal and marine areas or manage the main sources of LBMP related to waste.

1748 S 28.

1749 The MEC may also, in respect of any activity within the Province concerned that results in the generation of waste, require a person or a category of persons or an industry that generates waste to prepare such a plan.

The content of an industrial waste management plan is also relevant in the context of LBMP regulation, combining relevant direct and indirect instruments.¹⁷⁵⁰ The Act specifies that it is an offence to fail to submit or to prepare an industry waste management plan when required to do so, and to contravene or fail to comply with an industry waste management plan. A person convicted of such offences is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding 5 years, or to both.

5.6 Institutional structure

5.6.1 *The fragmented institutional structure in South Africa*¹⁷⁵¹

As indicated in Chapter 1, the institutional structure in South Africa is directly influenced by the governmental structure of the Republic, constituted by national,¹⁷⁵² provincial¹⁷⁵³ and local¹⁷⁵⁴ spheres of government which are

1750 An industrial waste management plan may include information regarding the amount of waste that is generated; measures to prevent pollution or ecological degradation; targets for waste minimisation through waste reduction, re-use, recycling and recovery; measures or programmes to minimise the generation of waste and the final disposal of waste; the phasing out of the use of specified substances; opportunities for the reduction of waste generation through changes to packaging, product design or production processes; mechanisms for informing the public of the impact of the waste generating products or packaging on the environment; methods for monitoring and reporting; and any other matter that may be necessary to give effect to the objects of the Act.

1751 For further information see Kidd *Environmental law* 18-20, Strydom and King *Environmental management* 18-29 and Kotzé *Environmental compliance and enforcement* 30-34.

1752 In terms of S 85 of the Constitution, the President exercises the executive authority, together with the other members of the Cabinet, by implementing national legislation except where the Constitution or an Act of Parliament provides otherwise; developing and implementing national policy; co-ordinating the functions of state departments and administrations; preparing and initiating legislation; and performing any other executive function provided for in the Constitution or in national legislation. In terms of S 97 of the Constitution, the President by proclamation may transfer to a member of the Cabinet the administration of any legislation entrusted to another member; or any power or function entrusted by legislation to another member. Also see Paterson and Kotzé *Environmental compliance and enforcement* 30-31.

1753 In terms of S 125 of the Constitution, the executive authority of a Province is vested in the Premier of that Province. The Premier exercises the executive authority, together with the other members of the Executive Council, by implementing provincial legislation in the Province; implementing all national legislation within the functional areas listed in Schedule 4 or 5 except where the Constitution or an Act of Parliament provides otherwise; administering in the Province, national legislation outside the functional areas listed in Schedules 4 and 5, the administration of which has been assigned to the

distinctive, interdependent and interrelated.¹⁷⁵⁵ Schedules 4 and 5 of the Constitution refer to the main functional areas of concurrent and exclusive legislative, which have implications in terms of LBMP regulation. The main areas of concurrent legislative competence among the three spheres of government identified in Schedule 4 of the Constitution, relevant in the context of LBMP regulation, are the following: the environment, nature conservation (excluding national parks), national botanical gardens and marine resources, pollution control, soil conservation, urban and rural development, air pollution, and stormwater management systems. The main functional areas of exclusive

provincial executive in terms of an Act of Parliament; developing and implementing provincial policy; co-ordinating the functions of the provincial administration and its departments; preparing and initiating provincial legislation; and performing any other function assigned to the provincial executive in terms of the Constitution or an Act of Parliament. Paterson and Kotzé *Environmental compliance and enforcement* 31-32.

1754 In terms of S 151 of the Constitution, the local sphere of government consists of municipalities, which must be established for the whole of the territory of the Republic. The executive and legislative authority of a municipality is vested in its municipal council. A municipality has the right to govern, on its own initiative, the local government affairs of its community, subject to national and provincial legislation, as provided for in the Constitution. The national or a provincial government may not compromise or impede a municipality's ability or right to exercise its powers or perform its functions. In terms of S 152 of the Constitution, the objects of local government are to provide democratic and accountable government for local communities; to ensure the provision of services to communities in a sustainable manner; to promote social and economic development; to promote a safe and healthy environment; and to encourage the involvement of communities and community organisations in the matters of local government. A municipality must strive, within its financial and administrative capacity, to achieve the objects set out above. In terms of S 153 of the Constitution, the developmental duties of municipalities include the structuring and management of its administration, budgeting and planning processes to give priority to the basic needs of the community, and to promote the social and economic development of the community; and participating in national and provincial development programmes. In terms of S 156 of the Constitution, the powers and functions of municipalities include the following: a municipality has executive authority in respect of, and has the right to administer the local government matters listed in Part B of Schedule 4 and Part B of Schedule 5; and any other matter assigned to it by national or provincial legislation; a municipality may make and administer bylaws for the effective administration of the matters which it has the right to administer; a municipality has the right to exercise any power concerning a matter reasonably necessary for, or incidental to, the effective performance of its functions, Paterson and Kotzé *Environmental compliance and enforcement* 32.

