NACOMA

Strategic Environmental Assessment (SEA) for the coastal areas of the Karas and Hardap Regions

DHI - Water · Environment · Health

November 2009
Strategic Environmental Assessment (SEA) for the coastal areas of the Karas and Hardap Regions

September 2009

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<tr>
<td>BCLME</td>
<td>Benguela Current Large Marine Ecosystem</td>
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<td>BENEFIT</td>
<td>Benguela Environment Fisheries Interaction and Training Programme</td>
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<td>BOP</td>
<td>Bottom Of Pipe</td>
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<tr>
<td>CBD</td>
<td>The Convention on Biological Diversity</td>
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<td>CBNRM</td>
<td>Community Based Natural Resource Management</td>
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<td>DST</td>
<td>Decision Support Tool</td>
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<td>EEIS</td>
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<td>ETM+</td>
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<td>GDP</td>
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<td>GIS</td>
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<td>GLF</td>
<td>Global Land-cover Facility</td>
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<td>ICZM</td>
<td>Integrated Coastal Zone Management</td>
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<td>ISO</td>
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<td>MAWF</td>
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EXECUTIVE SUMMARY

In July 2008, the Namibian Coast Conservation and Management Project (NACOMA) commissioned DHI Water & Environment to develop a user friendly, decision guiding and policy relevant Strategic Environmental Assessment (SEA) of the coastal zones of the Karas and Hardap regions of southern Namibia. In the Terms of Reference (ToR), it was made clear that this SEA for the Karas and Hardap regions’ coastal zones was to be developed in similar fashion to the earlier SEA conducted by the same consultants for the Erongo and Kunene regions’ coastal zones of northern Namibia, and thereby accomplish a standardised assessment of development and conservation potentials for the entire coastal area of Namibia. This draft SEA report should thus be seen as a companion piece to the earlier report: the same format is followed, and, where relevant, text is repeated in order that the two reports mirror one another.

In addition, and also in similar fashion to the ToR for the northern coastal SEA, the information, data and findings resulting from this second SEA process have been transferred to a Decision Support Tool (DST), in order to assist political and technical decision makers at local, regional and national levels to make decisions on biodiversity conservation, land use planning, and social and economic development planning in the Karas and Hardap coastal zones.

The aim of the SEA and DST are also to make inputs to NACOMA’s other activities. It is intended that all data and other information collected during the SEA process be fed into the preparation work for the intended separate regional coastal profiles for particular use by the Karas and Hardap Regional Councils. A specific contribution to the preparation of these regional profiles is identified in the recommendations derived from the SEA. The recommendations draw on a review of existing institutional mandates, policies and laws for coastal management in Namibia. At the same time, the SEA is also strongly informed by the draft Coastal Policy Green Paper for Namibia that was issued for comment in late 2008 by NACOMA.

In these ways, it is anticipated that the results of the SEA will contribute to the development of a Namibia Coastal Conservation and Management White Paper (NACOWP) to ensure that coastal development planning and management is based on relevant and updated information and data and on analysis and consideration of the most suitable actual and potential land uses.

As per the Terms of Reference, the SEA contains:

i) A description of current land uses, impacts, threats and pressures along the coastal zones, with recommendations for prevention and mitigation overall and in relation to Policies, Plans and Programmes (PPPs), including spatial data for use in the DST;

ii) A description of environmental/biodiversity conservation and management gaps, problems and implementation difficulties of current environmental/biodiversity conservation and management safeguards, management/control practices, and con-
servation/biodiversity management targets. This includes detailed concrete recommendations for improvement of environmental/biodiversity conservation and management overall and in relation to PPPs and data for use in the DST;

iii) The outcomes of the integration of (i) and (ii) above in relation to existing PPPs.

**Methodology**

SEA is usually described as an environmental assessment (EA) process and method that assists in strategic decision making above the individual project level. SEA therefore refers to the environmental assessment of policies, plans, and programmes (PPPs) towards the purpose of achieving ecologically sustainable development. These days, SEA is increasingly seen as a tool which can address the inter-relationships between biophysical, social and economic impacts, rather than environmental impacts alone. SEA is a very useful tool for coastal planning and management, and SEA can be particularly helpful taking environmental issues into account whilst preparing or evaluating land use plans. For NACOMA, as for any other Integrated Coastal Zone Management (ICZM) initiative, SEA can help in identifying both the environmental opportunities and the constraints to social, physical and economic development in a coastal zone – and thus supply a broad strategic framework within which ICZM can occur. In this way, SEA provides at least some of the strategic parameters or guidelines within which ICZM can best take place.

Many hundreds (if not thousands) of technical and scientific studies of the biophysical and environmental conditions and dynamics of Namibia’s lengthy, thinly populated 1,570 km coastline have been made over the years. Similarly, many attempts, these now dating back several decades, have also been made to link environmental, social and economic dimensions in planning for coastal development. The real difficulty lies in the inability by stakeholders to find common understandings of and a shared strategic perspective on the economic, social and environmental interactions necessarily involved in coastal development today, and of the adjustments, compromises and trade-offs that need to be made to assure better coastal planning and management.

A key to a successful development and application of the SEA and DST has been the ongoing liaison with the stakeholders during the entire project. Stakeholder involvement has focused on delivery of planning documents and data, methodologies related to the analysis of land use suitability, including the analysis of biodiversity trends as well as on discussions on individual land use plans. An important element of the project has been the establishment of the NACOMA SEA GIS – a GIS mapping system covering all major landscape, biodiversity, infrastructure, land use and PPP data of the coastal regions of Karas and Hardap. In order to facilitate the use of the DST as a tool for assisting the decision-making process at the regional level all available physical, biological and land use data have been analysed in an integrated way. Trade-offs between economic, social and environmental issues has been enabled by application of multi-criteria evaluation. In this way the end user will now be able to use the modelled land use suitability data with background information and his or her own data to explore various development scenarios.

A mapping system in support of a coastal SEA not only requires integrated analyses of land use, planning and environmental data, but it also requires a relatively high resolution to produce sufficiently detailed information to be useful in the decision-making
process related to various land-use options. Thus, in order to map key components of the coastal landscape with sufficient detail two remote sensing data sets have been used: a Landsat ETM+ data set from 2001 in 28.5 m resolution and a digital topographic data set (SRTM) in one meter vertical and 90 m horizontal resolution. The ETM+ data have been processed to a seamless backdrop for the SEA GIS and have been used as a basis for digitising exact river courses and locate areas with prominent vegetation. The SRTM data have been used to estimate the relief and topographic complexity of the coastal zone. The data made available by the stakeholders were used to map the spatial extent of current land uses, priority zones for development of some land uses according to PPPs and the range of exploitable resources.

Estimation of land use suitability was made by integration of the PPP data, exploitable resource ranges, current land uses, environmental data, and modelled biodiversity hot spots. Although the two regions boast a variety of internationally recognised nature conservation assets the current boundaries of protected areas may not agree entirely with the gradients in coastal biodiversity found in the regions. Accordingly, gradients in biodiversity were estimated by mapping the distribution of priority areas or habitats for conservation in coastal zone, including lichen distribution, priority species of vegetation, birds and mammals, wetlands of global importance, inselbergs, distance from regions of enhanced diversity and endemism like the Escarpment rock outcrops and cliffs, rocky shorelines, regularly vegetated ephemeral rivers and areas of high topographic complexity. These priority areas/habitats for conservation were chosen on the basis of landscape characteristics known as important environmental drivers in relation to the movement of prioritised species of large mammals, in relation to the distribution of prioritised species of birds and higher plants, and in relation to increased levels of diversity and endemism in plants, invertebrate and vertebrate animals in the coastal zone. The mapped priority areas/habitats were combined into three classes of area importance. Land use suitability was modelled for each land use type using multi-criteria evaluation (weighted linear combination). The environmental factors for each land use were combined with information (if available) on exploitable resources, areas currently developed for urban land use, areas outlined by PPPs as priority development areas and the mapped priority areas/habitats for conservation. The four latter data sets were used as technical constraints to development: i.e. no development was regarded as suitable if the area was outside a PPP zone, or in areas of no exploitable resources, or in urban land use zones, or priority areas/habitats for conservation.

**SEA - GENERAL**

The biodiversity assets of Karas and Hardap coastal regions are recognised globally as exceptional, and the protection of the unique landscapes, flora and fauna of these coastal regions has a high priority on the political agenda at all levels. The entire terrestrial parts of the coastal regions fall within Namibia’s two largest protected areas; the Namib-Naukluft Park (NNP), proclaimed in 1907, and the newly proclaimed Sperrgebiet National Park (SNP). The eastern extreme of the Namibian Islands MPA (NIMPA) covers the coastal strip adjacent to the NNP (From Meob Bay southwards) and SNP (southwards until Chamaïs Bay). New management goals are being set for NNP, as the current management plan is unclear as to which biodiversity elements constitute the focus for strict protection and which elements are the focus of more wide-scale habitat conservation action due to their widespread occurrence or lower susceptibility to human activities. For the SNP and the NIMPA the vision is to implement a modern framework.
for integrated management and conservation based on a zoning system according to IUCN criteria.

The ten-year strategic plan of action for biodiversity conservation, Namibia’s Biodiversity Strategy and Action Plan (NBSAP), provides for the implementation of article 95:1 of the Namibian Constitution and the Convention on Biological Diversity (CBD) and offers MET the legal mechanisms for achieving the goal of developing management plans for the coastal parks. The current work on developing management plans for the NNP and SNP should be seen as important benchmarks for MET in the implementation of the NBSAP. Compared to this work the SEA for the southern Namibian coast only adds limited guidance to the zonation of the parks into areas of different sensitivity and importance as a basis for identifying core areas for conservation. However, by using the same habitat-based approach, which was applied for the SEA of the northern coast, this SEA will ensure the production of a comparable determination of priority areas for conservation along the entire Namibian coastline following a standardised methodology. The added information reflected by the SEA is particularly important in relation to trends in the NNP and for the non-botanical features of the SNP.

More importantly as guidance to zonation of the parks the potential areas for sustainable development identified by the SEA uses the habitat-based classification of conservation priorities to achieve a holistic solution for all parts of the coast. The identified areas with low conservation priority have the highest potential for development, although in many cases the assessment of land-use suitability proved sites to be sub-optimal for development due to physical, infrastructure or other constraints. All developments in protected areas are required to prepare an Environmental Impact Assessment. The new Environmental Management Act and MET’s Policy for Prospecting and Mining in Protected Areas and National Monuments provide for the legal basis for development of concessions within the parks.

Due to the enormous biodiversity assets of the coastal regions of Karas and Hardap and the sensitive ecosystems they support, the largest development potential is related to the tourism industry. Although tourism land use patterns cannot currently be separated into the various types of tourism activities undertaken on the coast, it is clear that low-impact adventure and wildlife tourism (eco-tourism) can be widely applied in Karas and developed hand-in-hand with the conservation of biodiversity hot spots. In terms of competition with other destinations – both domestic and international and even regional – preservation of the extraordinary conditions of the coastal environment in Karas might give the industry a competitive edge. In Hardap, due to physical constraints and the lack of necessary infrastructures on the coast, the development potential for eco-tourism is considerably less than in Karas.

However, due to the fact that tourist policy and plan making are lagging behind both at regional and local levels, a current strategy and a support programme for both conventional and eco-tourism are urgently needed to boost the sector in Karas and Hardap. Local governments, at times working together, are enabling the activities of a resurgent private sector. But coordination between stakeholders seems poor, and there is little shared understanding of how coastal tourism has shifted its target markets, adapted its products, and moved forward. Up to date information to back up such an understanding is lacking. In this situation, there is a danger that environmental planning and management receives only lip service, and the resources on which coastal tourism depends are
degraded. The need to strengthen the basis for capitalising on the potential win-win development scenario between eco-tourism and nature conservation on the coast is closely linked to the need to strengthen the power of MET relative to other line ministries and to align tourism development on the coast with the MET Concessions Policy. The full use of the tourism potential in the coastal areas will also depend on the implementation of the Neighbours and Residents Policy, as tourism is currently growing in inland escarpment areas outside the coastal zone.

Compared to eco-tourism, other land uses, including traditional ‘high-impact’ tourism, possess a significantly smaller development potential in the two coastal regions. In spite of the lower potential, sustainable development is possible to achieve for all land uses by adopting the following environmental standards for land use development in pristine and sensitive environments:

- Avoidance of the most sensitive areas identified on the basis of a detailed baseline, in which habitat sensitivity in focal areas for land use development is mapped or modelled prior to environmental impact studies. The SEA provides guidance on the general location of hot spots of biodiversity, and may be used as basis for designing more detailed studies of the sensitivity of the areas in relation to various development projects;

- International standard environmental impact studies coupled to careful mitigation which secures the application of effective response mechanisms, which can then allow developments to proceed in close proximity to important and sensitive habitats. In cases where significant impacts cannot be avoided, changes to the planned development must take place. In cases where impacts of minor or moderate scale are estimated, careful mitigation measures must be set up and the residual impact following implementation of mitigation must be estimated. Assessments of single project as well as cumulative impacts of a planned project together with all other existing human activities must be included.

- Comprehensive environmental monitoring and management, which secures that the level of control necessary to assure authorities and NGOs of compliance with environmental quality objectives for development in proximity to sensitive habitats, requires quantifiable compliance targets. Of equal importance are effective and rapid response mechanisms, to allow feedback of monitoring results into compliance targets and work methods.

The southern Namibian coast is sparsely populated and geographically isolated. As stated in the Vision 2030 sub-vision on urbanisation there is a growing need for Namibia’s secondary cities like Lüderitz and Oranjemund to play a bigger part in absorbing urban development than they do today, when Windhoek is hosting the major urban growth. Accordingly, the need for better urban policy, planning and management to accommodate urban growth is likely to become a more urgent imperative in the future. The Hardap Region features no urban development at all on its 150 km long coastline. The region’s population was 68,249, according to the Population and Housing Census of 2001. Nobody actually lives on the coast, however, which falls completely within the Namib Naukluft National Park, and which is characterised now by only the barest traces of human settlement in the form of a number of deserted former mining and fishing camps between Conception Bay and Meob Bay: Holsatia, Charlottenfelder and Grillenberger.
The Karas coastal area is unusual in that it has always effectively been a closed coast, mostly falling within the restricted Sperrgebiet diamond mining zone. Between 40 and 50 percent of its 2001 population of 69,677 were living in and around the small coastal towns of Lüderitz and Oranjemund. Overall, the two coastal towns are remote and not easy to reach: Lüderitz is served by the good national B4 road but is 335 km from a junction with the main south-north B1 route at Keetmanshoop, and Oranjemund’s road access is strictly controlled, with the only official route via Alexander Bay just across the Orange River in South Africa. During the week, small airports in both towns allow daily flights to Cape Town and Windhoek. Principal challenges for stakeholders lie in mediating between and finding solutions to differences of opinion on land use and sometimes outright conflicts. Urbanisation pressures do exist but largely only in the Lüderitz area. Oranjemund faces a different challenge: of becoming a ‘normal’ town, after decades as a restricted and closed industrial settlement, insulated from and not used to making accommodations with social and economic trends or conditions.

Regional development plans (RDPs) for each of Namibia’s regions for the period 2001/2002 – 2005/2006, these including at least in principle the consideration of urban development, were produced under the auspices of the NPC in 2000. Only limited aspects of the RDPs in Hardap and Karas have therefore actually been carried through to implementation. In both of them, urban issues are touched upon but urban development, unlike rural development, is not treated in sub-sectoral terms. In consequence of its protected status, lack of population and inaccessibility, the coastal zone of Hardap does not feature at all within the Hardap RDP proposals for improvement of infrastructure services, and, more specifically, urban services, land use planning and housing. While the RDP promotes the upgrading of urban services and improvement of housing, there is no specific emphasis on the two coastal towns, apart from the intention to upgrade informal settlements in Lüderitz. The RDP also contains no real consideration of urban environmental management.

Neither Lüderitz nor Oranjemund have town planners or urban environmental planners. Economic development policies or plans are not formally in place for both Lüderitz and Oranjemund. Under the Town Planning Ordinance, Lüderitz has complied with the ordinance and has a published scheme, while the Oranjemund Town Management Committee (OTM Co.) has made two land use plans drafted and approved by the Surveyor-General. These could be seen to approximate a Town Planning Scheme. Under the coming Urban and Regional Planning Bill, the schemes will be transformed into Structure Plans. Lüderitz does not have a Structure Plan as such, but has in place a Land Use Plan (2004). Oranjemund has as yet no published plan or strategy for the broader disposition of its land resources. The Lüderitz Town Council has been promoting sustainable development, encouraging tourism, developing infrastructure and create a conducive environment for investors. The town council intends to provide serviced land and infrastructure, as necessary, for a number of mooted investments, which raise the issue of how to accommodate very different land uses – heavy industrial, port, mariculture leisure and recreation, and tourism – in the sensitive Lüderitz coastal zone, and further, within the town’s attractive urban context which has greater potential for heritage and maritime/mining/industrial history-related tourism than is perhaps realised.

In Oranjemund, OTM Co, in preparation for proclamation and the granting of town status, has commissioned several studies on the potential economic future oriented on opportunities for private sector investors. However, as a result of global recession mining operations are now in crisis. The price of diamonds on world markets has dropped...
precipitously. Namdeb, which was effectively bailed out by its two shareholders, De Beers and GRN, which underwrote bank guarantees in December 2008, has, in turn, cut production, laid off staff, first some 800 of approximately 3,000 employees, with a further 600 voluntary retrenchments proposed – and, most recently in early 2009 mothballed the mine for a three month period. Oranjemund thus faces a most difficult period in the short term, as its population diminishes as former employees leave the town (residence is tied to employment contract). In longer-term perspective, the current economic situation compounds the difficulties of ‘normalisation,’ already not a simple matter given uncertainties over the future and the town’s isolation and insularity as a result of the company town regime of the past 75 years.

The location of nearby areas of conservation priority (Namib Naukluft Park, the Sperrgebiet National Park and the Namibian Islands Marine Protected Area) severely constrain the suitability for spreading urban land use beyond areas currently allocated to residential, beach resort and industrial establishments. However, even facing these constraints Lüderitz and Oranjemund can develop an improved basis for spatial planning and management, by observing high standards of strategic and impact assessment and by developing detailed tourism plans.

Despite the financial crisis the mining industry is a major factor in the present economy of Karas. In order to improve planning of the extraction of minerals and avoid unsustainable development of the industry on the coast, the environmental standards for land use development in pristine and sensitive environments must be observed. Contrary to the situation in many other countries Namibia’s parks are not strictly protected, and only by exemption subject to the exploitation of minerals, oil and gas. The provisions of the Prospecting and Mining Act of 1992 gives MME the “right of way” since the development of mining is considered crucial to the Namibian economy. Recently the MME has emphasised proper environmental operation of prospecting and mining in the licensing procedures and the policy envisages controlled prospecting and mining in these areas under conditions that satisfy the protection of the environment.

It is particularly important to ensure continued liaison with MET at the early stage of prospecting for mineral extraction in the protected areas and national monument areas. For each licence awarded, MME and the MET must agree with the licensee on the scope of the prospecting in terms of volume of soil/sand removed. Larger amounts may only be removed after exemption or renewed application and permit. A new Bill is being prepared which introduces requirements for financial guarantees for reparation of environmental damage and the setting up of trust funds for rehabilitation after mine closure. This may provide leverage for the enforcement of rehabilitation. The environmental monitoring of mining activities which is carried out by the Division of Engineering and Environmental Geology of the Geological Survey of Namibia provides for an important environmental control of potentially adverse impacts like excessive water supply, dust emission and pollution of surface- as well as groundwater.

The government approved the National Water Policy in 2001. The policy is based on the foundation that water resources and their use and management are part of the national economic and social development framework and therefore should be fully integrated therein. It views water as being essential in the human life process, food production and agriculture, industry and the ecosystems of the natural environment. The management of the water resources should balance the allocation effectively between these various uses and users. The policy adopts a cost-effective approach to the pricing
of water as a mechanism for its conservation. The prices charged will take into account the financial cost of water, its opportunity cost and the consequences of environmental degradation.

Aquaculture (fish and seafood) has gained considerable interest in Namibia over the last few years. The National Development Plan (NDP 2) calls for the promotion of aquaculture activities and the national policy paper Vision 2030 foresaw a thriving aquaculture industry. Since 2003, the Aquaculture Act has provided a legislative context, and the policy paper Towards the Responsible Development of Aquaculture (2001) and the Aquaculture Strategy (2004) were developed to address the development of a sustainable aquaculture sector. The Lüderitz Bucht boasts a number of aquaculture facilities and is well suited to accommodate aquaculture due to the relatively protected environment. Recently, a detailed plan for development of the sector also covering Karas Region was submitted, which proposes the construction of an Aqua Park facility at each of the coastal towns: Lüderitz (second lagoon) and Henties Bay Mile 4 and/or Mile 17 (Swakopmund). Only the former is in the SEA area for Hardap and Karas. The developments in Lüderitz were suggested as 10 companies to produce shrimp, finfish and abalones, but kelp production is often also proposed when aquaculture is considered in Lüderitz since natural conditions and local expertise are available. However, the development of the industry still remains to reach these levels in viable commercial companies. The development of aquaculture in Mining Area 1 is attractive from a remediation and job creation point of view. Several proposals for using the coastal ponds have been brought forward. However, the effort and investments required to maintain the sea walls and the water quality in ponds for food production must be included in feasibility studies of pond aquaculture.

**SEA - SPECIFIC**

**Hardap**

**Namib Naukluft Park**

The entire terrestrial coastal environment of the Hardap region falls within the Namib Naukluft Park (NNP), while the inshore zone from Meob Bay and southwards forms part of the Namibian Islands Marine Protected Area. Despite ambitious goals the management of Namib Naukluft Park has not been updated since 2004, and no detailed zonation of the park has been undertaken on the basis of assessments of the different levels of sensitivity in species and habitats towards human activities. Due to the lack of detailed zonation the existing management plan for the park renders limited options for development of alternative land uses. The development opportunities are heavily constrained by either lack of resolution in the knowledge of the distribution of biodiversity or lack of infrastructure and support from nearby towns.

Equally important, assessments of spatial trends in importance of different areas within this huge park are still lacking. Our assessment of trends in the conservation potential of habitats within the NNP indicates that the largest continuous area of high conservation priority is found in the northernmost part of the region along the Kuiseb river. The special status of the Kuiseb river was also recognized in the management plan. The steep coastal slopes from Sandwich Harbour to Conception Bay and from Meob Bay to Black Rock have higher conservation potential than the neighbouring coastal
stretches, and the steepest parts of the sand sea also hold a larger conservation and eco-tourism potential as compared to the general area of sand dunes. The NNP management plan mentions the salt pans between Conception Bay and Meob Bay as a sensitive area, but does not provide any detailed background information for this. Although the number of identified priority habitats in the NNP is modest and the density of animals is low in the coastal part the Namib Desert contains a suite of uniquely adapted organisms of which a relatively high number are endemics. The management plan stresses that these organisms form the focus of the management of the park, yet no actions have yet been taken to monitor the status of the endemics of the Namib Desert in the various parts of the sand sea, including the coastal zone. Historically, opportunistic movements of large herds of herbivores took place into the area which today is covered by the NNP. These movements are now much reduced in volume and extent due to the fence along the eastern boundary of the NNP. Although these movements probably mainly reached the coastal zone via the Kuiseb Delta the presence of the eastern fence most likely has also affected the frequency of occurrence of mammals in the coastal zone.

**Namibian Islands’ Marine Protected Area**

The Namibian Islands’ Marine Protected Area (NIMPA) was proclaimed in February 2009, following approval by Cabinet on 2 September 2008, and finally launched in July 2009 as the first Namibian MPA following the new global framework for marine habitat protection as a means to promote sustainable marine resource use and marine biodiversity conservation. Sustainable marine resource use through MPAs facilitates managing the components of marine ecosystems that are not protected by traditional fisheries management, i.e. important spawning and nursery grounds for fish and other marine resources (such as rock lobster), as well as sensitive ecosystems and breeding areas for seabirds and marine mammals.

The MPA area comprises the coastal strip in the south-west of Namibia’s marine waters, extending from Hollamsbird Island, the northernmost island, to Sinclair Island in the south, spanning approximately three degrees of latitude and an average width of 30 km. This includes 11 specified offshore islands and islets, as well as a number of rocks, which are key biodiversity foci. The suggested management plan for the MPA is based on the IUCN zonation criteria. The IUCN category VI Managed Resource Protected Area is recommended for the broader buffer zone of the proposed MPA, so that existing fisheries, aquaculture activities and mining activities should not be adversely affected through MPA promulgation. The total MPA area, also referred to as the buffer zone, has been further sub-zoned into four degrees of incremental protection. Zone 1 contains the most general (conservation measure) conditions applicable to all islands, islets and rocks throughout the buffer zone, whereas Zone 4 represents the highest protection status with specific conditions assigned individually to each island, islet or rock, as well as to rock lobster sanctuaries and a proposed line fish sanctuary.

**The Meob Bay – Conception Bay Area**

The terrestrial part of the Hardap Region coastal area, which wholly falls within the protected area of the Namib Naukluft National Park, is characterised now by only the remnants of human settlements. The former mining camps of Holsatia, Charlottenfelder and Grillenberger between Conception Bay and Meob Bay and the wreck of the Eduard Bohlen are on the route of frequent, guided 4X4 excursions. A successful attempt was made recently to restore a surf boat and the remaining prefabricated huts at Meob Bay.
The land-use suitability models indicate no other presently suitable land use than eco-tourism.

**Karas**

**Namib Naukluft Park**
The management goals, biodiversity characteristics and development potentials of the Namib Naukluft Park are described under Hardap above.

