



Coastal management in South Africa: Historical perspectives and setting the stage of a new era



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ABSTRACT

The coastal environment represents a critical interface of human activity, socio-economic influence and ecological diversity. It is estimated that the coastal environment supports some 30% of the world's population and provides a range of social and economic benefits. Use of the coastal environment is ever increasing due to its attractiveness for recreation and leisure activities, holiday homes and retirement. As a result, the coastal environment is constantly under pressure and management actions, policies and legislation need to ensure the protection of this unique environment. South Africa is considered to be the third most biodiverse country in the world, largely linked to coastal and marine diversity with a number of Marine Protected Areas (MPA). This rich biodiversity needs to be carefully managed while also meeting the needs of South Africans with regards to access to coastal and marine resources. To date management of the South African coast has been governed by various statutes and access to the coast and its resources has been affected by historical spatial planning and socio-political conditions. To facilitate a more holistic management the newly promulgated Integrated Coastal Management Act (Act 24 of 2008) is an attempt to better manage coastal resources to protect coastal assets and functionality. The ICM Act is inherently dynamic, attempting to tackle the interlinked problems of coastal development and conservation. However, to ensure implementation, capacity challenges and historical fragmented governance structures need to be addressed.

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1. Introduction

Coastlines represent some of the most important environments in which human activity, socio-economic influence, ecological and topographical diversity and geomorphological conditions interact (Fabbri, 1998). Small and Nicholls (2003) estimate that 30% of the global population are resident at or near the coast, with many coastal countries supporting a large percentage of their population (80–100%) within 100 km of the coast (Martínez et al., 2007). Coastal systems are important economic resources, with combined global value of goods and services being in the region of US \$10 trillion annually (Costanza et al., 1997), which accounts for approximately 77% of the world global value of ecosystem services (Martínez et al., 2007).

Due to the dynamic nature of the coast and demand for its resources, management of this zone is difficult to conceptualise and boundaries are often poorly defined with the coast referred to as a zone or area of transition (Kay and Alder, 2005). This coastal zone includes a broad array of habitats varying from rivers and estuaries, coastal forests, wetlands to coral reefs, sea grass beds, soft bottom or rocky benthic substrates (Carter, 1999; IGOS, 2006). These in turn provide a range of ecosystem goods and services such as fisheries, water purification and coastal erosion protection, all of which are critical for sustaining populations living within close proximity to the sea (Sale et al., 2008). Of concern, coastal habitats are being adversely affected by sewage and non-point discharges of pollution, development of artificial structures and the removal of naturally functioning areas (Martínez et al., 2007). It is estimated that coral reefs experience loss of 4–9% per year, salt marshes between 1% and 2% and mangroves between 1% and 3%, these losses are more rapid than the global loss of tropical forests, which is estimated at 0.5% per year (Duarte, 2009).

Coastal authorities are faced with managing a highly complex environment that is subjected to natural and anthropogenic

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pressure, driven by population increases and in-migration to coastal areas due to increased tourism, recreation, residential and industrial development, and urban encroachment. Concerns are exacerbated by the potential effects of climate change, with coastal environments being highlighted by the Intergovernmental Panel on Climate Change (IPCC) as an 'area of particular concern' (Nicholls et al., 2007). It is anticipated that one of the most significant effects of climate change on the coastal environment will be sea-level rise, which will increase the coast's exposure to other risks, such as coastal erosion, potential intensification of tropical and extra-tropical cyclones, and flooding and over-wash events (Nicholls et al., 2007).

While human impact and modification of natural coastal areas are not new concepts, with ancient civilizations having built ports and seawalls and deviated rivers, the engineering that supports this has increased significantly resulting in an intensification of these impacts on a global scale (Kay and Alder, 2005). This is evident, for example, from changes in coastal sediment supply where some interventions such as land clearance for agriculture, have led to increased sediment loads in rivers. In other instances the trapping of sediment by dams results in a net loss of sediment from the system (Walling, 2006). The need to reconsider how coasts are managed has long been recognized, with policy makers defining policies and legislative instruments to address the problems of managing this complex zone (Nobre, 2011). The notion of coastal management is constantly evolving (Kay and Alder, 2005), with a long history of attempting to create a political setting in which coastal communities can partake in the decision making process collaboratively (Bremer and Glavovic, 2013).