1755 For further information also refer to Kidd, *Environmental law* 18-20. Kidd also refers to the various administrative functions which are required to be carried out by administrative bodies in order for environmental law to be effective, including management functions, legislative functions, authorisation functions, judicial functions and staffing functions. For further information also see Paterson and Kotzé, *Environmental compliance and enforcement* 30-34.

provincial and/or local legislative competence identified in schedule 5 of the Constitution, and relevant in the context of LBMP regulation, are the following: provincial planning, cleansing, the control of public nuisances, refuse removal, refuse dumps, and solid waste disposal. This repartition tends to lead to vertical fragmentation among the different spheres of government.¹⁷⁵⁶ It is also referred to as "structural fragmentation", a phrase which describes separate, disjointed line functions in all three spheres and line functionaries of government.¹⁷⁵⁷ The current environmental legislative framework, with different environmental statutes managed by different autonomous, national and provincial line function departments, also leads to horizontal fragmentation. Horizontal fragmentation includes "unaligned environmental governance processes, structures, policies and procedures".¹⁷⁵⁸ "At the operational level, disjointed, fragmented and incremental governance processes are still prevalent".¹⁷⁵⁹ At the national level, the lead department in terms of environmental regulation is the DWEA.¹⁷⁶⁰ However, it does not "assume the role of a strong, centralised lead agent that has total control over all environmental matters".¹⁷⁶¹ The Department acts more like a "coordinator, since control over environmental matters is still to a large fragmented".¹⁷⁶²

1756 Also see Paterson and Kotzé *Environmental compliance and enforcement* 110-112.

1757 Kotzé *Integrated environmental governance* 51.

1758 Kotzé *Integrated environmental governance* 51.

1759 Kotzé *Integrated environmental governance* 51. Strydom and King note that sectorally fragmented legislation also results in duplication and overlap of most attempts at environmental governance. They indicate that the impact of this fragmentation on the ideal of a sustainable, holistic and integrated governing process is wide ranging and is characterised *inter alia* by disjointed and incremental decision-making processes; duplication and overlap of the governance effort, with all organs of state focusing on environmental authorisation processes without having the resources available to do post-authorisation follow-up; costly delays in decision making; inefficient arrangements between organs of state that control similar activities or proposals; significant gaps in control arrangements, whilst some significant issues are not controlled at all; inconsistent behaviour by government officials; conflicting conditions in authorisations; and externalisation of governmental inefficiencies to development costs, resulting in negative impacts on development in South Africa and opposition from the development-orientated organs of state to the current regime of environmental governance in South Africa. Strydom and King *Environmental management* 18.

1760 Paterson and Kotzé *Environmental compliance and enforcement* 31.

1761 Strydom and King *Environmental management* 18.

1762 Strydom and King *Environmental management* 18.

The provincial and local spheres of government are regarded as the "implementation arms of the national government".¹⁷⁶³ The local and provincial governmental spheres, their associated resources, skills, and related effectiveness, will directly influence the effective and efficient enforcement and implementation of the environmental legislative framework.¹⁷⁶⁴ Traditionally, provincial government has had an important function in setting provincial norms and standards, and assists local governments in conducting activities to manage and protect the environment.¹⁷⁶⁵ Since 1994, the environmental function of Provinces has been extended, resulting in comprehensive restructuring and a reprioritisation of funds.¹⁷⁶⁶ In the context of LBMP, it is important to note that provincial responsibilities for marine and coastal management have increased.¹⁷⁶⁷ However, provincial departments of environmental management are structured differently across Provinces.¹⁷⁶⁸ Some Provinces combine environmental management with agriculture in a single department, while others have combined environmental management with economic affairs.

National government has an obligation to assist provincial governments,¹⁷⁶⁹ which have an obligation to assist municipal governments,¹⁷⁷⁰ in implementing their

1763 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1764 DEAT *State of the environment of South Africa* 2006 Chapter 3, also see IMFO 2010 *Official Journal of the Institute of Municipal Finance Officers* 38-39.

1765 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1766 Waste management, environmental impact assessment, and air quality management are just some of the environmental management functions that have received priority in recent years. DEAT *State of the Environment of South Africa* 2006 Chapter 3.

1767 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1768 For further information see DWEA 2009 <http://www.environment.gov.za/enviro-info/env/dep.htm>.

1769 In terms of S 100 of the Constitution, when a Province cannot or does not fulfil an executive obligation in terms of the Constitution or legislation, the national executive may intervene by taking any appropriate steps to ensure fulfilment of that obligation, including issuing a Directive to the provincial executive, describing the extent of the failure to fulfil its obligations and stating any steps required to meet its obligations; and assuming responsibility for the relevant obligation in that Province to the extent necessary to maintain essential national standards or meet established minimum standards for the rendering of a service; maintaining economic unity; maintaining national security; or preventing that Province from taking unreasonable action that is prejudicial to the interests of another Province or to the country as a whole.

