Governance of Africa's Resources Programme

Promoting the Integrated Governance of South Africa's Coastal Zone

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ABOUT THE GOVERNANCE OF AFRICA'S RESOURCES PROGRAMME

The Governance of Africa's Resources Programme (GARP) of the South African Institute of International Affairs (SAIIA) is funded by the Norwegian Ministry of Foreign Affairs. The programme contributes to policy governing the exploitation and extraction of Africa's natural resources by assessing existing governance regimes and suggesting alternatives to targeted stakeholders. GARP examines the governance of a number of resource-rich African countries within the context of cross-cutting themes such as environmental change and sustainability. Addressing these elements is critical for Africa to avoid deepening the challenges of governance and reducing its vulnerability to related crises, including climate change, energy security and environmental degradation. The programme focuses on the mining, forestry, fisheries and petroleum sectors in select African countries.

ABSTRACT

The effective management of the coastal zone is linked directly to the long-term development and wellbeing of coastal populations. Its importance warrants a dedicated management approach to balance its development, use and protection. Integrated coastal management has been developed over the past few decades to address multiple-use conflicts, pre-empt and plan for new uses, and protect vulnerable ecosystems and marine biodiversity. Integrated coastal management uses a variety of policy and planning instruments to deepen integration and manage the coastal zone more effectively. This paper investigates the evolution of coastal management globally and interrogates the advantages and drawbacks of integrated coastal management tools. It then focuses on South Africa's coastal governance frameworks, institutions and environmental regulations, at both the national and sub-national level. The paper highlights the shift in South Africa's approach – from coastal management focused on ecological sustainability to one that primarily supports its broader socio-economic agenda through inclusive management and sustainable livelihoods strategies. A case study of the Eastern Cape of South Africa is used to highlight potential shortfalls in the practical application of local integrated coastal management policy.

ABBREVIATIONS AND ACRONYMS

CMP	coastal management programme
CZM	coastal zone management
DEA	Department of Environmental Affairs
EBM	ecosystem-based management
EEZ	exclusive economic zone
EPWP	Expanded Public Works Programme
ICM	integrated coastal management
IDPs	integrated development plans
IPCC	Intergovernmental Panel on Climate Change
NPCC	New York City Panel on Climate Change
MPA	marine protected area

INTRODUCTION

As the point where land and sea meet, the coastal zone is a limited spatial area that supports many human activities and is inextricably linked to the long-term development and wellbeing of coastal populations. The coast is a distinctive system where a range of considerations interconnects in a manner that requires a dedicated and integrated management approach. As such, integrated coastal management (ICM) is an adaptive, multi-sectoral governance approach that strives to balance the development, use and protection of these coastal environments.[1] ICM responds to the failures of past sectoral approaches to marine fisheries, coastal hazards, mining and land use, and provides policy direction to define the objectives of and priorities for holistic coastal development.[2] ICM therefore strives to address multiple-use conflicts and pre-empt and plan for new uses, while protecting vulnerable ecosystems and marine biodiversity. Various instruments are used to deepen the integration and management of the coastal zone, including mechanisms to raise awareness of coastal concerns; improved scientific data and technical expertise; co-operative governance and multi-stakeholder decision-making forums; integrated planning; and streamlined coastal regulatory tools. These tools have had varied success since they were first adopted in the 1970s.

This paper first interrogates the advantages and drawbacks of ICM as a tool to promote long-term, sustainable development in the coastal zone. It will investigate the evolution of coastal management globally and highlight examples that have succeeded in promoting increased ICM.

The paper then evaluates South Africa's coastal governance frameworks, environmental regulations and institutional coastal management at both the national and sub-national level. In 2009, South Africa adopted the Integrated Coastal Management Act[3] (the ICM Act) to manage its coastal and estuarine environments more holistically and to entrench the principles of co-operative governance. This paper will show the shift in South Africa's approach – from coastal management focused on ecological sustainability to a strategy that supports its broader socio-economic agenda through inclusive management and sustainable livelihoods approaches. With these developments come challenges related to the capacity of local resource users and compliance with regulatory frameworks on the ground.

Finally, the paper uses the case of South Africa's Eastern Cape province to highlight the potential shortfalls of the application of ICM policy in practice.

EVOLUTION OF GLOBAL ICM THINKING AND APPLICATION

The global economic, social and ecological importance of coastal zones

The coastal zone accounts for only 7% of the total global ocean landscape, yet it is home to the most productive and biologically diverse ecosystems on the planet.[4] Estimated to be worth over $25,000 billion annually, the natural services provided by these coastal ecosystems are among the most economically valuable in the world.[5] According to the UN Atlas of the Oceans, 44% of the world's population now live within 100km of the

coastline[6] and 80% of all tourism takes place in these areas, with beaches and coral reefs among the most popular destinations. Coastal areas have the most nutrients of all marine environments, as sunlight penetrates the shallow waters above the continental shelves and encourages plant life, while the sea floor provides an anchor for many organisms. As a result, extremely productive and complex coastal ecosystems have evolved. Not only do these ecosystems support a huge variety of life forms but many also serve as nurseries for much of the oceanic system. Coastal areas thus form a key part of the world's primary fishing grounds, supporting an estimated 50% of the world's fisheries[7] and providing vital nutrition for close to 3 billion people.[8]

In addition to its contribution to sustainable livelihoods through the services mentioned above, marine and coastal biodiversity makes an invaluable contribution through climate regulation, nutrient cycling and carbon storage, among others. These in turn support a diverse array of related economic industries such as shipping, oil and gas industries, off-shore wind energy and tourism. Importantly, functional coastal systems also build resilience to the effects of climate change.