Integrated coastal management is a globally utilized approach for the management of the coast and its resources; emerging predominantly in response to the failures of sectorial management (Cicin-Sain and Knecht, 1998; Scottish Executive Central Research Unit, 2001). In spite of national and international instruments relating to coastal management, coastal management initiatives often fail as people living in the coastal area have a limited understanding of the economic, cultural and aesthetic value that a sustainably managed coast can provide. This is exacerbated by the fact that the rate at which development and impacts are occurring is increasing and long-term management strategies are not perceived to be relevant in the short-term (Sale and Butler, 2008). What are required are coastal management initiatives that are able to create and empower institutions to support decision making with the best quality knowledge available, traditionally through the integration of natural and social science with the political processes of decision-making (Bremer and Glavovic, 2013).

South Africa, having almost 3 000 km of coastline, is one such country grappling with sustainability of coastal resource use. The South African coastal environment offers a wide range of social and economic resources, which are exploited for traditional uses, such as subsistence harvesting of shellfish and religious ceremonies, and recreational activities, such as diving, swimming and fishing. Furthermore the coastal environment offers a range of ecological services, the estimated value of which is some \$6 766 million for South Africa (Martínez et al., 2007). South Africa is considered to be the third most biodiverse country in the world, with its coast being home to the Maputaland-Pondoland-Albany hotspot which supports a range of endemic, threatened fauna and flora (Conservation International, 2013). The value of this area is further highlighted by the world heritage status it has been afforded, as part of the iSimangaliso Wetland Park (iSimangaliso Wetland Park Authority, 2009). The importance of the coast and its resources is underpinned by the declaration and management of a number of Marine Protected Areas (MPA); namely the Pondoland MPA,

Table Mountain National Park MPA, Bird Island MPA, and Stilbaai MPA (Kidd, 2011).

Unique to South Africa, coastal management and planning has been shaped by the historical spatial-political planning of Apartheid, which has resulted in current access and development being unevenly distributed along the coast. These factors highlight the need for careful management of the South African coast, and have led to the development and enactment of the *Integrated Coastal Management Act (Act No. 24 of 2008) (ICM Act)* in December 2009. This paper considers historical governance of the South African coast and how these have shaped the objectives of the ICM Act. It considers international instruments which are relevant to South Africa that impose legal obligations on South Africa or provide guidance on coastal management. We consider the obligations imposed by the Act on the various spheres of government and identify implementation limitations in view of developing decision support tools to facilitate and improve implementation.

2. International recognition of the need for integrated coastal management

In the past thirty years there has been a notable increase in the number of international instruments directed at dealing with the problems that are threatening marine and coastal biodiversity (Wynberg, 2000). In the late 1980s to early '90s there was a realization that ecosystems were being degraded by rapidly increasing populations and utilization of resources (Kay and Alder, 2005). In terms of *Article 61 United Nations Convention on the Law of the Sea (UNCLOS)*, the most important international instrument concerning oceans, recognizes an Exclusive Economic Zone (EEZ) of 200 nautical miles, and provides that coastal states are responsible for the conservation and management of living resources within their EEZ (UNCLOS, 1982). In 1992, through Agenda 21, the international community recognized the need for environmental action. Chapter 17 of Agenda 21 identifies a number of activities for achieving integrated management and sustainable development of coastal areas, through integrated coastal zone management (United Nations, 1992a). However, it was acknowledged that established management approaches were not effective in achieving sustainable development (UNEP, 2012). Which led to the realization that economic maximization could not be applied if the goal of ensuring sustainable use of resources was to be achieved, and ecosystem approaches were established and applied to coastal areas (Kay and Alder, 2005). However, ecosystem management along the coast is difficult as there is a lack of information on its biodiversity, functioning, dynamics and interactions with other ecosystems (Christensen et al., 1996). In 1996, the World Bank published guidelines for effective ICM to assist countries with setting up ICM legislation and putting programmes in place. The guidelines outlined roles and responsibilities across government structures, the general public and other coastal stakeholders, and highlighted how ICZM plans should be implemented, monitored, evaluated and enforced (Post and Lundin, 1996).