1770 In terms of S 139 of the Constitution, when a municipality cannot or does not fulfil an executive obligation in terms of the Constitution or legislation, the relevant provincial

respective constitutional and legal executive obligations, functions and missions. Provincial and local governments have experienced constraints that "interfere with the countrywide enforcement and implementation of environmental legislation".¹⁷⁷¹ The main challenge seems to be "implementation failure at local level impacting on the functioning of the environmental governance framework".¹⁷⁷² In terms of delegation and decentralisation to allocate environmental executive functions to the most appropriate level, the current institutional structure and the lack of capacity of each governmental sphere pose a challenge:

Decentralization and the delegation of environmental management functions to the lowest possible level is called for by Agenda 21, but it places increasing responsibility on local government, and expands its primary role from that of being mainly a service provider to becoming an active development agent.¹⁷⁷³

The delegation of functions¹⁷⁷⁴ should be consistent with the Constitutional imperative for effective government. In terms of the Constitution, national

executive may intervene by taking any appropriate steps to ensure fulfilment of that obligation, including issuing a Directive to the municipal council, describing the extent of the failure to fulfil its obligations and stating any steps required to meet its obligations; assuming responsibility for the relevant obligation in that municipality to the extent necessary to maintain essential national standards or meet established minimum standards for the rendering of a service; prevent that municipal council from taking unreasonable action that is prejudicial to the interests of another municipality or to the Province as a whole; or maintain economic unity; or dissolving the municipal council and appointing an administrator until a newly elected municipal council has been declared elected, if exceptional circumstances warrant such a step. If a provincial executive cannot or does not or does not adequately exercise the powers or perform the abovementioned functions, the national executive must intervene in the stead of the relevant provincial executive.

1771 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1772 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1773 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1774 In terms of S 97 of the Constitution, the President by proclamation may transfer to a member of the cabinet the administration of any legislation entrusted to another member; or any power or function entrusted by legislation to another member. In terms of S 99 of the Constitution, a cabinet member may assign any power or function that is to be exercised or performed in terms of an Act of parliament to a member of a provincial executive council or to a municipal council. An assignment must be in terms of an agreement between the relevant cabinet member and the executive council member or municipal council; must be consistent with the Act of parliament in terms of which the relevant power or function is exercised or performed; and takes effect upon proclamation by the president. In terms of S 137 of the Constitution, the premier by proclamation may

government and provincial governments must assign to a municipality, by agreement and subject to any conditions, the administration of a matter listed in Part A of Schedule 4 or Part A of Schedule 5, which necessarily relates to local government, if that matter would most effectively be administered locally; and the municipality has the capacity to administer it. Considering the current institutional challenges at the local level, the delegation to local government in terms of environmental management is limited.¹⁷⁷⁵ However, local government has specific obligations and responsibilities for the implementation of environmental policies, legislation, plans, and programmes of national and provincial government, ensuring the alignment of IDPs and provincial Environmental Implementation Plans (EIPs), and ensuring that IDPs comply with the NEMA principles.¹⁷⁷⁶ However, it is recognised that environmental management at the local sphere of government may be "very challenging and complex",¹⁷⁷⁷ a fact which might ultimately affect the effectiveness of the implementation of the environmental regulatory framework at the local level, including LBMP. Kidd¹⁷⁷⁸ also refers to "administrative fragmentation" which might create several problems including: economic inefficiency, duplication of functions, lack of clarity and inaction.

transfer to a member of the executive council the administration of any legislation entrusted to another member or any power or function entrusted by legislation to another member.

1775 Politicians and senior officials are not clear about what their mandate is for environmental management. Furthermore, there is an imperative for them to deliver services. Consequently, insufficient budgets are allocated to environmental functions. The result is that there is a lack of trained enforcement officers, and environmental and sustainability principles have, on the whole, not been incorporated into local planning processes. With the exception of some metropolitan municipalities (such as the City of Cape Town, Johannesburg, and Ekurhuleni, and some of the municipalities in Mpumalanga), little capacity-building has been achieved at local level. The levels of government closest to the people are consequently weak in general, and in environmental management in particular. DEAT *State of the environment of South Africa* 2006 Chapter 3.

1776 DEAT *State of the environment of South Africa* 2006 Chapter 3.

1777 Strydom and King *Environmental management* 28. Also see Du Plessis *Fulfillment of South Africa's constitutional environmental right in the local government sphere* 99-116.

