# Review of the legal and policy frameworks impacting on the management of coastal and marine resources in Algoa Bay

## Executive summary

South Africa is renowned for its relatively new, environmentally focused constitution. However, the plethora of legislation, plans and policies in existence create a 'horrendogram' that is difficult to understand. Translation of coastal and marine legislation into effective implementation is lacking and requires urgent intervention. This is especially pressing when considering the emerging threats of the growing oceans economy and global climate change.

A decade of state capture (systematic corruption) under President Zuma's mismanagement (2009-2018) knocked South Africa's economy. The country suffers from high levels of poverty, and unemployment. Most municipalities struggle to meet service delivery requirements and rely on national government for funding (due to lack of and mismanagement of funding, resources and trained staff). Conservation and climate change provisions are therefore not high on the mandates of most departments and is rather considered a future problem.

Algoa Bay was selected for the design of South Africa's first marine spatial plan because of its diversity of ecosystems and extensive research spanning several decades. A number of initiatives related to this Algoa Bay Project are underway including the Cities & Climate Change in Coastal Western Indian Ocean (CICLICO) project. The CICLICO project aims to co-create climate services as city planning tools for better adaptation to climate change in Algoa Bay. CICLICO aims to work with stakeholders working with area-based management tools (ABM) such as Integrated Coastal Management, Marine Protected Areas and Marine Spatial Planning on a daily basis.

Understanding governance and management in the Bay as well as the degree of use, overlap and conflict of ABM tools is necessary. This desktop literature review uses both published and 'grey' literature, to provide this context. An introduction to South Africa's environmental legislation is included, focussing on the three spheres of government - national, provincial (Eastern Cape) and local (Nelson Mandela Bay Municipality). A basic textual analysis of plans and policies in place in the NMBM regarding climate change, ABMs tools and implementation at a local level is provided. The report also details the main challenges hindering effective implementation of climate resilience and coastal management. Responding to these challenges is one of the aims of the CICLICO project.

Various plans regarding coastal and climate change management exist in the Bay, however, the degree of implementation is not transparent from available literature. Political instability and a crumbling municipality hinder effective management. There is a critical need to ensure that government sectors and other bodies are in open communication and agreement so that available human and other resources are effectively utilised.

In conclusion this literature review highlights important legislation and policies applicable to Algoa Bay. The key challenges identified are not only applicable to the Bay, but to most coastal cities and emphasise the need for a project like CICLICO to assist with mainstreaming climate change information into coastal and marine area-based management.

# Contents

# List of tables



# List of figures

## Acronyms

| | |
|---|---|
| ABM | Area-Based Management |
| BEPP | Built Environment Performance Plans |
| CC | Coastal Committees |
| CICLICO | Cities & Climate Change in Coastal Western Indian Ocean |
| CMP | Coastal Management Programme/Plan |
| CoGTA | Cooperative Governance and Traditional Affairs |
| DAFF | Department of Agriculture, Fisheries and Forestry |
| DEA | Department of Environmental Affairs |
| DEDEAT | Department of Economic Development, Environmental Affairs and Tourism |
| DMR | Department of Mineral Resources |
| DWS | Department of Water and Sanitation |
| EIA | Environmental Impact Assessments |
| ICM | Integrated Coastal Management |
| IDP | Integrated Development Plan |
| IUCN | International Union for Conservation of Nature |
| MOSS | Metropolitan Open Space System |
| MPA | Marine Protected Area |
| NDP | National Development Plan |
| NEMA | National Environmental Management Act |
| NMBM | Nelson Mandela Bay Metropolitan Municipality |
| NWG | National Working Group |
| SAIMI | South African Maritime Safety Authority |
| SALGA | South African Local Government Association |
| SANBI | South African National Biodiversity Institute |
| SANParks | South African National Parks |
| SDBIP | Service Delivery and Budget Implementation Plans |
| SDF | Spatial Development Framework |
| SPLUMA | Spatial Planning and Land Use Management Act |
| UNCLOS | Convention on the Law of the Sea |

# 1. Introduction

Following apartheid, South Africa entered a new political dispensation resulting in the formation of a progressive constitution that has received praise for its environmental focus (Glavovic, 2016). The post-1994 environmental legislation represents a pluralistic slant towards embracing ecosystem-based management (Taljaard et al., 2019). New, sustainable development practises were introduced as alternatives to the segregatory methods of the past.

Although legislative progress has facilitated integrated environmental governance, a large portion of South Africa's legal landscape still exists across a range of sector-based government departments (Goble et al., 2017; Sowman and Malan, 2018). This silo nature of management hinders effective governance, which is already constrained by capacity issues (funding and skills), bottlenecks from bureaucracy and confusing mandates (Taljaard et al., 2019). The country has a multitude of environmental laws that are frequently amended, creating a complicated, sometimes contradictory landscape that is difficult to interpret, yet alone implement (King et al., 2018). Refer to Taljaard et al. (2019) for information on the complex nature of South Africa's environmental legislation.

Previously ignored, the economic value of the coastal marine environment is gaining in appeal. In 2015 the United Nations adopted the 2030 Agenda for Sustainable Development that petitions countries to work together to achieve sustained and inclusive economic growth, social development and environmental protection (https://sdgs.un.org/goals). Goal 14 'life under water' focusses specifically on conserving the oceans, seas and marine resources (Cumming et al., 2017). Targets include reducing marine pollution; conservation (at least 10%) of marine and coastal ecosystems; addressing ocean acidification; regulating overfishing; and developing aquaculture and tourism, amongst others.

South Africa has a long coastline and an extended coastal shelf totalling 1 540 000km$^2$ of ocean (Griffiths et al., 2010). Three oceans surround the country (the Atlantic, Indian and Southern Oceans) creating diverse ecosystems. To monopolise these untouched resources, a presidential initiative Operation Phakisa: Oceans Economy (Phakisa meaning "hurry up" in Sesotho) was launched in 2014 (https://www.operationphakisa.gov.za/). Four main areas of growth were selected to unlock the country's ocean: marine transport and manufacturing activities, such as coastal shipping, trans-shipment, boat building, repair and refurbishment; offshore oil and gas exploration; aquaculture; and marine protection services and ocean governance (Findlay, 2018).

The principles of three globally practised area-based management (ABM) tools for coastal marine management are instilled in South African coastal marine legislation, namely:

Integrated Coastal Management (ICM), Marine Spatial Planning (MSP) and Marine Protected Areas (MPAs). In general ICM 'promotes the use of defensible scientific information in conjunction with the principles of cooperative governance in order to achieve sustainable coastal development' (Celliers et al., 2009, p2). Lagabrielle et al. (2018) define MSP as 'a decision support process for integrated ocean governance that aims to allocate marine and coastal resources sustainably and efficiently through space and time, to achieve social, economic, strategic and ecological objectives'. Marine protected areas are described by the International Union for Conservation of Nature (IUCN, 2012) as clearly defined geographical spaces that are dedicated to achieving long-term conservation of nature and its associated ecosystem services and cultural values.

Each of these management tools as well as other management instruments that exist at coastal city level (Integrated Development Plans, Local Economic Development Plans, Climate Adaptation Plans etc.) have their own policy cycle containing a set of objectives. This creates "…a plurality of objectives held by pluralities of politics makes it impossible to pursue unitary aims". This wicked problem creates a barrier to effective management. To address this Taljaard et al. (2019) produced a visual 'horrendogram' of South Africa's coastal marine environment to make it easier for decision makers and managers to relate to their specific mandates.

The marine coastal environment is considered an 'unfunded mandate' where effective management is required, however limited capacity is provided for implementation. Although adequate legislation is in place, adoption within the three spheres of government (national, provincial and local) is weak (Chevallier, 2015). Implementation on the ground is hindered by a magnitude of issues and further compounded by the ever-pressing concern of climate change.

Coastal and marine environments have been degraded and lost due to anthropogenic pressures, natural disasters, depletion of fisheries and loss of biodiversity (Pyć, 2016). Impacts of climate change like ocean acidification and sea level rise are already being felt and are likely to increase in intensity with time. New and emerging ocean-based activities like mining of seabed materials, further threaten these already stressed ecosystems, and the full extent of their impacts are not yet known. It is imperative to identify climate change risks and vulnerabilities for coastal and marine environments. Development and management objectives must be aligned to build resilience and mitigate for these anticipated effects.

The Cities & Climate Change in Coastal Western Indian Ocean (CICLICO) project aims to understand area-based management approaches, governance perspectives, environmental assets and stakeholder conflicts in light of climate change. Algoa Bay and the city of Gqeberha

(previously Port Elizabeth), in the Eastern Cape province of South Africa, is used as a case study to determine how to better adapt vulnerable coastal cities of the Western Indian Ocean to climate change. The project works with stakeholders (decision-makers and society) to develop climate services (provision of climate information to assist decision-making) that address the diverse, often uncoordinated, objectives of coastal and marine planning.

The CICLICO projects wants to understand how the three ABM tools mentioned are working together so as to identify any gaps and barriers that can be addressed by climate services. To achieve this Algoa Bay needs to be framed as a socio-ecological system understanding the local context and nested governance, legislative frameworks and environmental management approaches. Through a desktop literature review, using both published and 'grey' literature, this report fulfils the requirements of understanding the legislative framework of Algoa Bay. A basic textual analysis of plans and policies in place in the NMBM regarding climate change, ABMs tools and implementation at a local level is provided. The report also details the main challenges hindering effective implementation of climate resilience and coastal management. Responding to these challenges is one of the aims of the CICLICO project.