However, over the past few decades a growing number of scientific studies, such as the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), have noted the deteriorating conditions of coastal areas.[9] The demands of a growing population place increasing stress on finite coastal systems and resources, and there is greater pressure to convert natural coastal assets to man-made structures such as refineries, power stations, mining operations, ports, marinas, tourist facilities and residential developments. The combined effects of unsustainable coastal development, climate change, ocean acidification, the introduction of invasive species, and pollution, among other contributing factors, are having a drastic impact on the coastal environment.

Photo © Bruce Sutherland

People flock to the beach on New Year's Day at Camps Bay, Cape Town

These stressors impair the ability of coastal ecosystems to maintain their integrity and to provide critical services to coastal communities. This makes coastal communities increasingly vulnerable to the threats of climate change, sea-level rise and coastal erosion.[10] Closely linked is coastal systems' growing inability to adapt and respond to environmental change due to increasing physical barriers and 'fixed' restrictions. This in turn will have significant socio-economic implications for communities dependent on coastal resources.

Strengthening integrated management responses and tools

Given the importance of the coastal zone to communities and the economy at large, there is an urgent need to adopt a long-term management paradigm to promote the sustainable and equitable utilisation of these resources. In the past 'command-and-control' and sectoral approaches were used to manage the coastal zone, often leading to disconnected and fragmented decision-making, conflict over the use of resources and missed opportunities for more sustainable coastal development. In an attempt to better harmonise policies affecting the coastal zone, planning and co-ordinating approaches such as ICM were adopted globally. These processes promoted a common objective for different resource user groups through the co-ordination of policies, sectors, management concerns, development objectives, and political, stakeholder and individual interests. An emphasis was also placed on the use of scientific information to inform management decisions that respect the ecological limits of these natural resources.

ICM covers the full cycle of coastal management practices, from data collection, spatial planning, adaptive and inclusive decision-making, and pre-emptive conflict mediation to the monitoring and evaluation of ICM implementation effectiveness. As such, ICM involves the utilisation of multiple instruments, including legislative measures, policy programmes, economic incentives, technological solutions, research, stakeholder forums, voluntary agreements and education. The appropriate mixture of these tools is context-specific, informed by local socio-economic dynamics, the geographic features of a given area, identified inefficiencies of the current management regime, levels of participation among stakeholders, institutional structures, the legal basis of the initiative and the level of political and financial support available.

Integration, defined as the level of horizontal or vertical interdependency achieved among sectors, plans or administrative levels, is a sought-after policy norm for environmental governance generally, including in energy production and distribution, watershed management, climate change policies, waste and pollution prevention and environmental planning.[11] Multiple benefits are associated with the enhanced integration of resource management, such as fewer conflicts over resource use, a co-ordinated vision and more coherent policies, greater likelihood of political and resource user adoption and buy-in, and longer-term, balanced and more sustainable development.

Although ICM differs according to the specific objectives of decision makers, certain elements can be adopted to enhance the degree of ICM in practice and thereby improve the management of the coastal area.

Improved interdepartmental and intergovernmental collaboration

By intent, ICM is cross-cutting and affects a variety of governmental regulatory bodies, each with its own policy mandates and responsibilities and with differing experiences

Sodwana Bay in KwaZulu-Natal, South Africa. Vehicles are not permitted to drive on this beach for ecological reasons relating to the vulnerability of turtles' nests

in planning and managing coastal areas. According to Celliers *et al.,* 'political interest, interpersonal and departmental conflicts, institutional idiosyncrasies and overlapping operational mandates are fundamentally rooted in the effectiveness of ICM'.[12]

A co-ordinating authority with inter-sectoral expertise, such as an inter-governmental panel for coastal management or a central coastal authority, can thus be used to integrate ICM policy into different levels of government and between ministries, helping to delineate the mandates of government institutions, reduce competing priorities and clarify jurisdictional boundaries and duties. In South Africa these platforms already exist, namely the National Coastal Committee and the provincial and municipal coastal committees, although not all are fully operational. Local authorities also play an important role in ICM planning and implementation, and as conduits in facilitating the ICM process. This can diffuse the burden of information gathering, planning and enforcement from central government and make more effective use of local knowledge and existing linkages.

Broad stakeholder participation in decision-making

Active participatory management and enhanced coastal partnerships with the public, private and civil society sectors can result in stronger commitments to comply with strategies for the sustainable use of coastal resources. The direct involvement of a wide range of stakeholders ensures that decisions reflect local, social, economic and environmental conditions. To support these co-management arrangements, a legal mandate from the government is important, such as coastal management forums that facilitate the transfer of power to community organisations. For example, fishing communities should be recognised as an inherent part of ICM approaches.