**Namibian Islands’ Marine Protected Area**
The management goals and biodiversity characteristics of the NIMPA are also described under Hardap above. The northern and central parts of the Karas coast lies within the boundaries of NIMPA, and the major elements of biodiversity linked to islands and rocky shorelines are found in this region. As for the Namib-Naukluft Park the development opportunities are heavily constrained by either lack of resolution in biodiversity or lack of infrastructure and support from nearby towns. This is especially the case near Lüderitz where the entire coastal area is classified as important.

**Sperrgebiet National Park**
The proclamation of the Sperrgebiet as a national park (SNP) follows a Cabinet decision that was made in 2004. The vision for the SNP is to protect, manage and sustainably develop the SNP within the context of the greater Succulent Karoo, Nama Karoo, Namib and Coastal ecosystems, to enhance conservation and socio-economic values for the region and nation and to place primary importance on the globally significant biodiversity and landscape values of the area. The Cabinet decision of 2004 to proclaim the SNP makes provision for the formation of the Park Advisory Committee (PAC) to handle co-management activities of the park. The PAC aims to bringing together stakeholders to provide advice and guidance for strategic direction and broad management issues of the SNP. As part of the Succulent Karoo ecosystem the Sperrgebiet is an area of global conservation significance, as this is the most diverse desert system in the world and is one of the world’s top 25 global biodiversity hotspots due to its extraordinary high number of plant endemics. In addition, the area boosts a number of archaeological and palaeontological values. The drafted management plan for the SNP uses a zonation based on IUCN criteria.

Even more than for the NNP and the NIMPA the lack of resolution in available biodiversity data is an environmental barrier to development in the Sperrgebiet. The zonation of the park has mainly been based on coarse-scale patterns of plant endemism which effectively classifies the entire region as sensitive. Our models of conservation priority indicate areas of reduced importance north and northeast of Oranjemund.

The Orange River Mouth is a Ramsar site, and some 73 species of wetland birds have been recorded. The concentrations of hartlaub’s gull and damara terns are of international significance, and the area supports regionally important concentrations of several species. The knowledge of the terrestrial bird fauna of the Sperrgebiet is far from complete, but includes several endemic bird species. Although research in mammals, reptiles, amphibians and invertebrates in the Sperrgebiet has been limited it is known that the area also boasts some 80 terrestrial mammal species, almost 100 reptile species, 16 frog species and a great number of insects and other invertebrates.
Lüderitz

Land use and urban development within the area under the jurisdiction of the Lüderitz Town Council are subject to both policy and regulatory practices. As per the Town Planning Ordinance of 1954, Lüderitz has an approved Town Planning Scheme in place: The Lüderitz Town Planning Amendment Scheme No. 5 of October 2002. The broad directions for land use development and management are guided by policy in the form of the Lüderitz Land Use Plan of 2004. According to the Plan the disposition of future land uses is proposed to be based on a number of development principles. The guiding principles are then applied to the different land components of the Lüderitz area – i.e., Lüderitz surroundings, including the Peninsula and the coastal areas north and south of the town; the inland area; and the Lüderitz town area itself. With regard to the “urban coastal area,” broadly defined as the area reaching some 500 m inland from the high water mark within the built-up area of the town and its surroundings, there is a strong emphasis on access to the coast for residents and tourists and the provision of public space.

The Lüderitz Town Council is the only institution that can assure that the general public of Lüderitz, who are actually the owners of all Council land, have access to certain high value land portions, which include land along the sea. Although Council is under pressure from property developers to privatise the three public open spaces along the seafront, these properties have to remain public land. This emphasis is also carried through in the Town Planning Scheme’s zoning and development controls. A Waterfront zone is identified and illustrated in parts of the urban coastal area. This policy and regulatory system appears adequate to guide, control and manage land use development in the Lüderitz coastal area, particularly that of the town. The system is strengthened by application of national EIA policy as required; a full-scale environmental management plan has however not been developed as yet. Lüderitz does face current and future challenges in terms of accommodating and balancing very different and potentially conflicting industrial, port, residential, and recreational, leisure and tourism-oriented land uses in close proximity to one another in its coastal area. The challenge is sharpened by current economic conditions, and the need to promote the variety of economic development prospects.

There are also perhaps under-noticed opportunities: the combination of maritime, industrial and recreational uses in a confined and visually striking area is unusual and attractive. The proclamations of the SNP and the NIMPA now confirm Lüderitz’s role as a gateway to both protected areas. Taking particular advantage of unused space on the waterfront, the right heritage-type tourism opportunities need to be developed in relation to tourism plans for the SNP in particular, i.e., in regional context. If this is done, the economic future of Lüderitz – and the Diamond Coast generally – could look a lot more promising. If the right things are done, it is not outside the realms of possibility that the town could one day be ranked in the same league as the historical coastal tourism towns on the western and eastern coasts of Africa, such as Elmina in Ghana, and Zanzibar.

Given the geographical location and the existing port developments in Walvis Bay, Lüderitz should maintain its local presence as an important fishing, mining/energy supply and minor import/export port, but not pursue investment heavy upgrades in container or bulk terminals beyond those required to supply the mining industry. The utilization of the clean sheltered waters should be maximized for aquaculture purposes and tourism development such as sailing, kiting, fishing and whale watching.
With increased traffic in the port it may be considered appropriate to develop MARPOL Reception facilities in Lüderitz for waste and sewage, since aquaculture in close proximity to the port is sensitive to occurrence of sewage related contamination and to littering with plastic. To strengthen tourism potential, angling areas around Lüderitz, tour boat operation, whale watching, rock lobster catching and other recreational activities should be encouraged and developed. The modelling of the suitability for ecotourism shows large potentials east and north of Lüderitz – in general a larger potential than near Oranjemund.

**Oranjemund**

OTM Co. has made good progress in establishing the basic regulatory framework for land use development for what is to become a proclaimed town, with the surveying of the town, and submission to and approval by the Surveyor-General of two plans which zone the town itself, and sub-divide the townlands into 16 portions. To facilitate future expansion, seven extensions have been proposed. As of December 2008, four extensions had been submitted and two approved. Oranjemund does not have a land use policy or structure plan which is applicable at this time. The settlement’s urban coastal area is limited: there is sea/beach frontage of about only 500 m, and also a stretch of territory facing the Orange River and thus the still disputed border with South Africa, which lies at the high water mark on the northern bank of the river, with the majority of the Ramsar site therefore in South Africa. The current initial planning framework established thus appears adequate – for now.

Proposals for aquaculture in the ponds near Oranjemund must be revisited with a view to water quality and maintenance costs of the sea walls.
### Recommended Implementation Schedule

**Table 1. Recommended Implementation Schedule – Sector-Based Actions.**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Recommended action</th>
<th>Time frame</th>
<th>Expected outcome</th>
<th>Key stakeholders</th>
<th>Recommended indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tourism</td>
<td>Detailed analysis of current and short-term tourism activities</td>
<td>1 year</td>
<td>Provision of a detailed profile of current and short-term tourism activities</td>
<td>Town managements, Regional councils, MET, Tour operators, Conservancies, GSN/MME, NHC</td>
<td>Statistics on numbers of tourist and revenues from different tourist activities at local and regional level</td>
</tr>
<tr>
<td>Tourism</td>
<td>Development of regional tourism development plans</td>
<td>1 year</td>
<td>Strategy and support programme for conventional and eco-tourism</td>
<td>Town managements, Regional councils, MET, Tour operators, Conservancies, GSN/MME, NHC</td>
<td>Draft development plan available at the regional councils</td>
</tr>
<tr>
<td>All</td>
<td>Guidelines for environmental impact assessments and assessments of the sensitivity of sites targeted by development projects</td>
<td>1 year</td>
<td>EIAs undertaken using state-of-the-art technologies and international standards</td>
<td>Regional councils, Line ministries, NGOs, Town managements</td>
<td>Draft guidelines available at MET</td>
</tr>
<tr>
<td>All</td>
<td>Guidelines for comprehensive environmental monitoring and management by all large-scale projects</td>
<td>1 year</td>
<td>Compliance with environmental quality objectives for development in proximity to sensitive habitats</td>
<td>Regional councils, Line ministries, NGOs, Town managements</td>
<td>All</td>
</tr>
<tr>
<td>Sector</td>
<td>Recommended action</td>
<td>Time frame</td>
<td>Expected outcome</td>
<td>Key stakeholders</td>
<td>Recommended indicators</td>
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</tr>
<tr>
<td>Mineral extraction</td>
<td>Improve liaison with MET in relation to prospecting for mineral extraction in protected areas</td>
<td>1 year</td>
<td>Leverage for the enforcement of EIA guidelines, monitoring and rehabilitation associated with mining activities</td>
<td>GSN/MME MET Regional councils Town managements</td>
<td>Agreement between MME and MET on involvement of MET in planning and licensing of mining activities</td>
</tr>
<tr>
<td>Mineral extraction</td>
<td>New reconnaissance, prospecting, mining licences or claims should not be granted in protected areas once the existing licenses expire. Only when considered a project of national priority should mining and natural resource extraction be allowed and the protective status lifted.</td>
<td>1 year</td>
<td>Improved protection of core areas of nature conservation and improved sustainable use of the park</td>
<td>MET MME NGOs</td>
<td>Expiration of majority of mining licenses in the medium term</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>Development of an environmental master plan</td>
<td>1 year</td>
<td>Sectoral strategic assessment of environmental and financial implications of aquaculture developments</td>
<td>MFMR NatMIRC Regional councils Town managements</td>
<td>Draft zoning plan available at NatMIRC</td>
</tr>
</tbody>
</table>
Table 2. Recommended Implementation Schedule – Area-Based Actions.

<table>
<thead>
<tr>
<th>Area/Zone</th>
<th>Recommended action</th>
<th>Time frame</th>
<th>Expected outcome</th>
<th>Key stakeholders</th>
<th>Recommended indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namib Naukluft Park</td>
<td>Detailed zoning established for the park</td>
<td>3 years</td>
<td>Identification of sensitive areas and potential areas for sustainable development</td>
<td>Regional councils Line ministries NGOs</td>
<td>Spatial definition (GIS maps) of core areas and potential areas for sustainable develop-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Conservancies Town managements GSN/MME</td>
<td>ment</td>
</tr>
<tr>
<td></td>
<td>Guided self-drive tours should continue to be tightly monitored through the concession scheme</td>
<td>1 year</td>
<td>Continued low-impact tourism to the coastal zone of NNP</td>
<td>MET Tour operators</td>
<td>Concession scheme</td>
</tr>
<tr>
<td>Lüderitz</td>
<td>A long-term development option to redraw the regional boundary between Karas and Hardap, which would transfer Lüderitz from Karas to Hardap region</td>
<td>5 years</td>
<td>Karas region would focus on the future development of Oranjemund, and a final dismissal to the administrative legacy of the Diamond area 1 and 2</td>
<td>Town management Regional councils MME</td>
<td>Discussions on regional boundary initiated</td>
</tr>
<tr>
<td>Lüderitz</td>
<td>Retain and further evolve potentials for the aquaculture industry</td>
<td>1 year</td>
<td>Sustainable and strengthened aquaculture industry</td>
<td>Town management MFMR</td>
<td>Lüderitz Structure Plan includes development zones for the sector</td>
</tr>
<tr>
<td>Oranjemund</td>
<td>The commercial viability of aquaculture in the former sea-walled mining area on the linear coast must be carefully evaluated with respect to its sustainability</td>
<td>1 year</td>
<td>Water quality and maintenance issues resolved</td>
<td>Town management MFMR</td>
<td>Feasibility study undertaken</td>
</tr>
<tr>
<td>Area/Zone</td>
<td>Recommended action</td>
<td>Time frame</td>
<td>Expected outcome</td>
<td>Key stakeholders</td>
<td>Recommended indicators</td>
</tr>
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<td>----------------------------</td>
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</tr>
<tr>
<td>Lüderitz</td>
<td>Environmental Impact Assessments of all major developments</td>
<td>1 year</td>
<td>Sustainable development of the sectors achieved</td>
<td>MFMR</td>
<td>Requirements for EIAs included into license requirements for all major developments</td>
</tr>
<tr>
<td>NIMPA</td>
<td>Feeding areas to seabirds in NIMPA should be identified and the boundaries modified accordingly</td>
<td>2 years</td>
<td>Improved conservation of seabirds</td>
<td>MFMR</td>
<td>Revised NIMPA Plan</td>
</tr>
<tr>
<td></td>
<td>Monitoring of key biodiversity elements should be established</td>
<td>2 years</td>
<td>Population trends in conservation targets</td>
<td>MFMR</td>
<td>Monitoring plan drafted</td>
</tr>
<tr>
<td>NIMPA</td>
<td>SEA on offshore mining should be undertaken especially in relation to sensitive organisms</td>
<td>2 years</td>
<td>Assessment of specific impacts on conservation targets in NIMPA</td>
<td>MFMR</td>
<td>SEA drafted</td>
</tr>
<tr>
<td>Sperrgebiet National Park</td>
<td>Knowledge on biodiversity trends for the non-botanical elements should be strengthened</td>
<td>3 years</td>
<td>Censuses of vertebrate fauna</td>
<td>MET</td>
<td>Revision of the Sperrgebiet management plan with information on key habitats to mammals, birds and reptiles</td>
</tr>
<tr>
<td>Sperrgebiet National Park</td>
<td>Artificial sea walls and coastal ponds should be left to reshape the</td>
<td>2 years</td>
<td>Maintenance of sea-walls and ponds term</td>
<td>MME MET</td>
<td>Monitoring plan drafted</td>
</tr>
<tr>
<td>Location</td>
<td>Project Description</td>
<td>Time Frame</td>
<td>Benefits</td>
<td>Responsible Parties</td>
<td>Outcome</td>
</tr>
<tr>
<td>---------------------</td>
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</tr>
<tr>
<td>Oranjemund</td>
<td>Existing land use and economic development plans should be coordinated, finalised and disseminated</td>
<td>1 year</td>
<td>Provide residents and investors certainty on development opportunities</td>
<td>Town management</td>
<td>Structure plan drafted</td>
</tr>
<tr>
<td>Oranjemund and Lüderitz</td>
<td>Development of Diamond Coast Spatial Development Framework (SDF)</td>
<td>3 years</td>
<td>Co-ordination of development opportunities between the two towns and the Sperrgebiet Land Use Plan</td>
<td>Regional councils Developers Town managements GSN/MME NHC</td>
<td>SDF drafted</td>
</tr>
</tbody>
</table>
The SEA Decision Support Tool (DST)

One of the outcomes of the NACOMA SEA is the synthesis of PPPs and the GIS-based dissemination of information and data within the framework of a user-friendly, policy relevant and IT-based decision support tool (DST). The NACOMA DST has the role of informing the decision making process on land use options in the two coastal regions, and does not provide decisions per se. As the GIS capacity of the primary end-users, the Regional Councils, is relatively low the DST has been developed as a stand-alone application; either as a cluster of pdf files with results of the suitability maps for each land use type or as a collection of GIS files, encompassing all major results and background files, which can be viewed in the widely available ArcView 3.2 as well as in the free-ware ArcExplorer.

The early version of the DST is disseminated as a CD-ROM, which apart from the pdf-files and GIS files will also contain the SEA Final Report and a manual for using the maps in ArcView/ArcExplorer. Following this a longer-term solution for the DST needs to be developed, which ensures that the DST data and functions are available via the Web. The DST Web service could accommodate a full set of land-use suitability scenarios and background data for the entire Namibian coastline.

The NACOMA GIS for the DST will have a resolution of 90 m. This high resolution serves to provide the end users with possibilities for resolving land use conflicts/solutions at the finest possible scale with the data at hand. The choice of regions and sub-regions and themes to display is different between the pdf and the ArcExplorer application. In the pdf maps showing pre-defined themes for the different sub-regions will be available, while in ArcExplorer the end user will be able to select any theme and any portion of the mapped coastal stretch of Karas and Hardap for visualisation. The collection of GIS maps with ArcExplorer will make it possible for the local user to add his/her own project data in vector and raster format.
1 INTRODUCTION

In July 2008, the Namibian Coast Conservation and Management Project (NACOMA) commissioned DHI Water & Environment to develop a user friendly, decision guiding and policy relevant Strategic Environmental Assessment (SEA) of the coastal zones of the Karas and Hardap regions of southern Namibia. In the Terms of Reference (ToR), it was made clear that this SEA for the Karas and Hardap regions’ coastal zones was to be developed in similar fashion to the earlier SEA conducted by the same consultants for the Erongo and Kunene regions’ coastal zones of northern Namibia, and thereby accomplish a standardised assessment of development and conservation potentials for the entire coastal area of Namibia. This draft SEA report should thus be seen as a companion piece to the earlier report: the same format is followed, and, where relevant, text is repeated in order that the two reports mirror one another.

In addition, and also in similar fashion to the ToR for the northern coastal SEA, the information, data and findings resulting from this second SEA process have been transferred to a Decision Support Tool (DST), in order to assist political and technical decision makers at local, regional and national levels to make decisions on biodiversity conservation, land use planning, and social and economic development planning in the Karas and Hardap coastal zones.

The SEA and DST is also to make inputs to NACOMA’s other activities. It is intended that all data and other information collected during the SEA process be fed into the preparation work for the intended separate regional coastal profiles for particular use by the Karas and Hardap Regional Councils. A specific contribution to the preparation of these regional profiles is identified in the recommendations derived from the SEA. The recommendations draw on a review of existing institutional mandates, policies and laws for coastal management in Namibia. At the same time, the SEA is also strongly informed by the draft Coastal Policy Green Paper for Namibia that was issued for comment in late 2008 by NACOMA.

In these ways, it is anticipated that the results of the SEA will contribute to the development of a Namibia Coastal Conservation and Management White Paper (NACOWP) to ensure that coastal development planning and management is based on relevant and updated information and data and on analysis and consideration of the most suitable actual and potential land uses.

1.1 Objective of the Assignment, Specific Tasks, Outputs

The objective of the assignment is stated in the ToR as:

Conduct an SEA of the Karas and Hardap regions’ coastal zone to support and inform the decision making processes affecting biodiversity conservation and sus-


3 SAIEA, 2007. Review of existing institutional mandates, policies and laws relating to coastal management and proposals for change. Draft report for NACOMA.
tainable coastal development, and present its results in a user-friendly, easily up-datable, policy relevant format or DST. The specific tasks involved have been divided into three phases:

- **Phase 1**: Assignment Inception: Conduct initial stakeholder consultations and workshops in Karas and Hardap coastal regions and in Windhoek
- **Phase 2**: Conduct a comprehensive SEA for the Karas and Hardap regions’ coastal zones
- **Phase 3**: Present the SEA results in a DST.

The outputs for each phase can be summarized as follows:

- **Phase 1**: Inception Report
- **Phase 2**: Draft and Final SEA Report
- **Phase 3**: Presentation of SEA Report findings in DST.

### 1.2 Purpose of this Report

This report is the final SEA Report for the second phase of the assignment. As per the ToR, it contains:

i) A description of current land uses, impacts, threats and pressures along the coastal zones, including possible trends, with recommendations (zonations and classifications) for prevention and mitigation overall and in relation to Policies, Plans and Programmes (PPPs), including spatial data for use in the DST;

ii) A description of environmental/biodiversity conservation and management gaps, problems and implementation difficulties of current environmental/biodiversity conservation and management safeguards, management/control practices, and conservation/biodiversity management targets. This includes detailed concrete recommendations for improvement of environmental/biodiversity conservation and management overall and in relation to PPPs and data for use in the DST;

iii) The outcomes of the integration of (i) and (ii) above in relation to existing PPPs, and including concrete recommendations for input to the White Paper development process and for improvement of the recommendations from the Policies and Laws and Roles and Mandates Review outputs.

Also included in the ToR is a specification for a description of the SEA process including the objectives and outcomes of workshops/consultations, and incorporation of comments/suggestions. The Inception Report contained full details of the consultative process to August 2008. This account is updated with details of the overall SEA process since that time, which is incorporated in Chapter 4 and in the comprehensive methodological annex (Appendix 1) that accompanies this report.

Stakeholders were afforded the opportunity to comment on a draft report. These comments were taken into account in finalising the report.
Figure 1. Location Map and Outline of the Karas and Hardap coastal zones covered by the SEA. The boundary between the two regions is marked by a black line.
1.3 Strategic Environmental Assessment – and its Methods

SEA is usually described as an environmental assessment (EA) process and method that assists in strategic decision making above the individual project level. SEA thus refers to the environmental assessment of policies, plans, and programmes towards the purpose of achieving ecologically sustainable development. As one recent authoritative account puts it,

The aim of SEA is to provide decision makers and affected stakeholders with timely and relevant information on the potential environmental impacts of a PPP in order to modify the PPP to make it environmentally more sound. SEA is therefore a process that is inextricably linked to decision making. It facilitates the early consideration of environmental impacts, the examination of a broad array of potential alternatives, the generation of standard mitigation measures and the opportunity to address a wide range of impacts, including those that are cumulative, synergistic, indirect, long range, delayed and global.4

SEA is now increasingly seen as a tool which can address the inter-relationships between biophysical, social and economic impacts, rather than environmental impacts alone. The World Bank’s approach to SEA follows in this line. SEA is intended as “a participatory approach for upstreaming environmental and social issues to influence development planning, decision making and implementation processes at the strategic level.”5 Three types of SEA are identified by the Bank: sectoral EA, regional EA, and other types of EA.6 Within each type of SEA a wide range of continuum approaches may be applied from impact-centred to institution-centred approaches7. The SEA for the Karas and Hardap Coastal zones can be seen as an institution-centred regional SEA, which is focused on a particular geographical area.

SEA is a very useful tool for coastal planning and management. According to two experts in the field, it can

- Enable coastal managers, when they are making decisions, to raise the importance of coastal concerns to the same level as other aspects of development planning
- Facilitate consultation, negotiation and consensus between organisations and the public on a range of coastal issues.8

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6 According to a World Bank review, the purpose of REA is “to improve investment decisions by bringing environmental opportunities and constraints into development planning at the regional level.” Quoted in Mercier and Ahmed, op cit, p. 263.
7 www.worldbank.org/seatoolkit
At the same time, in its consideration of the inter-relations between processes, as discussed above, SEA can be particularly helpful taking environmental issues into account while preparing or evaluating land use plans.

For NACOMA, as for any other Integrated Coastal Zone Management (ICZM) initiative, SEA can help in identifying both the environmental opportunities and the constraints to social, physical and economic development in a coastal zone – and thus supply a broad strategic framework for ICZM. In this way, SEA provides at least some of the strategic parameters or guidelines within which ICZM can best take place.9

1.4 Considerations for the Namibian Situation

Mandated SEA processes, such as the European Commission’s (EC) SEA Directive of 2001, usually define desired outputs rather than specific SEA methods. This allows for flexibility and creativity in conducting a SEA. Indeed, as Jones et al put it, “The starting point for any SEA should ideally be the decision making context into which the findings of an SEA feed.”10

Some of the specificities of the Namibian decision making context therefore warrant brief discussion. Many hundreds (if not thousands) of technical and scientific studies of the biophysical and environmental conditions and dynamics of Namibia’s thinly populated 1,570 km coastline have been made over the years. Similarly, many attempts, these now dating back several decades, have also been made to link environmental, social and economic dimensions in planning for coastal development. Yet stakeholders have apparently found it very difficult to resolve key issues like the integrated conservation and management of the Lüderitz area or the disposition of the Sperrgebiet National Park.

This very real weakness of coastal management in Namibia is often ascribed to a lack of institutional capacity, or to unclear, over-centralised, confused and/or overlapping legal or institutional mandates, notably in the public sector agencies involved. All of this may well be correct. But, relative to many other national coastal planning and management contexts, Namibia is actually fairly well-endowed with the technical and managerial capabilities to deal with what are, given the country’s small population and recent good economic performance, manageable issues. The country also features a group of stakeholders, which, whatever the different interests involved, is at least in agreement (moreover the players are well-known to one another) on the necessity to better plan for and manage what is a crucial national asset – as the site for much of the resource extraction which underpins the Namibian economy’s performance.

It appears, in fact, that what is really lacking is not technical or scientific knowledge, or the existence of Policies, Plans and Programmes. There is a plethora of PPPs. Many of these are good documents. Others exist in an unfinished or semi-finished form. Many of them are seemingly unread, let alone implemented. The real difficulty lies in the inability by stakeholders to find common understandings and a shared strategic per-

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9 Strategic Environmental Assessment Guidelines for the countries of eastern Africa and the western Indian Ocean Island States, Secretariat for Eastern African Coastal Area Management (SEACAM), Maputo, n.d., p. 7.
spective on the economic, social and environmental interactions necessarily involved in coastal development, and of the adjustments, compromises and trade-offs that need to be made to assure better coastal planning and management.

Interconnected topics such as conservation, economic development (notably mining and resource processing manufacturing activities), population and urban growth, and recreational activities are basic issues for any SEA process in Namibia. Assisting in finding common ground on them is one of this report’s – and NACOMA’s – central purposes (see Figure 2 below).

This SEA report and accompanying DST represents an input to this intention in the form of a broad, clear strategic framework which condenses – to the ends of brevity, clarity and readability – the assessment of vital impacts into an easily comprehensible output to assist decision making.

Accordingly, two methodological steps have been required upfront. Firstly, rather than take on everything connected with the coastal zones, it has been necessary to define the boundaries of the study area closely (see Figure 1). These boundaries extend from the low-water mark to the eastern boundary of the fog belt, identified as the threshold of a minimum of 50 days with fog per year. The islands in the Karas and Hardap nearshore zone have been included in the boundaries of the SEA. The north-western extreme of the Namib-Naukluft Park stretching into the south-western boundary of the Erongo Region (including Sandwich Harbour) was included in the northern SEA. The SEA thus covers a geographically extensive but circumscribed area. Accordingly, the SEA does not cover the marine environment adjoining the coastal regions of Karas and Hardap.