1778 Kidd *Environmental law* 168.

5.6.2 Co-operative governance¹⁷⁷⁹

The constitutional and legislative framework provides various instruments and measures to facilitate environmental co-operative governance.¹⁷⁸⁰ The Constitution,¹⁷⁸¹ the NEMA,¹⁷⁸² and the *Intergovernmental Relations Framework Act 2005 (IRFA)*,¹⁷⁸³ all contain provisions in terms of co-operative governance.¹⁷⁸⁴ More specifically with reference to LBMP, the NWA¹⁷⁸⁵ and the NEM:ICMA¹⁷⁸⁶ also prescribe specific measures for and instruments of co-operative governance, and the latest legislative development in terms of the NEMA, EIA regulations and the NEM:WA prescribe co-operative governance for environmental authorisation and the issuing of an "integrated licence" and "consolidated authorisation". These measures are regarded as progressive.

The creation of the new DWEA, which combines the former DEAT and former DWAF under one single national Minister and ministry, is regarded as a progressive evolution which should assist integrated water management, water pollution management and LBMP regulation. This new department will definitely assist LBMP regulation and especially the management of the interrelationship

1779 For further information, see Strydom and King *Environmental management* 18-29, Malan 2009 *Journal of Public Administration* 1138-1148, Nel and Du Plessis 2004 *SA Public Law* 181-190 and Colvin and Al 2008 *Water SA : IWRM conference* 681-689.

1780 For further information see Paterson and Kotzé *Environmental compliance and enforcement* 33-34. Also see Du Plessis *Fulfilment of South Africa's constitutional environmental right in the local government sphere* 99-116 and Kotzé *Integrated environmental governance* Chapter 3.

1781 Chapter 3, S 41 of the Constitution sets down the principles of co-operative government and intergovernmental relations.

1782 Chapter 3 provides detailed provisions regarding procedures for co-operative government in the context of environmental management in South Africa.

1783 The object of IRFA, as specified in S 4, is to provide within the principle of co-operative government set out in Chapter 3 of the Constitution a framework for the national government, provincial governments and local governments, and all organs of state within those governments, to facilitate co-ordination in the implementation of policy and legislation, including (a) coherent government; (b) the effective provision of services; (c) monitoring the implementation of policy and legislation; and (d) the realisation of national priorities.

1784 For further information on co-operative governance consult Kotzé *Integrated environmental governance* Chapter 3 or Paterson and Kotzé *Environmental Compliance* 121-125.

1785 S 10 and Chapter 7.

1786 For example Chapters 2 and 11, and Part 5.

between inland surface water and coastal/marine waters, which is essential for the regulation of LBMP. The DWEA will now be responsible for the effective and cohesive implementation of the NEMA and the associated EIA regulations, the NEM:WA, the NEM:ICMA, the WSA, the NEM:PAA, the NEM:BA, and the NEM:AQA. The consolidated ministry should ultimately enable a more cohesive, effective and integrated approach to LBMP regulation. However, some experts believe that this is only a "façade" ministry which does not comprehensively integrate environmental and water affairs, and that the two previous distinct and separate departments remain.¹⁷⁸⁷ In any case, it is anticipated that the creation of this new Ministry will result in a number of consequent challenges having to be addressed, including the amendment and rationalisation of the relevant statutes in consideration of this new department, budget problems for 2010, and necessary adjustments to the interface with provincial government. The benefits of the creation of the new department might be perceived only in the next three to five years, and before that, some challenging and costly institutional and legislative adjustments will have to take place.

5.6.3 Current institutional structure in terms of LBMP

The DWEA, the Department of Health, the Department of Agriculture and Fisheries, and the Department of Minerals and the Department of Energy are the main departments involved in the regulation of LBMP, as well as their provincial counterparts (the provincial departments). As advocated by international best practice,¹⁷⁸⁸ the DWEA is currently the lead environmental agency/focal point (including in terms of the LBMP regulation). The Marine and Coastal Management (MCM) branch of DWEA and the Chief Directorate: Integrated Coastal Management are very relevant to LBMP regulation. However, various acts create other statutory organs and entities which are also involved in the institutional structure pertaining to LBMP regulation. The following entities are

1787 Based on informal interviews with CSIR, DWEA, and representatives of coastal environmental services, see bibliography for further information.

1788 See 2.3.5.

involved in regulating LBMP from agriculture-related activities: the national conservation committee (mainly representing land users in the area) and regional conservation committees; and the conservation advisory board.¹⁷⁸⁹ In terms of water resource pollution management, the following entities and organs are important: water catchment management agencies,¹⁷⁹⁰ water users associations, advisory committees, and the water tribunal. In terms of water services and sanitation, such entities include: the water services authority;¹⁷⁹¹ the water board,¹⁷⁹² and the water services committee.¹⁷⁹³ In terms of coastal management,

1789 The Board's main role is to advise the Minister on the following matters: the desirability of prescribing specific control measures with regard to a particular area; the desirability of establishing a specified scheme, and the provisions of any such scheme; and any other matter arising from the application of this Act or a scheme, or which it may deem necessary in order to achieve the objects of this Act or which the Minister may refer to it for advice. The members of the advisory board consist mainly of representatives of the department; representatives of the Department of Environment Affairs who have been nominated by the Minister; representatives of each regional conservation committee; and representatives of the South African Agricultural Union.