# 2. Methodology

## 2.1 Algoa Bay as a study site

Algoa Bay is home to the Nelson Mandela Bay Municipality (NMBM) consisting of the city of Gqeberha (previously Port Elizabeth) as well as the major towns of Kariega (previously Uitenhage) and Despatch (CoGTA, 2020). Nelson Mandela Bay and Buffalo City Metropolitan, in East London, represent the only two metropolitan municipalities in the Eastern Cape of South Africa. Supporting more than one million people Nelson Mandela Bay is an important social and economic hub driven by several automotive supplier companies (Volkswagen, General Motors and Ford) and national companies (Aspen and South African Breweries) (Young, 2019). It is unique in that it has two ports (Port Elizabeth harbour and the Port of Ngqura- the most modern deep-water port in the Southern Hemisphere) and also boasts the only international airport in the Eastern Cape (NMBM, 2020a). Nelson Mandela Bay is a popular tourist destination, especially for water sports and the nearby Addo Elephant National Park.

Two oceanic systems- the Cape Agulhas and the upwelling current of the Benguela interact in the Bay resulting in the presence of two different ecosystems and therefore high species diversity (Dorrington et al., 2018). Algoa Bay is influenced by a variety of natural drivers, including two large estuaries (Sundays and Swartkops), and two island groups (Islands of the Cross: consisting of St. Croix, Brenton and Jahleel, and the Bird Islands: consisting of Bird,

Seal, Stag and Black Rocks) (Chalmers, 2012). The Bay supports many marine organisms and seabirds, several of which are of conservation concern (Theron and Rossouw, 2008). The Greater Addo Elephant National Park and its recently promulgated MPA (May 2019) occur within the vicinity of Algoa Bay. It is also located within the Algoa to Amathole offshore Ecological and Biologically Significant Area that spans the Sardinia Bay MPA to the Amathole MPA (CMR, 2020a).

Historically, Nelson Mandela Bay has had an extremely variable climate, but land and sea temperatures have increased over time (NMBM, 2015). Over the last forty years, average temperatures have risen by 0.25°C per decade. In February 2020 Gqeberha experienced the hottest temperature (40.2ºC) in the last 55 years (Herald Reporter, 2020). Projections indicate that rising sea levels in the next 30 years will result in low-lying areas in the Bay becoming inundated (Kings, 2017). More information pertaining to climate change projections for Algoa Bay are provided in the CMR (2020b) review (another requirement of the CICLICO project).

The number of rain days across the southern coast of South Africa, including Gqeberha, have also consistently decreased over the last five decades (NMBM, 2015). Due to persistent drought in the Eastern Cape, including the Bay, was declared a drought disaster area in late 2019 (NMBM, 2020a). This enabled the municipality to claim funding from the Eastern Cape COGTA, however some areas still run dry and must fetch water from tankers (Ellis, 2019).

Algoa Bay was chosen as the case study for South Africa's first marine spatial plan (Dorrington et al., 2018). Aside from being one of country's largest and most biodiverse bays, it is also the most extensively researched and well monitored coastal area in Africa, and the southern hemisphere. The Bay provides a natural laboratory for conducting multi-disciplinary research: it has a wealth of habitats, dynamic oceanographic processes and a high socio-economic reliance on the marine environment (Dorrington et al., 2018). The research and planning products developed in this first large-scale ecosystem study will extend beyond the Bay (e.g. larval transport, sea-level rise, fisheries benefits) and inform MSP for the whole of South Africa.

Politically, the situation in Algoa Bay is dire. The NMBM has a complicated history fraught with political instability, infighting, changing governance and corruption. Olver (2018) the author of "How to Steal a City – The Battle for Nelson Mandela Bay", calculated that the NMBM has a healthy budget of R8b, comparable with many provinces and national departments. He also found that a quarter of this budget is allocated to private service providers and that people in positions of power were issuing jobs, contracts, cash and gifts to loyal followers (Olver, 2018, 2017). This situation is not uncommon to South African municipalities and is reflective of

national politics. Further detail regarding the Bay's dysfunctional governance is provided under the key challenges sections.

The NMBM employs about 5000 staff distributed in the organogram provided in Figure 1 (NMBM, 2019). As can be seen in the organogram the Public Health Directorate is responsible for environmental management. The Environmental Management Sub-Directorate (Coastal Zone Management section) is responsible for implementing the provisions of the *National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008).* in the municipal area. Other municipal departments (i.e. Sports, Recreation, Arts and Culture, Infrastructure and Engineering and Human Settlements) operate within the coastal zone. No specific directive addresses climate change for the Bay. The Safety and Security Directive is responsible for disaster management planning and implementation and therefore would be involved in climate change mitigation.

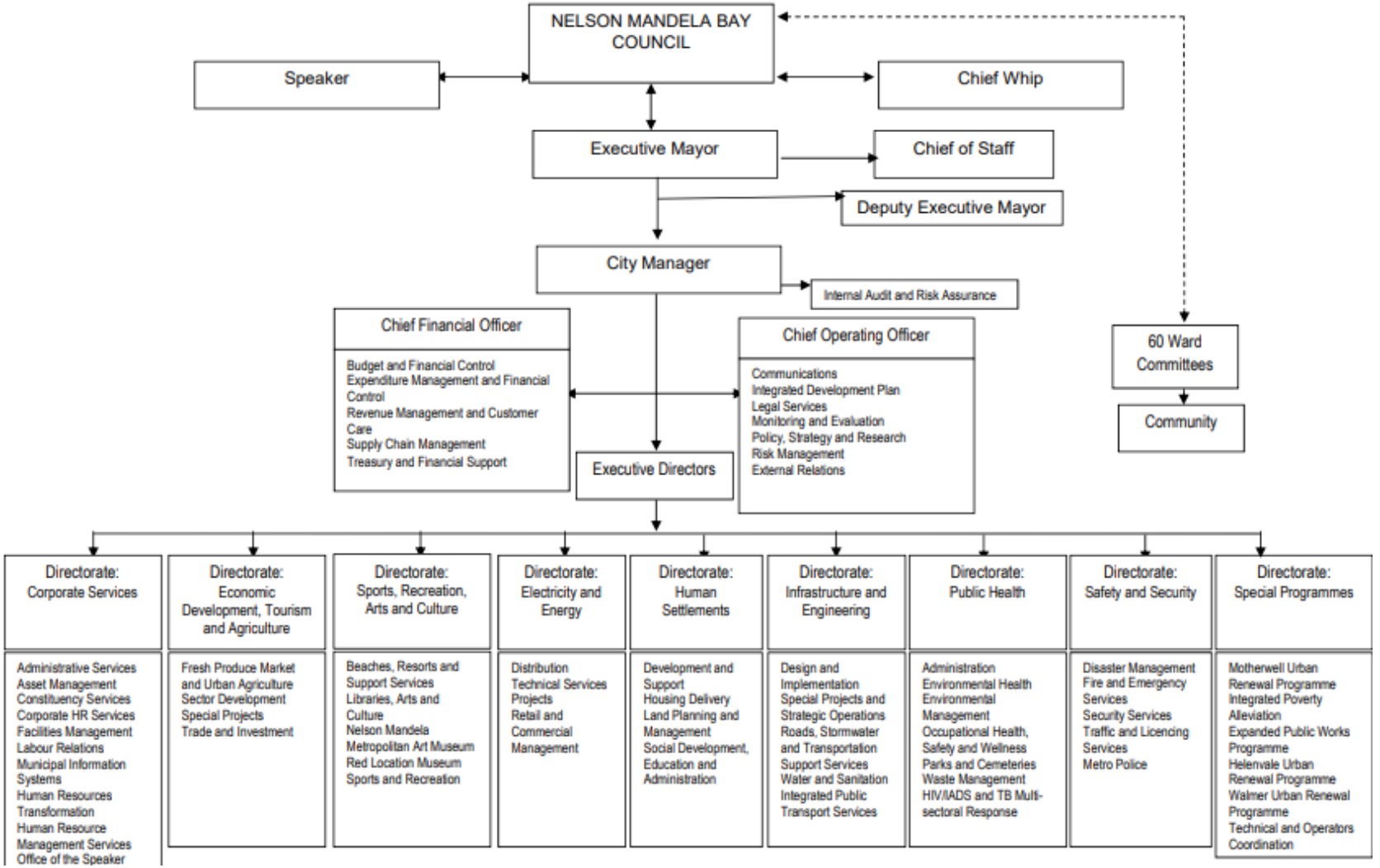


**Figure 1: Organisational structure of the Nelson Mandela Bay Municipality (from NMBM, 2019)**

## 2.2 Desktop analysis of applicable legislative frameworks

A literature review of coastal and marine legislation in South Africa was conducted. The most recent synthesis by Taljaard et al., (2019) was used as a base to describe legislation applicable to the coastal and marine environment of Algoa Bay (summarised as tables in the results). This includes plans specific to the three spheres of government: national, provincial and local. National documents are available on the government website (https://www.gov.za/)

The following documents are easily sourced on the NMBM website (http://www.nelsonmandelabay.gov.za/):

- Integrated Development Plan
- Spatial Development Plan
- Built Environment Performance Plan
- Long-term Growth and Development Plan
- Service Delivery and Budget Implementation Plan
- Coastal Management Plan
- Climate Change and Green Economy Action Plan

These laws, plans and policies were included in a basic textual analysis to determine the extent of inclusion of climate change and ABM tools. Keywords searched for in the documents are listed in Table 1.