In 1999 the Hangzhou Declaration on Sustainable Solutions for Resolving Problems Associated with Urbanization of Coastal Areas, the *Intergovernmental Oceanographic Commission (IOC)* identified human migration to coastal areas and the emergence of coastal megacities, as an area of concern, a concern now realized by many countries including South Africa. The Declaration identifies that education, training and public awareness need to be increased as a way of ensuring that the interactions between coastal and urban environments are appreciated and understood (UNESCO, 2000).

The *United Nations Convention on Biological Diversity* (1992) highlights the need for conservation of biological diversity and sustainable use of these resources (United Nations, 1992b, Article

1). In terms of Article 7 of the Convention, parties should, where possible, identify ecosystems and habitats of high diversity, large numbers of endemic or threatened species, areas of wilderness, or areas required by migratory species for conservation and sustainable use. Parties should consider the social, economic, cultural or scientific importance of areas that should be conserved and monitored (United Nations, 1992b). While Article 8 allows for the declaration of protected areas (Article 8), in order to ensure the conservation of identified biological diversity. An outcome of the 2010 *Conference of the Parties (COP)* to the *Convention on Biological Diversity (CBD)* was the updating of the Strategic Plan for Biodiversity and the identification of targets for the period 2011–2020. Key to the coastal environment is Target 11, which sets the goal that by 2020 at least 10% of coastal and marine areas are conserved, especially areas of particular importance for biodiversity and ecosystem services (Decision XI/11). Under the CBD, Marine and Coastal Biodiversity has been highlighted as a thematic programme, for which the COP has adopted a number of key decisions and has recognized the importance of Integrated Marine and Coastal Area Management (Decision VIII/22).

In 1995 a number of countries adopted the *Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA)*. The GPA is designed as a source of conceptual and practical guidance for the development of national and regional plans and actions to prevent, reduce and control marine degradation as a result of land-based activities (UNEP, 1995). South Africa, subsequently (in 2008) developed a National Action Plan for the Protection of the Marine Environment from Land Based Activities, which is aimed at ensuring that all South Africans have the opportunity to benefit from the resources that the coast offers and in so doing take shared responsibility for the health and maintenance of the coastal environment.

In eastern and southern Africa, coastal management initiatives were brought into focus in 1980 through the regional seas programme initiated by UNEP in 1974 after the UNEP governing council designated 'oceans' as a priority area for which activities were to be developed (UNEP, 2012). The Council endorsed a regional approach to the control of marine pollution and the management of marine and coastal resources, aimed at long-term monitoring and management of coastal environments. However, these programmes considered broad changes and the effects of change at the international level (UNEP, 2012) and the governments of Somalia, Kenya, Tanzania, Mozambique, Comoros, Madagascar, Mauritius, Seychelles and Reunion came together and requested UNEP to create a regional seas programme for the region, as had been done in other areas. In 1980 the *Eastern African Regional Seas Programme* was established, however countries in the region required additional assistance in terms of formulation and implementation of programmes. Thus, in 1985 the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) was adopted and created a platform for the development of programmes aimed at strengthening the capacity of governments in the region. This resulted in the *East African Coastal Resources Database and Atlas Project*, which mapped a corridor of land 100 km wide, inland of the high water mark, to provide synthesized information on the coastal environment that would inform future planning and development in this zone (UNEP, 2001).

The Nairobi Convention is now an important platform for dialogue between Governments and civil society (UNEP, 2013), with a number of protocols under the Nairobi Convention, such as the Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities, the *Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region* and the Protocol Concerning Co-

operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region (UNEP, 2013). Following the adoption of the Nairobi Convention, as well as the *Arusha Resolution on Integrated Coastal Zone Management in Eastern Africa Including Island States* (1993) and the *Seychelles Statement on Integrated Coastal Zone Management* (1996), the *Secretariat for Eastern African Coastal Area Management (SEACAM)* was launched in Maputo, Mozambique (1997). The SEACAM's objective is to assist Eastern African coastal countries and the Western Indian Ocean Island States to implement ICM, and it is currently active in Eritrea, Kenya, Mozambique, Tanzania, South Africa, Comoros, Madagascar, Mauritius, Seychelles and Reunion (Fr) (UNEP, 2001). There are a number of other global and regional instruments and agreements that have bearing on marine and coastal management in the region and globally, as outlined in Table 1, with a number of countries, including South Africa being party or signatories to a number of these. Most recently, Angola, Namibia and South Africa came together to sign the *Benguela Current Convention* which captures the countries' intention to conserve and manage the Benguela Current Large Marine Ecosystem (BCLME) jointly, for the benefit of present and future generations. The BCLME is considered to be one of the richest ecosystems, with ecosystems services being estimated at approximately US\$54 billion per year (GEF, 2013).