1790 The NWA provides for the establishment of catchment management agencies. It is a body corporate and has the powers of a natural person of full capacity. A catchment management agency may perform any of its functions or any function which is reasonably incidental to any of its functions outside its water management area. The initial functions of a catchment management agency are to investigate and advise interested persons on the protection, use, development, conservation, management and control of the water resources in its water management area; to develop a catchment management strategy; to co-ordinate the related activities of water users and of the water management institutions within its water management area; to promote the coordination of its implementation with the implementation of any applicable development plan established in terms of the *Water Services Act* 108 of 1997; and to promote community participation in the protection, use, development, conservation, management and control of the water resources in its water management area.

1791 The Act prescribes that a "water services authority" means any 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. These municipalities are responsible for ensuring provision of water services within their area of jurisdiction and have the constitutional responsibility for planning, ensuring access to, and regulating the provision of water services within its area of jurisdiction. The Act prescribes that no person may operate as a water services provider without the approval of the water services authority having jurisdiction in the area in question (S 22). A water services authority may, in its bylaws, require the registration of water services intermediaries or classes of such intermediaries within its area of jurisdiction (S 24)

1792 The primary activity of a water board is to provide water services to other water services institutions within its service area. Other activities of a water board may include (as the most relevant in the context of LBMP) but are not limited to providing management services, training and other support services to water services institutions, in order to promote co-operation in the provision of water services, providing catchment management services to or on behalf of the responsible authorities; and accepting industrial effluent. A water board must set conditions for the provision of services not

the national, provincial and municipal coastal committees are also important. The national and provincial development and planning commission and development tribunal have a limited role in the institutional structure pertaining to LBMP regulation. Institutional fragmentation therefore still prevails in terms of LBMP regulation. In addition, South Africa faces further institutionally-related issues in its attempt to implement a comprehensive and effective regulatory framework to address LBMP, including¹⁷⁹⁴ a lack of commitment by the authorities, the collapse of government structures in certain areas (i.e. the Wild Coast); inadequate conflict resolutions mechanisms; confusion due to the overlapping of roles and poor co-operation amongst different levels of government; limited institutional capacity; the lack of efficient coastal management forums; the need for more accountable resource management; the fact that management authorities are sometimes far removed from the coast; the need for rationalised and integrated management plans; the lack of enforcement of existing laws; and legislative and institutional fragmentation.

5.7 Recent development: A National Programme of Action for South Africa¹⁷⁹⁵

The first edition of *South Africa's National Programme for Action for Protection of the Marine Environment from Land-Based Activities* (NPA) was published in October 2008. This document provides a comprehensive environmental situation

inconsistent with this Act. S 34 prescribes specific parameters for the functions of water boards: striving to provide efficient, reliable and sustainable water services; optimally using available resources; striving to be financially viable; promoting the efficiency of water services authorities; taking cognisance of the needs of water services institutions, consumers and users; taking into account national and provincial policies, objects and developments; acting in an equitable, transparent and fair manner; complying with health and environmental policies; and taking reasonable measures to promote water conservation and water demand management, including promoting public awareness of these matters. Water boards must develop a policy statement and a business plan. In terms of S 52 of the Act, the function of a water services committee is to provide water services to consumers within its service area.

1793 A water services committee must set conditions for the provision of services not inconsistent with this Act.

1794 Identified in DEAT *Coastal Policy Green Paper* 1998 Chapter 6.

1795 DEAT *South Africa's National Programme of Action for Protection of the Marine Environment from Land-based Activities* First Edition 2008, also referred as DEAT NPA.

assessment, including the characteristics of the coastal marine environment, important goods and services, key problems and their associated environmental impacts and socio-economic consequences, and land-based activities (direct causes/pressures) having an influence on the status of the coastal marine environment.

The document then sets out a strategic vision and strategy, at a national, provincial and local scale in terms of LBMP management. It introduces specific management programmes for each identified issue, including climate change, coastal infrastructure development, mining, freshwater abstraction and flow modification, municipal wastewater, industrial wastewater, urban storm-water, solid waste disposal, port and harbour operations, agricultural practices, the use of off-road vehicles, atmospheric deposition, the introduction of alien vegetation, the harvesting of living resources, and aquaculture. An assessment of current management measures for each key land-based activity or pressure is provided as well as an overview of the outcomes of the assessment of the current management measures for each issue. This latest development is regarded as a great achievement in terms of the regulation of LBMP. It demonstrates that there is a political focus on the issue of LBMP and the beginning of a cohesive approach to addressing it. This document constitutes the first step towards the development of a comprehensive approach to LBMP regulation and management. However, it is only a policy document, which does not make reference to any specific timelines and financial management instruments to achieve the set priorities. The public participation level in drafting the document was regarded as relatively limited.¹⁷⁹⁶ It has not been launched nationally and the exposure and public awareness regarding the document has been very limited.