The New York City Panel on Climate Change (NPCC), convened by Mayor Michael Bloomberg in 2008 as part of the city's long-term sustainability plan, is a good example of this. The NPCC consists of scientists and legal, insurance and risk management experts, and communicates on an on-going basis with the Mayor's Office of Long-Term Planning and Sustainability and the New York City Climate Change Adaptation Task Force. The NPCC is mandated to provide New York City with the most up-to-date and comprehensive scientific, technical and socio-economic information about climate change and its impacts. 'Climate Change Adaptation in New York City: Building a Risk Management Response', the first report of the NPCC, will help the city to develop, adopt and implement policies to adapt critical infrastructure to climate change. New York is considered a thought and policy leader in this regard, with highly integrated connections between science and public policy.

Political commitment

Greater political commitment to integrated natural resource management is needed at the highest level of government to define the objectives of ICM from the outset. Programme objectives should be accompanied with a clear vision of when and how these goals are to be achieved, including plans for proposed institutional arrangements and funding mechanisms. The long-term sustainability of ICM is inextricably linked to overcoming the constraints posed by the short-sightedness of the political process, especially where funding is vulnerable to political cycles.[13]

Holistic, ecosystem-based approaches

Spatial development planning tools and the zoning of designated areas can be used to avoid the physical overlap of conflicting interests and minimise trade-offs in the coastal zone. For example, coastal plans should be aligned with and complementary to ocean and catchment management strategies and terrestrial land-use plans.

Legislation and technical guidelines

Setback lines,[14] for example, use scientific knowledge to address the integration of land and sea. In many countries, such as Norway and South Africa, developments within a 100m buffer from the shoreline are regulated. In New Zealand, regional coastal plans include ecological zones of restricted coastal activity. The use of environmental and social impact assessments will enhance the science–policy interface. These assessments provide guidelines for licensing activities and developments in the coastal zone and are legislated in most countries. Environmental impact assessments can effectively act as portals to development along the coast.

Readily available information and data

Relevant information and data must be readily available to ICM practitioners and include scientific, indigenous and local knowledge. This data should contextualise the coastal zone in terms of its biophysical, socio-economic developmental and demographic characteristics. Full situational analysis and state-of-play reports are useful reference documents and can be shared through the establishment of a coastal observatory or through centres of excellence. In many developing countries, however, available data is a serious challenge.

Dynamic and adaptive management

The coast is an indivisible system that does not recognise administrative (arbitrary) limitations and shifts across boundaries, which often causes conflict over roles and responsibilities. Key to addressing this is adaptive and flexible governance, which is difficult to implement practically in most bureaucratic systems. Coastal management systems also need to be highly adaptive to account for local circumstances and socio-economic and political change, besides environmental change.

National development objectives

ICM should contribute to national development objectives and be aligned closely with a country's socio-economic imperatives. Local benefits must accrue as a direct or indirect result of the ICM approaches, such as enhanced job opportunities through eco-tourism initiatives or funding from payments for environmental services such as blue carbon initiatives. This will in turn enhance the legitimacy of coastal regulations in the eyes of local stakeholders.

Planning tool to inform existing and future coastal development

Various tools, such as coastal setback lines and overlay zones, are supportive regulatory mechanisms used by planners to promote risk-averse decision-making and inform phased coastal retreat.[15] It is also important to determine vulnerable areas and develop guidelines in response to these dynamic coastal processes through Light Detection and Ranging[16]

surveys and vulnerability assessments. In turn, disaster management plans need to be developed. ICM can therefore be viewed as a tool to enhance the adaptive capacity of the coastline, helping to plan for and respond to change in a manner that allows for more effective management of its exposure to climate and environmental change.

THE EVOLUTION OF COASTAL ZONE MANAGEMENT FRAMEWORKS

The first Coastal Zone Management (CZM) Act was passed in the US in 1972[17] in an attempt to resolve the increasing anthropogenic pressures on its coastal resources.[18] This was the first national CZM programme of its kind, prompting other countries to take a greater interest in the quality and management of their own coastal environments. For example, in the early 1970s Norway initiated CZM to pre-emptively mitigate the environmental impacts of its growing hydrocarbon and aquaculture industries. Similarly, the early ICM initiatives in Indonesia, Malaysia and Thailand were a response to overfishing, coastal erosion, coral reef degradation and mangrove deforestation, respectively.

In the 1980s integrated coastal planning was incorporated into academic thinking through a 'systems' lens, taking better account of sectoral and stakeholder interests and seeking to balance the physical, biological, cultural and socio-economic factors shaping coastal areas. It was recognised that the previous delineation of the coast – according to administrative or jurisdictional boundaries – did not facilitate effective integration, and that it was important to trace coastal influences to the extent of their natural and/or social boundaries. Decision makers began to adopt a more ecosystem-friendly approach to marine and coastal issues, although this holistic management framework still lagged behind that for terrestrial environments.