Secondly, facilitated by this close definition, the SEA is necessarily focused on the major issues for coastal planning and management in the coastal zones as these are initially reflected in a number of crucial PPPs (see Chapter 2.1). It is intended that such delimiting can assist in achieving the objective of developing a “user friendly, decision guiding and policy relevant” SEA, as per the assignment’s goal.

![Figure 2. The aim of this SEA with regard to resolving strategic land use planning issues through the integrated analysis of nature conservation, land use suitability and PPPs.](image)

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1.5 **Report Structure**

This Draft SEA Report is divided into four chapters. Following this Introduction, **Chapter 2, Methodology**, gives a brief outline of the methods used for the collection of planning documents and data, stakeholder liaison, mapping of coastal landscape and physics, development plans and resources and assessment of land use suitability. **Chapter 3, SEA Assessment: Land Use and Coastal Development Trends**, follows a sectoral approach in describing the broad trends now characterising coastal development, including conservation, and its associated land use patterns in the coastal zones of the Karas and Hardap Regions. Key PPPs, as discussed above, are used as reference points. The trends are described for each of the two regions with regard to four large sectors: resource extraction, urban development, tourism, and conservation/biodiversity. Recommendations are provided for each sector.

**Chapter 4, SEA Assessment: Improving Nature Conservation and Management, by area**, then takes a spatial perspective. For both the Karas and Hardap Regions, a focus is placed on the priority conservation areas of the Namib-Naukluft Park, the Sperrgebiet National Park, Oranjemund and the Orange River mouth, Lüderitz Bay and the Namibian Islands’ Marine Protected Area, again with key PPPs as reference points. Maps are provided of these areas, and biodiversity hotspots within these are identified. The opportunities and challenges facing these spatial areas are discussed and recommendations made.

**Chapter 5, Conclusions and Recommendations**, outlines the conclusions of the analysis for coastal development policy in Namibia in relation to existing PPPs, as well as provides recommendations for the NACOMA project as it goes forward. A description of how the DST will reflect and condense the findings of the SEA report and of the way forward for the assignment is also included.
2 METHODOLOGY

In the following, a short description of the SEA Methodology is provided dealing with the collection of planning documents and data, stakeholder liaison, mapping of coastal landscapes and physics, development plans and resources, assessment of land use suitability, comments on available data and DST and map design. A detailed description of the SEA methodology, including details of stakeholder involvement, data sources, GIS models and DST design and functionality is given in Appendix I.

2.1 Collection of planning documents and data

Documents and data on regional, national and sectoral land use and other relevant policies, programmes and plans (PPPs) were collected during the Project Inception Phase in August 2008 (Table 1). Important activities during this phase were two workshops held in Mariental (Hardap) and Lüderitz (Karas), in which thematic discussions on data and PPP availability took place between the project team and a wide range of stakeholders and end-users, as well as meetings with selected stakeholders, end users and experts on the two regions, and in Windhoek. The collection of data and planning documents was followed up by a phase of close scrutiny of data samples and of the PPPs.

Although a large amount of data was therefore made available to the SEA process, some information failed to become available for various reasons. During a second round of consultations focused on the Oranjemund and Lüderitz areas in Karas Region, and a workshop held in Windhoek in early December 2008, it was possible to receive feedback on these missing data, and to fill in the some of the most important gaps on land use, plans and biodiversity.

Since that time, the impact of the worldwide economic crisis on the area has been significant, particularly on Namdeb’s production and sales, with consequent effects on the town of Oranjemund.

2.2 Stakeholder liaison

A key to a successful development and application of the SEA and DST has been the liaison with the stakeholders during the entire project. Stakeholder involvement has focused on delivery of planning documents and data, on methodologies related to the analysis of land use suitability, including the analysis of biodiversity trends and on discussions on individual land use plans. The workshops have served as focal points for communication with the stakeholders. During the Phase 1 workshops in August 2008 the overall SEA strategy and stakeholder involvement was discussed not only with stakeholders at large, but also in particular with the principal stakeholders, the Regional Councils of Karas and Hardap. During the Phase 2 workshop in December 2008 various issues related to the PPPs were discussed with end users from both regions.
Table 1. List of Key PPPs.

**MET**
- MET policy on tourism and wildlife concessions on state land (update since June 2006)
- MET Policy on Protected Areas, Neighbours and Resident People (update since July 2006)
- MET EMA Act
- Namib-Naukluft Park Management Plan
- Sperrgebiet Management and Development Plan
- Sperrgebiet Development Plan
- Sperrgebiet Tourism Development Plan
- Sperrgebiet Business Plan
- Sperrgebiet Biodiversity Conservation Plan
- Policy framework for Concessions in Proclaimed Protected Areas (update, including new agreement with MME)
- Namibia Wetland Policy (update)
- Succulent Karoo Ecosystem Plan (SKEP) - 20-year strategy and management plan
- Orange River Mouth Transfrontier Conservation Area Development Plan (ORM TFCA 2004)
- Meob and Conception Bay Land Use Plans (1980s)

**MME**
- Current Petroleum Exploration Onshore/Offshore Licensing Round
- Current Prospecting and Mining in coastal zone

**MFMR**
- Marine Protected Area background and management recommendations report
- MFMR Mariculture Feasibility (update)

**MWTC**
- National Oil Spill Contingency Plan (update)

**MAWF**
- Regional Water Supply Programmes

**NAMPOWER**
- Regional Power Supply Programmes

**Regional/Municipal/Other**
- Karas and Hardap Regional Development Plans
- Structure/Strategy Plans and Town Planning Schemes for Oranjemund and Lüderitz Municipalities
- Hardap Region Tourism Development Plan (Hardap Tourism Council 2004)
- Karas Region Tourism Development Plan (Karas Tourism Council 2003)
2.3 **Mapping of coastal landscape and physics, development plans and resources**

An important element of the project has been the establishment of the NACOMA SEA GIS – a GIS mapping system covering all major landscape, biodiversity, infrastructure, land use and PPP data of the coastal regions of Karas and Hardap. The structure of the NACOMA SEA GIS and metadata information is found in Appendix I. The main goal of the SEA GIS is to facilitate the DST as a tool for assisting the decision-making process at the regional level. Physical, biological and land use data have been analysed in an integrated way using multi-criteria evaluation to enable trade-offs between economic, social and environmental issues. The end user can use the modelled land use suitability data with background information and his or her own data to explore various development scenarios.

A mapping system in support of a coastal SEA not only requires integrated analyses of land use, planning and environmental data, but also depends on relatively high resolution to produce sufficiently detailed information to be useful in the decision-making process related to various land-use options. Although some GIS data, e.g. the infrastructure data of Oranjemund and Lüderitz, are available in high resolution, the majority of GIS data from the Atlas of Namibia or from the Namibian Biodiversity Database are only available in relatively low resolution, this typically exceeding 10 km. Thus, in order to map key components of the coastal landscape with sufficient detail two remote sensing data sets have been used: a Landsat ETM+ data set from 2001 in 28.5 m resolution (University of Maryland) and a digital topographic data set (SRTM) in one meter vertical and 90 m horizontal resolution (NASA). The ETM+ data have been processed to a seamless backdrop for the SEA GIS and have been used as a basis for digitising river courses and locate areas with prominent vegetation. The SRTM data have been used to estimate the relief and topographic complexity of the coastal zone. An orthorectified coastline and bathymetry data were made available by the BCLME programme. The data made available by the stakeholders and by the Hardap CBS office were used to map the spatial extent of current land uses, priority zones for development of some land uses according to PPPs and the range of exploitable resources.

2.4 **Assessment of land use suitability**

Estimation of land use suitability was made by integration of the PPP data, exploitable resource ranges, current land uses, environmental data, and modelled biodiversity hot spots. Although the two regions have a variety of internationally recognised nature conservation assets the current boundaries of protected areas may not agree entirely with the gradients in coastal biodiversity found in the regions. Accordingly, gradients in biodiversity were estimated by mapping the distribution of the following 13 priority areas or habitats for conservation:

1. Main habitat for Quiver tree
2. Breeding colonies of Fur seal
3. Damara Tern breeding areas
4. Zone of medium herbivore abundance
5. Brown hyena key habitats
6. Wetlands of global importance
7. Islands + 2 km
8. Distance less than 50 km from the Escarpment
9. Rock outcrops and cliffs
10. Distance less than 2 km from regularly vegetated ephemeral rivers
11. Inselbergs
12. Zones of vegetation of international significance
13. Areas of high topographic complexity
14. Rocky shoreline

These priority areas/habitats for conservation were chosen on the basis of landscape characteristics known as important environmental drivers in relation:

- Movements of prioritised species of large mammals between the Escarpment and the coast
- The distribution of prioritised species of birds and higher plants
- Increased levels of diversity and endemism in plants, invertebrate and vertebrate animals.  

The mapped priority areas/habitats were combined into three classes of area importance. A full account of the sources of biodiversity data and methods used is given in Appendix I. Land use suitability was modelled for each land use type using multi-criteria evaluation (weighted linear combination). Two aspects of the multi-criteria evaluation process implemented for the NACOMA SEA DST should be highlighted, as they serve to reduce the decision risks (risk of making chance decisions) of the system (Alonso, 1968):

- Fuzzy factors
- Standardisation of scores.

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The use of fuzzy factors for all land uses meant that factors were distributed along a continuum from 0 reflecting poor conditions to 1 reflecting suitable conditions for development (a cosine function with 2 control points, see Appendix I). The environmental factors for each land use were then combined with information (if available) on exploitable resources, areas currently developed for urban land use, areas outlined by PPPs as priority development areas and the mapped priority areas/habitats for conservation. The four latter data sets were used as technical constraints to development: i.e. no development was regarded as suitable if the area was outside a PPP zone, or in areas of no exploitable resources, or in urban land use zones, or priority areas/habitats for conservation.
3 SEA ASSESSMENT: LAND USE AND COASTAL DEVELOPMENT TRENDS (BY SECTOR)

3.1 Introduction

In this chapter, a sectoral approach is taken in order to provide an overview of the broad trends characterising coastal development and the land use patterns associated with development in the coastal zones of the Karas and Hardap Regions. Key PPPs are used as reference points. Drawing on these PPPs, which include national, regional and local level policy and planning documents, the development trends with regard to four sectors are portrayed for the coastal zones of each of the two regions:

- Resource Extraction (mining, marine fisheries, aquaculture, ports/shipping, water, power)
- Urban Development and Urban Environmental Management
- Tourism
- Conservation and Biodiversity.

Opportunities, impacts, threats, and pressures, which by their nature are interconnected, are discussed. Initial recommendations for better policy, planning and management practices, including prevention and mitigation of negative environmental impacts, are provided for each sector.

3.2 Mining and Energy

The exploitation of minerals and other natural resources has been the backbone of the Namibian economy for many years. The mining sector maintains its importance to the gross national product, exports and tax revenue in the plans of the Government. Furthermore the mining industry is essential to the development goals of Namibia as laid out in the National Development Plan.

The minerals extracted remain a pillar of Namibian economy and a comprehensive Minerals Policy of Namibia provides the vision for the sector:

*To achieve a high level of responsible development of national resources in which Namibia becomes a significant producer of mineral products while ensuring maximum sustainable contribution to the socio-economic development of the country. To further attract investment and enable the private sector to take the lead in exploration, mining, mineral beneficiation and marketing.*

The Mission of the Ministry is given as:

*The Ministry of Mines and Energy (MME), as the custodian of Namibia’s rich endowment of mineral, geological and energy resources, facilitates and regulates the*
responsible development and sustainable utilisation of these resources for the benefit of all Namibians.

It is a key objective of the Minerals Policy to:

*Ensure compliance with national environmental policy and other relevant policies to develop a sustainable mining industry.*

Consequently one of the eight themes of the Policy, Mining Industry and the Environment, deals with the protection of the environment and with minimising the impact of mining on the environment.\(^{16}\)

MME has issued a Policy specifically addressing mining and prospecting activities in environmentally sensitive areas.\(^{17}\) The areas of particular interest in relation to biodiversity are those that are gazetted as “Protected Areas” and exploitation of mineral resources is allowed under the Prospecting and Mining Act of 1992. Since approximately 13.6% of the land surface area of Namibia is “Protected Areas” and many of these areas have considerable mineral potential, prospecting in protected areas is and has been a common activity. The lack of concern for the environment most often shown by prospectors and mining companies in the past has led to a loss of key ecological characteristics and tourism potential of some protected areas.

Contrary to the situation in many other countries Namibia’s parks are not strictly protected, and only by exemption subject to the exploitation of minerals, oil and gas. The provisions of the Prospecting and Mining Act of 1992 gives MME the “right of way” since the development of mining is considered crucial to the Namibian economy. Recently the MME has emphasised proper environmental operation of prospecting and mining in the licensing procedures and the policy envisages controlled prospecting and mining in these areas under conditions that satisfy the protection of the environment.

NDP3 is clear on the importance of the Mining sector for Namibia, and is seeking the continued development of the mining and other natural resources.\(^{18}\) However in NDP3 it is emphasised in particular to harvest added value by introducing cutting and processing facilities for the diamond sector. The intended locations of these facilities are not in the Hardap or Karas regions. In general, though, a closer interface of the mining sub-sector with local service providers, stakeholders and communities are foreseen under the new NDP. Environmental standards will be consolidated and will include exploration and mining operations.

The present SEA can be seen as a part of the commitment of the Government to ensure that short to medium term projects such as mining do not jeopardize the potential for long-term sustainable development in tourism. As the Policy reads:

*In order to reconcile the objectives of mineral exploitation and environmental protection, it is essential that the negative impacts of prospecting or mining activities on the environment be minimised in accordance with international best practice. Com*
mitments, in respect of prospecting and mining activities, have to be made in line with strategies developed for environmental protection.

Although a number of mineral concessions in protected areas were granted before the development of the new environmental guidelines, provisions to regulate the access to these areas are available and can be used to protect them against further environmental degradation.

*Government will ensure that exploration and mining within Protected Areas complies with the environmental and economic regulatory frameworks.*

The two ministries Ministry of Environment and Tourism (MET) and Ministry of Mines and Energy (MME) have been tasked to ensure that mineral development only commences in Protected Areas when rehabilitation is guaranteed.

It is defined policy of Namibia to develop small scale mining. Small scale miners are expected to adhere to an environmental contract, but the issuing and policing of the contracts have been slow and not efficient:

*Government will ensure compliance by small-scale miners with environmentally acceptable mining practices through regular monitoring.*

MME and MET will implement a system to monitor compliance with the Environmental Contract. There is an increased focus on the remediation of all the soil activities in mining both with respect to prospecting and mining at all scales.

In consequence of the above, new legislation and measures on mining and energy have been invoked since 2007 when the previous SEA was carried out:

- A model agreement between MME and the licensee company for petroleum exploration and production has been published which further strengthens the MME’s focus on including environmental issues in its activities. Here, a five page long Clause 11 on Environmental Protection clearly stipulates the responsibilities of the licensee in this respect.

The Southern African region is facing a diminishing electricity generation surplus capacity and the region, including Namibia ran out of surplus capacity by 2007. The dependence of Namibia on electricity bought from South Africa and how to ease that is therefore a constant theme in the energy supply debate. Wind farms have been licensed with one under development near Lüderitz, and others planned for Oranjemund and for Walvis Bay.

Using the local uranium to produce nuclear energy in Namibia is in the long term scenario/dream of some energy stakeholders, and a cabinet decision to exploit the possibility of generating nuclear energy in Namibia has been made.

The government has promoted the Kudu Gas Project which was planned to supply gas to a proposed power plant in Oranjemund of 800MW for 22 years. The original plant concept proved to be economically infeasible and an alternative scheme, compressing gas on site and transporting it to shore in purpose-built shuttle tankers, is under discus-
Tullow Oil and its partners acknowledge that they seek partners for the commercialization of the project. There are no other immediate plans for oil or gas explorations in the inshore area or onshore, but offshore oil and gas licenses are available.

Mining is a huge source of foreign exchange in Namibia and has politically and legally attained a priority claim for resources, also in the protected areas and national monuments. The Minerals Policy of Namibia and three acts covering Minerals, Petroleum and Diamonds form the basis of mining activities. There is no strategic plan available for Hardap and Karas and basically all areas are open for mining.

Diamond mining and prospecting moves a considerable amount of material and it is not always possible to establish a clear borderline between prospecting activities and actual mining. Therefore, exploratory mining could also lead to a considerable redistribution of the surface geology in the shoreline area and historically this impact was not remediated.

3.2.1 Hardap

3.2.1.1. Mining and energy
The recent five years surge in prices of base and rare metals, nuclear fuels and precious stones have led to increased exploration in Namibia, although very little in the coastal zone of Hardap since in general the deposits in the Hardap coastal region are of low grade and cannot presently be mined commercially.

The Namib Naukluft Park itself was originally a closed diamond mining area (Diamond Area No. 2), and licences for prospecting in the park have been issued. A few licences for exploration and mining have been issued for the northern part of the Namib Naukluft Park but they are outside the boundaries of this SEA. For the offshore waters of the Hardap region exploration licences have been granted for precious stones and petroleum.

Recommendations:
In line with the recommendation for the northern coastal zone of Namibia, protected areas should be free of resource extraction activities. New reconnaissance, prospecting, mining licences or claims should not be granted in the protected areas once the existing licenses expire. Only when it is considered a project of overriding national economical importance should mining and natural resource extraction be allowed and protective status be lifted.

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\[20\] Irish Times, 8. July 2009: Tullow may seek partners for Kudu project.

Figure 3. Exploration and mining licenses in the Hardap region (source: MME 2009).
### Karas

#### 3.2.2.1. Mining and Energy

Namdeb conducts open cast diamond mining operations over nearly 130 kilometers of the coastal strip northwards of the Orange River. De Beers Marine carries out deep-water mining on a contract basis for Namdeb.

Restrictions on prospecting activities over the Diamond Area No. 1 (the Sperrgebiet), representing a total of 26 000 km² have been lifted by the government. The area has base metal potential (there is already the Skorpion zinc mine within the area) and exploration is controlled under the Minerals Act.

The most significant issue on mining in relation to biodiversity is the transformation of Diamond Area 1 to the Sperrgebiet National Park. A range of environmental studies monitoring this area have been carried out over the last decade and a half.\(^{21}\) The land based (onshore) production is expected to decrease significantly from 2009 as the resource is near depletion, and NAMDEB is currently pursuing feasible new methods for Inshore and Inner Shelf Projects.

The NAMDEB Inshore Project is directed toward mining of the intertidal and shallow subtidal zone of Mining License Area 1. Various intrusive methods for surveying and sampling have been tested (Bauer mobile drilling rig, Sea Walker platform and Jet Rig in different tidal zones) and a Test Production System for the Inshore zone has been designed. The impact will be 1% of the total area of mining licenses 43, 44, 45, 128A, 128B and 128C per year, given a successful unravelling of the Inshore project, but as this is already a severely impacted intertidal zone, the actions to ameliorate impact should be developed as part of the operative and decommissioning management in due time.

Methods used by shore based diver operations do impact the environment by driving and operating heavy equipment on the shore or inter-tidal zone, and the removal of obstacles (e.g. kelp) for the free movement of hoses in the water. However, only one shore based contractor is expected to operate over the next ten years and the footprint is relatively small (delivering 0.25 m³ gravel/hour for <4 hours/day for an average of 5-6 days/month).\(^{22}\)

The Inner shelf project currently under pre-feasibility assessment by NAMDEB is directed towards the shallow and mid water areas and as such outside the coastal zone considered under NACOMA. However, some of the methods under consideration entail large scale treatment facilities on shore in Elizabeth Bay. Here, the deposits dredged off Bogenfelds and in Elizabeth Bay, which will be targeted first, are to be pumped from large dredgers through a pipeline onshore to a stockpiling area and further to the treat-

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\(^{21}\) Inshore and Inner Shelf Areas. Environmental Studies 1993 – 2008. Presentation to the public by PISCES Environmental Services (Pty) Ltd.

ment facilities. The fines will be led to a settling pond on the accreted portion of the beach for dewatering and the overflow will be fed to the bay through pipelines.

The development of the Kudu field has yet to be completed and, as discussed above, there is still uncertainty regarding the tie-in facilities and the dimensions of the Combined Cycle Gas Turbine Kudu Power Station. However, tendering of work is ongoing and seven international companies have apparently pre-qualified for bidding of the main technical contract. However, the plant has proven to date to be economically infeasible. An alternative scheme, compressing gas on site and transporting it to shore in purpose-built shuttle tankers is also being considered. Tullow Oil, which is now exploring the gasfield, is seeking partners and acknowledges that the project is facing challenges, but other stakeholders are more optimistic. There are no other immediate plans for oil or gas explorations in the inshore area or onshore, but offshore oil and gas licenses are available.

As a minor issue the growth in electricity demand in Lüderitz and Elizabeth Bay and the power failure and outages along the existing 132kV line, has impelled NamPower to add an additional 132 kV line between Lüderitz and Keetmanshoop.

In the Orange River Mini-hydro project NamPower and Clarkson Power (a South African company) are in the process of finalising a Memorandum of Understanding for the joint development of hydro power stations along the Orange River. The Board of NamPower has approved a feasibility study.

Electrawinds, a privately owned Belgium company has submitted an application for a licence to the Electricity Control Board (ECB) to set up a 50 MW land-based wind farm in Lüderitz. The Ministry of Mines and Energy in 2007 awarded its first licence to privately owned company Aeolus Power Generation Namibia for wind energy generation in Oranjemund and Lüderitz. Aeolus Power Generation is a joint venture between Aeolus of the Netherlands, and Namibia’s United Africa Group. No strategic assessments and environmental impact assessments have yet been undertaken for these projects.

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24 Press release from NamPower Advertorial on NamPower’s perspective on the Kudu Gas Power Project - 09 Jul 09
25 NamPower Media Statement 11 December 2008
Figure 4. Exploration and mining licenses in the Karas region (source: MME 2009).
Recommendations:

In line with the recommendation for the northern coastal zone of Namibia protected areas should be free of resource extraction. New reconnaissance, prospecting, mining licences or claims should not be granted in the protected area once the existing licenses expire. Only when considered a project of national priority should mining and natural resource extraction be allowed and the protective status lifted.

The RDP is concerned with the landscape and general environmental quality after diamond prospecting/mining, and proposes to this end better enforcement of EMPs and Environmental Contracts.

MET should build up the capacity to influence the Minerals Prospecting and Mining Rights Committee more strongly, in particular regarding protected areas and national monuments. For each licence given the MME and the MET should agree with the licensee on the scope of the prospecting in terms of volume of soil/sand removed or other relevant indicators of potential impact and rehabilitation need. A larger amount may only be removed after exemption or renewed application and permit.

Nampower is engaged in prospective power generation with the offshore Kudu Gas Power Project in the SEA area, but also private wind farms around Lüderitz and small scale hydropower plants on Orange River have been proposed. Although plans have not been presented for alternative use of water the projects in Orange River should be carefully evaluated in respect of the need for irrigation and potable water to the future coastal communities in Oranjemund and its surroundings.

3.3 Fisheries and Marine Resources

Man’s harvesting of resources from the sea has a history of overexploitation with the same approach as to mining, i.e. that resource is not renewed and it is a matter of extracting it from nature as quickly and efficient as possible. The historical examples from Namibia of “mining” of biological resources to local depletion or near depletion include whales, guano, pilchards and sharks. After Independence total allowable catches and management of quotas were introduced and previously depleted stocks may now be recovering.

The fishing industry is a source of considerable employment in Namibia and the sector is the second largest contributor to the GDP. Considerable research and management resources are directed towards establishing a sustainable fishery. The TACs are combined with the goal of protecting spawning and nursery areas and to this end the BCLME programme has provided much new data. A few marine species are protected from fishing: Great white shark, whales and dolphins and marine turtles, but are still accidentally caught in long-line fisheries. In addition, the use of polychaete (bristle) worms for bait is prohibited.

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3.3.1 Hardap

3.3.1.1 Inshore fisheries
Commercial or subsistence inshore fisheries practically do not occur in the coastal region not only due to lack of access, but primarily because the coast is open and exposed to oceanic swell and waves. There are few areas for rock lobsters (the rocky outcrops and the associated kelp beds) distributed along the coast, whereas the soft bottom species are found widely distributed on the Hardap coast line.

Limited commercial lobster harvesting has occurred. The subsistence fishery from small boats known to the coastal areas elsewhere in Southern Africa is not possible on a high energy coast.

3.3.1.2 Angling
Angling from the coast remains popular combined with 4x4 tourism, but remoteness and lack of access keeps the strain on resources low. Angling is generally subject to permitting and the catch is limited if it includes overexploited stocks of Steenbras, Galjoen, Kob and Blacktail, which are also among the commercially most interesting species.

In addition to the inaccessibility of the coast, regulatory limitations to recreational fishing do exist in Hardap. It is prohibited “to catch or disturb any fish or damage the seabed in such a way that it may be detrimental to the marine life ecosystem from concrete beacons marked SV1 (southern border of Sandwich Harbour) to RL3 (just north of Lüderitz).”

http://209.88.21.55/opencms/opencms/grnnet/MFMR/Recreational_Fishing/
3.3.1.3. Guano

In seabird resting areas guano may accumulate in amounts that can be feasible to exploit for the fertiliser market, but there are no major seabird resting areas on the Hardap coast.

3.3.1.4. Seals

There are no harvesting concessions for Cape Fur Seals on the Hardap coast. Presently the national catch is less than the recently total allowable annual catch for 2007-2009 of 80,000 pups and 6,000 bulls. The catch is primarily processed locally at a factory in Henties Bay. The culling of the Namibian Cape fur seals is disputed internationally by NGOs.29

3.3.1.5. Aquaculture

There are no aquaculture facilities on the Hardap coast which is not is well suited to accommodate aquaculture due to the exposed coastal environment. Fresh-water aquaculture does not take place on the coast, and the Namibian freshwater aquaculture sector is generally small-scale and catering for a local market, while the marine sector operates on a larger investment scale and produces for exports.