As is evident there are a plethora of international instruments pertaining to global coastal management and collaboration. However, in spite of significant progress in the formulation and adoption of these instruments, implementation in coastal developing countries at the local level has been hindered, primarily by inadequate human resource capacity and financial constraints (Hewawasam, 2002), where countries are dealing with national legislation as a priority of international obligations.

3. Coastal management in South Africa

As is evident from Fig. 1, various statutes and policies have shaped or changed how the coast has been managed over the past 40 years. The protection of the coastal environment is underpinned by the *Constitution of the Republic of South Africa, (No. 108 of 1996)*, although not expressly referring to coastal management; the Constitution provides a framework for the management of the coast. It highlights the need for co-operative governance (Sections 40 and 41) and the need to develop the capacity of lower spheres of government, provincial government in terms of Section 125(3) and local government in terms of Sections 154(1) and 155(b). However, some argue that the Constitution does not provide adequate

Table 1

Selection of international agreements to which South Africa is party to.

Agreement	Year	Number party to agreement
Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (London Convention)	1972	77 Parties
International Convention for the Prevention of Pollution from Ships (MARPOL)	1978	96 Parties
United Nations Convention on the Law of the Sea: General provisions	1982	110 Parties (60 countries signed but not yet ratified)
World Summit on Sustainable Development (WSSD): Plan of Implementation	1992	189 Countries
The Jakarta Mandate (under the Convention on Biological Diversity)	1995	145 Countries
Protocol to the London Dumping Convention	1996	43 Countries

(The Millennium Project, 2011; Hoyt, 2011).



Fig. 1. Evolution of coastal management in South Africa, as influenced by other environmental legislation, to the development of the ICM Act.

direction regarding the administration and management of the complex coastal environment (Smith and Cullinan, 2000).

While a range of environmental specific statutes and policies are in effect, there are various other planning statutes that have bearing on the management of the coastal zone, specifically in terms of land management, planning and utilization, notably, the historical Apartheid planning legacy. Apartheid, meaning 'apartness' or separateness, refers to the policy of separating people based on race and came into effect in 1948 (Clark and Worger, 2004). During this time, the government set up 10 homelands (in accordance with the *Natives Lands Act (Act No. 27 of 1913)*) The effects of Apartheid planning are still evident today, with specified race or ethnicity groups predominantly occupying certain areas. The homelands were nominally self-governing tribal homelands, with most having their own nature conservation laws, several of which are still in force (Figs. 1 and 2). This has impacted the coastal landscape of South Africa significantly, with former 'white' areas being densely populated and developed and former 'black' or homeland areas

remaining underdeveloped, with limited access to economic resources or social services and inadequate infrastructure (Matthews, 2001).

The Post-Apartheid South African government has implemented land reform policies, aimed at restitution, redistribution and tenure reform of land to secure land rights (Lahiff, 2003; Adams et al., 1999). However, land reform is challenged by limited budget, lack of policy direction, inadequate co-operation between government spheres and constraints imposed by the national land reform policy (Lahiff, 2003), resulting in low levels of land reform, and a high degree of uncertainty pertaining to ownership and developmental rights of land which in turn has resulted in lack of development. With much of this land being along the coast, future management of these areas needs to balance access and land rights against coastal conservation needs.

In South Africa management and legislative objectives are achieved through the division of government structures into three spheres: national, provincial and local government, in order