In 1992 the 'institutional infrastructure' for integrated ecosystem-based governance and sustainable development was built. ICM was included as a principal recommendation in Chapter 17 of Agenda 21 at the UN Conference on Environment and Development (or 'Earth Summit') in Rio de Janeiro, giving it international prominence and political legitimacy. It was recognised that coastal areas offer excellent opportunities for development, which, if executed properly, can yield significant economic and social benefits while maintaining environmental integrity.[19] As a result, global paradigms for ecosystem-based management (EBM) and integrated natural resource management were adopted more formally. For example, a large marine ecosystem approach, incorporating marine protected areas (MPAs), became widely accepted and is being put in place in a growing number of countries.

The Millennium Development Goals, adopted in 2000, highlighted the global need to reduce extreme poverty through the sustainable utilisation of ecosystem goods and services. The World Summit on Sustainable Development in 2002 thus committed, through its Johannesburg Plan of Implementation, to revitalise integrated ecosystem approaches to resource management. Ten years later, the Rio+20 Summit recommended that EBM/ICM efforts be scaled up and collective investments significantly increased at the national and regional level, supported by sufficient and sustained financing and by capacity development that enables a transition to the blue economy. At this time there were many new country applicants of EBM/ICM. However, efforts initially focused on

areas from the coastal zone to the 200 nautical mile exclusive economic zone (EEZ) and adjoining regional areas.[20]

Since the early 1990s there has thus been a marked increase in the number of nations engaged in ICM initiatives. In 1993 about 59 countries were working on some form of ICM at the national and/or local level, while by 2000 the number had increased to approximately 100, with a further 40 developing or implementing integrated national ocean policies covering their 200 nautical mile EEZs.[21] EBM/ICM has been applied in regional areas as well, especially in the 20 large marine ecosystem programmes, and implemented by 110 countries in the 18 regional seas programmes and other regional groupings.

In 2007 the IPCC released its Fourth Assessment Report, which illustrated the severity of climate change-related impacts and the imperative to manage coastal development both to avoid natural climate-related hazards and to minimise the exposure of people, properties and economic activities to these risks.[22] The IPCC report released in 2014[23] makes particular reference to the importance of natural coastal infrastructure as a tool to enhance the resilience of coastal communities. It emphasises soft engineering and 'setback and retreat' options for vulnerable countries and small-island states. The report also highlights the importance of ICM as a tool for climate adaptation.

Significant challenges going forward

After 40 years of ICM developments around the world, a reasonably good understanding of the best approaches, key principles and guidelines has been developed, as have frameworks and techniques for organising and implementing programmes. Although ICM is benefiting from shared international experiences, numerous challenges must still be overcome, especially with regard to ICM implementation. This varies across regions and differs according to the scope of efforts (involving the whole coastal zone or merely a small portion); the capacity of national and local governments; the level of participatory management; the prioritisation given to coastal zone management; and the availability of international funding. There are, however, some general observations.

The holistic value of coastal areas is not sufficiently recognised, documented or publicised. As a result there is often a lack of political will at the national level to prioritise or dedicate funding to ICM. The tangible economic and social benefits of coastal conservation need to be clearly articulated. In order to achieve this, coastal governance should primarily seek to reduce poverty and inequality and promote national and local development targets through increased opportunities and improved coastal livelihood strategies. These can be highlighted and consolidated in a national strategy such as South Africa's Operation Phakisa,[24] which seeks to unlock the economic potential of the 'blue economy' through marine transport and manufacturing activities (coastal shipping, trans-shipping, and boat building, repair and refurbishment); offshore oil and gas exploration; and aquaculture and marine protection services.[25] While Operation Phakisa focuses mainly on ocean governance, other strategies can also be deployed to maximise the opportunities from the 'coastal economy'. These include the development of renewable energy along the coast (offshore wind, wave and tidal energy) or opportunities associated with climate change adaptation, such as the restoration of coastal vegetation or reforestation for improved coastal resilience. Carbon sequestration through good ecosystem management

(such as stored blue carbon from mangrove conservation) can benefit communities financially. Efficient coastal management and strategies to conserve marine and coastal biodiversity, such as the expansion of MPAs and no-take zones, can also increase revenue generation through eco-tourism and recreational activities. One of the best-known examples is the Great Barrier Reef Marine Park in Queensland, Australia, which in 2012 generated an economic contribution of some $5.7 billion, creating approximately 69 000 full-time jobs.[26]

In developing countries in particular there is still a lack of national capacity to develop a more comprehensive and technical ICM. At the national level, institutional inertia and competing bureaucratic competences are often the key obstacles, as is the lack of appropriate decision-making frameworks to manage the complexity and trade-offs inherent in ICM. There are similar challenges at the regional level related to the allocation of political and legal competence to the institutions dealing with ICM. The case of the EU highlights the complexity of transnational co-operation, including communication obstacles due to different languages and the lack of knowledge of other regions, which prevented quick outcomes.[27]

From a biophysical perspective, the dynamic nature of the coastal zone introduces an element of uncertainty and the need for flexible mechanisms in response. In many cases sectoral institutions still dominate in national governments. Countries need to move beyond isolated, short-term projects and embed their ICM policies in their long-term national agendas. Portman *et al*. also note that the most striking barrier to the improvement of coastal management is the lack of enforcement of coastal regulatory mechanisms such as setback lines and coastal planning schemes.[28] While progressive ICM legislation exists in many countries, implementation is slow and often not acted upon. In many developing countries this is because officials are not capacitated or trained to carry out coastal zone legislation. Funding for the coastal zone also often competes with terrestrial resource management projects or is focused on climate change responses to protect infrastructure. Although not mutually exclusive, these strategies divert funding and focus and should be viewed or budgeted for separately.