Aquaculture has gained considerable interest in Namibia over the last few years since the National Development Plan (NDP-2) called for the promotion of aquaculture activities and the national policy paper Vision 2030 foresaw a thriving aquaculture industry. Since 2003 the Aquaculture Act has provided a legislative context, and the policy paper Towards the Responsible Development of Aquaculture (2001) and the Aquaculture Strategy (2004) were developed to address the development of a sustainable aquaculture sector.

Recommendations:

It is obvious that the geographical and environmental conditions of the present Hardap coastal zone do not lend themselves to construction of roads, ports and viable communities. Although the following may be considered more as a long term development option rather than a recommendation, consideration could be given to a purely administrative option for giving the Hardap region access to the coast. A redrawing of the regional boundary could transfer Lüderitz from Karas to Hardap region. This would allow the Karas region to focus on the future development of the new municipality of Oranjemund, and it would mean a final closure to the administrative legacy of Diamond Areas 1 and 2.

3.3.2 Karas

3.3.2.1. Inshore fisheries

Inshore fisheries are limited in the coastal region partly because only few harbours and protected landing sites are available and the coast is open and exposed to oceanic swell.
and waves. Rock lobsters are caught commercially in the Karas region around Lüderitz, but this and other hardbottom stocks are under pressure. The areas for lobsters are the rocky outcrops and associated kelp beds distributed along the coast, whereas the soft bottom species are found widely distributed on the Karas coast line.

There is a small scale shore based line fishery around Lüderitz for snoek and the commercial inshore fishery occurs with vessels operating out of the port.  

3.3.2.2. Angling

Angling from the coast is popular both in relation to tourism and recreation for local citizens. Subsistence angling is widespread and may also add a welcome food supply or provide a cash injection to the local economy, if the catch can be sold to the restaurant trade in Lüderitz.

Angling is generally subject to permitting and the catch is limited if it includes overexploited stocks of Steenbras, Galjoen, Kob and Blacktail, which are, as discussed above, also among the commercially most interesting species.

In addition to the inaccessibility of the coast, regulatory limitations to recreational fishing also exist in Karas. It is prohibited “to catch or disturb any fish or damage the seabed in such a way that it may be detrimental to the marine life ecosystem.”

- From concrete beacons marked P1 (just south of Lüderitz) to P2 (just north of Pomona Island)
- The shore of any of the islands along the Namibian coast.

Angling areas for catching of fish where any person may catch or collect red bait;

a. From the Agate beach to Grosse Bucht in the Lüderitz area

b. From Pomona Island to the Orange River on the southern border of Namibia

There are a few operators of deep sea boat-angling tours for species such as Snoek, Broadnose sevengill shark, Yellowtail, Tuna and Bluntnose spiny dogfish.

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30 BCLME (2006) Socio-economic baseline survey of coastal communities in the bclme region – Namibia Final report August 2006 prepared by Dr Peter Fielding, Paula Cardoso, Martin Shapi and Dr Merle Sowman (p 35)
31 http://209.88.21.55/opencms/opencms/grnnet/MFMR/Recreational_Fishing/
Figure 5. Locations where angling is permitted (marked in red).
3.3.2.1. Guano
In seabird resting areas guano may accumulate in amounts that can be feasible to exploit for the fertiliser market. The islands were once suppliers of guano, but the commercial guano harvesting has been abandoned in this area.

3.3.2.2. Seals
Colonies of Cape Fur Seals occur in several locations on the Karas coast. Breeding colonies exist at Atlas Bay and Wolf Bay, south of Lüderitz which hold more than 100,000 each. An estimated 40,000 seals on Long Island, just offshore from Atlas Bay and Wolf Bay, form the biggest island population. The local catch is processed in Lüderitz. Presently, the national catch is less than the recently total allowable annual catch for 2007-2009 of 80,000 pups and 6,000 bulls. The culling of the Namibian Cape fur seals is disputed internationally by NGOs. 32

3.3.2.3. Aquaculture
The Lüderitz Bucht boasts a number of aquaculture facilities and is well suited to accommodate aquaculture due to the relatively protected environment. Fresh-water aquaculture does not take place on the coast, and the Namibian freshwater aquaculture sector is generally small-scale and catering for a local market, while the marine sector operates on a larger investment scale and produces for exports. The successful oyster farms in Walvis Bay and Swakopmund have stimulated the development of aquaculture.

Aquaculture has gained considerable interest in Namibia over the last few years since the National Development Plan (NDP-2) called for the promotion of aquaculture activities and the national policy paper Vision 2030 foresaw a thriving aquaculture industry. Since 2003 the Aquaculture Act has provided a legislative context, and the policy paper Towards the Responsible Development of Aquaculture (2001) and the Aquaculture Strategy (2004) were developed to address the development of a sustainable aquaculture sector.

NDP-3 also points to Lüderitz as a key aquaculture area: “The marine aquaculture developments driven by the private sector are expected to grow, with the farming of shellfish (oyster and abalone) at Walvis Bay, Lüderitz and Swakopmund”. NDP-3 continues to state that “A major constraint for this programme is on securing land and re-zoning it for aquaculture.”

Recently, a detailed plan for development of the sector also covering Karas Region (MCA Namibia Program - Poverty reduction through economic growth, 8 September 2006) was submitted.

The plan proposes the construction of an Aqua Park facility at each of the coastal towns: Lüderitz (second lagoon) and Henties Bay Mile 4 and/or Mile 17 (Swakopmund). Only the former is in the SEA area for Hardap and Karas.

32 The estimates of the income generated annually range from 600,000 to 5 million N$ annually depending on the source.
The developments in Lüderitz were proposed as 10 companies to produce shrimp, finfish and abalone, while kelp production is often also proposed when aquaculture is considered in Lüderitz since natural conditions and local expertise are available. However, the development of the industry still remains to reach these levels of viable commercial companies.

Lüderitz is well suited for further aquaculture development due to its sheltered bays and lagoon and suitable infrastructure. Several companies operate in the area and further developments may be planned and considered for the lee of Seal Island, the lee of Penguin Island, Griffith Bay and Shearwater Bay. Waterfront sites on land zoned for light industrial use in Robert Harbour could be suitable for pump ashore aquaculture of abalone or finfish.

Aquaculture in Lüderitz includes abalone and seaweed. Shellfish production in Lüderitz Lagoon is expected to increase over the coming years. Due to the red tides disaster in 2008 the marine aquaculture industry in Namibia suffered a major setback. However, aquaculture in Lüderitz appear to be less prone to the devastating effects of red tides and sulphur eruptions.

Adding value to the fisheries in Namibia is a key element in NDP3 and as the second largest fishing port in Namibia, Lüderitz is looked upon for development. A rock lobster packing plant is set up and the feasibility of a tuna processing plant was recently encouraged.

The development of aquaculture in Mining Area 1 is attractive from a remediation and job creation point of view. Several proposals for using the coastal ponds have been brought forward. However, the effort and investments required to maintain the sea walls and the water quality in ponds for food production must be included in feasibility studies of pond aquaculture. Whereas the economic feasibility of this particular option remains questionable onshore aquaculture is considered a significant development option for the Oranjemund area.

Commercial freshwater aquaculture does not take place in the SEA area although considerations appear to have been given to this for the Oranjemund river mouth.

**Recommendations:**

Lüderitz should retain and further evolve its potential for the aquaculture industry. The added value of post catch processing for both fisheries and aquaculture should not be allowed to affect other potential developments, in particular of the tourism industry.

The commercial viability of aquaculture in the former sea-walled mining area on the linear coast must be carefully evaluated with respect to the sustainability regarding maintenance of coastal morphology as compared to economic prospects.

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33 Ministry of Trade and Industry: Lüderitz Mariculture Project
35 Minister of Fisheries and Marine Resources Abraham Iyambo in Namibian Economist 29 Feb 2008.
3.3.3 **Ports and coastal infrastructure**

Namibia’s ports are managed by Namibian Ports Authority (Namport), a parastatal supervised by the Ministry of Works, Transport and Communications. The objective of the Namibian Ports Authority is the successful operation and further development of the existing harbour infrastructure in Walvis Bay and Lüderitz.

### 3.3.3.1 Hardap

There is neither significant coastal infrastructure such as breakwaters nor any ports in the Hardap Region. The lack of a natural harbour is considered a barrier to the development of the region according to the Hardap Regional Council. Although a port in this area would provide access to the coast and sea the complete lack of infrastructure, accessible freshwater and the choice of two well developed ports nearby does not speak in the favour of construction of additional infrastructure.

**Recommendations:**

It is recommended not to develop coastal infrastructure in the Hardap region.

### 3.3.3.2 Karas

The only urban developments in the coastal zone of Karas are Lüderitz and the private mining town of Oranjemund. The former boasts a protected natural harbour, which is the second largest and only other commercial and industrial port in Namibia after Walvis Bay. The town has some industrial developments, but new developments are presently largely under consideration, largely due to the ongoing rehabilitation of the Aus-Lüderitz railway leg and the awaited 132 kV power line between Lüderitz and Keetmanshoop.

Mining and exploration supply activities have increased in Lüderitz during the first decade of the new millennium: “Anglo American's Scorpion Zinc Mine has directly influenced business at the port, with mine exports now surpassing fishing exports. The imports of sulphur for production at Scorpion Zinc also doubled and increased imports by 13.4% in the last year.”

The global recession from the second half of 2008 has added uncertainty to the continuous growth in exploration activities that in the past heydays of the commodities markets fuelled growth in Lüderitz Harbour.

A group of international investors have presented ideas for a rail line from Botswana to the Namibian coast and a new port and coal terminal at Shearwater Bay 30 km south of the existing port of Lüderitz.

Namport has implemented an Environmental Management Plan (EMP), incl. ISO 14001 (environmental management), ISO 9000 (quality management) and recently also OHSAS (occupational health management) 18000 certifications.

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36 NamPort to invest half a billion in ports expansion: from Namibia Economist 09 July 2008
http://findarticles.com/p/articles/mi_qa5327/is_350/ai_n31355769/
Recommendations:

The proposed rail and port development in Lüderitz cannot be assessed by the SEA team at the present level of development.

3.3.4 Agriculture and Water

The government approved the National Water Policy in 2001. The policy is based on the foundation that water resources and their use and management are part of the national economic and social development framework and therefore should be fully integrated therein. It views water as being essential in the human life process, food production and agriculture, industry and the ecosystems of the natural environment. The management of water resources should balance the allocation effectively between these various uses and users. The National Water Policy builds on its predecessor the Water and Sanitation Policy (1993) that addressed the need for essential water supply and sanitation at affordable costs.

The use and management of water resources is to be integrated with the conservation and protection of the resource through environmentally sustainable use of the water to enhance economic wellbeing. The policy adopts a cost-effective approach to the pricing of water as a mechanism for its conservation. The prices charged will take into account the financial cost of water, its opportunity cost and the consequences of environmental degradation. It will however be flexible enough to ensure that all members of the society have access to a minimum amount of water regardless of economic status. The issue of providing water to all Namibians is also addressed in the Regional Rural Water Supply Development Plans for the planning horizon of 2015. Economic development projects and activities, including conservancies will be required to account for the use and management of water and the effect these actions will have on the water cycle, equity and the protection of the natural environment.

The coastal zone is an arid to semi-arid region and not well suited for agriculture. This also is reflected in priorities of the National Agricultural Policy (MAWRD 1995) where the inland regions with higher rainfall are targeted for agricultural development.

3.3.4.1 Hardap

The arid conditions of the Hardap coastal zone and the lack of access do not allow any agricultural activities and within the park boundaries of the Namib Naukluft Park farming is not allowed. In the hinterland there is limited game farming.

Fresh water is a scarce resource in Namibia and the availability of water is a key component when the scene is also set for the development potential of an area. In the Meob Bay area an aquifer is found, and plans have previously surfaced for its use in allowing developments such as a small lodge or 4x4 tour site. This is discussed below.

Recommendations:

None
Figure 6. Pipelines and productive aquifers in Hardap and Karas.
Figure 7. Existing power lines in Hardap and Karas
3.3.4.1. Karas
There are no significant agricultural activities in the Karas coastal zone although the freshwater supply in the Orange River has been considered for increased irrigation on the northern bank.

The water supply of the Orange River is used for drinking water and other purposes in the Oranjemund area.

**Recommendations:**

In plans for use of the Orange River water supply, the need for irrigation and potable water for the future coastal community in Oranjemund and its surroundings must be carefully assessed.

### 3.4 Urban development and urban environmental management

Concern is often expressed by stakeholders about the environmental impacts of urbanisation – the rise in the share of the urban population relative to overall population – on the Namibian coast. NACOMA’s brochure summarises well the perspective commonly taken on the issue in Namibia, under the heading ‘Human Influence’:

…Namibia has an exceptionally low, and geographically very concentrated coastal population compared to other countries… Growing economic development and human activities along the coast are leading to unprecedented migration, bringing with it uncontrolled urban development that results in overuse and land based pollution, an increase in industrial, coastal and marine pollution, degradation of water regimes for coastal wetlands, and other land and water degradation…If remaining unchecked and unplanned, this development will result in long-term loss of biodiversity, ecological functioning and, contrary to the national poverty eradication objectives, a reduction of the economic potential of the coast itself. This possibility presents a great challenge to the expanding nature-based tourism industry, which depends upon a healthy environment for its sustainable success.

The Hardap Region features no urban development at all – defined in this context as residential and economically-related population and built environments – on its 150 km long coastline. The region’s population was 68,249, according to the Population and Housing Census of 2001. Nobody actually lives on the coast, however, which falls completely within the Namib Naukluft National Park, and which is characterised now by only the barest traces of human settlement in the form of a number of deserted former mining and fishing camps between Conception Bay and Meob Bay: Honsatia,
There are no roads to the coastal area, and it is only accessible by 4X4 vehicle over dunes from the east, south and north.

The Karas region, on the other hand, has between 40 and 50 percent of its 2001 population of 69,677 living in and around the small coastal towns of Lüderitz (13,276 official population, but estimated now at around 20,000), and Oranjemund (5,451 population in 2005; estimated recently at about 10,000). The towns are spatially distinct centres of population and economic activity on what is a long and relatively unpopulated coastline of approximately 450 km, which is historically marked by and still dependent on resource extraction from the sea and immediate land area: most importantly, diamonds in Mining Area 1, and the Bogenfels and Elizabeth Bay Mining Licenses between Oranjemund and Lüderitz.

In the case of Lüderitz, mining is joined by marine fisheries (rock lobster and white fish, especially hake) and fish processing, aquaculture, seaport and other transportation activities, and recreation and tourism. The Karas coastal area is unusual in that it has always effectively been a closed coast, mostly falling within the restricted Sperrgebiet diamond mining zone. The former Diamond Area No. 2 stretches some 100 km north of Lüderitz and Diamond Area No. 1 of the entire 250 km between Oranjemund and Lüderitz. Only a 100 km long area north of Diamond Area 2, which forms part of the Namib Naukluft National Park, is thus unrestricted, but like the coast within the same park in Hardap Region, is completely unpopulated and very difficult to gain access to by the general population. As of December 2008, both parts of the Sperrgebiet fall within the newly-proclaimed Sperrgebiet National Park (SNP). Overall, the two coastal towns are remote and not easy to reach: Lüderitz is served by the good national B4 road but is 335 km from a junction with the main south-north B1 route at Keetmanshoop, and Oranjemund’s road access is strictly controlled, with the only official route via Alexander Bay just across the Orange River in South Africa. During the week, small airports in both towns allow daily flights to Cape Town and Windhoek.

The southern Namibian coast is thus sparsely populated and geographically isolated. Principal challenges for stakeholders lie in mediating between and finding solutions to differences of opinion on land use and sometimes outright conflicts. Urbanisation pressures do exist but largely only in the Lüderitz area. Oranjemund faces a different challenge: of becoming a ‘normal’ town, after decades as a restricted and closed industrial settlement, insulated from and un-used to making accommodations with social and economic trends or conditions.

There is little national-level or regional-level policy guidance here. At this point, Namibian national government policy and plans have little to say directly on the issue of urbanisation or urban development. Neither, for that matter, does policy and planning at the regional scale.

To put this in perspective, some facts on the urban sector in Namibia are useful. In 2001, approximately a third of Namibia’s population of 1,826,000, or just over 600,000 people, lived in urban areas. While the country is now urbanising rapidly, at between 4 to 5 per cent per annum, it is unlikely that the 5.6 per cent urban growth rate of the

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1980s is being realised, as the Government of Namibia’s overall national development policy, *Vision 2030*, seems to assert. This makes estimations of a 50 per cent urbanisation rate by 2010 unlikely to be realised.

At around or at slightly higher than a third of its population, Namibia is in fact very close to the African average (in 2003) for urbanisation of 36 per cent. Namibia is also at or around the average annual African urbanisation rate of 5 per cent. However, the capital and largest city Windhoek’s national primacy (its population as a percentage of overall urban population) of 38 to 40 per cent considerably higher than the African average of 24 per cent. The contribution of in-migration to urbanisation in Namibia, as compared to natural urban increase, is not clear. Recent data on migration does not seem to exist. What is indisputable is that Windhoek is the major destination for migrants and that in-migration is likely to continue – particularly to Windhoek. Namibia’s secondary cities, including Karas’s coastal towns, are not as popular destinations for in-migrants as Windhoek is. Arguably they could do more to accommodate urbanisation – but of course their remoteness militates against this to a large degree.

In national development policy, Namibia shares with many other African societies a measure of ambivalence to the urban transition. There is no national urbanisation or urban development policy. Both first and second National Development Plans (NDPs) contained goals to facilitate urban development, as well as development goals aimed at limiting rural-urban migration. The *Vision 2030* development plan, which aims to bring Namibia to the status of an industrial country by that year, has a Quality of life objective. Under this, the sub-vision of the “Migration, Urbanisation and Population Distribution,” sub-section is that, by 2030:

There is free movement of the population within the country and population distribution is maturely adjusted to the location of resources for livelihood. Namibia is a highly urbanised country with about 75% of the population living in proclaimed urban centres, while the predominance of Windhoek has considerably reduced as a result of the growth of other urban centres throughout the country.

This sub-vision is then translated into an objective “to achieve integrated rural and urban development in which living conditions and social and economic opportunities are adequate for all.” Later in the *Vision 2030* document, in the section on the Urban Environment, the sub-vision is that:

Despite high growth rates, Namibia’s urban areas will provide equitable access to safety, shelter, essential services and innovative employment opportunities within an efficiently managed, clean and aesthetically pleasing environment.

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39 The African averages come from a recent important report, Christine Kessides, *The Urban Transition in Sub-Saharan Africa: Implications for Economic Growth and Poverty Reduction*, The Cities Alliance (and Sida and The World Bank), Washington D.C., 2006. Namibia’s population is now held to be up to 2,000,000 people and Windhoek’s up to 400,000.
42 Ibid, p.171.
To further this vision, the insertion of a “clear urban development plan” into national development plans is called for. In the section’s ‘Things to avoid’ it is asserted that urbanisation should not be allowed to spill over in an *ad hoc* manner into “sensitive coastal areas, causing the destruction of valuable ecosystems and their resources,” into reclaimed wetlands and into areas which are suitable for agriculture.\(^4^3\)

*Vision 2030* is to be operationalised in successive national development plans. The latest of these, NDP3: 2007/2008 – 2011/2012, was launched in November 2008 by the National Planning Commission (NPC), with submissions received from all 13 regions and from civil society and the community and public sectors. Some NS60 billion investment is envisaged under the plan up to 2012. NDP3 is based on *Vision 2030*’s eight objectives and associated eight Key Result Areas (KRAs). Two of the latter are subdivided into two Sub-KRAs each to make up a total of 10, as follows:

1. Equality and social welfare
2. Peace, security and political stability
3. Productive and competitive human resources and institutions
4. Competitive economy; 4A macro-economy; 4B infrastructure
5. Quality of life
6. Productive utilisation of natural resources and environmental sustainability; 6A sustainable utilisation of natural resources; 6B environmental sustainability
7. Knowledge-based economy and technology driven nation
8. Regional and international stability and integration.

Some 21 NDP3 Goals are grouped under these KRAs. The plan’s overall theme is “Accelerated Economic Growth through Deepening Rural Development” which indicates a rural rather than urban focus. None of the 21 goals stipulated makes specific reference to the urban sector. Urban conditions are approached, though, under the Infrastructure KRA (4B above: Goal “Highly Developed and Reliable Infrastructure”). Under Sub-Sector 3 Housing, shelter is recognised as a fundamental right via the National Housing Policy. It is stated that:

The improvement of living conditions through housing provides dignity and hope to the family, which in turn creates upward social and economic mobility. It is also recognised that improved living conditions significantly improve the health of the family, their productivity and the human settlement environment. Thus, it is seen as an effective means of alleviating poverty.\(^4^4\)

The Housing Sub-Sector’s mission is established, therefore, as to

\(^{43}\) Ibid, p.172.
Provide support to Regional Councils and Local Authorities to ensure effective and efficient physical planning and service delivery for affordable land, services and shelter in order to improve social and living conditions in general and of low-income groups in particular within the context of sustainable human settlements development.45

The Housing Sub-Sector Strategies and programme which follows emphasise low-income housing and related infrastructure services. The focus on living conditions is carried through under the Environmental Sustainability KRA (6B above: Goal Environmental Sustainability). Sub-Sector 1: Environment Goal 2 is “Improved living conditions in both rural and urban areas due to sound environmental management.” Strategies include improving waste and urban environmental management, which is echoed with a Sub-Sector programme on Waste, Pollution and Urban Environment.46

Regional development plans (RDPs) for each of Namibia’s regions for the period 2001/2002 – 2005/2006, these including at least in principle the consideration of urban development, were produced under the auspices of the NPC in 2000. The RDPs contain a social, economic and physical/environmental overview of the situation in each region, a regional development framework which sets overall development goals for the region’s economy, society, institutions and infrastructure, and on the basis of deeper analysis, the proposal of objectives, strategies and targets for sub-sectors within the larger sectors. These proposals are then translated into detailed programmes (which are themselves also only proposals) for implementation.

There has been debate and some criticism of the RDP process, its outputs and of its limited contribution, through the principal implementing vehicle of the Regional Service Councils (RSCs), to regional development via decentralisation (the Regional Councils Act of 1992 gives this responsibility to the RSCs, which is framed by Namibia’s Regional Planning and Development Policy of 1997 and Decentralisation Policy of 2000).47 According to a recent report by the NPC, the regional development process has failed in the main goal to achieve integrated regional development. Shortages of capacity, funding, and planning data and limited harmonisation between PPPs and coordination of effort between those tasked to implement them are all implicated in this failure.

Only limited aspects of the RDPs in Hardap and Karas have therefore actually been carried through to implementation. In both of them, urban issues are touched upon but urban development, unlike rural development, is not treated in sub-sectoral terms. The documents stand as now outdated indicative plans. In this regard, it is understood that more recent RDPs were produced in 2006-2007 to provide input to NDP3, but the status of the documents that were apparently written is unclear. They may only exist in pre-draft or draft form as, despite several inquiries, they were not provided to the Consultant by national or by regional government sources.

45 Ibid.
46 Ibid, pp. 130-133.
Hardap Region

The Hardap RDP 2001/2002 – 2005/2006 expresses in plan format “the conviction of the Hardap Regional Council to distribute equal development opportunities for all its inhabitants within the Hardap Region.” 48 The plan’s vision statement follows this belief:

The socio-economic upliftment of the people with health for all, equal employment opportunities in a crime-free and harmonious society, ensuring adequate infrastructure, affordable housing and potable water for all whilst protecting the natural environment.49

The region has been divided into six constituencies, with only one proclaimed municipality, Mariental, which is the seat of regional government. There is one other town, Rehoboth, and a number of smaller villages and settlements.

Hardap’s coastline is well-described early in the report:

The beaches are sandy (for stretches the Namib dunes are literally located on the high-water mark) or rocky. The storm terraces consist of oblong pebbles. The monotony of the coastline is interrupted by a number of lagoons and salt pans in different stages of evolution. Several islands, like the Hollams Bird Island near Meob Bay, occur within Namibia’s territorial water. Freshwater can be found Meob Bay and inland from Conception Bay (proto-Tsondab River).50

It is then acknowledged that “The Hardap Region does have a marine coastline but access to the coast is extremely difficult due to the Namib Desert and a complete absence of roads.”51 In consequence of its protected status, lack of population and inaccessibility, the coastal zone then understandably does not feature at all within the plan’s proposals for improvement of infrastructure services, and, more specifically, urban services, land use planning and housing.

Karas Region

The significance of the population and economic resources of the region’s coastal area – characterised as “an unspoilt and remote desert coastline” – is fully recognised in the Karas RDP 2001/2002 – 2005/2006.52 Marine fisheries and other resource-based activities – mariculture, seaweed and guano – are referred to, as is the coast’s inaccessibility to the public, with only the 30 km in the Diamond Coast Recreation Area around Lüderitz truly open to all.

Karas, like Hardap, features six constituencies: Keetmanshoop Urban, Keetmanshoop Rural, Berseba, Karasburg, Lüderitz and Oranjemund. The urban centres of Keetmanshoop, which is the regional capital, Karasburg and Lüderitz (as of 2005) have municipal status. Other settlements are classed as towns or villages; Oranjemund, as a private mining town, has settlement area status, and, as will be seen in detail in the next chap-

49 Ibid, p. 10.
50 Ibid, p. 3.
52 Karas Region Regional Development Plan, National Development Consultants, 2001, p. 3.
ter, is currently undergoing a process leading to municipal proclamation. While the RDP promotes the upgrading of urban services and improvement of housing, there is no specific emphasis on the two coastal towns, apart from the intention to upgrade informal settlements in Lüderitz. The RDP also contains no real consideration of urban environmental management.