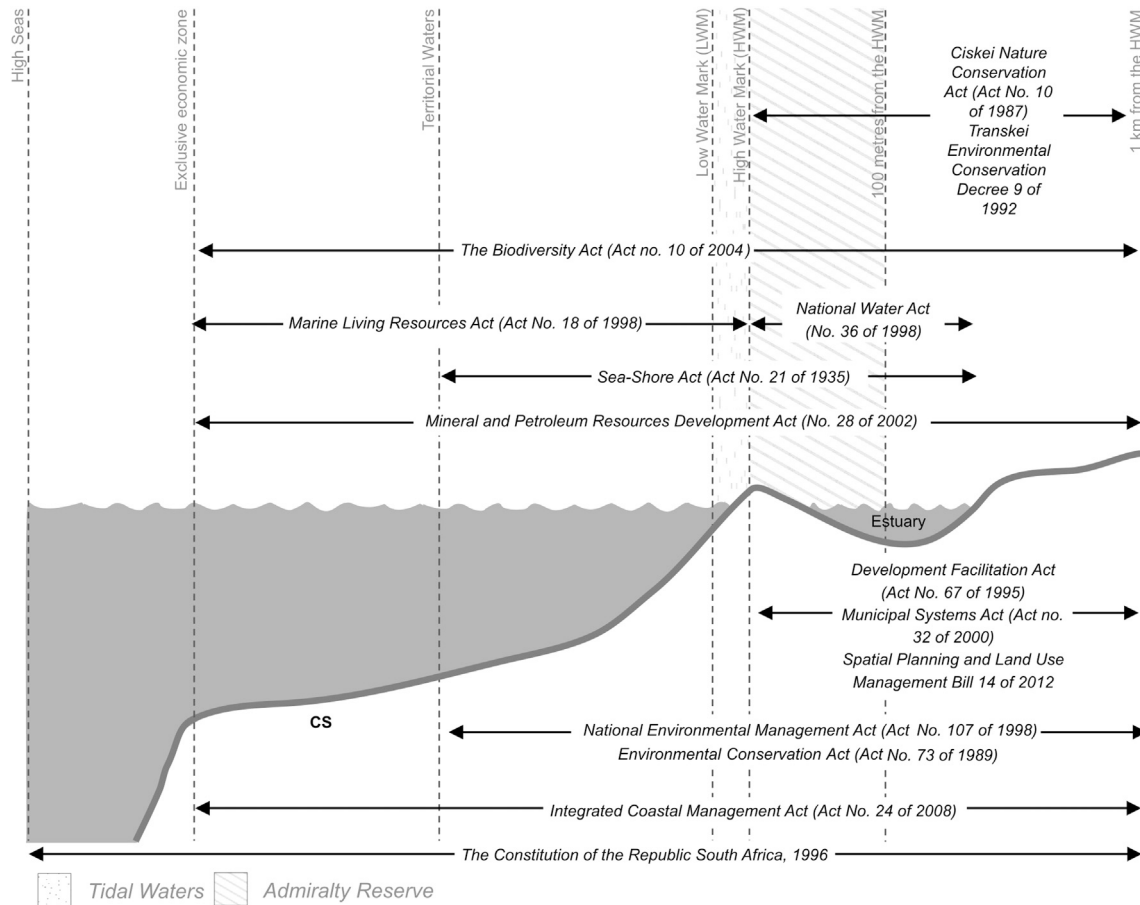


Fig. 2. Summary of legislative jurisdiction in South Africa (Adapted from Glavovic, 2000). Where: LWM – low water mark, HWM – high water mark, TW&R – tidal waters and rivers and CS – continental shelf.

to streamline and divide management roles and responsibilities. All three spheres of government have legislative and executive authority in their own spheres (s40 of the Constitution). National government is responsible for the implementation of laws and policies at a national level, dealing with issues that are of concern to the whole country (s85 of the Constitution). In South Africa there are nine provincial legislatures, which are authorized to enact provincial legislation on issues included in specified 'functional areas', so as to ensure better management of individual provinces and their resources (s104 of the Constitution). Provincial government is responsible for the co-ordination, monitoring and support of local municipalities within each province (s155 of the Constitution). Local authorities are largely responsible for daily management relating to natural resource management, land use planning, land development, catchment management, coastal and drainage engineering, local economic development, environmental assessment, strategic planning, housing and service delivery, environmental health and tourism promotion (s156 of the Constitution).

Coastal management in South Africa has been fragmented across different departments and spheres of government, all of which have different, often conflicting, mandates and management objectives (Fig. 2) (Wynberg, 2000; Sale and Butler, 2008), hence the need for dedicated coastal management legislation and the development of the ICM Act. While the ICM Act aims to achieve holistic management of the coast, it is important to note that this does not repeal existing statutes discussed, with the exception of the *Dumping at Sea Control Amendment Act* (Act No. 73 of 1995) and

sections of the Sea-shore Act. However it does supersede these in the event of conflicts between the statutes.