The document also sets out programme support elements, including proposed institutional structures, and a template for capacity building, public participation,

1796 Based on informal discussions with various marine stakeholders, see bibliography for further information.

the promotion of awareness, and the monitoring and evaluation of outcomes. The document also provides guidance on the prioritisation of future actions and the way forward. Appendix 7 provides further information on the prioritisation of the elements of the programme. See the following table for an overview of such issues related to LBMP identified and analysed in the document.

Table 13. An assessment of current management measures for each key land-based activity or pressure.¹⁷⁹⁷
 Table 13 | ☺ = good, ☹ = fair, ☹☹ = poor

LAND-BASED ACTIVITY	MANAGEMENT OBJECTIVES			
	LEGISLATION	REGULATIONS/GUIDELINES	IMPLEMENTATION	MONITORING
Agri-forestry	☹	☹	☹	☹
Agri-forestry (management)			1/☹	☹
Agri-forestry	☹		1/☹	1/☹
Agri-forestry (management)	☹		☹	☹
Agri-forestry (management)	☹	☹	☹/☹	☹/☹
Agri-forestry (management)	☹	☹	☹/☹	☹/☹
Agri-forestry (management)	☹	☹	☹	☹
Agri-forestry (management)		☹	☹	☹
Agri-forestry (management)	☹			
Agri-forestry (management)	☹	☹	☹/☹	
Agri-forestry (management)	☹		☹	☹
Agri-forestry (management)	☹	☹	☹	☹
Agri-forestry (management)	☹		1/☹	1/☹
Agri-forestry (management)		☹	☹	☹
Agri-forestry (management)	☹		☹	☹

Table 13. An assessment of current management measures for each key land-based activity or pressure.¹⁷⁹⁷

¹⁷⁹⁷ DEAT NPA 12.

5.8 Conclusion

5.8.1 Law principles

The South Africa environmental regulatory framework in the context of LBMP regulation does not incorporate all of the internationally accepted law principles *per se*. However, various environmental policies (White and Green Papers) make reference to most of the principles underlying international best practice regarding LBMP regulation,¹⁷⁹⁸ as demonstrated in Appendix 1.¹⁷⁹⁹ Some of these principles, though, are not incorporated in the legislation and remain only guiding principles, a fact which can limit their legal implication and status.

5.8.2 Regulatory objectives

The objectives of the South African regulatory framework pertaining to LBMP are aligned with those of international best practice, aiming at the protection of the environment, pollution management, the protection of human health and the management of the water uses.

5.8.3 Regulatory scope

1798 Including sustainable coastal development; the interconnectivity of coastal ecosystems; land/sea interdependency; the quality of life; the protection of water quality, quantity and reliability; equity regarding access to water and its use; the optimal use and protection of water resources; the sustainable use of water; the beneficial use of water; vertical and horizontal integration; fairness; respect for the recovery capacity of the environmental media; the unity of the water cycle; public participation; scientific integrity; integrated coastal management; practicality; pro-active and co-operative governance; social equity; holism; integration; risk aversion; the promotion of a participatory and incentive-based approach; adaptive management; the promotion of a media-based approach; accountability; environmental justice; full costs benefits accounting; informed and transparent decision making; the use of the precautionary principle; the use of the subsidiary principle; the promotion of a cross-sectoral approach; environmental effectiveness; and the use of the polluter-pays principles. Also see Appendix 4 for further information.

1799 Refer to 2.3.1 for further information on international best practice in this context.

With regard to its regulatory scope, the South African regulatory framework presents some limitations and inconsistencies which affect effective LBMP regulation. The limited scope of the NWA¹⁸⁰⁰ (for the protection of water resources, including most coastal and marine waters) is one of the major limiting factors of the regulatory framework, especially in terms of the resource-directed instruments that it prescribes. The unclear regulatory scope of the NEMA and the NEM:WA is also a limiting factor.¹⁸⁰¹ Most of the provisions of the NEM:ICMA are limited to the protection of coastal waters, which excludes the EEZ. The legal discrepancies between the regulatory scope of the NEM:ICMA and the NWA in terms of estuaries and coastal wetlands also impair the effectiveness and efficiency of the overall regulatory regime for LBMP regulation. The separation between the legal regimes established by the NWA and the NEM:ICMA is not conducive to integrated water resources management. The existence of two parallel regimes for inland and coastal/marine waters hampers the effective regulation of LBMP.