ADVANCING INTEGRATED COASTAL MANAGEMENT IN SOUTH AFRICA

Evolution of ICM in South Africa

The South African coast extends for approximately 3 200km from the Namibian border in the west to the Mozambican border in the east. Nearly a third of South Africa's population lives at the coast, in cities such as Durban, Cape Town and Port Elizabeth and in urban centres such as East London, Saldanha and Richards Bay. The extent and depth of poverty challenges and opportunities vary considerably across South Africa's coastal provinces. For historical reasons the majority of residents in coastal South Africa are marginalised and remain in a state of intellectual and material poverty.

Since the 1970s coastal management in South Africa has experienced a number of paradigm shifts, policy approaches and management practices. According to Glavovic,

South Africa's approach has transformed from being predominately conservation-focused, biophysical and bureaucratic to one that is more participatory in nature and driven by human development imperatives and sustainable livelihood objectives.[29] These efforts culminated in the ICM Act of 2008, which established South Africa's first statutory requirements for integrated coastal and estuarine management.

Glavovic[30] notes that coastal management in South Africa has seen four main paradigm shifts.

Ad hoc sector-based management

In the 1970s coastal management in South Africa was characterised by a sectoral approach to resource exploitation and management. Common sectoral activities, including shipping, fishing, aquaculture, oil and gas exploitation, aggregate and mineral extraction, conservation, tourism and dumping took place in isolation. Management of the coastal area was fragmented and unco-ordinated, with an emphasis on maximising single-purpose and exclusive-use areas and resources.

Top-down, ecological regulations

In the 1980s coastal management was focused almost exclusively on the ecological character of the coast and the threats posed by coastal resorts, township extensions and related infrastructural developments. Approaches were mainly 'top down' to regulate high-risk or intrusive developments through administrative controls that imposed punitive measures on developers who degraded coastal ecosystems. There was an attempt to secure

The Cape Point protected area reserve, South Africa

public support for coastal issues through environmental education. Significant progress was made in coastal and marine research, including defining the degree of setback lines, the risks posed by physical developments and the importance of coastal vegetation. During this era little attention was paid to the interactions between people and their natural environment, and no systems were developed for enhanced participation in coastal matters.

Participatory policy formulation

In the 1990s it was recognised that any comprehensive CMZ policy would need to address sustainable economic development, improved access to coastal resources, and public involvement in planning and decision-making – especially in a country such as South Africa where socio-political changes demanded that economic development be prioritised. Coastal policies were therefore closely aligned with the political priorities of poverty eradication and job creation. During this era coastal issues moved from the political periphery to centre stage and the government was prompted to invest in coastal management.

In 1992, the Department of Environment Affairs (DEA) embarked on extensive consultations with stakeholders in South Africa's 13 coastal regions to agree on a process that would eventually culminate in the country's first integrated coastal management policy. Between 1992 and 1997 South Africa's first coastal management programme was developed, followed by the Green Paper (1998) and White Paper for Sustainable Coastal Development (2000).

People-centred, pro-poor ICM

According to Glavovic and Boonzaier, since 2000 coastal policy implementation efforts have been driven to a large extent by the search for practical interventions to transform coastal poverty into sustainable coastal livelihoods[31] and to translate the realisation of the 'coast as a national asset' into practical pro-poor opportunities.

Major nationwide poverty reduction programmes were initiated by then-president Thabo Mbeki in 2003 as part of the Expanded Public Works Programme (EPWP), such as Working for the Coast[32] and Working for Fisheries. The national DEA was given oversight of the coastal programmes, with programmes and projects within this sector being managed or implemented by public bodies across all spheres of government (municipal, provincial and national). In the first five-year phase of the EPWP (2004–2009), Working for the Coast created some 8 100 jobs.[33] The EPWP has just completed its second five-year phase (2010–2014).

This period has also seen substantial developments in institutional and legal frameworks governing the coastal provinces, as well as an attempt to enhance capacity building at all levels through raising awareness, training and disseminating information. Marine and coastal demonstration projects were also implemented in coastal agriculture, kelp harvesting, and mussel and limpet harvesting, among others.

Local South Africans in KwaZulu-Natal selling curios to tourists at the seafront

ICM policy development and implementation in South Africa

The White Paper for Sustainable Coastal Development (2000)

The white paper was founded on a national vision for the coast that includes the socially justified sharing of benefits derived from a resource-rich coastal area without compromising the ability of future generations to access those benefits.[34] For coastal development to be ecologically sustainable, it should involve the protection of coastal ecosystems and sustainable use of marine and coastal resources. For coastal development to be socially sustainable it should emphasise public awareness and shared responsibility; the empowerment of disadvantaged individuals and communities, including women and the poor; and equitable access to coastal resources. For coastal development to be economically sustainable, it should diversify opportunities; provide jobs; and facilitate access to productive resources.