4. The Integrated Coastal Management Act

The development of the ICM Act went through a number of phases, starting with a Green Paper (*Towards Sustainable Coastal Development in South Africa*) in 1998, which identified the need for a coastal policy and laid the foundation for the development of a White Paper (*The White Paper for Sustainable Coastal Development*) in 2000. The White Paper saw a paradigm shift in how the coastal zone was defined and managed, moving from a 'conservation discourse' to a 'sustainable development' discourse (Glavovic, 2006), with the coastal zone being defined as a zone extending as far seaward and landward as necessary for effective management. The White Paper recognized that the coast needed to be managed as a system and not by the sectors of users who benefit from the opportunities it provides (DEAT, 1999). Following on from the White Paper was the development of the ICM Bill and subsequently the ICM Act, which commenced in December 2009. The ICM Act promotes a more holistic or ecosystem based approach whereby the coast is managed as a unit, encompassing all elements that have historically been fragmented and addressed by the various statutes (Table 2). This principal of the Act aligns with international Ecosystem-Based Management (EBM), with management considering ecological systems and promoting inter-sectorial coordination without focussing on single issues, species, or ecosystem functions in isolation (UNEP, 2011).

Table 2

Aspects of coastal management addressed by other statutes, it is evident that the ICM is more holistic than previous statutes.

	Ecological & biodiversity conservation	Coastal buffer/ protection zone	Social rights of access to & use of resources	Cooperative governance
Crowns Lands Act (Act 2 of 1860)		X		
Sea-Shore Act (Act No. 21 of 1935)	X			
Natives Lands Act (Act No. 27 of 1913)		X		
Environmental Conservation Act (Act No. 100 of 1982)		X		
Nature Conservation Act (Republic of Ciskei, Act No. 10 of 1987)		X		
Transkei Environmental Conservation Decree 9 of 1992		X		
Constitution of the Republic of South Africa, (No. 108 of 1996)	X		X	
Marine Living Resources Act (Act No. 18 of 1998)			X	
National Environmental Management Act (Act No. 107 of 1998) (NEMA)	X		X	
National Water Act (No. 36 of 1998)	X		X	
The control of vehicles in the coastal zone regulations	X		X	
Mineral and Petroleum Resources Development Act (No. 28 of 2002)			X	
Protected Areas Act (Act no. 57 of 2003)	X			
The Biodiversity Act (Act no. 10 of 2004)	X			
<i>Integrated Coastal Management Act (Act 24 of 2008)</i>	X	X	X	X

Importantly, in terms of the ICM Act, the state must act as the trustee of the coastal zone, holding coastal public property in trust on behalf of the citizens of the Republic, it is inalienable and cannot be sold, attached or acquired (ICM Act, S11). It must ensure that coastal public property is used, managed, protected and enhanced in the interests of the whole community, and must take reasonable measures to protect it, ensuring that no person causes adverse effect on the coastal environment (ICM Act, S12). All organs of state have a responsibility to manage activities on or in coastal waters, and must do so in the interests of the whole community, to ensure and maintain fair and equitable access to and use of resources (ICM Act, S21).

5. Discussion

As with many third world countries, South Africa is reliant on natural resources to support livelihoods, the management of these resources and their utilization is critical for ensuring long-term sustainability. As a result environmental legislation in South Africa is people-centred or anthropocentric, where the environment is managed for the benefit of people (Kidd, 2011). Section 2(4)(o) of NEMA states 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.” This principle follows the *United Nations Convention on Biological Diversity* objective for “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources¹...” (United Nations, 1992a; Article 1).

The ICM Act follows the objective of NEMA and adopts a people-centred, pro-poor approach to coastal management (Glavovic, 2006), with its objectives focused on 2(e) preserving, protecting, extending and enhancing the status of coastal public property as being held in trust by the State on behalf of all South Africans, including future generations; in order 2(d) to secure equitable access to the opportunities and benefits of coastal public property. The notion of people-centred management for the coast was fostered in the original policy document for coastal management, with the White Paper setting out a people-centred approach that highlights that maintaining healthy and productive coastal ecosystems is central to facilitating sustainable coastal development and contributing to the reconstruction and development in South

Africa (DEAT, 1999). The premise being that this will afford the coastal environment greater security, as sustainability for human use incentivises conservation (Glavovic, 2006). However, Wynberg (2013) cautions that ‘benefit-sharing’ management is a buzzword, creating visions of community empowerment, enrichment and partnerships that offer equitable access and use of resources. Very seldom is this case, with governments left to develop policies in support of people-centred ICM, and a number of challenges associated with this (Taljaard, 2011), resulting from ‘knowledge gaps and government incapacities to deal with issues’ (House and Phillips, 2012, p495), such as the implementation of new legislation. Over the past 40 years, there has been a debate among integrated coastal management scholars and practitioners on the best way to mobilize knowledge, with some experts defending a science based interface, while others advocate a more participatory interface that admits all coastal stakeholders and their knowledge systems (Bremer and Glavovic, 2013).