It is relevant here to consider the arrangements made for local-level planning in Namibia. At this level, the Local Authorities Act 1992 establishes a local government for Namibia. It defines the powers, duties and functions of scheduled local authority councils of three types: municipalities (e.g. Lüderitz), towns (e.g. Rehoboth) or villages (e.g. Helmeringshausen). The Townships and Division of Land Ordinance of 1963 regulates the establishment of townships and the development and subdivision of land. The preparation and application of town planning schemes is mandated by the Town Planning Ordinance of 1954. The Town and Country Planners Act 1996 establishes the Namibian Council for Town and Regional Planners and provides for the registration of town and regional planners, of which there are some 35 in the country. The enactment of the draft Urban and Regional Planning Bill 2003, and of its associated regulations, would serve to reform the planning system and provide for a more coordinated set (or package) of land use plans from the national through the regional and local levels.53 It will also tighten and extend the power of town planning schemes.

Under the Town Planning Ordinance, all scheduled local authorities are required to prepare a Town Planning Scheme for their area of jurisdiction. In Karas Region, Lüderitz has complied with the ordinance and has a published scheme, the Lüderitz Town Planning Amendment Scheme No. 5, 2003; the Oranjemund Town Management Committee (OTM Co.), a body established by Namdeb in 2004 which manages the town for the company and is tasked with getting it proclaimed officially as a town, has recently surveyed the town and consequently has two land use plans drafted and approved by the Surveyor-General. These could be seen to approximate a Town Planning Scheme.

As statutory instruments, a scheme serves as a land use control and/or facilitation plan, and typically indicates the permitted land uses or the restrictive conditions applying to particular zones of land (industrial, commercial, residential, etc.). The formulation and amendment of schemes is politically inflected, as municipal councils have the power to make proposals with regard to zoning categories or to suggest changes to the schemes. In accordance with the ordinance, however, the evaluation and amendment of Town Planning Schemes is carried out by the Namibian Planning Advisory Board (NAMPAB). On NAMPAB’s advice, the Minister of Regional and Local Government and Housing (MRLGH) approves town planning schemes through a notice in the Government Gazette.

Although it is not mandatory at present (it would be under the new Urban and Regional Planning Bill when enacted), the schemes are typically framed by Structure Plans. These are long-term, non-statutory guide plans for urban development that are based upon intensive analysis of economic, social, spatial and environmental conditions. Lüderitz does not have a Structure Plan as such, but has in place a Land Use Plan

53 The SAIEA report for NACOMA, op cit, provides a full analysis of land use and planning legislation at local level (pp.30-35) and an assessment of the functioning of the planning system and relevant institutions (pp. 88-94).
Oranjemund has as yet no published plan or strategy for the broader disposition of its land resources. Neither Lüderitz nor Oranjemund have town planners or urban environmental planners: in the former, two environmental health officers are stepping in; in the latter, Namdeb has a Environmental Management Section whose activities at times touch on the town’s environment but without a direct mandate thereto. In pursuance of Namibia’s Environmental Assessment Policy, the two authorities are increasingly requiring that bigger development applications be accompanied by Environmental Impact Assessments.

Economic development policies or plans are not formally in place for both Lüderitz and Oranjemund. The Lüderitz Town Council and OTM Co have, however, given a great deal of thought to the social and economic situations of their respective towns. Assisted by the Association of Local Authorities in Namibia (ALAN) and sponsored by the Friedrich Ebert Stiftung, the Lüderitz Town Council conducted a strategic planning workshop in 2002 in which local economic development and the supporting social and physical infrastructure were considered, amongst other strategic goals. The council committed itself to promote sustainable development, encourage tourism, develop infrastructure and create a conducive environment for investors. Such strategic planning discussions have continued: the most recent took place in late 2008.

In the intervening years, the town’s economy has struggled. One of the mainstays of the fishing industry, the rock lobster fishery, has had lower quotas than previously, currently at 325 tons/year, and thus lower production; the other, hake, has had fluctuating production volumes. Employment at the large hake fishing processing plants, especially at NovaNam, a subsidiary of Perscanova in Spain, has diminished. A tuna fishery has shown signs of promise, however, with recent good investment in new plant and facilities. Port activities have also been static, with a heavy dependence on exporting the output of the Skorpion mine in the form of zinc ingots. No expansion of facilities is currently expected. The first phase of the Waterfront Development, which was subsidised by GRN, was completed in 2002. It does not appear to be the success that was hoped for, and plans for a N$300 million Phase 2, incorporating a shopping mall, residences, a 50 to 65 room four star hotel and the redevelopment of the gigantic old power station on Diaz Street into a leisure centre, were released in October 2008, with the expectation that construction would begin in April 2009.

The town council intends to provide serviced land and infrastructure, as necessary, for a number of mooted investments. These include a phosphate plant, a seaweed processing factory, further mariculture facilities, and most ambitiously, a new deepwater port in Shearwater Bay on the Lüderitz Peninsula which would export coal from Botswana. Two coal projects are involved, which could possibly be merged. CIC Energy aims to develop the Mmamabula reserves in Botswana for domestic power generation and potentially also export. It has commissioned a consortium of Africon, MRN Runge, DRA and Bon Terra Mining to undertake a feasibility study into a new $10 billion rail and port project to export coal via the Namibian coast. At the same time, Falcon Resources is considering a trans-Kalahari scheme to build a 1,600 km electrified railway from Botswana.

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55 The Lüderitz Town Planning Scheme and land use strategy is discussed and evaluated in Section 4.
57 Despite requests, the minutes of this meeting have not yet been made available to the consultant. A Local Economic Development Strategy for 2007/2011 has also been referred to, but not made available.
Morepule Colliery in Botswana to the Aranos coal mine in Namibia, and then on to a new terminal at Shearwater Bay.

While many of the above investments are only prospective at this point, they clearly raise the issue of how to accommodate very different land uses – heavy industrial, port, mariculture (for which Lüderitz Bay is said to be particularly well suited), leisure and recreation, and tourism – in the sensitive Lüderitz coastal zone, and further, within the town’s attractive urban context which has far greater potential for heritage and maritime/mining/industrial history-related tourism than is realised.

In Oranjemund, OTM Co, in preparation for proclamation and the granting of town status, has commissioned several studies on the potential economic future oriented on opportunities for private sector investors. These include:

- A tourism report, highlighting a possible five star hotel, campsites, a mine tour, industrial/mining history facilities, and an environmental academy, for which no interest was expressed

- A training report, emphasising opportunities for vocational and technical training in the south of Namibia, particularly mining-related

- A mariculture/aquaculture report, aimed principally at taking advantage of the numerous ponds left from mining activities, suitable for abalone, oysters and seagrass. Land-based aquaculture, eg., for yellowtail, is also proposed.

- An agriculture report, assessing possibilities for irrigated and greenhouse farming along the Orange River, particularly the cultivation of mushrooms.

OTM Co. has also been involved in a range of entrepreneurial training activities and in small, community employment creation projects.

A key intention of OTM Co. with regard to the town proclamation process was that it could occur while diamond production was still at good levels (Namdeb’s mining license expires only in 2020). Although good volumes have been achieved of around two million carats per year in the 2005-2007 period (up from approximately 1.4 million in 2001), land-based resources have diminished as they reach the end of their exploitable life, and Namdeb’s production has increasingly shifted into the sea, with the marine operations of De Beers Marine Namibia becoming more prominent. Proclamation of the town until recently has been complicated by the pre-requisite of a publically-accessible road to the town; the best option, the road via Rosh Pinah, crosses Namdeb mining grounds and operations which prohibits public access.

In the last months, a compromise has been reached on the road issue between Namdeb and GRN, and proclamation of the town is now said to be imminent. However, in the interim, as a result of global recession mining operations are now in crisis. The price of diamonds on world markets has dropped precipitously. Namdeb, which was effectively bailed out by its two shareholders, De Beers and GRN, which underwrote bank guarantees in December 2008, has, in turn, cut production, laid off staff, first some 800 of approximately 3,000 employees, with a further 600 voluntary retrenchments proposed –

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and, most recently, mothballed the mine for a three month period. Oranjemund thus faces a most difficult period in the short term, as its population diminishes as former employees leave the town (residence is tied to employment contract). In longer-term perspective, the current economic situation compounds the difficulties of ‘normalisation,’ already not a simple matter given uncertainties over the future and the town’s isolation and insularity as a result of the company town regime of the past 75 years.

**Recommendations**

It is likely that Namibia’s aspirations towards and planning to achieve the status of a middle-income country by 2030 would be greatly enhanced by greater attention to urbanisation and urban development policymaking.\(^5^9\) At this time, national development policy and planning – and in its path regional development planning – is strongly focused on reducing disparities across the space of the country and its regions, and is concentrated on rural development. The process of urban transition is acknowledged, but as with many other African countries, the positive benefits of urban development for economic growth and poverty reduction still go under-recognised, or are even discounted. Windhoek’s growth, in particular, seems to be regarded with something approaching alarm.\(^6^0\)

In this picture, the need for better urban policy, planning and management to accommodate urban growth and its environmental consequences is likely to become a more urgent imperative in the near future. At the same time, given Windhoek’s undisputable rapid growth, the need for the country’s secondary cities to play a bigger part in absorbing urban development is also likely to grow, as stated in the Vision 2030 sub-vision on urbanisation cited above. The coastal area of Hardap Region is currently not urbanised – and is likely to remain in this situation in the future. A complete lack of infrastructure and services to support habitation, even of a temporary nature, will be extremely costly to remedy. It would also be very difficult to justify, given more immediate poverty alleviation priorities in the region. The small and comparatively isolated coastal towns of the Karas Region, Lüderitz and Oranjemund, have limited possibilities for contributing to reducing Windhoek’s primacy, which may in any event be a debateable policy goal. But they are crucial to the economic wellbeing of their region, and to that of southern Namibia as a whole. The diamond mining industry is also by far the largest contributor to Namibian GDP, exports and tax receipts.\(^6^1\)

At present, after years of good growth, the regional economy is significantly weakened in consequence of global economic conditions. This may well necessitate adaptation in the currently applicable socio-economic development plans and/or proposals described and assessed above, as well as potential fast-tracking of some measures. As discussed in


\(^6^0\) See the article “Population boom puts pressure on Windhoek,” in *The Southern Times*, www.southerntimes.com.na, June 2007. Chairperson of the City of Windhoek’s Management Committee, Councilor Bjorn Finkelstein states in the article that “This urbanisation is an issue that should be addressed on a national, regional, as well as local level…It is imperative, and also in the national interest, to study the urbanisation process with its consequences, bad and good, and come up with a definite plan of action.”

the preceding chapter, joint discussion is also required of coastal development PPPs and proposals between stakeholders in Karas and Hardap regions, in order to develop mutual understanding. It is recommended that NACOMA actively facilitate such discussions between stakeholders, beginning with the workshop detailed in Chapter Two, and with follow ups, as necessary. The aim of initial meetings should be to achieve consensus and a common language on social-economic development in the coastal areas of the two regions. With this achieved, NACOMA would be in a position to facilitate further policy and plan making.

3.5 Tourism

In NDP3 Tourism is included as Sub-Sector 9 under KRA Sustainable Utilisation of Natural Resources (Goal: Optimal and Sustainable Utilisation of Renewable and Non-Renewable Resources). Tourism’s economic significance for Namibia is emphasised:

Tourism is regarded as the world’s largest and fastest growing sub-sector. Namibia is strongly positioned to be a major long-term beneficiary of this growing trend. The rich and growing wildlife, diverse landscapes and cultures, and majestic wilderness settings provide internationally competitive tourist attractions for game viewing and hunting and nature viewing.

As in other developing countries, tourism has been identified as an important sub-sector in Namibia not only for accelerating economic growth but also for poverty eradication and empowerment of vulnerable groups. Namibia’s innovative approaches of linking conservation to poverty alleviation through its communal area conservancy programmes and pro-poor tourism initiatives have gained worldwide acclaim. The Government, together with its development partners in non-governmental organisations, the private sector and international community, has introduced several programmes and legislative framework to develop the tourism sub-sector overall and to bring previously disadvantaged communities into mainstream tourism. Thus, tourism is a conservation and socio-economic development tool for rural development and national economic growth.  

The Sub-Sector’s goal is then expressed as “Tourism expanded through community participation ensuring economic and ecological sustainability.” Coastal tourism goes unmentioned; arguably, in line with NDP3’s thrust towards “Deepening Rural Development,” the Sub-Sector’s goal and accompanying proposed N$111 million programme has something of a rural slant, and cannot – and should not – be seen as a comprehensive tourism strategy. In this regard, it is pointed out in NDP3 that national, regional and local tourism development plans tend to be “outdated and uncoordinated” and the production of a National Tourism Master Plan and regional and local plans is encouraged.

Some further background and detail is useful here. Tourism is a sector of considerable importance to the Namibian economy. The industry’s direct impact is estimated at some 18,840 jobs, or 4.7 per cent of total employment, and N$1.584 million in output, approximately 3.7 percent of Gross Domestic Product (GDP). It has been further esti-
imated that tourism directly and indirectly contributes up to N$6.788 million to the economy annually, and thus potentially contributes close to 72,000 jobs.

The number of overall tourists – defined as a person visiting a country other than his/her usual country of residence for between one night and one year – rose from 254,978 in 1993 to 777,890 in 2005, and, according to NDP3, ran at 833,350 the following year, 2006. Output in 1993 was estimated at N$500 million. Some 82 per cent of just over 200,000 arrivals by air in 2004, i.e., 167,000 people, were tourists. The average length of stay is 17 days, with most tourists moving around the country to experience its varied attractions. Some 1,728 establishments applied for registration with the Namibian Tourism Board (NTB), these split between 912 accommodation establishments of various types and 816 regulated businesses (e.g. tour operators, conference operators, vehicle rental, booking agents, etc.).

Namibia’s protected areas (parks) system, which covers some 18 per cent of the country’s land area, was recently estimated to generate between N$1,099 million to N$2,259 million in overall output. At the same time, the number of tourists visiting community-based tourism enterprises, which are often adjacent or in proximity to the parks, increased promisingly from 30,000 in 1999 to over 90,000 in 2004, according to the Namibian Community-Based Tourism Authority (NACOBTA).

In the post-2000 period, however, growth in both the numbers of tourists and in revenues has been less than expected. Despite rosy predictions of growth for the future – in the period to 2016, by 8.6 per cent in output per year to N$5.696 million, and 4.4 per cent per annum for employment to 28,845 direct jobs – travel and tourism in Namibia is under-performing, relative to its own potential, and compared to the performance of its immediate neighbours (and competitors) in Southern Africa, Botswana, Zambia and South Africa. This under-performance is now the focus of much GRN attention.

A White Paper on Tourism, which reflected the findings and recommendations of the National Tourism Development Plan 1993-1997, was approved by Cabinet in 1994. In the past decade, it was augmented by the development of A National Tourism Policy for Namibia. As per the observation in NDP3, it appears that this policy is still in draft form.

Tourism was also emphasised in Vision 2030, which acknowledges that despite tourism’s “very important role in economic development…its full potential has neither been explored nor exploited.” Accordingly, the sub-vision for Wildlife and Tourism is declared as follows:

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64 The consultant is in possession of the fourth draft of the policy, dated June 30th 2005. The process has been ongoing since 1999. See in this regard a press article, “MET staffers get a tongue – lashing,” by Absalom Shigwedha in The Namibian, 19/02/2009, where it is described how the Minister of Environment and Tourism Netumbo Nandi-Ndaitwah recently criticised top officials in the ministry for failing to meet deadlines for finalising policies.
The integrity of Namibia’s natural habitats and wildlife populations are maintained, whilst significantly supporting national socio-economic development through sustainable, low-impact consumptive and non-consumptive tourism.\(^{65}\)

This aspiration is echoed by the National Tourism Policy, which sets out its vision as follows:

Namibia will develop the tourism industry in a sustainable and responsible manner to contribute significantly to the economic development of Namibia and the quality of life of all her people – primarily through job creation and economic growth.\(^{66}\)

The policy strongly emphasises the two related tourism concepts above, sustainability and responsibility. The principle of sustainable tourism “implies the planning of tourism activities in such a manner that visitor satisfaction is retained, the industry is profitable, the fragile environment is protected, and the natural resources are sparingly utilised for the benefit of current and future generations.”\(^{67}\) It must be seen within the context of the understanding that it is Namibia’s environmental resources – in simple terms, the country’s nature and wildlife – that are the key basis for its tourism industry. Accordingly, responsible tourism is to be promoted, as:

...an approach aimed at ensuring that Namibia develops tourism that is economically, socially and environmentally sustainable – tourism that contributes positively to the local and national economy, the local environment and the empowerment of local people and, ultimately, to the quality of life of all Namibians. This means encouraging the sort of tourism that has the greatest chance of providing a long-term future for local communities, where ongoing market demand is most likely to sustain tourism businesses and where tourism can assist in environmental conservation.\(^{68}\)

Environmental planning and management considerations are built into Namibia’s tourism policy. Planning and land use issues are well-covered. Land use planning is vital to regional economic development, and specifically to tourism, and land use plans will be incorporated into regional economic development plans and regional tourism strategies. Tourism facilities are to “minimise their impact on the environment in terms of both resource utilisation and visual impact,” with mechanisms such as EIAs to assure this. New tourism developments, in particular, are to be “designed in such a way that they are unobtrusive, environmentally sympathetic and, as far as possible, enhance rather than detract from the visual impression of the environment.”\(^{69}\)

The National Tourism Policy can be seen as simultaneously ambitious in its intentions for the tourism industry in Namibia and strongly conservation-oriented. There are several issues that will have to be tackled if the tourism industry is to live up to its potential:

- Funding and institutional strengthening: MET overall faces severe budgetary constraints. For several years, budgetary allocations have not covered opera-

\(^{65}\) *Vision 2030*, op cit, p. 152.
\(^{67}\) Ibid, p. 25.
\(^{68}\) Ibid, p. 2.
\(^{69}\) Ibid, p. 15.
tional costs (there was over-expenditure of N$12.3 million in the 2006/2007 financial year). The Ministry, with a budget of N$141 million for 2007/2008, is arguably under-budgeted with only N$50 million a year spent on maintaining and running its national parks, the cornerstone of Namibian tourism. At the same time, the tourism agencies falling under MET auspices, the NTB, responsible for tourism marketing and the licensing of tourism businesses since 2001, and the National Wildlife Resorts parastatal (NWR), which has managed resorts in the national parks since 1998, also face serious financial and capacity constraints. The NWR in particular has struggled with managing its assets, the resort facilities, which are widely seen as below comparable international standards and expensive. A refurbishment programme is now underway. The NWR received a Cabinet bailout of N$120 million in 2005.  

- The definition of market segments and associated tourism products: national policy, while recognising that some diversification is needed, focuses on stimulating “high-spending low-impact tourism.” Vision 2030 warns against “Uncontrolled low quality mass tourism” (p. 153). However, apart from mentioning “lower-spending but more adventurous visitors who will travel more widely in Namibia,” it is unclear what market differentiation is envisaged by the policy. The WTTC report points out that of the 780,000 international tourist arrivals in 2005, the largest share, of 44 per cent, was accounted for by visitors to friends and/or relatives (VFR tourists) who are not necessarily high-spending tourists at all (many are self-driving South African and other South African Development Community region holidaymakers and visitors). This VFR segment nonetheless contributes significantly to tourism receipts, and is arguably under-catered for in terms of the products offered to it, or the attention paid to its needs. It is also widely acknowledged that there is much that can still be done to encourage more domestic tourism. Presently, many Namibians are priced-out of their own facilities by what the WTTC calls “prohibitively high accommodation prices and entrance fees.”

To address these challenges the National Tourism Policy calls for the development of a national tourism strategy and action plan to further its policy objectives. This is to be accompanied by regional tourism strategies to be developed by regional and local stakeholders under the framework of updated regional development plans. The WTTC report also recommends that a detailed Tourism Master Plan/Strategy be drawn up and adopted as a Cabinet directive. This should include a product development strategy (including wildlife tourism, cultural tourism, adventure tourism, game hunting, etc.). Region-specific master plans should also be developed which can be attached or incorporated within the national plan. As seen above, it appears as though NDP3 has followed

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70 See Brigitte Weidlich, “Conservation hit by limited funds,” in The Namibian, February 12 2007
71 Vision 2030, p. 153; A National Tourism Policy for Namibia, p. 2
72 Namibia: The Impact of Travel & Tourism on Jobs and the Economy, p. 55. This judgement was passed by WTTC well prior to NWR increasing its rack rates at its 23 resorts threefold in May 2007, to take effect from November. Despite the 25 per cent discount for Namibians being maintained, this will significantly weaken affordability prospects for the vast majority of Namibians. The NTB also produced a study in May 2007 which concluded that the tourism sector was neglecting domestic tourists due to high prices for accommodation, food and services. See Brigitte Weidlich, “Tourism price-hike shocks” in The Namibian, May 14 2007. An article by the same author, “Tourism spots too costly for Namibians,” in The Namibian, December 8 2006 is also relevant.
this recommendation. Carrying through on it at all territorial scales is essential if Namibian tourism is to achieve its economic growth and poverty reduction potentials.

**Hardap Region**


The area is seen as accessible over the dunes from Sandwich Harbour to the north, and from the east from the Namib Rand Nature reserve. A specific approach and proposals for development is put forward:

With the proposed development of the Sperrgebiet to the south and the number of upmarket lodges along the eastern boundary of the Namib-Naukluft Park, there will be an increasing demand for access to the area from Lüderitz. All access routes however require four wheel drive vehicles, the volumes of which should be tightly regulated by permitting guided self-drive tours only, to preserve the sensitive ecology while maintaining the region’s unique, remote character. Community guides should accompany each tour to ensure that the natural environment is preserved while creating additional employment for the local population. The remnants of the Edward Bohlen shipwreck, Sylvia Hill, the whalebones near Fischersbrunnen and the stark desert landscape all contribute to the sightseeing potential of the area.

A small upmarket (12-16 bed) lodge is to be developed by concession at Meob where a small landing strip has been constructed and a limited amount of fresh water is found. Remnants of old diamond mining camps and camps are still found within close proximity. The lodge could also be the base for researchers, as the information gathered would form an added tourist attraction. A small fishing camp is to be developed at Conception Bay, catering for self-drive, guided tours. The number of fish which may be caught per group should be subject to strict quotas.

The plan sets as targets the development of the lodge, fishing camp and guided 4X4 trails. A Hardap Region Tourism Plan, which followed the RDP in 2003, makes reference to the proposals, and notes that “More information is needed on these developments by the Regional Council which appears to be not very aware of these developments that were probably undertaken either before the Regional Councils were established or in isolation of them.”

Neither the lodge or fishing camp have materialised in the years since, although the consultant was informed by several sources that there was great interest, particularly in the lodge, and that Namibian entrepreneurs in collaboration with the Hardap Regional Council were actively refining or elaborating the concept (a Dubai-style off-shore island and a golf course was rumoured), and developing its bankability in the light of potential investor interest, some of it international. Despite requests, no further details or documentation was provided.

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74 Ibid.
Guided, self-drive tours into the Hardap coastal zone at Conception Bay and Meob Bay has been the one aspect of the proposals above that has seen considerable development in the past decade. At present, some four concessionaires are active in the area, guiding groups of on average 10 vehicles along several routes from the north, south and east:

- From Walvis Bay, via Sandwich Harbour
- From Lüderitz en route to Walvis Bay, via Saddle Hill
- From Solitaire en route to Walvis Bay.

Each of these routes takes a number of days, with the average around four or five days (the Lüderitz to Walvis Bay route takes seven days). The routes are specific to the concessionaire; and concessions are reviewed annually. It is difficult to assess the numbers involved. One concessionaire averages some 25 to 30 tours a year, each involving perhaps 15 to 20 people on each. Using this figure, a number of some 1,500 to 2,000 annual entrants into the Hardap coastal area could be envisaged, although a shortage of trained guides may limit this figure. Clients are typically experienced male 4X4 enthusiasts, a large proportion of them (reportedly up to 95 percent) from South Africa. 4X4 drivers from Namibia are also well catered for. The tours are not cheap, in the range of N$7,000 – 10,000 per person plus expenses, and therefore unaffordable for the majority of Namibians. In addition to the tours, the Oranjemund Angling Club still has a concession at Meob Bay, which is visited perhaps five to seven times a year for catch and release fishing. There are also unaccredited operators and even individuals also going into the area, but this seems more likely to occur in and around Walvis Bay, i.e., to Sandwich Harbour, and Lüderitz.

**Karas Region**

The Karas RDP portrays a region with high tourism potential, and pays full attention to the attributes of the region’s coastal area. Principal opportunities are seen in the Sperrgebiet, as “a magnet for tourism,” where the land use plan being compiled for MET at that time would form a basis for “controlled tourism development” (detailed planning for the National Park followed a few years later); and in the Lüderitz area, both for its own coastal attractions (primarily sightseeing), and also as a starting point for entering the Sperrgebiet. The objective of the plan with regard to tourism is therefore proposed as “To develop the tourism potential and industry in the Karas Region in a sustainable manner to significantly contribute to the economic development of this region and the quality of life of its people.” Tourism is also viewed as the preferred land use option for the region, and various upgrades of transportation are suggested.

The RDP exhortations were echoed a few years later by a study on the tourism market in southern Namibia. The study provided greater specificity to some of the broad ideas

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76 A resident of Somerset West, South Africa, is also reported to have a fishing concession at Meob Bay.
77 See “Into the great nothing,” by Barnie Louw, in the 4X4 magazine *Drive Out*, June-July 2008, for a good description of the 550 km, five day Solitaire to Walvis Bay route.
or themes in the RDP, suggesting for instance a circular scenic route which would include coastal attractions between Oranjemund and Lüderitz, such as Pomona, Elizabeth Bay and Bogenfels.