The white paper provides a vision, principles and objectives for coastal management in South Africa, and includes a plan of action outlining how it is to be implemented through the development of institutional and legal mechanisms and frameworks. The white paper points out that realising the coast's potential will require 'unprecedented investment in ICM, including political commitment, finances, public awareness, education and training, and new partnerships between key role-players'.[35] It also highlights the 'true value' of the coast, estimating that in 1998 the direct benefits from coastal goods and services were approximately ZAR[36] 168 billion ($14.14 billion) annually, equivalent to about 35% of South Africa's annual gross domestic product.

After the cabinet approved the white paper, a comprehensive legal review was carried out to determine whether it could be implemented in terms of existing laws. The review concluded that a dedicated coastal management act was required.

The Integrated Coastal Management Act of 2008

As part of the institutional and legal reform flowing from the white paper's action plan, South Africa promulgated the National Environmental Management: Integrated Coastal Management Act No. 24 of 2008 (ICM Act), which became law in December 2009.[37] It is the first legal instrument that defines the status of coastal land and waters and identifies the governing bodies regulating the coastal space. The ICM Act facilitates a new co-operative approach that recognises the importance of participatory management, whereby parties that have jurisdiction over coastal areas should be consulted.

The ICM Act establishes a hierarchical statutory framework for new institutional arrangements to improve co-ordinated management. This includes the development of coastal management programmes (CMPs) at all three levels of government. The CMPs are intended to build on existing coastal policies and provide a coherent directive for coastal management and decision-making, as per the ICM Act's legislative requirements. At the national level the minister must prepare and adopt a nationwide CMP within six years of the promulgation of the National Coastal Management Act.[38] Coastal provinces must also develop their own CMPs within four years of the promulgation of the Act that are consistent with the national CMP.[39] CMPs at all levels must set management objectives and include priorities and strategies for achieving these. In addition, the CMP must provide input into local planning initiatives, such as the integrated development plans (IDPs) and spatial development frameworks of coastal municipalities.

Chapter 4 of the ICM Act promotes the conservation, sustainable use and protection of estuaries, mangroves and wetlands directly and through the preparation of management plans and the specification of management authorities. The design, construction and operation of any development will need to take into account the principles of environmental protection, pollution control, waste management and responsible resource use. The estuarine environment falls within the coastal protection zone. CMPs therefore have to be consistent with the National Estuarine Management Protocol.

The ICM Act also outlines a directive for the establishment of the National Coastal Committee (NCC) and provincial coastal committees (PCCs) and makes provision for the optional establishment of municipal coastal committees (MCCs), as well as voluntary coastal officers. The provincial and municipal coastal committees will monitor the implementation of environmental management plans and report on estuarine management, among others.[40]

The ICM Act establishes a planning system that integrates coastal, marine, land and economic planning procedures. It provides for the establishment of a coastal protection zone to protect the ecological integrity, natural character and economic, social and aesthetic values of the coast. This zone nominally includes land falling within 100m of the high-water mark in urban areas and within 1km in rural areas, unless otherwise determined by the Member of the Executive Council (MEC). The ICM Act is designed to extend across the land–sea interface to allow for the integrated planning, control and use

of coastal resources, and importantly provides a mechanism for translating research into a regulatory framework. It also creates procedures to assess and regulate coastal protection, such as for the disposal of effluent and waste into estuaries and the sea, pollution, discharge and dumping permits.

All municipalities are mandated to have coastal setback lines in place. These, as detailed in the ICM Act, are prescribed boundaries that indicate the limit of development along ecologically sensitive or vulnerable areas or an area that poses a hazard to humans. These lines restrict the construction, extension or repair of structures that are either wholly or partly seaward of the line, in order to protect coastal property, promote public safety and ensure the aesthetics of the coastal zone.[41] While the establishment of coastal setback lines is a provincial responsibility, the MEC can only declare a setback line after consulting the relevant municipalities and affected parties. Once determined, this line must be delineated on the map that forms part of the municipal zoning scheme. This allows members of the public to determine the position of the setback line in relation to existing cadastral boundaries.[42] A coastal setback is meant to provide guidance on locating the future development footprint, and coastal planning schemes will zone the coastline for proposed activities and land use. Coastal setback lines may be established for various reasons and there may be more than one setback line in any given area. For example, one may be an anticipated erosion setback line while another may relate to aesthetics and control the height of buildings to protect a specific scenic landscape. Such a setback line may even be situated outside the coastal zone.

The ICM Act gives local management authorities the power to establish zoning schemes.[43] However, if ICM is to be effectively implemented there is an urgent need to address the lack of management competencies at the municipal level. According to Celliers *et al.,* there are relatively low degrees of ICM in the country's coastal municipalities, and commensurately low degrees of political interest coupled with constrained institutions, despite the buoyant and well-structured national ICM framework.[44] Although the ICM Act defines municipalities' responsibilities, such as the establishment of estuary management plans, coastal management programmes and coastal access to land, municipalities do not have the budget for this (ie, an unfunded mandate). This is creating a standoff between the different spheres of government and is not conducive to collaborative governance.