**Table 1: Key terms or concepts searched for in the textual analysis of legislation, plans and policies applicable to the coastal and marine environment of Algoa Bay**

| **Climate Change** | **Area based management tools** |
|---|---|
| Sea level rise | Integrated Coastal Management |
| Resilience | Marine Spatial Plans |
| Carbon budgets | Marine Protected Areas |
| Sustainability | Coast |
| **Locality** | |
| Nelson Mandela Bay | |
| Algoa Bay | |
| Port Elizabeth | |
| Gqeberha | |

# 3. National legal framework for coastal and marine management

## 3.1 Overview of legislation

South Africa has about 19 international obligations and agreements, 11 national policies ('White papers') and 46 national acts governing the coastal marine environment (Taljaard et al., 2019). Numerous national regulations, best practice guidelines, as well as provincial acts and local by-laws further support this framework. Table 2 summarises the main legislation applicable.

The legal regime of Algoa Bay is dominated by the *Maritime Zones Act, 1994 (Act 15 of 1994)* (Dorrington et al., 2018). The Bay is considered 'internal waters' within the territory of South Africa therefore all domestic legislation is applicable. This includes the *Marine Traffic Act, 1981 (Act 2 of 1981),* the *National Ports Act, 2005 (Act 12 of 2005),* the *Marine Living Resources Act, 1998 (Act 18 of 1998), the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998)* and the extensive environmental legislation stemming from the NEMA, such as, the *Integrated Coastal Management Act (ICM), 2008 (Act 24 of 2008).*

More recently, the *Marine Spatial Planning Act, 2018 (Act 16 of 2018*) was promulgated that aims to develop marine spatial plans for the country. In 2019 two new MPAs were declared in the Bay that are under the jurisdiction of *the Marine Living Resources Act (Act 18 of 1998)* and the *National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003).*

Legislation impacting coastal activities on land must also be considered, which is the domain of the *Spatial Planning and Land Use Management Act (SPLUMA) 2013 (Act 16 of 2013).* Air space is governed by the *Civil Aviation Act, 2009 (Act 13 of 2009)* and underwater cultural heritage is protected under the *National Heritage Resources Act, 1999 (Act 25 of 1999).*

Environmental Impact Assessments (EIAs) are a requirement of NEMA, the process aims to determine, assess and evaluate the consequences (positive and negative) of a proposed development, activity or project. Regulations were amended in 2017 to make provision for the protection of the coastal zone by including a number of listed activities that are specifically aimed at protecting the coastline (DEA, 2017).

The Nelson Mandela Bay Municipality is also subject to the powers and duties of the provincial legislative and executive bodies (Dorrington et al., 2018). The *Municipal Systems Act, 2000 (Act 32 of 2000)* defines the core principles for local government (municipalities) relating to strategic, integrated development planning (IDP) and an associated spatial development framework (SDF). These local planning processes currently include coastal 'dry' land (a term used here to describe the area between the high water mark and the landward boundary allocated to the coastal zone in the ICM Act) (Taljaard et al., 2013).

Several acts acknowledge provision of climate change, in particular the *Disaster Management Amendment Act, 2015 (Act 16 of 2015)* (South Africa, 2015). The Department of Environmental Affairs (DEA), is in the process of finalising a *Climate Change Act* (presently a bill promulgated in 2018) to address the country's high greenhouse gas emissions and build resilience to anticipated changes (RSA, 2018).

**Table 2: South African National Laws relevant to the coastal and marine environment**

| Theme | National Law | Description | Objectives |
|---|---|---|---|
| **Environmental management** | *National Environmental Management Act (NEMA) (Act No. 107 of 2008)* | Provides the foundation for environmental law in South Africa based on cooperative governance | • Develop a framework for integrating good environmental management into all development activities<br>• Establish principles to guide functions affecting the environment<br>• Establish procedures and institutions to facilitate and promote cooperative government and intergovernmental relations; and public<br>• participation in environmental governance<br>• Promote conservation<br>• Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development |
| **Coastal management** | *National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008 and amended in 2014)* | • Guides the behaviour and actions in the coastal zone, through the prescription of norms, standards and policies, ensuring that its benefits can be sustainably and equitably distributed<br>• Gives effect to certain of South Africa's international law obligations | • Determining boundaries of the different coastal zones (coastal public property, coastal access land, and special management areas)<br>• Management of coastal structures (private jetties etc)<br>• Permits and monitoring of discharge and dumping<br>• Enforcement of specific offences in the coastal zone<br>• Estuary management |
| **Water resources** | *National Water Act, 1998 (Act 26 of 1998)* | For effective management of water resources in the country | • Classification of water resource<br>• Setting reserves<br>• Managing catchments<br>• Preventing pollution |

| Theme | National Law | Description | Objectives |
|---|---|---|---|
| **Air quality** | *National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)* | Regulating air quality by setting national norms and standards for air quality and pollution | • Issuing Air Emissions Licenses<br>• Monitoring air emissions |
| **Waste management** | *National Environmental Management: Waste Management Act (Act 59 of 2008)* | Sets out measures for the storage, collection, transportation, recovery, re-use, recycling, treatment and disposal of waste | Responsible for waste avoidance and minimisation as well as identifying waste management activities that require licensing |
| **Protection of species** | *National Environmental Management: Biodiversity Act (Act 10 of 2004)* | Makes provision for protection of species and Ecosystems that warrant national protection (Red List) | • Ensures fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources<br>• Establishes bioregional plans<br>• Controls undertaking of restricted activities involving alien and invasive species (including mariculture) |
| **Climate change** | *Climate Change Bill of 2018* | To transition South Africa to a climate resilient and lower carbon economy and society | • Provide for a coordinated and integrated response to climate change<br>• Effective management of inevitable climate change impacts<br>• To make a fair contribution to the global effort to stabilise greenhouse gas concentrations |
| **Agriculture** | *Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983)* | Promotes conservation of soil, water resources and vegetation | Management of alien invasive vegetation within the coastal zone |
| **Mining and exploration** | *Mineral and Petroleum Resources Development Act (Act 28 of 2002)* | To make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources | • Give effect to the international accepted right that State exercises sovereignty over all mineral and petroleum resources in the country<br>• Expand opportunities for historically disadvantages persons to enter these industry |

| Theme | National Law | Description | Objectives |
|---|---|---|---|
| | | | • Promote economic growth of these industries<br>• Provide for security of tenure in respect of prospecting, exploration, mining and production operations<br>• Ensure that mining and production rights contribute towards the socio-economic development of the areas in which they are operating |
| **Heritage sites** | *National Heritage Resources Act (Act 25 of 1999)* | Ensures that heritage resources are properly conserved and well maintained and any action required to be taken in respect of those resources is not taken in contravention of the Act | • Regular inspection of resources<br>• Restoration as appropriate |
| **Shipping and navigation routes** | *Marine Traffic Act (Act No. 2 of 1981)* | Regulates marine traffic in South Africa | • Enable innocent passage of ships through territorial waters<br>• Prevents stopping, particularly for repairs outside of harbours as well as sinking wrecking or abandoned ships<br>• Responsible for suspending passage of ships if deemed unsafe<br>• Suppression of illegal substances on board foreign ships |
| | *National Ports Act (Act No. 12 of 2005)* | Establishes and manages a National Ports Authority | • Establish appropriate institutional arrangements to support the governance of ports<br>• promote the development of an integrated regional production and distribution system in support of government's policies |

| Theme | National Law | Description | Objectives |
|---|---|---|---|
| **Marine protected areas** | *National Environmental Management: Protected Areas Act (Act 57 of 2003)* | Regulates the management of protected areas | • Cooperative governance in the declaration and management of protected areas<br>• Ensure representative areas of biodiversity are conserved<br>• Promote sustainable utilisation of protected areas for the benefit of people<br>• Establish performance indicators for monitoring |
| **Marine protected areas**<br><br>**Fisheries** | *Marine Living Resources Act (Act 18 of 1998)* | Governs the conservation and management of marine living resources in a fair and equitable manner for the benefit of all citizens of South Africa | • To provide for:<br>- Long term sustainable utilisation of marine living resources<br>- Orderly access to exploitation, utilisation and protection of certain marine living resources |
| **Spatial development** | *The Spatial Planning and Land Use Management Act (SPLUMA) (Act 16 of 2013)* | Deals with rapid urbanisation, development and infrastructure | • Informs spatial development frameworks at provincial and local levels that inform Integrated Development Plans |
| **Marine Spatial development** | *Marine Spatial Planning Act (Act 16 of 2018)* | Provides a framework for marine spatial planning to optimise sustainable economic growth of South Africa's ocean space. Gives effect to South Africa's international obligations in South African waters | • Develop a shared spatial planning system adaptable to a changing environment that can be accessed by all sectors and users of the ocean<br>• Facilitate good ocean governance<br>• Further research of South Africa's seascape including mapping and understanding of chemical and biological ocean processes<br>• Identification of threats to the ocean |

| Theme | National Law | Description | Objectives |
|---|---|---|---|
| **Local government** | *Municipal Structures Act (Act No. 117 of 1998, as amended by Act No. 1 of 2003)*<br><br>*Municipal Systems Act (Act 32 of 2000)* | Provides for the establishment and definition of municipalities including internal structure and division of power and functions<br><br>Provides the mechanisms necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all | • Maintenance and development of:<br>- Potable water supply systems including waste disposal strategies<br>- Public works<br>- Road transport system<br>- Tourism<br>- Allocation and distribution of grants<br>- Imposition and collection of taxes, levies and duties related to the above functions |