In the five years since these plans were produced, coastal tourism in Karas Region appears to have stagnated. Neither Lüderitz nor Oranjemund has a formal, approved tourism plan, although tourism was studied, as mentioned above, by OTM Co. as part of its economic development strategising. Oranjemund’s closed status has meant that is has not been utilised as a tourist location at all, except for business tourism by visitors to Namdeb. Equally problematic is that the town is also not even viewed as a tourist destination owing to its long-run status (it does not feature, for instance on the useful brochure promoting Namibian coastal tourism). If perceptions can be changed, however, the town has real potential, particularly with the adjacent Orange River Mouth Ramsar Site, and its fascinating mining and industrial history.

In Lüderitz, the weakness of the fishing sector has meant that business related visits have reduced in number. The Waterfront development, discussed above, has not played the catalytic or propulsive role anticipated, possibly as a result of its small scale to date. Lüderitz has a number of attractions, notably tours of the nearby Kolmanskop ‘ghost’ mining town, which is taken up by tour groups, tours of the Elizabeth Bay mine, boat trips, Diaz Cross on the Lüderitz Peninsula, the adjacent Northern Sperregebiet desert (Diamond Area 2) and guided tours to Bogenfels. Infrastructure for tourists is well established, with two four star hotels and a number of smaller hotels and bed and breakfasts (room numbers available have increased over the last decade, but occupancy overall is down), and several restaurants. Stakeholders are concerned and active, particularly through the Lüderitz Tourism Forum. The town council and local business community in partnership with MFMR hosted the first Lüderitz Crayfish Festival in 2008, which was well-attended and is now intended to become an annual event. But the town’s remoteness and forbidding climate mean that it is not a destination to which visitors will necessarily come for a number of days at a time.

Arguably, successful coastal tourism in Karas Region requires a strong regional perspective, and the creation of real and working institutional and physical linkages between the offerings of what are two small towns co-located on what could be re-branded far more appealingly as the Diamond Coast. The proclamation of the 26,000 square km Sperrgebiet National Park (SNP) in December 2008 and its February 2009 launch provides the necessary opportunity for this. The conservation aspects are dealt with in the following section. As part of the management arrangements and overall plan for the SNP, and in line with the Sperrgebiet Land Use Plan, a Strategic Tourism Development Plan was produced, followed by a Tourism Plan for both districts – thereby linking both tourism and conservation at the regional level. This plan includes the following key elements:

1. Strategic Tourism Development Plan for the Sperrgebiet National Park
2. Tourism Plan for both districts – linking tourism and conservation at the regional level
3. Implementation of tourism infrastructure
4. Promotion of tourism through marketing and public relations
5. Coordination of tourism activities among stakeholders
6. Monitoring and evaluation of tourism impacts

These plans will be implemented through collaboration between all relevant stakeholders, including local communities, tourism operators, and government agencies. The benefits of this approach include increased economic opportunities, preservation of the natural and cultural heritage, and improved quality of life for local residents.
Plan has been drafted.\textsuperscript{83} The plan emphasises a connection with the Karas Region’s overall tourism resources, notably the Fish River Canyon Park and the Namib Naukluft National Park, and those over the border in South Africa, especially, the Richterveld National Park. It also promotes the role of the bordering towns – Lüderitz and Oranjemund, but also Aus and Rosh Pinah – as accommodation-providing gateways to and staging posts for concessionaire-led guided tours of the SNP’s attractions, including those in the coastal area. The coastal area forms part of three of a total of seven Tourism Development Areas (TDA), these complemented by Tourism Development Zones (TDZ) in which particular activities or land uses occur, and Tourism Development Nodes (TDN), where high intensity tourism development happens. The three TDAs are:

- The Northern Dunes TDA, north of Lüderitz, focusing on escorted desert dune driving adventure safaris or guided self-drive 4X4 trails
- The Coastal and Mining History TDA, between Lüderitz and Oranjemund, including Lüderitz’s mining attractions, the mining ghost towns of Pomona and Bogenfels, more recent closed mine diggings and large-scale infrastructure, Bogenfels Arch and the Bakers Bay seal colony
- The Oranjemund Coastal/Orange River TDA, highlighting Oranjemund’s attractions such as the Ramsar site and the shipwreck.

At this stage it is understood that the SNP Tourism Development Plan is in draft form. The human capacity and financial resources to implement a finalised version of the plan will also need thought and assembly. At this stage, then, the plan marks a most useful start to conceiving of the region’s attractions in a broader regional frame, with the SNP seen, correctly, as the essential catalyst and driver of Karas tourism, including coastal tourism.

**Recommendations**

This assessment of PPPs in the tourism sector and their effectiveness for coastal tourism in Hardap and Karas regions indicates that there is certainly need for the updating of policies and plans at national, regional and local levels alike. Following NDP3’s recommendation, a finalised National Tourism Plan is strongly indicated. At regional and local level, new versions of tourism policies and plans are also needed. However, with the proclamation and launch of the SNP, and given current economic circumstances, the really urgent need is to complete planning for the park, and get the implementation of the park’s activities and facilities going with the requisite resources. The park’s tourism plan already makes links with the tourism resources of the Karas Region and, more broadly, those of Southern Namibia. The park’s multiplier effect on regional tourism is the single most important factor in strengthening tourism – and coastal tourism – in Karas and Hardap, and can be a powerful driver for improving the overall regional economy.

However, it is the consultant’s impression that the highly conceptual and technical content of the SNP Strategic Tourism Development Plan needs further dissemination and needs to be discussed alongside, and aligned with other tourism and economic devel-

\textsuperscript{83} The consultant is in possession of Strategic Tourism Development Plan Sperrgebiet National Park, Version 2, June 2008, prepared for Namibia Nature Foundation (NNF), Windhoek.
opment PPPs and initiatives in the two regions, with an emphasis on those concerning the coastal areas. It is recommended that NACOMA play a strong facilitating role here, by promoting such discussions between stakeholders in the two regions as part of the broader discussion of socio-economic PPPs recommended above. Tourism cannot be discussed or planned in isolation from other economic sectors and their development plans, and despite the sentiments sometimes expressed in conservation-oriented tourism PPPs, cannot necessarily substitute in output or employment terms for other economic activities. The endpoint of such discussions should be broad agreement on the way forward for coastal tourism. NACOMA could then step in and assist, where possible, in updating tourism planning, e.g., in Lüderitz or in Oranjemund.

3.4 Nature conservation

The biodiversity assets of Karas and Hardap coastal regions are recognised globally as exceptional, and the protection of the unique landscapes, flora and fauna of these coastal regions has a high priority on the political agenda at all levels. The entire terrestrial parts of the coastal regions fall within Namibia’s two largest protected areas; the Namib-Naukluft Park (NNP), proclaimed in 1907, and the newly proclaimed Sperrgebiet National Park (SNP, Figure 8). The eastern extreme of the Namibian Islands MPA (NIMPA) covers the coastal strip adjacent to the NNP (From Meob Bay southwards) and SNP (southwards until Chamais Bay). New management goals are being set for NNP, as the current management plan is unclear as to which biodiversity elements constitute the focus for strict protection and which elements are the focus of more wide-scale habitat conservation action due to their widespread occurrence or lower susceptibility to human activities. For the SNP and the NIMPA the vision is to implement a modern framework for integrated management and conservation based on a zoning system according to IUCN criteria.\(^{84}\)

The national study on biological diversity\(^{85}\) represents a milestone in Namibia’s history of biodiversity knowledge and management. This study and the study on patterns and processes controlling endemism in Namibia\(^{12}\), the Atlas of Namibia\(^{86}\), the Tree Atlas of Namibia\(^{14}\), the recent reviews of biodiversity data for the near-coastal waters associated with the islands off the south-western coast\(^{87}\) and the plant communities of the Sperrgebiet\(^{88}\) all point at the need to re-assess the boundaries of the coastal parks against the requirements for integrated management and conservation using detailed information on the general trends in biodiversity and in the suitability for different land uses found in the coastal regions of Karas and Hardap and. On the basis of the biodiversity data made available to the SEA the spatial configuration of the gradients in biodiversity importance could be established in relatively high resolution (100 m, Figure 9).

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The trends are quite striking, and underline that conservation priority areas and habitats in the protected coastal parks are indeed not evenly distributed along or across the coastal strip. It is worth stressing that these trends mirror and summarise the findings made by Simmons et al.\textsuperscript{12}, Currie et al.\textsuperscript{87} and Burke\textsuperscript{88}. It should also be noted that priority areas have been mapped on the basis of landscape and habitat characteristics of a wide range of faunal and floral groups rather than species data, due to the lack of high-resolution baseline data on the diversity and distribution of most groups of fauna in the desert, with important consequences on the possibility to define the conservation status of most groups of species.

*Figure 8. Protected areas of the Karas and Hardap coastal regions, and the Namibian Islands MPA.*
The ten-year strategic plan of action for biodiversity conservation, Namibia’s Biodiversity Strategy and Action Plan (NBSAP)\textsuperscript{89}, provides for the implementation of article 95:1 of the Namibian Constitution and the Convention on Biological Diversity (CBD) and offers MET the legal mechanisms for achieving the goal of developing management plans for the coastal parks, and the current work on developing management plans for the NNP and SNP should be seen as important benchmarks for MET in the implementation of the NBSAP. Compared to this work the SEA for the southern Namibian coast only adds limited guidance to the zonation of the parks into areas of different sensitivity and importance as a basis for identifying core areas for conservation. However, by using the same habitat-based approach, which was applied for the SEA of the northern coast, this SEA will ensure the production of a comparable determination of priority areas for conservation along the entire Namibian coastline following a standardised methodology. The added information reflected by the SEA is particularly important in relation to trends in the NNP and for the non-botanical features of the SNP.

More importantly as a guidance to zonation of the parks the potential areas for sustainable development identified by the SEA uses the habitat-based classification of conservation priorities to achieve a holistic solution for all parts of the coast. The identified areas with low conservation priority have the highest potential for development, although in many cases the assessment of land-use suitability proved sites to be sub-optimal for development due to physical, infrastructure or other constraints. All developments in protected areas are required to prepare an Environmental Impact Assessment. The new Environmental Management Act\textsuperscript{90} and GRN’s Policy for Prospecting and Mining in Protected Areas and National Monuments\textsuperscript{91} provide for the legal basis for development of concessions within the parks.

A key policy of MET in relation to the future development of the management of the coastal parks is the National Policy on Protected Areas, Neighbours and Resident People.\textsuperscript{92} This policy sets out a new vision of how Namibia’s protected areas can contribute not only to conservation, but also to other national development goals such as economic development, and how the protected areas can benefit the people who are neighbours to these areas or who are resident within them. The policy’s three main goals are:

1. Improved conservation of Namibia’s protected areas
2. Greater social equity in the distribution of benefits from protected areas
3. Stimulation of local and regional economies through creating business opportunities linked to protected areas

Linked to the intention of achieving the goals for greater social equity and multiple use of the park areas is the evolving concession framework as reflected by the new Policy on Tourism and Wildlife Concessions on State Land\textsuperscript{93} which has the aim of improving

\textsuperscript{89} Ministry of Environment and Tourism, 2000. \textit{Biodiversity and development: an overview of Namibia’s ten-year strategic plan of action for sustainable development through biodiversity conservation} 2001-2010, Pp 137.

\textsuperscript{90} Ministry of environment and tourism, 2008. Regulations for strategic environmental assessment (sea) and environmental impact assessment (eia). Draft April 2008.


opportunities for business development and addressing the economic empowerment of formerly disadvantaged Namibians through the tourism, hunting and forestry industries. This policy will enhance the opportunity for the conservancies adjacent to the parks to get concessions, a situation which may help realising the real ecotourism potential for the parks, and help to implement the goal of integrating conservation with the basic development needs of local people in the conservancies. The goals for a sustainable and more decentralised development in the parks as reflected by the NBSAP and the two new policies go hand in hand with the national and regional development goals for ecotourism (see chapter 3.5).

As a response to the weak status of wetland conservation in Namibia MET has drafted Namibia’s Wetlands Policy,\textsuperscript{94} which describes new guiding principles for wetland resource use and conservation. Among the goals set by the Wetland Policy are:

- The right of every citizen to be able to obtain, within reasonable distance from their place of abode, a quantity of water sufficient to maintain life, health and reasonable productive activity.
- The protected areas network in Namibia shall be expanded to include vulnerable wetlands as well as functional units of each wetland type. Trans-frontier protected areas shall be established.
- The management of wetlands and wetland resources will recognise that ecosystems are legitimate water users.
- The principle of sustainable utilisation shall be adopted by all stakeholders to prevent wastage of wetland resources and erosion of natural resource capital.
- Any decisions concerning the use and management of Namibia’s wetland resources (including water) shall be made in accordance with the Precautionary and Polluter Pays Principles.
- The economic benefits of wetlands to communities dependent on wetland resources for their livelihoods should be taken into account in assessing wetland values and priority uses.
- Tools such as EA and SEA will be applied in accordance with Namibia’s EA policy and Environmental Management Act to help reduce negative impacts and enhance sustainability.

The development of new legislation and regulations on wetlands is expected to include designation of Namibia’s most diverse and vulnerable wetlands as protected areas, multi-sectoral regulations for maintaining water quality and the ecological integrity of wetlands, legal guidelines and mechanisms for the implementation and enforcement of wetland conservation and sustainable wetland management and integration of biodiversity conservation and ecological functioning of wetlands into all new laws and policies.

The goal to strengthen the conservation of wetlands, especially those which are vulnerable and of international significance, is highly recognised in the coastal region of Karas, where the mouth of the Orange River has been identified as a wetland of international significance and a Ramsar site. The management of the mouth of the Orange River as part of the SNP, IUCN (International Union for the Conservation of Nature) category 4, will require the integration of management goals of the MET Wetland Policy and the SNP.

The development of marine protected areas (MPAs) and fisheries exclusion zones are the responsibility of MFMR. A baseline study in 1998\(^95\) provided recommendations for MPA designation in Namibia. However, it was not until 2005 that the Directorate of Resource Management within MFMR mandated the identification of MPAs in Namibia with the purpose of protecting important spawning and nursery grounds for fish and other marine resources (such as rock lobster), as well as sensitive ecosystems and breeding areas for seabirds and marine mammals. National policy on marine protected areas has been produced. By the time Namibia became independent in 1990, many important fish stocks and other marine resources in Namibian waters had been severely depleted following decades of poorly regulated and unsustainable exploitation\(^96\). In order to remedy this situation, the Ministry of Fisheries and Marine Resources (MFMR) mandated the development and implementation of management policies, laws and regulations geared towards optimal and sustainable harvesting of marine resources within the context of the conservation of marine ecosystems. More recently, MFMR has made it a priority to embrace an “Ecosystem Approach to Fisheries (EAF) Management” to improve the management of its fish stocks. The purpose of this approach is essentially to sustain the health of the northern Benguela ecosystem in conjunction with the responsible use of its marine resources for current and future generations. The approach includes provision for a proportion of Namibia’s marine areas to be declared MPAs.

The development and launch of NIMPA in 2009 has followed a review of old and current marine and environmental legislation\(^97\), a review of conservation priorities\(^97\), an application of a multi-zoned approach in delineating areas with different management objectives and in order to avoid conflict between different use stakeholders and the creation of rational management boundaries. The resulting plan for NIMPA is aimed at ultimately providing greater protection for biodiversity, recruitment areas, endangered species and habitats, as well as benefiting the rock lobster and line fish resources and industries. As the IUCN category VI Managed Resource Protected Area has been recommended for the broader buffer zone area of the proposed MPA, existing fisheries and mining activities should not be adversely affected through the declaration of an MPA.

Additionally, MFMR is managing a trawling and long-lining restriction zone in waters shallower than 200 m, and it manages several fisheries exclusion zones, which provide protection from recreational fishing within two miles seaward of the high-water line of the sea shore or any of the islands along the Namibian coast. Angling from the shore will be prohibited along 95% of the shoreline along the NIMPA region.

### 3.4.1 Hardap

The entire terrestrial coastal environment of the Hardap region falls within the Namib Naukluft Park, while the inshore zone from Meob Bay and southwards forms part of the Namibian Islands Marine Protected Area (NIMPA). The patterns of biodiversity as re-


flected in the estimated trends in the conservation potential indicate patches of elevated conservation potential both along the Kuiseb river, on the coastal slopes and scattered in the dune sea of the Namib Naukluft Park.

3.4.1.1. Namib Naukluft Park
The vision of the NNP, as stated in the management plan from 2004\(^98\) is to ‘To create a world class Desert Tourism Experience which is ecologically and financially sustainable, and which contributes to Namibia’s economic development’. Following from this vision the strategic goals of the NNP have been formulated as:

- To establish the Namib-Naukluft Park as a world class Desert Park, as a strategic element of Namibia’s tourism development, whilst conserving the Namib Desert;
- To increase significantly the Namib-Naukluft Park’s contribution to Namibia’s national and regional economic development objectives;
- To ecologically sustain and, where appropriate, improve the management of the unique natural, cultural and historical heritage, by ensuring: a self-sustainable funding mechanism and management system for this goal.

Despite these ambitious goals the management of Namib Naukluft Park (NNP) has not been updated since 2004, and no detailed zonation of the park has been undertaken on the basis of assessments of the different levels of sensitivity in species and habitats towards human activities. Equally important, assessments of spatial trends in importance of different areas within this huge park are still lacking. Consequently, the boundaries of the NNP do not necessarily follow the trends in biodiversity and may further fail to meet the demands for integrating conservation and sustainable development as expressed in the management plan. The management plan specifically mentions that trade-offs will be necessary to accomplish integrated management and conservation, but it defines only few management zones.

Our assessment of trends in the conservation potential of habitats within the NNP indicates that the largest continuous area of high conservation priority is found in the northernmost part of the region along the Kuiseb river. The Kuiseb river functions as a striking ecotone which marks the sharp transition from the sand sea in the south to more flat areas to the north of the river. Especially, the vegetated river banks found along the section more than 15 km inland from the estuary function as habitats for a wide range of bird and mammal species. The special status of the Kuiseb river was also recognized in the management plan.

The steep coastal slopes from Sandwich Harbour to Conception Bay and from Meob Bay to Black Rock have higher conservation potential than the neighbouring coastal stretches, and the steepest parts of the sand sea also hold a larger conservation potential as compared to the general area of sand dunes. The NNP management plan mentions the salt pans between Conception Bay and Meob Bay as a sensitive area, but does not provide any detailed background information for this.

Although the number of identified priority habitats in the NNP is modest and the density of animals is low in the coastal part the Namib Desert contains a suite of uniquely adapted organisms of which a relatively high number are endemics. Some of these species, especially those which have perfected adaptations to cope with the harsh environment, rely on habitats which may be sensitive to tourist impacts. The management plan stresses that these organisms form the focus of the management of the park, yet no actions have yet been taken to monitor the status of the endemics of the Namib Desert in the various parts of the sand sea, including the coastal zone.

Historically, opportunistic movements of large herds of herbivores took place into the area which today is covered by the NNP. These movements are now much reduced in volume and extent due to the fence along the eastern boundary of the NNP. Although these movements probably mainly reached the coastal zone via the Kuiseb Delta the presence of the eastern fence most likely most likely has also affected the frequency of occurrence of mammals in the coastal zone.

3.4.1.2. Namibian Islands’ Marine Protected Area

The Namibian Islands’ Marine Protected Area (NIMPA) was proclaimed in February 2009, following approval by Cabinet on 2 September 2008, and finally launched in July 2009 as the first Namibian MPA following the new global framework for marine habitat protection as a means to promote sustainable marine resource use and marine biodiversity conservation. Sustainable marine resource use through MPAs is facilitated managing the components of marine ecosystems that are not protected by traditional fisheries management. MPAs are regarded as one of the essential tools in the implementation of the ecosystem approach to fisheries (EAF) management, a legal commitment in the SADC Fisheries Protocol, and a management approach embraced by MFMR. In 2005 the Directorate of Resource Management (DRM) within MFMR mandated the identification of MPAs in Namibia, with the purpose of protecting important spawning and nursery grounds for fish and other marine resources (such as rock lobster), as well as sensitive ecosystems and breeding areas for seabirds and marine mammals.

The proposed MPA area comprises the coastal strip in the south-west of Namibia’s marine waters, extending from Hollamsbird Island (24°38’S), the northernmost island, to Sinclair Island (27°40’S) in the south, spanning approximately three degrees of latitude and an average width of 30 km. This includes 11 specified offshore islands and islets, as well as a number of rocks, which are key biodiversity foci. The suggested management plan for the MPA is based on the IUCN zonation criteria. The IUCN category VI Managed Resource Protected Area is recommended for the broader buffer zone of the proposed MPA, so that existing fisheries, aquaculture activities and mining activities should not be adversely affected through MPA promulgation. The total MPA area, also referred to as the buffer zone, has been further sub-zoned into four degrees of incremental protection. Zone 1 contains the most general (conservation measure) conditions applicable to all islands, islets and rocks throughout the buffer zone, whereas zone 4 represents the highest protection status with specific conditions assigned individually to each island, islet or rock, as well as to Rock lobster sanctuaries and a proposed line fish sanctuary.

99 Government Gazette notice no. 4210, section 51 of the Marine Resources Act, No. 27 of 2000
The goals of the NIMPA have been defined as the contribution to:

- Sound management and conservation of marine resources under Namibia’s jurisdiction;
- The protection of spawning and nursery grounds of the commercially exploited rock lobster (Jasus lalandii) and that of certain fish stocks and other marine resources, to promote stock recovery;
- Protection of the foraging requirements of top predators in the Benguela Upwelling Ecosystem, including a number of globally threatened seabirds;
- MFMR’s “precautionary principle” management strategy, whereby representative habitats are set aside to mitigate potential future threats, as well as MFMR’s legal obligations to EAF management;
- Improved vigilance with regard to risks posed by shipping-related threats, such as oil spills;
- Continued collection of oceanographic and biological data from offshore island sites, constituting important monitored indicators of the state of Namibia’s marine environment and coastal ecosystem (contributing an integral link to Namibia’s environmental monitoring system);
- Awareness, in a regional context, regarding novel approaches to the declaration and management of offshore MPAs;
- Enhancement of Namibia’s international relations by illustrating steadfast commitment to international environmental treaties, regional and national needs and requirements, and international law.

One of the biodiversity targets of NIMPA is the only almost continuous rocky coast in Namibia which occurs between Bogenfels and Lüderitz (about 80 km). South of this, the coast is interspersed with rocky outcrops. In comparison to sandy shores, rocky shores harbour rich plant and animal life. Sub-tidally the rocky shores extend as sub-tidal reefs supporting kelp bed communities, including commercially fished species such as rock lobster. The complexity of rocky shore community structure offers a wide variety of niches, occupied abundantly by both seaweeds and representatives of most invertebrate phyla. Rocky reefs in Namibia support the highest biomass of mussels per unit area in the southern African region. Species diversity however is low to moderate. Rocky shores provide feeding and breeding grounds for not only the attached fauna, but also for fish, birds, and marine mammals. The complex structure of the kelp beds offers food, protection and shelter to young and vulnerable life stages of many marine animals.

All the Namibian islands possess rich rocky inter-tidal zones deepening into kelp bed reefs, thereby valuably and substantially increasing the proportion of rocky shore habitat and enhancing biomass accordingly. Most of the shallow (<30 m) sub-tidal rocky reef areas occur between Mercury Island and Chamais Bay, which falls within the proposed MPA buffer zone, as indicated in part 3 below. Because of the rocky reef structure – the habitat for lobsters – this area also constitutes some of the main recruitment grounds of the commercially important rock lobster. North of Spencer Bay, the occurrence of rocky outcrops becomes less frequent, giving way to mixed rock and sand. In the area from Possession Island to Chamais Bay kelp beds are found. Kelp bed dive surveys cover small areas, and are limited to areas of relative shelter (small bays, around the islands, etc).
For many species of fish it is believed that the coastal area covered by NIMPA host a specific community with reduced exchanges with populations in neighbouring waters due to the natural biological barrier found in the vicinity of Meob Bay and Sylvia Hill. It has been suggested that the cold core of the Benguela in the vicinity of Lüderitz could provide a barrier to the interchange of biota between the northern and southern parts of the Benguela system. Although surface distributions of temperature, salinity and chlorophyll have revealed no significant long-shore gradients to explain this boundary, the distribution of shoals, commercial catches and larvae of pelagic fish species in the Benguela ecosystem point to a well-defined biological boundary near 24°30’S in the vicinity of Meob Bay.

Large populations of seabirds occur along the Namibian coast. Of the 14 seabird species breeding in Namibia, 11 species breed on islands and inshore rocks. A few species and populations also breed on mainland cliffs, coastal dune fields, salt pans and estuaries. Of these, nine species are endemic to southern Africa, with only the Kelp Gull and White-breasted Cormorant being found outside that region. Although many of these species breed at relatively protected sites, presently away from the direct effects of human development, they are not immune to these pressures and a number of them are in serious need of better conservation measures. The most seriously threatened seabirds species in Namibia at present are African Penguins, Cape Gannets and Bank Cormorants. Namibia supports significant numbers of each of these three endangered species. Numbers have, however, declined dramatically over the last few decades and strict conservation measures are necessary to ensure the survival of these populations in Namibia, if not globally. African penguins, Cape gannets, Bank cormorants, African black oystercatchers and Damara terns are listed as “Specially Protected” birds in the draft Namibian Parks and Wildlife Bill.

The seals on the islands represent at present only a small proportion of the total population; during the latest aerial census (2006) only 20.1% of the pups born in Namibia were part of island colonies, while nearly 62% were on mainland sealing concessions. If maintained undisturbed on those islands these seal colonies, being space-limited, are therefore not expected to expand. However, despite their modest size those colonies constitute a reservoir of animals available for sealing at mainland sites (tagging studies have shown that a significant proportion of the bulls harvested at Cape Cross originated from several of the islands including Long Islands and Sinclair Island.