COASTAL AND ESTUARINE MANAGEMENT IN SOUTH AFRICA'S EASTERN CAPE

Following the publication and adoption of the inaugural CMP for the Eastern Cape in 2004, the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism underwent a review process in line with the requirements of South Africa's national ICM Act,[45] to reflect priority areas for its provincial coastal integration strategy. The provincial CMP sets out a management vision for its provisional jurisdiction that includes input into local planning initiatives. Demographic, socio-economic and spatial development trends are among the key informants of the coastal management priorities, strategies and objectives for the updated Eastern Cape CMP.

Top: Mngazi estuary, Eastern Cape. Bottom left: Illegal sand mining in the Amapondo district, Eastern Cape. Bottom right: Traditional Xhosa homestead, Eastern Cape

Inventory analysis and areas of concern

The coastline of the Eastern Cape is approximately 875km long; almost a quarter of South Africa's total shoreline.[46] While the Wild Coast used to be sparsely populated, tourism and recreational development have resulted in people moving back to the coast. This coastward population shift increases the pressure on the estuarine resource base.

Much of the province's cultivated land, settlements and plantations are located close to the coast, resulting in the increasing fragmentation of this natural habitat. The Eastern Cape has a diverse and economically important inshore fishery for subsistence, recreational and commercial fishers. However, this fishery is under threat from over-exploitation,

with resources continuing to decrease with the collapse of most commercial linefish populations.[47] Areas of critical biodiversity importance exist along the Eastern Cape's coastal belt, particularly on the Wild Coast. In addition, there are a number of protected areas, including 12 MPAs and island reserves, that permit varying levels of extraction and resource use. The Eastern Cape has the most estuaries of all the provinces in South Africa (159 systems).[48] In terms of national estuarine conservation targets, 57 of the 120 core estuaries identified are located in the Eastern Cape, with 30 requiring full protection. Thirteen of the province's estuaries are considered endangered/critically endangered.

The Eastern Cape supports a variety of economic activities, including manufacturing and industry, tourism, sand mining and forestry. Primary development nodes in the Eastern Cape include the port cities of East London and Port Elizabeth; with the former the only river port in the country while the latter is emerging as a major economic and industrial hub due to the Coega Industrial Development Zone.[49]

The coastal belt of the Eastern Cape varies greatly between the freehold land areas in the west and the communal land areas in the east. This beautiful coastline is beset with erosion, invasive species and land degradation, intimately linked to and occurring within the context of increasing pressure being placed on coastal habitats by resort development, unplanned settlements and the overuse of natural resources. Unregulated, small-scale sand mining is also widespread and constrains estuary performance, as it occurs on riverbanks and floodplains.[50] Commercial prospecting for minerals in sand, such as rutile, zircon and titanium, is also taking place along the coastline, which will have a devastating effect on estuaries and catchments.

The on-going case of Xolobeni, in the Amapondo community, illustrates the potential trade-offs between mining and its direct ecological impacts, such as the abstraction of freshwater inflow into the estuaries and increasing sediment yields in rivers and estuaries from the mining operation itself. The associated impacts also include the people within the coastal environment exerting pressures and the associated infrastructure, such as the construction of the N2 highway to transport mineral sands to the nearest port.

Given the increasing impacts on the Eastern Cape's coastal environment, there is an obvious need for more stringent estuarine, water and environmental management measures.

The implementation of ICM in the Eastern Cape

Estuaries are at the centre of development activity in the Eastern Cape, with the primary benefits coming from tourism; recreation; and subsistence use, through the harvesting of fish and shellfish, and of reeds and mangroves for construction, crafts and utility items. Tourism and recreational use include the construction of resorts and holiday cottages, recreational fishing, bait collection, canoeing and boating.

While the legislation and policies are in place to facilitate the effective governance and management of estuaries located in formal conservation areas, the vast majority of estuaries are outside these areas, which makes their protection problematic. Buffer zones and the peripheries of important ecological areas and estuaries are not effectively protected or conserved.[51] Estuaries with large catchments (eg, Kei, Bashee, Mzimvubu) have been severely affected by activities in the catchment – primarily soil erosion caused

by overgrazing and inappropriate cultivation practices. This has increased the sediment yield into estuaries, which in several instances has caused estuary closure. This damage will be compounded as the abstraction of freshwater from coastal catchments increases due to increasing demand. Fortunately, many estuaries on the Wild Coast are still in a good ecological condition due to limited development in certain catchments.

The governance and management institutions that are directly responsible for regulatory compliance and management functions at estuaries include traditional authorities, the local municipalities of the Amathole and OR Tambo districts, the Eastern Cape Parks and Tourism Agency, the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism, and the national departments of Agriculture, Forestry and Fisheries, Water, Environmental Affairs, Mineral Resources, Rural Development and Land Reform.

On-going challenges

Compared with other sectors, estuaries are considered unimportant and there is little investment in their management at a local level. For example, within the IDPs of local and district municipalities, estuaries are mentioned only peripherally. Municipalities also have limited capacity to engage in estuarine management. As such, estuary management plans and the CMP need to be integrated into broader development plans such as IDPs, SDFs and other spatial planning tools. Involving local traditional leadership in the planning and management process is also critical.