# 4. Institutional arrangements for ICM, MSP and MPAs

Integrated Coastal Management responds to the failures of sectoral management of resources by providing policy that prioritises holistic coastal development (Chevallier, 2015). It aims to address multiple-use conflicts and pre-empt and plan for new uses, while protecting vulnerable ecosystems and marine biodiversity. To achieve the objectives of the ICM Act, coastal committees are established at each tier of government, as described in Table 3. Similarly, the MSP Act requires the establishment of a National Working Group (NWG). Marine Protected Areas are mostly managed by government owned entities including the South African National Parks (SANParks) (national) and Ezemvelo Wildlife (KwaZulu-Natal).

Concern over the lack of inclusion of provincial and local government in the National Working Groups (NWG) was expressed at an October 2018 Parliamentary Monitoring Group meeting for negotiating mandates for the MSP Bill (Sefako, 2018). The Department of Water and Sanitation (DWS), Disaster Management Authorities, the South African Maritime Safety Authority (SAIMI) and the South African Local Government Association (SALGA) were not explicitly listed as required members of the NWG (Sefako, 2018). There were also suggestions of including private sector representatives.

In response committee members argued that the NWG will be broadly represented by national Departments and that according to the terms of reference experts could be invited to the group at any moment to deal with issues (Sefako, 2018). Specific provisions for provinces or local governments were not included in the Bill (now Act, but still applicable) because of the extensive consultation process that would be required. Rather the NWG must be a manageable size with representative members that would then go consult the relevant spheres of government.

**Table 3: Institutional arrangements for area-based management of coastal and marine ecosystems in South Africa**

| ABM instrument | Institutional arrangement | Responsible sector | Municipal responsibilities |
|---|---|---|---|
| **ICM**<br><br>**(enacted through the National Coastal Management Plan)** | Establishment of national, provincial and optional municipal coastal committees (CCs), as well as voluntary coastal officers. Representatives on the National CC must include: National Government; Provincial CC; coastal municipalities; management authorities of coastal protected areas; and persons with relevant expertise. | DEA has two intergovernmental bodies (MINMEC the ministerial structure and MINTEC that provides technical input) consisting of the Minister, members of the provincial Executive Councils and SALGA that meet quarterly to discuss environmental endeavours. | Local government is required to fulfil numerous functions, including: managing access to coastal public property; coastal management line demarcation on zoning maps; municipal coastal management programmes; as well as consultation and public participation. |
| **MSP**<br><br>**Marine Spatial Planning Act, Act 16 of 2018** | Establishment of a NWG consisting of competent officials nominated from each government sector. The National Working Group is responsible for developing an overarching marine spatial planning framework and subsequent MPAs | MSP is led by the DEA and includes the following departments in its planning process" defence, energy, fisheries, mineral resources, planning monitoring and evaluation, science and technology, telecommunications, tourism, transport, and rural development and land affairs. | The Act has only recently been mandated and no specific mention to responsibilities of municipalities has been made. |
| **MPA**<br><br>**National Environmental Management: Protected Areas Act, Act 57 of 2003**<br><br>**(Marine Living Resources Act (Act 18 of 1998)** | Environmental Management Inspectors are responsible for enforcing rules and regulations governing protected areas. These inspectors are selected from the ranks of national, provincial and local government departments, statutory authorities, and conservation agencies such as SANParks and CapeNature. | DEA, particularly the Marine and Coastal Management Branch. Assisted by two key statutory authorities: SANParks and the South African National Biodiversity Institute (SANBI). Provincial entities like CapeNature (Western Cape), Eastern Cape Parks and Tourism Agency, and Ezemvelo Wildlife (KwaZulu-Natal) are also responsible for managing MPAs in their regions. | No specific requirements for local government, only that management authorities must consult with municipalities, other organs of state, local communities and other affected parties which have an interest in the area. Management plans must also take account of any applicable aspects of IDPs. |

# 5. Analysis of key policies and planning instruments

## 5.1 Coastal and marine

The coastal and marine environment of South Africa are governed by a number of plans existing at different spheres of government. The following are reviewed in terms of dealing with the topics of climate change, ABMs tools and implementation at local government: Operation Phakisa: Ocean Economy (hereafter referred to as Phakisa), the National Coastal Management Programme (National CMP), Eastern Cape Coastal Management Programme, and the NMBM Coastal Management (Table 4). All three plans are older than five years and should be revised so as to take into account the present socio-economic environment and emerging pressures in the country.

Phakisa resulted in the formation of MSP legislation in the country and the gazetting of 20 new MPAs in 2019 (DEFF, 2019; DPME, n.d.). The National CMP (DEA, 2014) acts as the policy strategy to the ICM Act (Urban-Econ Development Economists, 2018). The Eastern Cape CMP follows directives from the National CMP although no mention to any ABM tools is made (Breetzke et al., 2013).

Interestingly, Phakisa does not mention climate change, concerning since it will undoubtably have a large impact on the ocean economy. The CMPs recognises that climate change is not a separate pressure, but an anthropogenically-induced alteration acting as an accelerator of ecosystem change. Some provisions are made for the anticipated effects of climate change. Regarding local government, Phakisa outlined a couple initiatives for the Bay (Table 4), the other plans described ways to strengthen governance through collaboration between different national departments.

Although grand plans were proposed at the onset of Phakisa, progress has been slow. Many critics have condemned the project as an unrealistic exercise that has little to do with environmental preservation and poverty alleviation, but rather commodifying marine resources for benefit of the elite (Earthlife Africa, 2014; Jacka, 2019; Masie and Bond, 2018; Rogerson and Rogerson, 2019; van Wyk, 2015). The numerous environmental and democratic costs of the planned ocean economy activities have been downplayed or simply overlooked by the ‘expert’ Phakisa team (Masie and Bond, 2018; Potgieter, 2018; Satgar, 2018).

Unfolding corruption and state capture during President Zuma’s mismanagement (2009-2018) polluted South African politics and rendered it impossible to undertake megaprojects such as Phakisa (Masie and Bond, 2018; Vreÿ, 2020). Legislative uncertainty, lengthy bureaucratic authorisation, delays in funding, skills gaps and a global economic turndown further hindered progress (Jacka, 2019; Masie and Bond, 2018; Vreÿ, 2020). Unfortunately this slow progress

coupled with political and extensive bureaucratic problems create an unattractive representation of South Africa and dissuades local and international private partnerships (Vreÿ, 2020).

The National CMP requires the development and implementation of Provincial CMPs that are aligned to the ICM Act (DEA, 2014). Provincial CMPs provide input to local planning initiatives such as Integrated Development Plans and Spatial Development Frameworks of coastal municipalities. The Eastern Cape provincial CMP first produced in 2004 and updated in 2013 analyses the unique and diverse ecosystems of the province, thereby identifying areas that require special management (Breetzke et al., 2013). The Programme identified nine priority areas and provides feasible budget allocations for implementation.

The Coastal Management Plan for the NMBM (Clark and Behrens, 2015) updated the existing Coastal Management Program (2008) in line with the requirements of the NEM:ICMA. Priority areas for management were determined through a 'SWOT' analysis of the coastal zone done by participants at public workshops. These priority areas together with inputs received from specialists were grouped into three broad themes: natural resource management, coastal pollution and coastal development (Clark and Behrens, 2015). The NMBM CMP provides an extensive list of management recommendations for the coastal zone, as detailed in Table 4. For example,

- Increase number of bins and waste recycling receptables and adjust cleaning schedules along the best front. Ensure regular domestic waste removal to avoid dumping
- Maintenance of sewer infrastructure, cleaning litter traps in the stormwater system
- Regular water quality monitoring at beaches
- Facilitate community coastal clean-up events
- Provision of more parking in the area between Kings Beach and Pollok Beach to accommodate high vehicle numbers in season.
- Provision of ablution facilities for accommodating events along the beachfront, such as Shark Rock Beach
- Sufficient control measures to manage safety, security, traffic, sanitation and solid waste impacts at beaches, especially during peak holiday season,
- Management and improvement of existing hiking trails, camping grounds, picnic facilities etc.