Out of 31 species of cetaceans occurring in Namibian waters, three species are relevant to the MPA proposal as they make use of the coastal waters for breeding (Southern right whale, Heaviside’s dolphin) or as a migratory corridor (humpback whale). The Southern right whale has become a flagship conservation species worldwide. In South Africa a small nucleus of breeding adults was discovered in the 1950s along the south coast. This local population has been monitored since the 1970s and is growing at an estimated rate of 7% per annum. At present about 200 calves are born there every year and the species is supporting a multi-million whale-watching tourism industry which has developed in the past decade. Recent aerial surveys (during 2003 to 2006) confirmed that the great majority of calving sites since 1996 are within the limits of NIMPA and since breeding female right whales show a high degree of philopatry to their calving sites, this area seems essential to the future of this tiny population. Since 1996, between 1 and 3 calves are known to have been born in Namibian waters every year.
Figure 9. General biodiversity trends as reflected by the analysis of the distribution of priority habitats for conservation (see Methodology for details). Priority areas have been grouped into three categories according to the number of target habitats present. The resolution of the map is 90 m.
Figure 10. Proposed MPA in relation to marine areas that are presently protected from specific activities through Fisheries regulation (Source: Currie et al. 2008).

3.4.2 Karas

3.4.2.1. Namibian Islands’ Marine Protected Area
The management goals and biodiversity characteristics of the NIMPA have been described in Chapter 3.4.1.2.
3.4.2.2. Namib Naukluft Park
The management goals and biodiversity characteristics of the Namib Naukluft Park have been described in Chapter 3.4.1.1.

3.4.2.3. Sperrgebiet National Park
The proclamation of the Sperrgebiet as a national park (SNP) follows a Cabinet decision that was made in 2004. The vision for the SNP is to protect, manage and sustainably develop the SNP within the context of the greater Succulent Karoo, Nama Karoo, Namib and Coastal ecosystems, to enhance conservation and socio-economic values for the region and nation and to place primary importance on the globally significant biodiversity and landscape values of the area. The Cabinet decision of 2004 to proclaim the SNP makes provision for the formation of the Park Advisory Committee (PAC) to handle co-management activities of the park. The PAC aims to bringing together stakeholders to provide advice and guidance for strategic direction and broad management issues of the SNP. In the SNP the following reasons make co-management for this PA a necessity:

- Although proclaimed as a national park, the area still remains as Diamond Area 1 under the Diamond Act with associated security and access control issues;
- As a national park, the area is to be opened up for controlled tourism activities, and the current security and access procedures need to reviewed for non-mining license areas and operationalised;
- Mining activities will still continue as well as major rehabilitation work undertaken by NAMDEB. Therefore, the 2003 Sperrgebiet Land Use Plan commissioned jointly by the Ministry of Mines and Energy, the Ministry of Lands and Resettlement and the MET, which formed the basis for the Cabinet submission for proclamation, recommends formation of an advisory body;
- The Government and NAMDEB is working towards proclaiming the Orange-mund Town as a fully fledged municipality;
- Other bordering towns such as Lüderitz, Aus and Rosh Pinah, as well as the Karas Regional Council have keen interests in ensuring that the park provide economic benefits to the Region;
- The Cabinet directs the MET to explore alternative means of financing essential park management and maintenance through revenues earned from tourism in the SNP.

As part of the Succulent Karoo ecosystem the Sperrgebiet is an area of global conservation significance, as this is the most diverse desert system in the world and is one of the world’s top 25 global biodiversity hotspots due to its extraordinary high number of plant endemics. The drafted management plan for the SNP uses a zonation based on IUCN criteria (Figure 11). The comprehensive plant censuses in the area undertaken by Burke have provided the scientific basis for the zonation. The complex geology and the unique geomorphological and climatological conditions have resulted in substrates which vary considerably across the Sperrgebiet. A number of vegetation zones have been identified, each with its unique characteristics and functions:

- The coastal zone;
- The central sand plains;
- Rocky outcrops and inselbergs;
- Lower Orange River zone.
Some 1,050 plants are known to occur in the SNP, nearly 25 percent of the entire flora of Namibia on less than three percent of the land area of the country. Based on numbers of endemic, red-listed and/or protected plant species the conservation importance of the various parts of the Sperrgebiet has been assessed. Areas rated as of ‘very high’ conservation importance in the coastal part include a number of vegetation types in the Lüderitz area, such as the Lüderitz Peninsula dwarf-scrubland, Kowisberge dwarf-scrublands and Grillental corridor scrubland. In addition, the inselberg and mountain shrublands found in the Klinghardt Mountains are also rated as of ‘very high’ conservation importance. Others that are of ‘very high’ conservation importance include the Orange River Valley shrubland.

The Orange River Mouth is a Ramsar site, and some 73 species of wetland birds have been recorded. The concentrations of hartlaub’s gull and damara terns are of international significance, and the area supports regionally important concentrations of black-necked grebe, lesser flamingo, chestnut-banded plover, curlew sandpiper, swift tern and caspian tern. The knowledge of the terrestrial bird fauna of the Sperrgebiet is far from complete. Endemic bird species include the dune lark, gray’s lark, barlow’s lark, karoo korhaan, southern gray tit and spotted prinia. Barlow’s lark is almost entirely restricted to the Sperrgebiet.

Although research in mammals, reptiles, amphibians and invertebrates in the Sperrgebiet has been limited it is known that the area also boasts some 80 terrestrial mammal species, almost 100 reptile species, 16 frog species and a great number of insects and other invertebrates.

Adding to this, the SNP offers extraordinary assets in terms of unique mineral deposits, history, archaeology, palaeontology, geology, geomorphology and landscapes.
Figure 11. The proposed zonation of the Sperrgebiet National Park (Source: MET 2007).
4 **SEA ASSESSMENT: IMPROVING NATURE CONSERVATION AND MANAGEMENT BY AREA**

4.1 **Introduction**

In this chapter, the spatial perspective is used to assess current biodiversity conservation and other relevant environmental management practices in particular priority areas. These priority areas are major management units in the coastal zones of the Karas and Hardap Regions. Key PPPs are again used as reference points for these units. These PPPs comprise national level policies and management plans, and local level land use and environmental management plans. The following areas are covered:

**Hardap Region**
- Namib Naukluft National Park
- Namibian Islands’ Marine Protected Area

**Karas Region**
- Namib Naukluft National Park
- Namibian Islands’ Marine Protected Area
- Sperrgebiet National Park

A discussion is provided on how interlinked impacts, pressures and threats to biodiversity are being managed, in their relation to development trends and opportunities. Recommendations for better policy, planning and management practices, including prevention and mitigation of negative environmental impacts, are provided for each priority area.

4.2 **Hardap Region**

4.2.1 **Namib Naukluft National Park**

The management goals and biodiversity characteristics of the coastal part of the Namib Naukluft Park in the Hardap region have been described in Chapter 3.4.1.1. Due to the lack of detailed zonation the existing management plan for the park renders limited options for development of alternative land uses. On the other hand, the lack of any infrastructure and nearby towns heavily constrains development on this part of the coast.

4.2.2 **The Meob Bay – Conception Bay Area**

As discussed in Chapter 3, the terrestrial part of the Hardap Region coastal area, which wholly falls within the protected area of the Namib Naukluft National Park, is characterised now by only the remnants of human settlement. The former mining camps of Holzsatia, Charlottenfelder and Grillenberger between Conception Bay and Meob Bay and the wreck of the Eduard Bohlen are on the route of the guided 4X4 excursions described previously. A successful attempt was made recently to restore a surf boat and the only remaining prefabricated hut at Meob Bay.\(^\text{100}\) Understandably, then, there is no PPP that

deals with or regulates urban development in the area. The land-use suitability models indicate no other presently suitable land use than ecotourism and this is focused along the Kuiseb river (Figure 12).

**Recommendations**

The NNP management plan needs to incorporate a more detailed zonation of the park in relation to potential land uses based on the specific sensitivities of habitats and species. To facilitate a detailed zonation of NNP into management zones following IUCN criteria the status of habitats and species needs to be updated. This assessment will add to this process. As seen in Figure 12 the modelled conservation priorities indicate patchiness in the distribution of biodiversity hot spots, - a situation which could potentially pave the way for opening up parts of the area for development. Surveys of large mammals in the Hardap part of the NNP have not been undertaken by MET recently, and censuses of the distribution of birds, reptiles, amphibians and insects in relation to landscape and habitat characteristics in the park would be most useful in this process.

As previously stated, owing to a complete lack of supporting infrastructure and services, the Hardap coastal area is not suitable for permanent human settlement or urban development, including that established for tourism purposes (e.g., a lodge). Access to the area is also only possible by 4X4 vehicle. The costs – and opportunity costs – of providing such infrastructure and services, including an access road/track of some kind, would be prohibitive, and cannot be encouraged. Temporary entry into the area in the form of the specialised guided self-drive tours led presently by four concessionaires should continue to be tightly monitored through the concession scheme, in view of the area’s sensitive biodiversity. Illegal entries, if in fact they are occurring, should be stopped. Impacts at the moment would appear manageable, but a close watch is required. In the longer term, ecotourism and conservation could both be strengthened by making the tours more affordable, and thereby removing the incentive for many of the illegal entries.

**4.2.3 Namibian Islands’ Marine Protected Area**

The management goals and biodiversity characteristics of the NIMPA have been described in Chapter 3.4.1.2. The southern part of the Hardap coast lies within the boundaries of NIMPA.

**Recommendations**

Feeding areas of seabirds in NIMPA should be identified and the boundaries modified accordingly.

Monitoring of key biodiversity elements should be established.
Figure 12. The modelled areas/habitats of conservation priority for the Namib Naukluft Park. The ranking of conservation priority follows Figure 9. Methodology, see Chapter 2.
Figure 13. The modelled suitable areas for eco-tourism (in green) for the Namib Naukluft Park. Methodology, see Chapter 2.
4.3 Karas Region

4.3.1 Namib Naukluft National Park

The management goals and biodiversity characteristics of the Namib Naukluft National Park have been described in Chapter 3.4.1.1. The development opportunities are heavily constrained by either lack of resolution in the knowledge of the distribution of biodiversity or lack of infrastructure and support from nearby towns. Figure 12 indicates enhanced conservation priority related to the eastern part of the coast and the large dunes in the central sand sea. The latter area is also highly suitable for ecotourism.

Recommendations

The NNP management plan needs to incorporate a more detailed zonation of the park in relation to potential land uses based on the specific sensitivities of habitats and species. To facilitate a detailed zonation of NNP into management zones following IUCN criteria the status of habitats and species needs to be updated. This assessment adds to this process. As seen in Figure 12 the modelled conservation priorities indicate patchiness in the distribution of biodiversity hot spots, a situation which could potentially pave the way for opening up parts of the area for development. Surveys of large mammals in the Hardap part of the NNP have not been undertaken by MET recently, and censuses of the distribution of birds, reptiles, amphibians and insects in relation to landscape and habitat characteristics in the park would be most useful in this process.

As previously stated, owing to a complete lack of supporting infrastructure and services, the Hardap coastal area is not suitable for permanent human settlement or urban development, including that established for tourism purposes (e.g., a lodge). Access to the area is also only possible by 4X4 vehicle. The costs – and opportunity costs – of providing such infrastructure and services, including an access road/track of some kind, would be prohibitive, and cannot be encouraged. Temporary entry into the area in the form of the specialised guided self-drive tours led presently by four concessionaires should continue to be tightly monitored through the concession scheme, in view of the area’s sensitive biodiversity. Illegal entries, if in fact they are occurring, should be stopped. Impacts at the moment would appear manageable, but a close watch is required.
Figure 14. The modelled areas/habitats of conservation priority for the Karas region. The ranking of conservation priority follows Figure 9. Methodology, see Chapter 2.
4.3.2 Namibian Islands’ Marine Protected Area

The management goals and biodiversity characteristics of the NIMPA have been described in Chapter 3.4.1.2. The northern and central parts of the Karas coast lies within the boundaries of NIMPA, and the major elements of biodiversity linked to islands and rocky shorelines are found in this region. As for the Namib-Naukluft Park the development opportunities are heavily constrained by either lack of resolution in biodiversity or lack of infrastructure and support from nearby towns. This is especially so near Lüderitz where the entire coastal area is classified as important.

Recommendations

SEA on offshore mining in the NIMPA should be undertaken especially in relation to sensitive organisms.

As mentioned under Hardap Region above, feeding areas for seabirds in NIMPA should be identified and the boundaries modified accordingly and monitoring of key biodiversity elements should be established.

4.3.3 Sperrgebiet National Park

The management goals and biodiversity characteristics of the Sperrgebiet have been described in Chapter 3.4.1.3. Even more than for the NNP and the NIMPA the lack of resolution in available biodiversity data is an environmental barrier to development in the Sperrgebiet. The zonation of the park has mainly been based on coarse-scale patterns of plant endemism which effectively classifies the entire region as sensitive. Our models of conservation priority indicate areas of reduced importance north and northeast of Oranjemund.

Recommendations

Knowledge on biodiversity trends for the non-botanical elements should be strengthened. Fine-scale patterns in sensitivity of biodiversity elements should be established near Oranjemund. Revision of the Sperrgebiet management plan is needed following targeted surveys on mammals, bird and reptiles.

Culling continues to be a significant control measure for the seal population. The culling of young seals and pups do provide international protesters with “ammunition” for anti-namibian information/propaganda. Stricter control and limitation to adult seals only may help avoiding the worst impacts on tourism industry.

Along the coast of the Sperrgebiet the diamond mining has created an artificial coastal landscape of sea walls and coastal ponds, which is relying on maintenance and repair works. It is recommended to allow the coastline to reshape into its natural profile, if feasible. A monitoring programme is recommended in order to detect negative temporary effects from the dispersal and deposition of sea wall sediments on coastal habitats.
4.3.4 **Lüderitz**

Land use and urban development within the area under the jurisdiction of the Lüderitz Town Council are subject to both policy and regulatory practices. As per the Town Planning Ordinance of 1954, Lüderitz has an approved Town Planning Scheme in place: The Lüderitz Town Planning Amendment Scheme No. 5 of October 2002. The broad directions for land use development and management are guided by policy in the form of the Lüderitz Land Use Plan of 2004.

The goal of the land use policy is “To guide the Lüderitz Town council with the allocation of land for different land uses in a harmonious manner to ensure the sustainable development of Lüderitz.”\(^{101}\) Objectives are then stated as:

- To enhance the character of the town
- To ensure that the public has access to the sea and that all seafront does not become private property
- Assist the Town Council to be proactive with the release of land for development
- Ensure that environmental sensitive areas and areas of historical value are preserved
- Ensured that Lüderitz is developed in a harmonious way
- To ensure that land is reserved for upcoming industries, such as aquaculture.\(^{102}\)

The disposition of future land uses is then proposed to be based on a number of development principles:

- Principle 1: Lüderitz has to **diversify its economy**. The development of the different economic sectors is thus of equal importance
- Principle 2: The general public is entitled to **free access to certain portions** along the sea for recreational purposes on condition that the environment is respected and utilised in a **sustainable manner**
- Principle 3: Lüderitz is amongst others a **tourist attraction**. In order to remain a tourist destination, future developers should respect and enhance the existing character of the buildings and the timeless qualities of the town. The historical buildings of the town should be respected.
- Principle 4: The **privatisation of land in Lüderitz is to be handled with care**, due to the high costs related to the servicing of land.
- Principle 5: Future development should also strive to **enhance development potential** in the existing built-up area.

\(^{101}\) Lüderitz Land Use Plan of 2004, op cit, p. 1.
\(^{102}\) Ibid
Principle 6: Due to the high costs related to the provision of serviced properties, **densification and the development of undeveloped land should be encouraged**, but not to the detriment of urban quality. As a result, the development of public space is becoming a priority.  

The guiding principles are then applied to the different land components of the Lüderitz area – i.e., Lüderitz surroundings, including the Peninsula and the coastal areas north and south of the town; the inland area; and the Lüderitz town area itself. With regard to the “urban coastal area,” broadly defined as the area reaching some 500 m inland from the high water mark within the built-up area of the town and its surroundings, there is a strong emphasis on access to the coast for residents and tourists and the provision of public space:

“The Lüderitz Town Council is the only institution that can assure that the general public of Lüderitz, who are actually the owners of all Council land, have access to certain high value land portions, which include land along the sea.”

Although Council is under pressure from property developers to privatise the three public open spaces along the seafront, these properties have to remain public land. The development of public facilities and infrastructure, such as walkways and seating facilities by the Lüderitz Town Council should be encouraged.

This emphasis is also carried through in the Town Planning Scheme’s zoning and development controls. A Waterfront zone is identified and illustrated in parts of the urban coastal area, as defined above. The Council is to determine all conditions with regard to parking, height, bulk, coverage, building lines, basements and projections, and may request inputs from the general public before approval of the building plans of any proposed development.

This policy and regulatory system appears adequate to guide, control and manage land use development in the Lüderitz coastal area, particularly that of the town. The system is strengthened by application of the national EIA policy as required; a full-scale environmental management plan has not been developed. Lüderitz does face current and future challenges in terms of accommodating and balancing very different and potentially conflicting industrial, port, residential, and recreational, leisure and tourism-oriented land uses in close proximity to one another in its coastal area. The challenge is sharpened by current economic conditions, and the need to promote the variety of economic development prospects mentioned earlier, all of which will consume land.

There are also perhaps under-noticed opportunities: the combination of maritime, industrial and recreational uses in a confined and visually striking area is unusual and attractive. The proclamations of the SNP and the NIMPA now confirm Lüderitz’s role as a gateway to both protected areas. Taking particular advantage of unused space on the

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103 Ibid, p. 6.
106 An EIA has been in progress to assess prospective developments in the largely undeveloped coastal area to the north of the town, with emphasis on a public recreation/leisure complex in Agate Beach, and future industrial developments. The study was nearing completion in late 2008, but despite repeated requests to its authors has not as yet been made available to this consultant.
waterfront, the right heritage-type tourism opportunities need to be developed in relation to tourism plans for the SNP in particular, i.e., in regional context. Adding to this, the core of the old town with its historical buildings might be pursued as a Section 54 Conservation Area under the National Heritage Act, similar to what has happened in Swakopmund. If this is done, the economic future of Lüderitz – and the Diamond Coast generally – could look a lot more promising. If the right things are done, it is not outside the realms of possibility that the town could one day be ranked in the same league as the historical coastal tourism towns on the western and eastern coasts of Africa, such as Elmina in Ghana, and Zanzibar.

Given the geographical location and the existing port developments in Walvis Bay, Lüderitz should maintain its local presence as an important fishing, mining/energy supply and minor import/export port, but not pursue investment of heavy upgrades in container or bulk terminals beyond those required to supply the mining industry, e.g. the Skorpion Zinc Mine.

The utilization of the clean sheltered waters should be maximized for aquaculture purposes and tourism development such as sailing, kiting, fishing and whale watching.

With increased traffic in the port one it may be considered appropriate to develop MARPOL Reception facilities in Lüderitz for waste and sewage, since aquaculture in close proximity to the port is sensitive to occurrence of sewage related contamination and to littering with plastic etc.

To strengthen tourism potential angling areas around Lüderitz, tour boat operation, whale watching, rock lobster catching and other recreational activities should be encouraged and developed. The modelling of the suitability for ecotourism shows large potentials east and north of Lüderitz, and in general a larger potential than near Oranjemund (Figure 16).

**Oranjemund**

OTM Co. has made good progress in establishing the basic regulatory framework for land use development for what is to become a proclaimed town, with the surveying of the town, and submission to and approval by the Surveyor-General of two plans which zone the town itself, and sub-divide the townlands into 16 portions. To facilitate future expansion, seven extensions have been proposed. As of December 2008, four extensions had been submitted and two approved. Oranjemund does not have a land use policy or structure plan which is applicable at this time. The settlement’s urban coastal area is limited: there is sea/beach frontage of about only 500 m, and also a stretch of territory facing the Orange River and thus the still disputed border with South Africa, which lies at the high water mark on the northern bank of the river, with the majority of the Ramsar site therefore in South Africa. The current initial planning framework established thus appears adequate – for now.

Proposals for aquaculture in the ponds near Oranjemund must be revisited with a view to maintenance costs of the sea walls.
Recommendations

The Karas Region coastal towns face a dire economic situation. Stakeholders in Lüderitz, with the town council, need to re-examine and re-confirm land use planning policies and regulations in the light of a fuller understanding of and discussion on proposed and upcoming economic development opportunities. An environmental management plan for the town also requires attention and integration within the planning system.

The harsh economic situation confronting Oranjemund at present means the town unfortunately must deal with the possibility of contraction rather than immediate expansion. While preparing for the proclamation, it would be advisable for existing land use and economic development plans to be quickly coordinated, finalised and disseminated in order to allow remaining residents and prospective investors the certainty which is now lacking on the position of the future town council with regard to development opportunities. Compilation of an environmental management plan is also indicated.

Opportunities for both towns urgently need to be viewed in regional context, and linked, in particular, to the planning for the SNP, the finalisation of which should also be accelerated and made concrete and implementable, rather than existing in a notional and theoretical state. To assist this, it is recommended that a Diamond Coast Spatial Development Framework (SDF) be developed. This SDF should use existing local land use plans, the Sperrgebiet Land Use Plan, and the SNP plans as a basis for providing a framework to guide land uses – and the accompanying urban and infrastructural development required – on the scale of the southern Namibia region. Such a SDF can serve as a tool to integrate social and economic development planning with spatial planning, and thus permit regional-level development opportunities to be taken, which is essential for a better future for the Diamond Coast.
Figure 16. The modelled suitable areas for eco-tourism (in green) for the Sperrgebiet. Methodology, see Chapter 2.
5 CONCLUSIONS AND RECOMMENDATIONS

5.1 General

It is the intention that through the parallel analyses of coastal policies and land use suitability this Strategic Environmental Assessment will provide the regional councils, town managements and other stakeholders with a broad strategic framework needed for improving both planning and management of the coastal regions of Karas and Hardap. By offering an integrated high-resolution assessment of development opportunities and conservation targets the SEA should be viewed as an instrument by which the local and regional authorities may take the first steps to enrich the currently inefficient sectoral-based management with integrated and ecosystem-based management, particularly in the planning stages. In that sense, the SEA and the associated Coastal Decision Support Tool (see Chapter 5.3), in concert with the various other outputs from NACOMA, will help in founding a shared strategic perspective on the economic, social and environmental interactions involved in the sustainable development of the Karas and Hardap coastal regions, and of the adjustments, compromises and trade-offs that need to be made to assure better coastal planning and management in the short and medium term.

To be able to use ecosystem-based management as a vehicle to capture the new opportunities spawned by the decentralisation process and increased economic activity on the coast, existing institutional and legal frameworks also need to be updated. When enacted, the draft Urban and Regional Planning Bill will also result in the emergence of a more integrated, coordinated and effective system of land use planning, development and control in Namibia in general, and on the coast in particular.

The biodiversity assets of Karas and Hardap coastal regions are recognised globally as exceptional, and the protection of the unique landscapes, palaeontology, archaeology, flora and fauna of these coastal regions has a high priority on the political agenda at all levels. The entire terrestrial parts of the coastal regions fall within Namibia’s two largest protected areas; the Namib-Naukluft Park (NNP), proclaimed in 1907, and the newly proclaimed Sperrgebiet National Park (SNP). The eastern extreme of the Namibian Islands MPA (NIMPA) covers the coastal strip adjacent to the NNP (From Meob Bay southwards) and SNP (southwards until Chamais Bay). New management goals are being set for NNP, as the current management plan is unclear as to which biodiversity elements constitute the focus for strict protection and which elements are the focus of more wide-scale habitat conservation action due to their widespread occurrence or lower susceptibility to human activities. For the SNP and the NIMPA the vision is to implement a modern framework for integrated management and conservation based on a zoning system according to IUCN criteria.

The ten-year strategic plan of action for biodiversity conservation, Namibia’s Biodiversity Strategy and Action Plan (NBSAP), provides for the implementation of article 95:1 of the Namibian Constitution and the Convention on Biological Diversity (CBD) and offers MET the legal mechanisms for achieving the goal of developing management plans for the coastal parks. The current work on developing management plans for the NNP and SNP should be seen as important benchmarks for MET in the implementation of the NBSAP. Compared to this work the SEA for the southern Namibian coast only adds limited guidance to the zonation of the parks into areas of different sensitivity and
importance as a basis for identifying core areas for conservation. However, by using the same habitat-based approach, which was applied for the SEA of the northern coast, this SEA will ensure the production of a comparable determination of priority areas for conservation along the entire Namibian coastline following a standardised methodology. The added information reflected by the SEA is particularly important in relation to trends in the NNP and for the non-botanical features of the SNP.

More importantly as guidance to zonation of the parks the potential areas for sustainable development identified by the SEA uses the habitat-based classification of conservation priorities to achieve a holistic solution for all parts of the coast. The identified areas with low conservation priority have the highest potential for development, although in many cases the assessment of land-use suitability proved sites to be sub-optimal for development due to physical, infrastructure or other constraints. All developments in protected areas are required to prepare an Environmental Impact Assessment. The new Environmental Management Act and GRN’s Policy for Prospecting and Mining in Protected Areas and National Monuments provide for the legal basis for development of concessions within the parks.

Due to the enormous biodiversity assets of the coastal regions of Karas and Hardap and the sensitive ecosystems they support, the largest development potential is related to the tourism industry. Although tourism land use patterns cannot currently be separated into the various types of tourism activities undertaken on the coast, it is clear that low-impact adventure and wildlife tourism (eco-tourism) can be widely applied in Karas and developed hand-in-hand with the conservation of biodiversity hot spots. In terms of competition with other destinations – both domestic and international and even regional – preservation of the extraordinary conditions of the coastal environment in Karas might give the industry a competitive edge. In Hardap, due to physical constraints and the resulting lack of necessary infrastructures on the coast, the development potential for eco-tourism is considerably less than in Karas.