In South Africa, the ICM Act goes beyond the scope of previous statutes and aims to align with global issues, such as climate change, and advocates adaptation and management of the effects of climate change through the determination of coastal set-back lines, which should protect coastal public property, private property, the coastal protection zone and public safety (S25 (1)(i) and (ii)) from the effects of sea-level rise, storm surge and coastal erosion (Goble and MacKay, 2013). Furthermore it advocates for the protection of the marine and coastal environment through the determination of protected areas as heightened by the *Convention on Biological Diversity*. While the determination of Marine Protected Areas (MPA) is achieved in terms of the Marine Living Resources Act (MLRA) (S43), the ICM Act provides mechanisms for better management of these areas. In South Africa there are 23 MPAs, some of which are classed as no-take MPAs in which some activities are permitted and closed areas, in which no activities are allowed (Sink et al., 2012). Recently, South Africa declared the Prince Edward Islands (PEI) MPA, one of the largest of its kind and the first South African offshore MPA. It will contribute significantly to global protection of offshore and deep ocean areas (DEA, 2013a). Notably the establishment of this MPA contributes significantly towards South Africa’s national and international commitments to biodiversity protection (DEA, 2013a).

Implementation of the ICM is complicated by the territorial overlap with other existing legislation (Fig. 1), which has not been repealed and can result in conflicts of jurisdiction and inadvertently prevent participatory resource management and sustainable utilization of resources (Castro and Nielsen, 2003). That said, the ICM Act attempts to address this through holistic management of all

¹ Means genetic material of actual or potential value.

Table 3

The requirement of the ICM Act and progress achieved for the four year period from enactment to date.

Requirement	Section of the ICM Act and time frame	Progress (2013)
Designation and functions of provincial lead agency	38. (1) The Premier of each coastal province must, within two months of the commencement of this Act, designate a provincial organ of state to function as the lead agency for coastal management in the province and must ensure that there is at all times a lead agency for coastal management in the province which is responsible to the MEC.	All four coastal provinces now have a designated lead agent; however this took three and a half years for some provinces.
Establishment and functions of Provincial Coastal Committees	39. (1) Each MEC must within 12 months of the commencement of this Act establish a Provincial Coastal Committee for the province.	There is mixed progress, some provinces have functioning PCC's in place, while others are yet to get this up and running.
Establishment and functions of National Coastal Committee	35. (1) The Minister must by notice in the Gazette establish a National Coastal Committee and determine its powers (no specified time frame – but should align with the Provincial Coastal Committees)	To date there is no National Coastal Committee – this section of the Act is under amendment, thereafter a National Coastal Committee may be established.
Designation of coastal access land	18. (1) Each municipality whose area includes coastal public property must within four years of the commencement of this Act, make a by-law that designates strips of land as coastal access land in order to secure public access to that coastal public property.	There is mixed progress, with better capacitated local authorities having identified coastal access and have mechanisms in place to manage this.
National estuarine management protocol	33. (1) The Minister, with the concurrence of the Minister responsible for water affairs, must within four years of the commencement of this Act prescribe a national estuarine management protocol.	A draft protocol was developed and released for comment in 2012.
Preparation and adoption of national coastal management programme	44. (1) The Minister must within four years after this Act takes effect, prepare and adopt a national coastal management programme for managing the coastal zone.	A national coastal management programme has been drafted with public consultation being undertaken in 2013.
Preparation and adoption of provincial coastal management programmes	46. (1) The MEC of each coastal province must within four years of the commencement of this Act, prepare and adopt a Provincial coastal management programme for managing the coastal zone in the province.	There is mixed progress. While provinces do not have CMP in accordance with the ICM Act, that have historical management strategies. National government is in the process of developing a guideline for the development of coastal management programmes.
Preparation and adoption of municipal coastal management programmes	A coastal municipality must, within four years of the commencement of this Act, prepare and adopt a municipal coastal management programme for managing the coastal zone or specific parts of the coastal zone in the municipality.	There is mixed progress, with better capacitated local authorities having drafted coastal management programmes. National government is in the process of developing a guideline for the development of coastal management programmes.
Information and reporting on coastal matters	93. (2) The MEC must prepare a report on the state of the coastal environment in the province every four years , which must contain any information prescribed by the Minister.	To date none of the coastal provinces have completed this reporting.