**Table 4: Plans/policies and initiatives applicable to the management of coastal and marine ecosystems in Algoa Bay. Assessed in terms of representing climate change, ABM tools and guidance for local government**

| | Climate change | Coastal and marine ABM tools | Local Government |
|---|---|---|---|
| **Operation Phakisa: Oceans (2014)** | No specific mention | • Promulgation of the MSP Act<br>• A new network of 20 MPAs gazetted in 2019 | Number of initiatives outlined for the Bay: marine bunkering, activities at the Transnet National Port Authorities, aqua- and mariculture, and energy related investments. Fledgling bunkering services were introduced offshore in 2016. Addo Elephant National Park MPA created in 2019. |
| **National Coastal Management Programme** | • Recognises that climate change is not a separate pressure, but an anthropogenically-induced alteration acting as an accelerator of ecosystem change<br>• Of the nine priorities, its first is effective planning for coastal vulnerability to global change including:<br>- Responding to dynamic coastal process through increased resilience of natural and social systems<br>- Phased retreat of infrastructure in high risk areas<br>• Potential Indicators for State of Coast Reporting including sections on: | • The priorities fulfil the requirements of the ICM Act, namely:<br>- Cooperative governance<br>- Coastal planning and development<br>- Climate change and dynamic coastal processes'<br>- Land and marine-based sources of pollution<br>- Estuaries<br>- The facilitation of coastal access<br>- Awareness, education, training, capacity building and education<br>- Compliance, monitoring and enforcement<br>- Natural resource management | Values the refinement of existing guidelines (such as building regulations) to accommodate specific aspect applicable at a provincial and local level. The South African Police Service (SAPS) are responsible for law enforcement in territorial waters up to 12 nautical miles, however to date SAPS still has no operational sea-going capability. The SA Navy and DAFF are therefore responsible for enforcement of fisheries and other maritime activities. |

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| | - Extent of activities and climate change (pressure)<br>- Sea level rise<br>- Changes in water pH and temperature | | |
| **Eastern Cape Coastal Management Programme (2004 and updated in 2013)** | • Of the nine priority areas identified, one 'climate change and dynamic coastal processes' focusses on climate change. This priority includes responding to dynamic coastal process through increased resilience of natural and social systems, and phased retreat of infrastructure in high risk areas.<br>• Allocated R2,5m for the gazetting of coastal setback lines | Same as above | • No specific mention of municipalities in the Eastern Cape.<br>• Involves DEA, DEDEAT, DWA, Eastern Cape Parks, as well as local municipalities (metropolitan and district) |
| **NMBM Coastal Management (2008 updated in 2015)** | • Building regulations to address concerns regarding aesthetics, beach shading and for coastal developments to be cognisant of climate change implications<br>• Assessment of sand budget to inform best practice methods to limit coastal erosion and/or sand inundation as well as encourage beach nourishment | • Identifying and promoting low-intensity/non-consumptive uses/activities such as eco-tourism ventures that can drive local economic development<br>• Maintenance of identify degraded coastal areas and develop rehabilitation plans for these<br>• Establish co-ordinated monitoring initiatives to allow early detection of potential invasive marine species | Strengthen collaboration between DEA, DAFF, DEDEAT and the NMBM |

## 5.2 Economic development

The National Development Plan (NDP) 2030 ‘Our Future – Make it Work’ was published in 2012 to tackle the triple threat of high levels of inequality, poverty and unemployment in the country. Developed prior to the finalisation of the United Nation’s Sustainable Development Goals (https://sdgs.un.org/goals), its aims are consistent, namely: addressing job creation, inequality, water security, food security, climate change, disaster risk reduction, infrastructure development, human settlements, and health issues, as well as the sustainable use and conservation of biodiversity (NPS, 2012).

South African provinces and cities are compelled by the Constitution (specifically Sections 152 and 153) to prepare five-year Integrated Development Plans (IDPs) aligned to the NDP’s 2030 vision. Since IDPs focus on a five-year time span, Long-Term Growth and Development Plans are produced in conjunction to provide a vision for development that will inform the next three IDPs (i.e. 15 years). These plans are core municipal documents and provide context-specific solutions to key challenges, in order to achieve long-term sustainable development (Ruwanza and Shackleton, 2016; Santhia et al., 2018). Municipal IDPs are required to develop applicable disaster management plans; set out key performance indicators and performance targets; and financial plans for at least the next three years.

Metropolitan Spatial Development Frameworks (SDFs) provide the spatial representation of IDPs and are a requirement of the *Spatial Planning and Land Use Management Act 2013* (SPLUMA). They represent a long-term vision of the desired spatial form of a metropolitan and therefore are a critical informant to bulk infrastructure planning, which normally has a 20-year planning lifespan. Funding and grants for these plans are allocated through Built Environment Performance Plans (BEPPs), a requirement of the annually enacted *Division of Revenue Act*. Regular reporting on the progress of these plans are provided through Service Delivery and Budget Implementation Plans (SDBIPs) as stipulated by the *Local Government Municipal Finance Management Act (Act 56 of 2003).* Figure 2 illustrates the relationship between this plethora of development plans, including local SDFs that represent detailed spatial plans for specific precincts in a municipality.

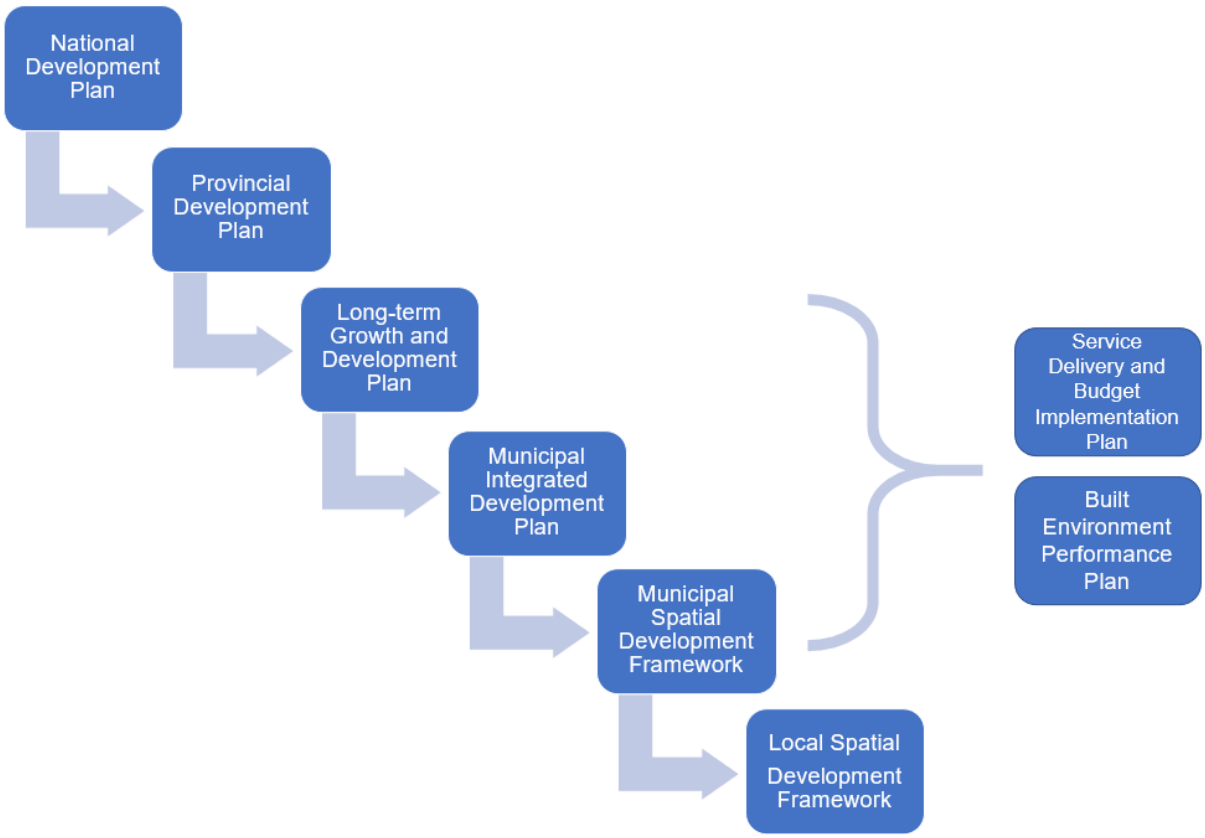


**Figure 2: Hierarchy of development plans for South Africa from national to local government**

Table 5 summarises the most recent development plans for the three tiers of government (national, Eastern Cape and Nelson Mandela Bay), with respect to their sections on climate change, coastal management (in particular the three ABMs) and local government/ societal needs. Every document touched on climate change, sustainability and building resilience, however most presented generic descriptions with no detailed plans proposed. The NDP proposed the development of an independent Climate Change Centre and the NMBM SDBIP a Municipal Information System Disaster Recovery Centre, both centres were meant to be completed in 2020, but no further information can be found on them.

Most municipalities have reactive, sector-based responses to environmental issues like climate change (Roberts, 2008). Environmental management is seen as competing with, other priorities such as health, nutrition, housing, sanitation and economic growth, rather than being synergistic (Santhia et al., 2018). In a review of the incorporation of environmental issues in South African IDPs Ruwanza and Shackleton (2016) found that less than 9% of all the projects proposed by the various municipalities were centred on environmental issues. Of the eight metropolitan municipalities in the country, only Ekurhuleni and Nelson Mandela Bay

metropoles had projects and programmes that deal with climate change (Ruwanza and Shackleton, 2016)

None of the documents reviewed mentioned ABMs tools, the closest were mentions to ‘coastal setback lines’ and ‘building the ocean economy’. There is no standard methodology in place for developing IDPs and although reviewed by provincial government, implementation is solely the responsibility of the municipality (Ruwanza and Shackleton, 2016). Furthermore, most municipalities lack qualified or experienced personnel for IDP development and therefore seek assistance of external consultants.