5.8.4 Regulatory instruments

As demonstrated above and illustrated in Table 15, the South Africa regulatory regime relating to LBMP prescribes a variety of direct and indirect regulatory instruments often in a incoherent, sectoral and fragmented way.

The resource-directed measures prescribed by the NWA are limited in their relevance to LBMP regulation,¹⁸⁰² as they are aimed only at protecting fresh waters, estuaries and coastal wetlands according to the ecological and requirements for use of such resources, and not coastal and marine waters. The classification system, the reserve and the water quality objectives as provided by the NWA therefore do not have to take into consideration the quality and quantity requirements of marine and coastal water resources. For example, when

1800 Refer to 5.2.

1801 Refer to 5.2.

1802 Refer to 5.3.1 and 2.3.4.1.

establishing the reserve and resource quality objectives of a specific river or estuary (especially in a coastal catchment, like the Mvoti to Umzimbuku or the berg management areas), only the ecological requirements of that specific water resource are taken into consideration, as well as the needs of its specific users. The reserve and quality objectives do not take into consideration the requirements (quality and quantity) of coastal and marine waters, which are the ultimate natural recipients of most water resources and their associated pollution. The lack of resource-directed measures for coastal and marine waters is regarded as the main weakness of the current South African regulatory framework for LBMP. Moreover, the limited legal status of the classification system and water resource quality objectives is also considered as a weakness of the regulatory regime.¹⁸⁰³ Similarly, the anthropocentric approach adopted in the classification system and water resource quality objectives.¹⁸⁰⁴

In terms of sources-directed measures, it is not the lack of measures which poses a problem, but rather the fact that they are not coordinated and integrated. The existence of two legal regimes to regulate effluents, one in terms of the NWA and one in terms of the NEM:IWMA, affects the integrated and ecosystem-based management of water resources, including coastal/marine waters. The discrepancies in the use of BAT, BEP, BPEO and other environment practices, options and standards also create challenges for effective LBMP regulation and more generally integrated pollution management. The lack of integrated and comprehensive standards and minimum requirements for coastal and marine waters pollution management is also considered as a weakness of the regulatory framework in terms of LBMP. The sources-directed instruments prescribed by the NEM:ICMA are regarded as insufficient for effective LBMP regulation, as they do not prescribe comprehensive standards and management practices/options and they are not informed by resource-directed instruments such as ambient water quality objectives and standards. The provisions of the NWA and the NEM:ICMA

1803 Refer to 5.2.

1804 Refer to 5.2.

are not comprehensive enough in terms of the non-point sources of LBMP (of rivers or coastal and marine waters).

The planning management regulatory instruments are regarded as fairly comprehensive and the latest legal development in terms of the coastal zone are regarded as aligned with international best practice,¹⁸⁰⁵ especially in the context of LBMP and development on the coastal zone. However, the regulation is fragmented and sectoral. Moreover the different levels of assessment for EIA, in terms of the NEMA, the NEM:ICMA and the NEM:WA, might limit effective and integrated environmental management, and complicate unnecessarily the legal framework in this context. The establishment of coastal zoning schemes and set-back lines is a progressive legal development, as is the establishment of coastal integrated management and catchment areas management. However, the legal status of some of the planning regulatory instruments is regarded as a limitation in terms of regulatory effectiveness generally, and more specifically in terms of LBMP regulation. Most of the relevant planning regulatory instruments are only binding on specific government departments for specific administrative actions, which means that they have no binding effects on private entities and other organs of state.¹⁸⁰⁶ The fact that there is a multitude of planning instruments relating to LBMP regulation, each with its own challenges, and none of them with a clear interrelationship with any other of them, hierarchical or otherwise, makes the attempt to regulate LBMP confused and unclear.

The integrated regulatory instruments are regarded as comprehensive but as demonstrated with the NWRS,¹⁸⁰⁷ some of them have a limited legal status which affect their relevancy and effectiveness in terms of LBMP regulation. The different levels of duty of care also impair cohesive and uniform water pollution management, creating different duty of care regimes, one for the environment in

1805 See 2.3.4.1.

1806 See 5.3.3 and 5.5.

1807 See 5.5.

general (NEMA), one for fresh waters (NWA) and one for the coastal public property (NEM:ICMA).¹⁸⁰⁸

5.8.5 Institutional structure

With regard to the institutional structure, the main challenges seem to be from the provincial and municipal level. The overlapping of the functions of the various spheres of government limits effective decentralisation and delegation and creates different standards across the country. The question therefore for South Africa is to determine if the decentralisation and delegation of environmental management and the regulation of LBMP is adequate and possible considering local circumstances. Co-operative governance also seems to be difficult to achieve.

However, the development of the first *National Programme of Action for South Africa* is a ray of light and leads one to hope that some of the identified weaknesses of the current South Africa regulatory regime pertaining to LBMP will be comprehensively addressed, taking into consideration the recommendations provided in this study.