While several attempts have been made to establish coherent land-use planning on the Wild Coast and regulate development, it continues on an informal and unregulated basis. A specific case in point is the continued construction of illegal holiday cottages and resorts, as well as unregulated sand mining on riverbanks and coastal dunes. With much of the Wild Coast yet to be developed, there is an opportunity to extend the formal conservation estate to include a more respectable sample of estuaries, as they are better managed in protected areas.

Although there are instances of improved collaboration between government departments, this needs to be accelerated. Facilitated and focused estuary management forums are contributing significantly to the improved co-operative management of estuarine resources. These insights provide the basis for improved understanding between stakeholders with varying interests.

There is an urgent need to expand coastal programmes that are people-centred with a focus on non-extractive and sensitive estuarine resource use. At the Mngazana estuary alternative livelihood projects are currently in place. They generate income for local residents through non-extractive resource use such as catch-and-release fly fishing, canoeing and walking trails, and beekeeping. This is reducing the pressure on fish, mangroves and alluvial sand. In catchments there is a concerted effort to change agricultural land-use practices, particularly to regulate grazing pressure.

There are regulatory tools and support mechanisms for coastal and estuarine management in the Eastern Cape. However, the capacity and political will to enforce and implement these policies are lacking. The enforcement of regulations that protect the coastal zone is particularly poor.

CONCLUSION

ICM can play a vital role in promoting the long-term sustainability of coastal areas and associated communities. However, integrated, ecosystem-based coastal governance needs to be enhanced at all levels. ICM strategies, and their associated approaches, seek to facilitate the co-ordination and integration of coastal zone management, while administering the use, development and protection of coastal resources through coastal spatial planning, collaborative governance, multi-disciplinary co-ordinating platforms and the implementation of adaptive management mechanisms.

ICM recognises the coastal zone as a distinct and unique management area that is a natural asset for economic and social development. While the protection of natural ecosystems is one of the main policy objectives of ICM, it also aims to invest in coastal social welfare and livelihood programmes to promote livelihood alternatives. This is essential for coastal issues to gain prominence and move from the 'political periphery' to the centre stage of policymaking. Planning and integration must be aligned with the dominant political agenda and be seen to respond directly to socio-economic challenges. It is imperative that there are tangible benefits from engaging in a process such as ICM, or stakeholders are unlikely to participate.

Managing the uniquely complex and sensitive environments that comprise the coastal zone is difficult and requires strategic objective setting, definitive and implementable goals and on-going monitoring to ensure effectiveness and improve efficiency. In this regard the strengthening of key regulatory institutions is essential, as well as the mainstreaming of ICM practice throughout national decision-making bodies. At the local level, the priority strategies that relate to the coast should be drawn into integrated coastal management frameworks such as the CMP to promote strategic, informed and consistent decision-making. The ICM Act helps to align national, provincial and municipal planning and management initiatives and to formalise these initiatives through appropriate frameworks such as SDFs and IDPs. In South Africa, the establishment of functioning provincial and municipal coastal committees will improve co-ordination, while mechanisms such estuarine management forums will help with sector-related management.

Consideration should also be given to the lifespan of coastal management programmes to ensure the sustainability of coastal management initiatives. Appropriate financing, together with the capacity building and training of municipal staff, is key to the long-term success of ICM. At present South Africa is spending a large proportion of municipal funds on appointing consultants to manage these projects. Consultants often lack knowledge of local institutions and have no vested, long-term interest in projects. This in turn is having significant implications for ICM in South Africa.

As much as ICM needs to take a birds-eye view, it is necessary to complement this approach with a thorough understanding of issues relevant to specific coastal areas. The collection and analysis of data and information on local socio-political, biophysical, cultural and economic conditions are needed to achieve successful integration.

KEY POLICY RECOMMENDATIONS

Value the coastal zone appropriately

It is important to conduct economic valuations for the entire coastal zone, for all users, to highlight and elevate its importance, particularly in terms of local economic development. This value must include the non-market contributions that coastal ecosystems provide to social economic development through their provisioning, regulating, supporting and cultural ecosystem services. These direct and indirect benefits should be mainstreamed into decision-making.

Promote co-operative governance

Departmental co-ordination and the streamlining of administrative procedures for authorising coastal activities are essential. It would be useful to develop, assimilate and maintain a centralised coastal database for use in coastal decision-making and strategic planning.

Use coastal spatial data

Coastal spatial data should be collected on a regular basis through aerial surveys and remote sensing and assimilated into a central data system that allows open access to government authorities. In developing countries, in particular, there is an urgent need for environmental learning centres and regional networks to share best practice and lessons.

Enhance capacity building, skills development and awareness

It is critical to develop capacity-building programmes for coastal managers on the specific requirements of ICM implementation. Training local municipal officers is particularly important for the effective regulation of coastal activities.

Improve compliance, monitoring and enforcement

In South Africa there is an urgent need to register and train provincial and municipal environmental inspectors in coastal legislation, including bylaws. There is also a need to increase the number of environmental monitors and build capacity to enhance enforcement efforts, increase conviction rates and strengthen law enforcement.

Improve implementation and enforcement of special management criteria

Management criteria such as delineating exclusion zones for mining in estuaries, forbidding the removal of riparian vegetation within 30m of the riverbank, and the obligatory implementation of a river corridor on either side of a river should be better implemented and enforced.