The most recent version (2020) of the 2017/18 – 2021/22 NMBM IDP focuses on the global COVID19 pandemic that has stretched the already exhausted health facilities in the city (NMBM, 2020a). The economy was struggling prior to the pandemic, following a prolonged lockdown period many more jobs were lost and businesses closed. The COVID19 pandemic has stretched available funds and with the national government grappling with similar challenges funding has been limited. There have been difficulties in conducting meetings and public participation, fewer staff working and a need to revise procedures with great reliance on digital platforms for communication.

The 2020 NMBM IDP centres on easing the impact of the virus with measures including provision of free electricity, distribution of food parcels, decontamination of public areas and the provision of shelters for the homeless (NMBM, 2020a). Establishing a Disaster Management Joint Operations Centre; developing an educational programme; and provision of security and enforcement of lockdown across the city have been priorities.

**Table 5: Plans/policies and initiatives applicable to economic development in Algoa Bay. Assessed in terms of representing climate change, ABM tools and guidance for local government**

| | Climate change | Coastal and marine ABM tools | Local Government |
|---|---|---|---|
| **National Development Plan** | • Generic description of climate change effects and vulnerability, e.g. the need to transition to a low-carbon economy e.g. setting clean fuel standards and use of biofuels<br>• No specific climate change resilience measures provided<br>• Establishment of an independent Climate Change Centre, in partnership with academic and other appropriate institutions (to date no further detail pertaining to this is available) | • No specific mention of any keywords<br>• Recommends the reappraisal of the maritime sector, but overlooked the contribution of the expanded oceans economy as means of achieving development goals<br>• Detail for the development of a National Spatial Framework<br>• Proposes spatial targets for growth including sustainability of ecosystem lifelines (like mineral resources and critical water production areas)<br>• Actively support development of plans across boundaries (municipal and provincial) to ensure collaborative action for biodiversity protection, climate-change adaptation, tourism and transportation | • Aims to enhance capacity of municipalities by providing relevant resources and infrastructure, thus enabling municipalities to deliver basic free services to households<br>• Requires IDPs and SDPs to be translated into spatial contracts that are binding across all spheres of government<br>• Requires municipalities to report on turnaround times in decision-making, and for procedural requirements to be re-assessed during reviews |
| **Eastern Cape Vision 2030 Provincial Development Plan 2014** | • One of the aims of the rural development agenda is to be cognisant of the climate and environmental challenge- i.e. enhance environmental resilience and sustainability | • Rapid development of high-potential economic sectors including the ocean economy (to take advantage of the extensive coastline and exclusive economic zone along the Eastern Cape coast)<br>• Marine related studies are already available at Nelson Mandela Metropolitan University (now Nelson Mandela University) and Rhodes, but | • Expects significant growth in the next 20 years for the Nelson Mandela Bay/Cacadu region, in various fields such as industrial manufacturing and subsidiary industries, trading enterprises and capabilities as a major exporting hub, its knowledge services, tourism and property developments |

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| | | possibility to establish National Institute of Coastal and Ocean Studies of SA (launched under the Oceans Science Campus at Nelson Mandela University in 2017) | • Significant economic potential for energy creation (fracking, nuclear, wind)<br>• Potential megaprojects like the Port Elizabeth Waterfront; manganese channel; transhipment hub |
| **Nelson Mandela Bay Integrated Development Plan** | • Ensure proactive planning for sustainable city development, conservation of resources and natural and built environment<br>• A SWOT analysis of electricity and energy in the city described climate change responses as a weakness because they are ad hoc and decentralised and actions are mostly uncoordinated<br>• Noted that some development projects have incorporated green design elements such as the Baywest Mall Complex and the SANRAL Office complex, which is full 5 Star Design compliant | • As per Operation Phakisa's ocean economy plans the Bay is exploring key opportunities, including shipbuilding and repair facilities, aquaculture development (land- and sea-based), fishing industry development, Maritime Institute for Skills development etc | • Ensure that the municipality is staffed with a motivated, committed and capable workforce. within available resources<br>• Ensure financial prudence and transparent governance and work towards eradicating corruption<br>• Ensure institutional accessibility, effective communication channels for participatory and responsive governance<br>• Summarises critical growth and investment priorities for NMBM with cost estimates, budgets, timing and status such as addressing drought through borehole water exploration, investigating desalinisations amongst others<br>• Deliver well-resourced and capacitated disaster management, policing and emergency services in order to ensure the safety of communities and visitors |
| **Nelson Mandela Bay Spatial Development Plan (2009 and revised in 2015)** | • Municipal policies, such as the Integrated Environmental Policy and the Integrated Energy Plan, are specifically geared to address the response and resilience of all communities to climate change impacts | • Notes that the NMBM CMP and the Metropolitan Open Space System (MOSS) must prioritize coastal development and integrate recreational opportunities that promote ecological, economic and social | • One of the main aims of the MSDF is growth management - minimise the need to extend bulk infrastructure and to optimise existing infrastructure such as densification of existing communities |

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| | • Undertake spatial planning that reduces urban sprawl, promotes densification, mixed use development, and corridor developments<br>• Aims to achieve the following sustainable goals:<br>- Encourage green buildings and sustainable design and development practices<br>- Affordable energy that uses renewable, less toxic and less carbon intensive sources<br>- Minimise demand and consumption of energy<br>- Reduce air pollution<br>- Improve resilience to climate change, particularly with a focus on public health<br>- Addressing the roles and responsibilities of every directorate in climate change related issues<br>- Education and awareness | objectives including coastal areas and beaches<br>• Reinstate the coastal environment north of the Port Elizabeth harbour over a 30-year plan, this will create a 500m long beachfront that will connect to the adjacent Nelson Mandela Bay Stadium, New Brighton and the neighbouring communities | |
| **Nelson Mandela Bay Long-term Growth and Development Plan 2017-2032** | • Phased approach to building climate resilience and sustainability in the NMBM, as summarised:<br>- Develop an overarching integrated climate change strategy comprised of a green energy (including a phase long term plan to get a fleet of fossil-fuel-free municipal vehicles)<br>- recycling (waste sorting facilities, job opportunities, incentives for household | • Defined six pillars to work towards, the last is a 'forward thinking city' that presents innovative and progressive strategies to ensure, amongst other plans, ocean economy development<br>• The aim of this priority is to protect and restore the oceans ecosystems and biodiversity, including beyond national jurisdiction and to establish the city as a globally recognised destination of excellence through strategic partnerships and innovation | • Institutional and administrative reforms and developments undertaken over the next five years will contribute to rationalising the NMBM's public administration and to enhancing its capabilities, as well as to developing the necessary enabling regulatory and policy landscape<br>• Improve capacity in the municipality through training, monitoring and improvements to morale |

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| | recycling, reduce the provision of black rubbish bags) | | • Streamlining of government procedures<br>• Become a self-correcting governance through vigilant performance monitoring and evaluation of plans, systems and operations<br>• Proper planning to prevent implementation delays, project stagnation, unnecessary lulls and bottlenecks<br>• Simple and effective engagement between the municipality and its customers |
| **Service Delivery and Budget Implementation Plan 2019** | • The public health sector under the 'basic service delivery' key performance area reports on the following:<br>- Drought interventions- drilling of new boreholes, upgrades to sewerage systems and stormwater improvements, repair of leaks<br>- Percentage and proportion of biodiversity areas protected<br>- Proportion of air quality monitoring stations providing adequate data with R300 000 allocated for buying equipment<br>- Number of fire stations resources with equipment, number of full-time firefighters, percentage compliance with the required attendance time for structural firefighting incidences<br>- Operationalisation of the Municipal Information System Disaster Recovery | • Allocated over R12m for upgrades to beaches includes pathways and picnic sites between Hobie and Pollock, Summerstrand and Wells Estate, including the redevelopment of Telkom Park and Bayworld | • Provides the budget and progress for development in Nelson Mandela Bay |

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| | Centre, total budget R 18 500 000, aimed to complete construction of the centre by July 2020 (to date no updates on progress) | | |
| **Built Environment Performance Plan 2020/2021** | • Since the 2009 BEPP much groundwork has been covered for climate risks including:<br>- Placing in the top three positions in successive Greenest Municipality Competitions<br>- Inclusion of the NMBM Climate Change and Green Economy Action Plan into the city's IDP since 2017<br>- Education and awareness campaigns such as the reinvigoration of the Go Green Advocacy Campaign in 2015 and 2016<br>- Greenhouse Gas Inventory created by the NMBM in 2014, should be used to identify areas for emission reduction actions<br>- Recently, the Supply Chain Management Sub-Directorate has taken on Sustainable Public Procurement to address procurement of stock items<br>- Establishment of bilateral forums between DWS, DMR, DAFF, DEDEAT and the NMBM to streamline environmental authorisation processes<br>- Incorporation of climate change into a new functional organogram for the NMBM. By | • Mentions the need to adhere to the coastal setback lines, but does not provide any new goals or activities regarding the coast or ocean economy | • Provide for the social needs of communities and empowerment of vulnerable people through provision of access to social services, social development and indigent support<br>• Promote the health and well-being of all communities through the spatially equitable provision of social infrastructure<br>• Deliver well-resourced and capacitated Metro policing and emergency services to ensure the safety of communities and visitors. |

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| | centralising climate change into all directorates climate change responsiveness should improve | | |

## 5.3 Climate change

In 2011 South Africa developed a National Climate Change Response Policy that was published as a White Paper (South Africa, 2011). This was updated in 2016 as the National Climate Change Adaptation Strategy, with a more recent edition approved in 2020 (DEAT, 2017; Modise, 2020). The strategy supports the country's ability to meeting its obligations in terms of the international Paris Agreement on Climate Change. It gives effect to the NDP's vision of creating a low-carbon, climate resilient economy and society.