5.8.6 Overall assessment

"South Africa's water policy, legislation and strategies are ... widely acclaimed as being revolutionary and highly innovative".¹⁸⁰⁹ The NWA implements most of the internationally recognised regulatory instruments informing integrated water management and adopts a very sophisticated and ecocentric regulatory regime. However, the NWA does not provide for a comprehensive regulatory framework for LBMP. The provisions of the Act and all of the source- and planning-directed regulatory instruments prescribed by the Act are relevant only to estuaries and coastal wetlands. Such elements of the coastal zone (and coastal waters) will

1808 See 5.5.1.

1809 V Van Reenen *An Evaluation of Water Resource Management Institutions in South Africa* ELA 2007.

fully benefit from the protection regime (including pollution management) prescribed by the NWA.

As emphasised in the NWA and in the NWRS, the regulation of the use of water resources can be efficient only if implemented in conjunction with comprehensive resource-directed measures and source-directed measures. Consequently, the current provisions of the NEM:ICMA and NWA intended to regulate the discharge/disposal of water containing waste into the marine environment are not comprehensive enough to enable effective LBMP regulation, due to the fact that there are currently no resource-directed instruments for the marine and coastal environment, namely, a classification system, a reserve, and resource quality objectives. Moreover, only a limited number of the many existing uses of coastal and marine waters are regulated by the NWA. This is not a fully inclusive approach, which is what would be necessary to effectively regulate LBMP.

The integrated regulatory instruments are regarded as comprehensive and innovative. However, once again the approach is still fragmented, a fact which problematises integrated pollution management, including LBMP regulation. Moreover, their limited legal and binding status is regarded as a weakness which is likely to impair their effectiveness and relevance. The different levels of "duty of care" also impair cohesive and uniform water pollution management.

The environmental legislative framework is still generally fragmented in terms of LBMP regulation. Of particular importance in terms of LBMP regulation is the fragmentation of pollution management. It is media specific and based on various acts and different competent authorities.¹⁸¹⁰ The legal association between waste management and pollution management also impairs LBMP regulation, directly associating (and therefore limiting) pollution management to waste management. This is regarded as a too restrictive a approach for effective integrated pollution

1810 Kotzé *Integrated Environmental Governance* 57.

control¹⁸¹¹ and LBMP regulation. Waste management should be only a component of integrated pollution management. The lack of an integrated statute for pollution management is regarded as a deficiency in the environmental regulatory framework.¹⁸¹² This lack affects the efficiency of LBMP regulation. There is a need to rationalise and in some cases update the regulatory framework. For example, there are some discrepancies in the regulatory framework which will impair the effective regulation of LBMP, and pollution management generally. For example, the four main acts with a bearing on LBMP provide different definitions of waste,¹⁸¹³ a fact which will cause implementation challenges and legal disputes around the issues of waste management, and which will ultimately limit effective LBMP regulation. As stated above, the NEM:WA is aimed at managing all matters related to waste management. It is currently unclear what its implications are going to be for the NWA and its provisions related to waste disposal and the discharge of water containing waste or waste water. It is also unclear how the Act is going to impact on The NEM:ICMA and its provisions regarding the regulation of "effluent" (which apply to any liquid discharged into the coastal environment as waste). The existence and interrelationship of the three Acts might create a legal imbroglio. Such a discrepancy also exists in terms of the definitions of pollution, wetlands and

1811 Kidd argues that "the concept of pollution incorporates the concept of waste. Waste and pollution are, in many cases, synonymous, but pollution needs not to necessarily be caused by waste". Kidd *Environmental Law* 121. Also see 5.2 and 5.3.3.

1812 Kotzé *Integrated Environmental Governance* 99.

1813 In terms of the NWA, "waste" includes any solid material or material that is suspended, dissolved or transported in water (including sediment) and which is spilled or deposited on land or into a water resource in such volume, composition or manner as to cause, or to be reasonably likely to cause, the water resource to be polluted.
In terms of the NEM:WA, "waste" means any substance, whether or not that substance can be reduced, re-used, recycled and recovered (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; (b) which the generator has no further use of for the purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but (i) a by-product is not considered waste; and (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste.
In terms of the NEM:ICMA, "waste" means any substance, whether or not that substance can be reused, recycled or recovered that (i) is surplus, unwanted, rejected, discarded, abandoned or disposed of; (ii) the generator has no further use of for the purposes of production, reprocessing or consumption; (iii) is discharged or deposited in a manner that may detrimentally impact on the environment.

estuaries. The lack of a dedicated statute dealing holistically and coherently with integrated pollution control is regarded as one of the main weakness in the regulatory framework especially in terms of LBMP.¹⁸¹⁴ Further practical guidance and standards are also required in terms of pollution management.

1814 As argued by Kidd, who supports the development and implementation of a system of integrated pollution control. Kidd *Environmental law* 152.