It is important to note that provincial authorities have identified other priority sections for auctioning, which do not have timeframes attached, such as the determination of coastal set-back lines.

components of coastal biodiversity and social management, a component identified as a gap by previous statutes (Table 2). For the Act to be effective there needs to be strict articulation and balancing of management roles (Alves et al., 2013). The Act decentralizes management with greater provincial and local authority roles and responsibilities. While an improvement over historical centralized, top-down management, concern has been raised as to the onerous nature of the Act and the high degree of cooperative governance required in order to achieve the targets (Palmer et al., 2011).

Decentralization of roles has led to local authorities being left with the daunting task of implementing the new statute and ensuring 'better management' of the South African coast. The obligations imposed by the ICM Act, while aimed at enhancing coastal management, place pressure on authorize that often do not have the human and financial capacity address them (Palmer et al., 2011). Decision makers need knowledge on a diversity of topics, some of which are beyond their expertise but essential for informed decision making (Westmacott, 2001).

Current implementation of the ICM Act has been met with mixed success; the ICM Act outlines a number of obligations and timeframes within which these should be achieved. Table 3 highlights those requirements that should have been achieved since

enforcement, a period of four years. Progress on meeting these targets has been mixed, driven by varied human and financial capacity to achieve these targets. Ability to meet these targets is linked to capacity to understand the requirements and resources to achieve those (Palmer et al., 2011). A 2008 study highlighted capacity issues in the Eastern Cape Province (one of four coastal provinces in South Africa), interviewed respondents expressed concern as to the capacity of local government to meet the requirements of the Act as they already lacked capacity to deal with service delivery and increasing development pressure. Furthermore, it was further noted that in some instances local authorities had no person responsible for environmental management due to financial constraints (Palmer, 2008), thus the implementation of an additional unfunded mandate has been met with mixed success.

A criticism of the ICM Act has been the lack of guidance for implementation, with much being left to interpretation (Palmer, 2008). As a result, there are a range of guidelines available to streamline and assist authorities to meet the objectives of the ICM Act: the User Friendly Guide to the ICM Act (Celliers et al., 2009), the ICM Act Enforcement Manual (DEA, 2011), and the National Estuaries Protocol (DEA, 2012). Others in development include a guideline for developing a Coastal Management Programme, guidelines for the establishment of coastal committees, and a

guideline for the determination of coastal management lines, with a range of others on the table for future development (DEA, 2013b). Thus, it is evident that there is a need to facilitate or assist authorities with the implementation and objectives of the ICM Act.

A globally recognized approach, albeit with mixed success, is the use of decision support tools, with different tools are appropriate under different conditions with no single tool being universally applicable for a region or application. For South Africa to benefit from such tools, unique tools need to be developed that support coastal authorities with the implementation of the ICM Act and decision making.

6. Conclusion

South Africa's coastal management has evolved and resulted in the development of the ICM Act. The ICM Act is inherently dynamic, attempting to tackle the interlinked problems of coastal development and conservation. Just as natural and man-made changes have become integrated, so too should the management structures and legislation that govern these. That said, a greater paradigm shift is required to allow for these overlaps. In turn this will ensure that historical fragmented governance structures are overcome and implementation is improved. Effective implementation will facilitate appropriate and sustainable use of coastal resources, responsible coastal development and the protection of ecologically sensitive areas, which ensures natural coastal functioning and protection.

As identified in this paper, the ICM Act has a range of legislated requirements that require capacity and financial resources to achieve. Only four years into the implementation of its new Act, some lessons have emerged that highlight the current capacity constraints and speak to the complexity of legislation that is to be implemented. As a result, the implementation of this statute has been met with mixed success, with a number of challenges that need to be overcome if holistic coastal management is to be achieved.

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