As the impacts of climate change have become more pronounced, national sector departments have also released their own responses, with varying degrees of implantation and success, such as these listed below (DEAT, 2017):

- National Climate Change Response Strategy for the Water Sector 2015
- National Climate Change and Health Adaptation Plan 2014-2019
- Climate Change Adaptation Plans for South Africa's Nine Major Biomes
- Draft Climate Change Adaptation Sector Strategy for Rural Human Settlements

In keeping with the national initiative, the Eastern Cape Provincial Department of Economic Development and Environmental Affairs (now Department of Economic Development and Environmental Affairs and Tourism, DEDEAT) developed an Eastern Cape Climate Change Response Strategy in 2010 (no update available at time of writing) (CES, 2011). The Strategy consists of an overview of climate change scenarios for the Eastern Cape, a risk assessment of appropriate sectors and resources. Provincial development priorities and a greenhouse gas inventory. However, the scenarios envisioned are quite generic with nothing specifically mentioned for Nelson Mandela Bay.

In order to prepare for and respond to climate change the NMBM developed a Climate Change and Green Economy Action Plan in 2015 (NMBM, 2015). According to the plan the municipality has sufficiently incorporated climate resilience interventions into its strategic plans and programmes (NMBM, 2015). For instance, the city is protecting and managing undeveloped urban open spaces, addressing water shortages and eradicating informal settlements, further adaptation measures include, but are not limited to:

- Undertaking a Disaster Risk Assessment and Action Plan in 2010, which integrated climate change considerations (due for revision in 2020)
- Signing the Durban Adaptation Charter in 2011, committing to action on climate change to help communities cope with threats and reduce vulnerability

- Participating in United Nations Habitat's Urban Low Emissions Development Strategies programme from 2012 to 2016.
- Adopting an Integrated Environment Policy for the NMBM in 2012, which addresses climate change, amongst other issues
- Investing in a range of low-carbon development initiative including a waste-to-energy project, scaling up a Bus Rapid Transit system and conducting a greenhouse gas inventory

Other campaigns past and ongoing include the environmental education Go Green Advocacy Programme (launched in 2008 and then reinvented in 2013 and 2015/16) (NMBM, 2015). The Integrated Energy Plan, the Green Procurement Implementation Strategy, and the Waste Management sub-directorate' solid waste diversion. The Disaster Management Sub-Directorate (Safety & Security Directorate) has identified in its' Risk Assessment (2010) that the highest rated risks to the NMBM are hydro-metereological (floods & storms) and hydro-metereological (droughts), and then environmental degradation (SRK Consulting, 2010). Preventative and disaster-proof city planning and design must become the norm in future where the effects of climate change are not linear or always predictable.

Despite various policies climate change adaptation has yet to be mainstreamed into everyday practice and longer-term planning in all spheres and levels of government (Ziervogel et al., 2014). The articulation of climate change responses in NMBM documentation, like most government policies, has been inconsistent, with vague goals and priorities. It is not evident whether climate change management has been mainstreamed into city planning and financial management. Although the coast is included in climate change scenarios (particularly sea level rise), none of the strategies incorporate the three ABM tools used in South Africa.

# 6. Key challenges

## 6.1 Sectoral management

Legislation applicable to coastal marine management is still largely sector-based (e.g., conservation, fisheries, water supply, waste and wastewater, coastal infrastructure development, mining and exploration, shipping and agriculture) and are governed under different acts and different government departments (Sowman and Malan, 2018; Taljaard et al., 2019)). This is no easy task given that the Operation Phakisa Oceans Economy Report of 2017 alone lists 24 relevant departments (Walker, 2018). Aside from being sector-specific, national policies tend to address only components of marine systems (Lombard et al., 2019). For example, fisheries management tools focus on living resource extraction.

Taljaard et al. (2019) states that the theory behind South Africa's government structure, legislation and policies is sound, however, there is still a lack of co-ordination. This fragmented approach has resulted in administrative confusion and inefficiency, duplication of efforts and gaps in management (Glavovic, 2006). Fragmented governance systems and uncoordinated environmental legislation is a characteristic of developing countries owing to their colonial past (Nel and du Plessis, 2001).

Aside from a lack of coordination between government departments, there are also disjunct between the three tiers of government (Santhia et al., 2018). National government is strategically focused, provincial government in focused on management and coordination, and local government is tasked with implementation and enforcement (NMBM, 2017). Cooperative governance between national and local government is therefore essential for the effective implementation of policies and strategies (Aronsson and McCarthy, n.d.).

The City of Gothenburg in Sweden has had a partnership with NMBM for the past two decades. Together these two municipalities developed a toolkit for local authorities to ensure better policy implementation and service delivery (Aronsson and McCarthy, n.d.). They noted that existing structures in government and administrations make it difficult to design and implement policy. Many municipalities still have organisational structures and working models that were developed during the height of the industrial economy. These outdated tools are often silo based, top down and rigid, which does not favour the broad, multi-sectoral approach of the present. However, revising these structures and regulations is difficult and time consuming and therefore work must continue within these existing conditions.

There is a lack of provincial support and guidance to local authorities (Goble et al., 2017; Sowman and Malan, 2018). Municipalities need clear directives from higher tiers are needed to ensure effective coastal and marine management. For example, municipalities do not issue environmental authorisation, but can comment on the development applications sent to the issuing authority (NMBM, 2020b). The NMBM has tried to be conscious of institutional collaborations as noted by the of previously disparate municipal service departments Such as better linkages between Climate Change and Disaster Risk Management departments.

## 6.2 Dysfunctional governance

South African municipalities are characterised by high levels of dysfunction and corruption, and struggle to meet the basic services required by their mandates (Monkam, 2014). Politicization of the upper ranks of local government, enabled by the Municipal Systems Act (2000), has had dire consequences (Chipkin, 2016). In many councils, managers are appointed through political considerations and party loyalty rather than meritocratic principles

(Olver, 2018). This often extends down to appointments of deputy directors and more junior staff, despite the power to make these appointments vesting in the administration.

In Nelson Mandela Bay factional political interests and a blurred political- administrative interface hinder progress. To the extent that the NMBM struggles to convene council due to ongoing disagreements to the point of physical violence (as illustrated by councillors being injured during a brawl at a council meeting in 2016 (Spies, 2016)). The most recent NMBM Strategic Development Review and Scenarios (NMBM, 2014) states that despite commitment and significant capability, the NMBM has been a weak and divided organisation. Furthermore, leadership has failed to fulfil its responsibilities of overseeing the implementation and monitoring of internal controls (NMBM, 2014). There has been a pattern of slow response to internal audits such as irregular expenditure and incomplete reporting. A strong leadership tone is needed to instil discipline in employees and ensure sound financial management and compliance with laws and regulations.

## 6.3 Capacity building

Most local governments lack the capacity necessary to carry out their mandates (Goble et al., 2017). Having been involved in various coastal management committees and workshops, Taljaard et al. (2013) found that human and financial capacity constraints are the primary cause of ineffective coastal management. Many professionals and government officials involved in marine areas have a scientific or technical background. Very few are trained as professional planners and managers and end up having to ‘learn on the job’, which is an expensive, inefficient way to do business (Chadwick et al., 2014).

Adequately trained compliance and enforcement officers are needed for enforcement and skilled social scientists are required for successful stakeholder engagement (DEA, 2014; Western Cape Government, 2018). Due to a lack of trained employees municipalities tend to outsource research to consulting agencies. Poor understanding and technical terminology may result in communication gaps between stakeholders and officials (DEA, 2014). To address this national government has facilitated several training sessions ranging from an introduction to ICM, estuarine specific management, marine protected areas and compliance monitoring and enforcement (Goble, 2020). However, high staff turnover means there is a lack of institutional knowledge.

Officials are only elected for a five-year term and therefore are discouraged from the long-term thinking required for effective climate and coastal management (Perine and Keuck, 2018). The latest NMBM Strategic development review and scenarios (NMBM, 2014) noted that more then 80% of senior staff management positions were vacant during the year. Elected officials feel pressure to deliver on basic services and may resist spending scarce municipal funds on

improving resilience, a benefit they will not feel during their term. High staff turnover is also due to low morale in the NMBM, interviews with key informants from the same review (NMBM, 2014) found that staff did not feel their work is valued from a professional perspective and therefore feel despondent and fearful.