However, due to the fact that tourist policy and plan making are lagging behind both at regional and local levels, a current strategy and a support programme for both conventional and eco-tourism are urgently needed to boost the sector in Karas and Hardap. Local governments, at times working together, are enabling the activities of a resurgent private sector. But coordination between stakeholders seems poor, and there is little shared understanding of how coastal tourism has shifted its target markets, adapted its products, and moved forward. Up to date information to back up such an understanding is lacking. In this situation, there is a danger that environmental planning and management receives only lip service, and the resources on which coastal tourism depends are degraded. The need to strengthen the basis for capitalising on the potential win-win development scenario between eco-tourism and nature conservation on the coast is closely linked to the need to strengthen the power of MET relative to other line ministries and to align tourism development on the coast with the MET Concessions Policy. The full use of the tourism potential in the coastal areas will also depend on the implementation of the Neighbours and Residents Policy, as tourism is currently growing in inland escarpment areas outside the coastal zone.

Compared to eco-tourism, other land uses, including traditional ‘high-impact’ tourism, possess a significantly smaller development potential in the two coastal regions. In spite
of the lower potential, sustainable development is possible to achieve for all land uses by adopting the following environmental standards for land use development in pristine and sensitive environments:

- Avoidance of the most sensitive areas identified on the basis of a detailed baseline, in which habitat sensitivity in focal areas for land use development is mapped or modelled prior to environmental impact studies. The SEA provides guidance on the general location of hot spots of biodiversity, and may be used as basis for designing more detailed studies of the sensitivity of the areas in relation to various development projects;

- International standard environmental impact studies coupled to careful mitigation which secures the application of effective response mechanisms, which can then allow developments to proceed in close proximity to important and sensitive habitats. In cases where significant impacts cannot be avoided, changes to the planned development must take place. In cases where impacts of minor or moderate scale are estimated, careful mitigation measures must be set up and the residual impact following implementation of mitigation must be estimated. Assessments of single project as well as cumulative impacts of a planned project together with all other existing human activities must be included.

- Comprehensive environmental monitoring and management, which secures that the level of control necessary to assure authorities and NGOs of compliance with environmental quality objectives for development in proximity to sensitive habitats, requires quantifiable compliance targets. Of equal importance are effective and rapid response mechanisms, to allow feedback of monitoring results into compliance targets and work methods.

The southern Namibian coast is sparsely populated and geographically isolated. As stated in the Vision 2030 sub-vision on urbanisation there is a growing need for Namibia’s secondary cities like Lüderitz and Oranjemund to play a bigger part in absorbing urban development than they do today, when Windhoek is hosting the major urban growth. Accordingly, the need for better urban policy, planning and management to accommodate urban growth is likely to become a more urgent imperative in the future. The Hardap Region can feature no urban development at all on its 150 km long coastline. The region’s population was 68,249, according to the Population and Housing Census of 2001. Nobody actually lives on the coast, which falls completely within the Namib Naukluft National Park, and which is characterised now by only the barest traces of human settlement in the form of a number of deserted former mining and fishing camps between Conception Bay and Meob Bay: Holsatia, Charlottenfelder and Grillenberger.

The Karas coastal area is unusual in that it has always effectively been a closed coast, mostly falling within the restricted Sperrgebiet diamond mining zone. Between 40 and 50 percent of its 2001 population of 69,677 were living in and around the small coastal towns of Lüderitz and Oranjemund. Overall, the two coastal towns are remote and not easy to reach: Lüderitz is served by the good national B4 road but is 335 km from a junction with the main south-north B1 route at Keetmanshoop, and Oranjemund’s road access is strictly controlled, with the only official route via Alexander Bay just across the Orange River in South Africa. Small airports in both towns allow daily flights to Cape Town and Windhoek. Principal challenges for stakeholders lie in mediating be-
tween and finding solutions to differences of opinion on land use and sometimes outright conflicts. Urbanisation pressures do exist but largely only in the Lüderitz area. Oranjemund faces a different challenge: of becoming a ‘normal’ town, after decades as a restricted and closed industrial settlement, isolated and not used to social and economic trends or conditions.

Regional development plans (RDPs) for each of Namibia’s regions for the period 2001/2002 – 2005/2006, these including at least in principle the consideration of urban development, were produced under the auspices of the NPC in 2000. Only limited aspects of the RDPs in Hardap and Karas have therefore actually been carried through to implementation. In both of them, urban issues are touched upon but urban development, unlike rural development, is not treated in sub-sectoral terms. In consequence of its protected status, lack of population and inaccessibility, the coastal zone of Hardap does not feature at all within the Hardap RDP proposals for improvement of infrastructure services, and, more specifically, urban services, land use planning and housing. While the RDP promotes the upgrading of urban services and improvement of housing, there is no specific emphasis on the two coastal towns, apart from the intention to upgrade informal settlements in Lüderitz. The RDP also contains no real consideration of urban environmental management.

Neither Lüderitz nor Oranjemund have town planners or urban environmental planners. Economic development policies or plans are not formally in place for both Lüderitz and Oranjemund. Under the Town Planning Ordinance, Lüderitz has complied with the ordinance and has a published scheme, while the Oranjemund Town Management Committee (OTM Co.) has drafted two land use plans and approved by the Surveyor-General. These could be seen to approximate a Town Planning Scheme. Under the coming Urban and Regional Planning Bill, the schemes will be transformed into Structure Plans. Lüderitz does not have a Structure Plan as such, but has in place a Land Use Plan (2004). Oranjemund has as yet no published plan or strategy for the broader disposition of its land resources. The Lüderitz Town Council has been promoting sustainable development, encouraging tourism, developing infrastructure and create a conducive environment for investors. The town council intends to provide serviced land and infrastructure, as necessary, for a number of mooted investments, which raise the issue of how to accommodate very different land uses – heavy industrial, port, mariculture leisure and recreation, and tourism – in the sensitive Lüderitz coastal zone, and further, within the town’s attractive urban context which has much greater potential for heritage and maritime/mining/industrial history-related tourism than is realised.

In Oranjemund, OTM Co, in preparation for proclamation and the granting of town status, has commissioned several studies on the potential economic future oriented on opportunities for private sector investors. However, as a result of global recession mining operations are now in crisis. The price of diamonds on world markets has dropped precipitously. Namdeb, which was effectively bailed out by its two shareholders, De Beers and GRN, which underwrote bank guarantees in December 2008, has, in turn, cut production, laid off staff, first some 800 of approximately 3,000 employees, with a further 600 voluntary retrenchments proposed – and, most recently in early 2009 mothballed the mine for a three month period. Oranjemund thus faces a most difficult period in the short term, as its population diminishes as former employees leave the town (residence is tied to employment contract). In longer-term perspective, the current economic situation compounds the difficulties of ‘normalisation,’ already not a simple
matter given uncertainties over the future and the town’s isolation and insularity as a result of the company town regime of the past 75 years.

The location of the nearby areas of conservation priority Namib Naukluft Park, the Sperrgebiet National Park and the Namibian Islands Marine Protected Area severely constrain the suitability for spreading urban land use beyond areas currently allocated to residential, beach resort and industrial establishments. However, even facing these constraints Lüderitz and Oranjemund can develop an improved basis for spatial planning and management, by observing high standards of strategic and impact assessment and by developing detailed tourism plans.

Despite the financial crisis the mining industry is a major factor in the present economy of Karas. In order to improve planning of the extraction of minerals and avoid unsustainable development of the industry on the coast the environmental standards for land use development in pristine and sensitive environments must be observed. Contrary to the situation in many other countries Namibia’s parks are not strictly protected, and allow the exploitation of minerals, oil and gas. The provisions of the Prospecting and Mining Act of 1992 gives MME the right to issue licenses in the Park, since the development of mining is considered crucial to the Namibian economy. However, MME has always emphasised proper environmental operation of prospecting and mining in the licensing procedures and the policy envisages controlled prospecting and mining in these areas under conditions that satisfy the protection of the environment.

It is particularly important to continue to ensure liaison with MET at an early stage of prospecting for mineral extraction in the protected areas and national monuments. For each licence awarded, MME and the MET must agree with the licensee on the scope of the prospecting in terms of volume of soil/sand removed. Larger amounts may only be removed after exemption or renewed application and permit. A new Bill is being prepared which introduces requirements for financial guarantees for reparation of environmental damage and the setting up of trust funds for rehabilitation after mine closure. This may provide leverage for the enforcement of rehabilitation. The environmental monitoring of mining activities which is carried out by the Division of Engineering and Environmental Geology of MME provides for an important environmental control of potentially adverse impacts like excessive water supply, dust emission and pollution of surface- as well as groundwater.

The government approved the National Water Policy in 2001. The policy is based on the foundation that water resources and their use and management are part of the national economic and social development framework and therefore should be fully integrated therein. It views water as being essential in the human life process, food production and agriculture, industry and the ecosystems of the natural environment. The management of the water resources should balance the allocation effectively between these various uses and users. The policy adopts a cost-effective approach to the pricing of water as a mechanism for its conservation. The prices charged will take into account the financial cost of water, its opportunity cost and the consequences of environmental degradation.

Aquaculture (fish and seafood) has gained considerable interest in Namibia over the last few years. The National Development Plan (NDP 2) calls for the promotion of aquaculture activities and the national policy paper Vision 2030 foresees a thriving aquaculture
industry. Since 2003, the Aquaculture Act has provided a legislative context, and the policy paper Towards the Responsible Development of Aquaculture (2001) and the Aquaculture Strategy (2004) were developed to address the development of a sustainable aquaculture sector. The Lüderitz Bucht boasts a number of aquaculture facilities and is well suited to accommodate aquaculture due to the relatively protected environment. Recently, a detailed plan for development of the sector also covering the Karas Region was submitted, which proposes the construction of an Aqua Park facility at each of the coastal towns: Lüderitz (second lagoon) and Henties Bay Mile 4 and/or Mile 17 (Swakopmund). Only the former is in the SEA area for Hardap and Karas. The developments in Lüderitz were suggested as 10 companies to produce shrimp, finfish and abalones, but kelp production is often also proposed when aquaculture is considered in Lüderitz since natural conditions and local expertise are available. However, the development of the industry still remains to reach these levels of viable commercial companies. The development of aquaculture in Mining Area 1 is attractive from a remediation and job creation point of view. Several proposals for using the coastal ponds have been brought forward. However, the effort required to maintain the sea walls and the water quality in ponds for food production must be included in feasibility studies of pond aquaculture.

5.2 Specific

5.2.1 Hardap

Namib Naukluft Park

The entire terrestrial coastal environment of the Hardap region falls within the Namib Naukluft Park (NNP), while the inshore zone from Meob Bay and southwards forms part of the Namibian Islands Marine Protected Area. Despite ambitious goals the management of Namib Naukluft Park has not been updated since 2004, and no detailed zonation of the park has been undertaken on the basis of assessments of the different levels of sensitivity in species and habitats towards human activities. Due to the lack of detailed zonation the existing management plan for the park renders limited options for development of alternative land uses. The development opportunities are heavily constrained by either lack of resolution in the knowledge of the distribution of biodiversity or lack of infrastructure and support from nearby towns.

Equally important, assessments of spatial trends in importance of different areas within this huge park are still lacking. Our assessment of trends in the conservation potential of habitats within the NNP indicates that the largest continuous area of high conservation priority is found in the northernmost part of the region along the Kuiseb river. The special status of the Kuiseb river was also recognized in the management plan. The steep coastal slopes from Sandwich Harbour to Conception Bay and from Meob Bay to Black Rock have higher conservation potential than the neighbouring coastal stretches, and the steepest parts of the sand sea also hold a larger conservation and ecotourism potential as compared to the general area of sand dunes. The NNP management plan mentions the salt pans between Conception Bay and Meob Bay as a sensitive area, but does not provide any detailed background information for this. Although the number of identified priority habitats in the NNP is modest and the density of larger terrestrial animals is low in the coastal part the Namib Desert contains a suite of uniquely adapted
organisms of which a relatively high number are endemics. The management plan stresses that these organisms form the focus of the management of the park, yet no actions have yet been taken to monitor the status of the endemics of the Namib Desert in the various parts of the sand sea, including the coastal zone. Historically, opportunistic movements of large herds of herbivores took place into the area which today is covered by the NNP. These movements are now much reduced in volume and extent due to the fence along the eastern boundary of the NNP. Although these movements probably mainly reached the coastal zone via the Kuiseb Delta, the presence of the eastern fence has also affected the frequency of occurrence of mammals in the coastal zone.

The terrestrial part of the Hardap Region coastal area, which wholly falls within the protected area of the Namib Naukluft National Park, is characterised now by only the remnants of human settlements. The former mining camps of Holsatia, Charlottenfelder and Grillenberger between Conception Bay and Meob Bay and the wreck of the Eduard Bohlen are on the route of frequent, guided 4X4 excursions. A successful attempt was made recently to restore a surf boat and the only remaining prefabricated hut at Meob Bay. No plans exist which deal with or regulate urban development in the area. The land-use suitability models indicate no other presently suitable land use than ecotourism.

NIMPA

The Namibian Islands’ Marine Protected Area (NIMPA) was proclaimed in February 2009, following approval by Cabinet on 2 September 2008, and finally launched in July 2009 as the first Namibian MPA following the new global framework for marine habitat protection as a means to promote sustainable marine resource use and marine biodiversity conservation. Sustainable marine resource use through MPAs is facilitated managing the components of marine ecosystems that are not protected by traditional fisheries management, i.e. important spawning and nursery grounds for fish and other marine resources (such as rock lobster), as well as sensitive ecosystems and breeding areas for seabirds and marine mammals.

The proposed MPA area comprises the coastal strip in the south-west of Namibia’s marine waters, extending from Hollamsbird Island, the northernmost island, to Sinclair Island in the south, spanning approximately three degrees of latitude and an average width of 30 km. This includes 11 specified offshore islands and islets, as well as a number of rocks, which are key biodiversity foci. The suggested management plan for the MPA is based on the IUCN zonation criteria. The IUCN category VI Managed Resource Protected Area is recommended for the broader buffer zone of the proposed MPA, so that existing fisheries, aquaculture activities and mining activities should not be adversely affected through MPA promulgation. The total MPA area, also referred to as the buffer zone, has been further sub-zoned into four degrees of incremental protection. Zone 1 contains the most general (conservation measure) conditions applicable to all islands, islets and rocks throughout the buffer zone, whereas Zone 4 represents the highest protection status with specific conditions assigned individually to each island, islet or rock, as well as to rock lobster sanctuaries and a proposed line fish sanctuary.
5.2.2 Karas Namib Naukluft Park

The management goals, biodiversity characteristics and development potentials of the Namib Naukluft Park are described under Hardap above.

NIMPA

The management goals and biodiversity characteristics of the NIMPA are also described under Hardap above. The northern and central parts of the Karas coast lies within the boundaries of NIMPA, and the major elements of biodiversity linked to islands and rocky shorelines are found in this region. As for the Namib-Naukluft Park the development opportunities are heavily constrained by either lack of resolution in biodiversity or lack of infrastructure and support from nearby towns. This is especially the case near Lüderitz where the entire coastal area is classified as important.

Sperrgebiet

The proclamation of the Sperrgebiet as a national park (SNP) follows a Cabinet decision that was made in 2004. The vision for the SNP is to protect, manage and sustainably develop the SNP within the context of the greater Succulent Karoo, Nama Karoo, Namib and Coastal ecosystems, to enhance conservation and socio-economic values for the region and nation and to place primary importance on the globally significant biodiversity and landscape values of the area. The Cabinet decision of 2004 to proclaim the SNP makes provision for the formation of the Park Advisory Committee (PAC) to handle co-management activities of the park. The PAC aims to bringing together stakeholders to provide advice and guidance for strategic direction and broad management issues of the SNP. As part of the Succulent Karoo ecosystem the Sperrgebiet is an area of global conservation significance, as this is the most diverse desert system in the world and is one of the world’s top 25 global biodiversity hotspots due to its extraordinary high number of plant endemics. The drafted management plan for the SNP uses a zonation based on IUCN criteria.

Even more than for the NNP and the NIMPA the lack of resolution in available biodiversity data is an environmental barrier to development in the Sperrgebiet. The zonation of the park has mainly been based on coarse-scale patterns of plant endemism which effectively classifies the entire region as sensitive. Our models of conservation priority indicate areas of reduced importance north and northeast of Oranjemund.

The Orange River Mouth is a Ramsar site, and some 73 species of wetland birds have been recorded. The concentrations of hartlaub’s gull and damara terns are of international significance, and the area supports regionally important concentrations of several species. The knowledge of the terrestrial bird fauna of the Sperrgebiet is far from complete, but includes several endemic bird species. Although research in mammals, reptiles, amphibians and invertebrates in the Sperrgebiet has been limited it is known that the area also boasts some 80 terrestrial mammal species, almost 100 reptile species, 16 frog species and a great number of insects and other invertebrates.
Lüderitz

Land use and urban development within the area under the jurisdiction of the Lüderitz Town Council are subject to both policy and regulatory practices. As per the Town Planning Ordinance of 1954, Lüderitz has an approved Town Planning Scheme in place: The Lüderitz Town Planning Amendment Scheme No. 5 of October 2002. The broad directions for land use development and management are guided by policy in the form of the Lüderitz Land Use Plan of 2004. According to the Plan the disposition of future land uses is proposed to be based on a number of development principles. The guiding principles are then applied to the different land components of the Lüderitz area – i.e., Lüderitz surroundings, including the Peninsula and the coastal areas north and south of the town; the inland area; and the Lüderitz town area itself. With regard to the “urban coastal area,” broadly defined as the area reaching some 500 m inland from the high water mark within the built-up area of the town and its surroundings, there is a strong emphasis on access to the coast for residents and tourists and the provision of public space.

The Lüderitz Town Council is the only institution that can assure that the general public of Lüderitz, who are actually the owners of all Council land, have access to certain high value land portions, which include land along the sea. Although Council is under pressure from property developers to privatise the three public open spaces along the seafront, these properties have to remain public land. This emphasis is also carried through in the Town Planning Scheme’s zoning and development controls. A Waterfront zone is identified and illustrated in parts of the urban coastal area. This policy and regulatory system appears adequate to guide, control and manage land use development in the Lüderitz coastal area, particularly that of the town. The system is strengthened by application of national EIA policy as required; a full-scale environmental management plan has however not been developed as yet. Lüderitz does face current and future challenges in terms of accommodating and balancing very different and potentially conflicting industrial, port, residential, and recreational, leisure and tourism-oriented land uses in close proximity to one another in its coastal area. The challenge is sharpened by current economic conditions, and the need to promote the variety of economic development prospects.

There are also perhaps under-noticed opportunities: the combination of maritime, industrial and recreational uses in a confined and visually striking area is unusual and attractive. The proclamations of the SNP and the NIMPA now confirm Lüderitz’s role as a gateway to both protected areas. Taking particular advantage of unused space on the waterfront, the right heritage-type tourism opportunities need to be developed in relation to tourism plans for the SNP in particular, i.e., in regional context. If this is done, the economic future of Lüderitz – and the Diamond Coast generally – could look a lot more promising. Adding to this, the core of the old town with its historical buildings might be pursued as a Section 54 Conservation Area under the National Heritage Act, similar to what has happened in Swakopmund. If this is done, the economic future of Lüderitz – and the Diamond Coast generally – could look a lot more promising. If the right things are done, it is not outside the realms of possibility that the town could one day be ranked in the same league as the historical coastal tourism towns on the western and eastern coasts of Africa, such as Elmina in Ghana, and Zanzibar.

Given the geographical location and the existing port developments in Walvis Bay, Lüderitz should maintain its local presence as an important fishing, mining/energy sup-
ply and minor import/export port, but not pursue investment heavy upgrades in container or bulk terminals beyond those required to supply the mining industry. The utilization of the clean sheltered waters should be maximized for aquaculture purposes and tourism development such as sailing, kiting, fishing and whale watching.

With increased traffic in the port it may be considered appropriate to develop MARPOL Reception facilities in Lüderitz for waste and sewage, since aquaculture in close proximity to the port is sensitive to occurrence of sewage related contamination and to littering with plastic. To strengthen tourism potential, angling areas around Lüderitz, tour boat operation, whale watching, rock lobster catching and other recreational activities should be encouraged and developed. The modelling of the suitability for ecotourism shows large potentials east and north of Lüderitz – in general a larger potential than near Oranjemund.

**Oranjemund**

OTM Co. has made good progress in establishing the basic regulatory framework for land use development for what is to become a proclaimed town, with the surveying of the town, and submission to and approval by the Surveyor-General of two plans which zone the town itself, and sub-divide the townlands into 16 portions. To facilitate future expansion, seven extensions have been proposed. As of December 2008, four extensions had been submitted and two approved. Oranjemund does not have a land use policy or structure plan which is applicable at this time. The settlement’s urban coastal area is limited: there is sea/beach frontage of about only 500 m, and also a stretch of territory facing the Orange River and thus the still disputed border with South Africa, which lies at the high water mark on the northern bank of the river, with the majority of the Ramsar site therefore in South Africa. The current initial planning framework established thus appears adequate – for now.

Proposals for aquaculture in the ponds near Oranjemund must be revisited with a view to water quality and maintenance costs of the sea walls.

### 5.3 *The SEA Decision Support Tool (DST)*

The SEA report and Appendices provide a principal output of the NACOMA Strategic Environmental Assessment for the Hardap and Karas regions. The other output is the SEA Decision Support Tool (DST), which offers a map-based documentation of the results of the modelled land use suitability, including the analyses of spatial trends in biodiversity. Accordingly, the SEA report and DST should be used together to interpret the background for the conclusions and recommendations given. An important usage of the DST in relation to spatial planning of future developments is the possibility to compare the suitability of an area for different and potentially competing land uses.

The DST does not offer any decisions, but rather comprises a user-friendly map in high resolution of the suitability of each land use evaluated on the basis of multi-criteria evaluations of economic, social and environmental issues. Another important usage of the DST is related to the screening phase of single or multiple projects in which the end user will be able to import his or her own GIS project data to explore various develop-
ment scenarios against the modelled land use suitability data, the high-resolution back-
drop of seamless landscape and topographic maps as well as against all available back-
ground information to the SEA project.

The DST is organised into five types of themes:

1. Current land uses, including existing protected area system;
2. Extent of area with exploitable resources
3. Spatial description of regional development plans;
4. Modelled priority areas for conservation of biodiversity and sensitive areas;
5. Modelled land use suitability on the basis of themes 1-4 and eco-physical factors
describing the acceptance criteria in terms of physical characteristics for the
suitability of each land use.

Apart from these themes the DST hosts a range of background data, including roads,
rivers, municipal infrastructures and administration zones, as well as all individual data
sets on the geo-physics and biodiversity of Hardap and Karas coastal regions which
were made available to the SEA (see Appendix I for details). The land uses considered
are: urban, hydrocarbon and mineral extraction, port, coastal resort, agriculture, land-
based fish farming, marine fish farming, eco-tourism, beach recreation and conventional
tourism and desert recreation and tourism.

In the short term, the DST is available as a CD-ROM with two applications: one is a
cluster of pdf files with results of the suitability maps for each land use type and the
other is a collection of GIS files, encompassing all major results and background files,
which can be viewed in ArcGIS, ArcView 3.2 as well as in the freeware ArcExplorer.
The CD-ROM also contains the SEA Final Report and a manual for using the maps in
ArcView/ArcExplorer. The collection of GIS maps with ArcExplorer will make it pos-
sible for the local user to add his/her own project data. In the long term the DST may be
set up as a server-based web-application with the Ministry of Environment’s (MET)
EEIS unit.

5.4 The way forward

In order for the NACOMA SEA and DST to fulfil their expected role as key tools for
sustainable development growth strategies for the coast to mitigate against underlying
causes of biodiversity loss, it is necessary that the analyses of land use suitability, in-
cluding the trends in biodiversity importance, are assimilated into the NACOWP proc-
ess and the production of coastal profiles and that the large amount of data developed by
the SEA is used widely by the various NACOMA project activities.

It is recommended that the Karas Coastal Profile, in particular, highlight the dimension
of urban development and the need for decision makers and developers in Oranjemund
and Lüderitz to co-ordinate efforts to improve planning and management of the coastal
sub-region in the near-term future. Through its participatory and multi-stakeholder
process, NACOMA should play a key role as a facilitator of the co-ordination of devel-
opment opportunities between the two towns and the Sperrgebiet Land Use Plan. Fur-
ther, NACOMA should encourage more research to be conducted on coastal economic
and urban development by such agencies as the University of Namibia, the Polytechnic of Namibia, and the Habitat Centre.

The coastal profiles could play a strong and positive role in relation to the large efforts foreseen to enable the development of the tourism sector. Current information and analysis is required on coastal tourism in the two regions. The Coastal Profiles that are to be produced for the Karas and Hardap regions can make a start by emphasising the importance of coastal tourism and by providing an information baseline for the different types of tourism. In addition, NACOMA should actively promote the objectives of national tourism policy and encourage the development of regional tourist strategies and zonation for both regions, in which coastal tourism should receive real attention.

The successful implementation of the DST requires that the end user, particularly the regional councils of Karas and Hardap, receive training in applying the DST GIS software, and that solutions be found for a long-term web-based solution to host the NACOMA DST for all four coastal regions. Procedures should be set up for using the mapped priority areas for conservation in relation to the NACOMA Project Global Objective (PGO) to strengthen conservation of biodiversity in coastal ecosystems in Namibia. One of the key PGO indicators is the ‘Area of biodiversity "hotspots" (including MPAs) under effective management increased by 40 percent by 2010.’ The SEA’s analysis of biodiversity trends will potentially be able to encourage and advance the identification of hot spots. In addition, procedures for using the boundaries of the mapped habitats to assist in the development of biological monitoring routines should be set up.