According to the 2020 NMBM BEPP (NMBM, 2020b) the municipality is trying to improve capacity through building relationships with other governmental departments (National Department of Public Works, National Treasury and the Eastern Cape Cooperative Governance and Traditional Affairs), parastatals (Passenger Rail Agency of South Africa and South African National Roads Agency) and private entities (Airports Company South Africa). These relationships present opportunities for agglomeration of resources and facilities and to rationalise investments.

## 6.4 Financial Resources

The financial burden of implementing climate change adaptations and resilience has been placed on municipalities (National Treasury, 2008). Most already struggle to supply basic services and are burdened with addressing infrastructure backlogs and maintenance of existing public assets. These activities take priority over environmental management and protection. Without adequate funding, implementation of various schemes and initiatives is almost impossible.

Ruwanza and Shackleton (2016) found that most municipalities rely on national government departments, particularly DEA and Department of Water Affairs (now Department of Water and Sanitation, DWS), as the source of funding for environmental issues. For example, removal of alien vegetation is funded by the national Working for Water project. Unfortunately, there is no national mechanism to elevate funding requirements (Goble et al., 2017).

For municipalities that do invest into adaption projects there are challenges with ‘up-scaling’ and fundraising as no measurable success can be measured at present (Santhia et al., 2018). Municipalities also need to consider ‘hidden’ expenses in the shift to becoming more sustainable, for example the potential lost revenue that results from off-grid electricity supply or the expense of securing solar panels to prevent theft (NMBM, 2017). In Algoa Bay there has been a lack of investment in renewable energy, recycling and the waste beneficiation value chain. To setup these projects would require considerable financial output, that only over the long-term will return dividends.

As already stressed, the NMBM experiences ongoing political instability and systematic corruption. The 2014 (most recent) NMBM Strategic Development Review and Scenarios (Stewart and Van Gend, 2007) noted the following financial issues in the Municipality:

incomplete financial reporting; irregular expenditure; and failure to act on internal audit findings and forensic reports.

## 6.5 Scale

Mismatches in scale between ecosystem change, human and climate pressures, research, and scope of governance are a significant challenge in managing coastal and marine resources (Lagabrielle et al., 2018). National government use broad-scale data (large area coverage) with low spatial resolution when developing country wide plans. To capture variation, it is important for tailored regional and local plans to be based on fine-scale, high-resolution data. For example, fisheries management is currently done at a national level, but needs to be amended to include regional-specific regulations due to the ecology of threatened fish species that are semi-resident in estuaries and in the inshore environment (DEA, 2014).

Protecting the coast has been tricky as the realm is divided into its 'land' and 'sea' components and therefore has often 'fallen through the crack' and been ignored in planning. Terrestrial and marine ecosystem type maps do not align accurately along the shore resulting in gaps and overlaps with no specific coastal boundary. To address this Harris et al., (2019) mapped the coastline of South Africa at a fine scale (at<1:3000) into ecologically meaningful zones comprising structurally and functionally appropriate ecosystem types. This data is used to update the National Biodiversity Assessment and inform coastal setback lines.

## 6.6 Monitoring, compliance and enforcement

Understanding the biophysical and socioeconomic environment of an area is vital for sustainable management (Ferrol-Schulte et al., 2015; Goble et al., 2019). Research on offshore areas is rare, with few time-series data available. This is mainly due to the costs of data collection, lack of infrastructure, and limited scientific experts (Danielsen et al., 2000; Koslow and Couture, 2013). As technology improves and becomes more accessible, knowledge pertaining to the marine environment is easier to collect (Lagabrielle et al., 2018).

Lack of political buy-in to promote compliance and enforcement is another concern (Goble et al., 2017). Over-exploitation of marine resources can lead to ecosystem collapse and for the oceans' economy represents a loss of valuable revenue. More patrollers and compliance officers are needed in the country. Rooting out corruption and preventing bribery is also essential to prevent poaching, overfishing and other illegal activities.

Abalone (also known as perlemoen) poaching is rife in the Bay, with frequent reports of smuggling (see AlgoaFM (2020) and Koen (2020) for recent examples). To help curb poaching a private security company, Dark Water Ops, assists with the protection of seeded abalone near the Cape Recife Lighthouse (https://www.darkwater.co.za/). The Bay's Coastal

Management Plan aims to educate the public so that they aware who to contact and can therefore assist with compliance monitoring (Clark and Behrens, 2015). It also recognizes the need to enforce the section of the *Marine Living Resources Act* that stipulates that no person, except on the authority of a permit, may approach a whale or dolphin surface within 300 m.

As mentioned previously, Algoa Bay is well studied and monitored because of research conducted by the Nelson Mandela University and the South African Environmental Observation Network (SAEON) Algoa Bay Sentinel Site for Long-Term Ecological Research. For example, there is ongoing monitoring of the highly urbanised Swartkops Estuary by the university, the municipality and non-governmental organisations like the Zwartkops Conservancy and Wildlife and Environment Society South Africa (WESSA).

## 6.7 Stakeholder engagement

Public participation and stakeholder engagement are vital for the success of sustainability and conservation (Sowman and Malan, 2018). Stakeholders provide wider social and political values that would not be gained through adopting an exclusively scientific approach (Spires et al., 2014). Local citizens are aware of the need for environmental protection, as illustrated by the public outcry regarding the development of fishfarms along the Port Elizabeth beachfront (FINSA, 2019).

Effective stakeholder involvement is challenging, costly and time consuming and therefore many organisations undertake the minimal requirements as a 'tick box' exercise (Ziervogel et al., 2014; Yates, 2018). Community members need to be included in a transparent, fair, consistent way which gives them power to manage their own resources. Highlighting the opinions and needs of minority groups also requires skill and political will in order to balance out the agendas of more powerful actors (Yates, 2018; Young et al., 2016). Inadequate stakeholder engagement can lead to project delays or even failure if stakeholders do not trust or support initiatives (Aronsson and McCarthy, n.d.; NMBM, 2017; Yates, 2018).

Consistent and clear communication between management authorities and communities is key. Open dialogue is preferred over one-way information sharing and can encourage the public to be aware and report suspicious and illegal activities. This communication needs to be easy to understand to ensure that language is not a barrier. Science communicators and environmental educators are needed to ensure that scientific information is effectively disseminated to communities (Spires et al., 2014).

The 2014 NMBM Strategic development review and scenarios (NMBM, 2014) noted that the municipality has poor relationships with business and citizens. The toolkit co-designed with the City of Gothenburg described ways to improve communication between the municipality

and the public, including: listening to local perspectives; practising openness by explaining undertaking actions; creating a common vision; compromising where necessary; combination of formal engagements and informal sessions; and communicating over a long period of time to many different audiences (Aronsson and McCarthy, n.d.).

The NMBM Coastal Management Plan stated that representation at the existing Coastal Management Forum must be extended to include community representatives from across the city and from all government departments linked to the coastal zone, including ward councillors, the NMBM Disaster Management, Human Settlements and Infrastructure and Engineering departments (Clark and Behrens, 2015). A database of coastal stakeholders must be developed, who can be invited to forum meetings, and for information sharing.

## 7. Conclusions

The problem with sustainable coastal and marine management in South Africa is not due to a lack of policies, strategies, or initiatives, but rather the translation thereof into effective implementation. To succeed there is a need for clear roles and mandates in all legislation and policies. There needs to be dispersive, horizontal integration between the different departments in charge of managing these resources as well as vertical integration within the three spheres of government. Delegating responsibilities to different spheres of government, non-governmental organisations, private sector, and public stakeholders will increase capacity, both human and funding, and decrease delays in implementation.

Athol Trollip, NMBM mayor from 2016-2018, in the foreword to the Long-Term Growth and Development Plan 2017-2032 stated that the metropolitan is essentially bankrupt with extremely limited administrative capacity. Furthermore, “while there are individual public servants with considerable professional skill and experience, it is undeniable that our predecessors have ruined what was once an effective administration”. As described in this report, the Bay faces severe organisational challenges including instability, political/administrative blurring, problems with legal compliance and an extremely poor labour relations environment.

Since late 2019 Algoa Bay has been declared a disaster area due to ongoing drought and inability to supply potable water to all residents. The unprecedented National State of Disaster due to COVID19 and the National Lockdown occurring in 2020 required the Municipality to put its energy into plans to mitigate against these pressing threats. Since most municipalities in South Africa already struggle to supply basic services, the compounding effects of ongoing drought and COVID19 may overstretch the Municipality’s limited budget. Environmental management is likely one of the areas that falls to the wayside during such times.

Building resilience and mitigating for climate change is considered a future problem that is removed from local circumstances and priorities. There needs to be a change from this short term thinking to rather imbue the principles of the three ABM tools utilised in the country.

The CICLICO projects aims to address these shortcomings through various stages including an institutional analysis and a Capitals Approach Framework. The institutional analysis will identify relevant stakeholders for engagement and help create meaningful relationships between citizens, business, government and media. The latter will assess the capacity (skills and resources) of NMBM to evaluate what is realistic and possible in terms of co-developing climate services for the city. Through CICLICO scientists will work closely with municipal coastal managers and planners so responses to climate adaptation can be co-created that are relevant to NMBM context.

In conclusion this report reveals that the NMBM suffers from a plurality of legislation and strategic planning processes that need to be aligned to prevent development from happening in an ad hoc manner. The CICLICO project plans to bridge this current disjuncture between intention and practice.

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