STRATEGIC ENVIRONMENTAL ASSESSMENT
PORT OF CAPE TOWN
Sustainability Framework
STRATEGIC ENVIRONMENTAL ASSESSMENT
PORT OF CAPE TOWN

Sustainability Framework

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Prepared for:
National Ports Authority
Port of Cape Town
Cape Town

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SAKAZA
Communications (PTY) LTD

National Ports Authority
of South Africa

CSIR
Environmentek
Port of Cape Town
Commitment to Sustainable Port Development

In achieving its vision, the National Ports Authority Port of Cape Town is committed to sustainable port development, inter alia, by implementing the recommendations contained in this report, which will assist with achieving the following Vision for Sustainable Port Development:

**Vision for the sustainable development of the Port of Cape Town:**

1. Have appropriate institutional structures in place to interact with the City of Cape Town and Provincial Government to facilitate informed and efficient decision-making with regards to port-city developments,
2. Have well-structured port user and stakeholder forums to ensure effective and transparent communication that leads to informed action to address issues of concern,
3. Facilitate local, provincial, national and regional economic growth by operating and sustaining port systems that facilitate and enable global competitiveness,
4. Ensure the protection of important ecosystems, habitats and biophysical processes to guarantee the conservation of biodiversity within the port boundaries and surrounds,
5. Facilitate appropriate socio-economic development within the port boundaries and surrounds that enhances the local social benefits of the port,
6. Ensure effective use of appropriate tools to integrate biophysical, social and economic aspects into all levels of decision-making, from policy formulation to planning, design, construction and operation (i.e. tools such as Strategic Environmental Assessment, Environmental Impact Assessment, ISO 14001 etc),
7. Have well-structured systems for monitoring biophysical, social and economic performance/delivery, which allow for systematic data collection, storage, and analysis for use in day-to-day management decisions, as well as future strategic port planning processes and annual sustainability reporting.

Signed: 

Sanjay Govan (Port Manager)

Date:
Scope of this Report

Title: Strategic Environmental Assessment : Port of Cape Town
Sustainability Framework :

Date: August 2003

CSIR Report no: ENV-S-C 2003-074

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Scope: The Strategic Environmental Assessment (SEA) for the Port of Cape Town was initiated to provide a framework to facilitate long-term sustainable port development. Grounded in a broadly accepted definition of sustainability, this process has considered social, economic and biophysical environmental aspects. Through the SEA process strategic issues have been identified and assessed in order to facilitate sustainable port planning, development and operation. For each strategic issue, sustainability objectives and targets have been identified and guidelines recommended as to how port planners, engineers, environmental managers and corporate affairs managers can integrate these into day-to-day decision making processes. Indicators and monitoring programmes have also been recommended to assist the port manager in tracking progress towards achieving the sustainability objectives and targets. An essential component of tracking the ports progress towards meeting the objectives and targets is the communication of this progress to stakeholders through sustainability reporting.

It is important to note that the SEA process for the Port of Cape Town is not directly linked to the preparation of the existing Port Development Framework document (NPA 2002). The outcome of the SEA will however have a direct influence on the preparation of future Port Development Framework documents as well as on the way in which the Port of Cape Town addresses environmental management and corporate social investment programmes.

Although the implementation of the recommendations contained in this report is primarily the responsibility of the Port of Cape Town, close collaboration with the City of Cape Town (and the Western Cape Provincial authorities) will be essential to facilitate effective decision-making with regards to port-city issues that are key to the sustainable development of the port, city and the region.


Acknowledgements : Extensive input was received from Mr Billy Cilliers (Port Planner, Port of Cape Town) and Mr Fezile Ndema (Port Safety, Health and Environmental Manager, Port of Cape Town). The participation of other port personnel and key stakeholders from the City of Cape Town and other port related industries is also acknowledged.
The Port of Cape Town plays an essential role in developing the local and regional economy. The port is surrounded by a complex built and social environment and established within a sensitive marine environment. This has led to the challenge of balancing the need for the port to meet its economic mandate whilst maximising the benefits to the surrounding communities (including the City) and minimising the impact on the biophysical environment. The mechanisms used to maximise the port’s economic and social benefit and to manage the port’s biophysical environmental impact, are founded in the port planning process, corporate social investment programmes and environmental management systems respectively. Essential to all these processes is appropriate stakeholder engagement.

To promote appropriate stakeholder engagement between the port and the port stakeholders, a number of forums have been proposed. These forums include a Port Consultative Committee, as proposed under the National Ports Authority Bill (Bill B5 of 2003), a Port-City Forum to promote cooperative decision-making between the NPA, the City of Cape Town and the Provincial Government, a port-user forum to establish a formal working relationship with port users, and a port-stakeholder forum to provide a broader group of stakeholders with the appropriate means of engaging with the port on various developmental and operational issues. The relationship of these forums is shown in the figure below:

To guide port planning, corporate social investment and environmental management, a vision for sustainable port development has been defined. According to this vision a number of strategic issues have been identified for further analysis and include:

- Marine ecology;
- Marine archaeology;
- Shoreline stability;
- Accessibility of the port;
- Port-city land use planning;
- Socio-economics/Corporate and Social Responsibility; and
- Economic impact of the port.
The existing state and trends of each of these strategic issues are analysed and objectives, targets, indicators and monitoring programmes recommended. Trends in the indicators must be used by Port Management to track the port’s progress towards achieving its vision of sustainable development. It must also be used to drive management interventions where the sustainability objectives and targets are not being achieved. To assist with implementation of this Sustainability Framework, guidelines have been recommended. These guidelines are grouped under the following headings:

- Research/baseline studies;
- Consideration for port planning;
- Consideration for port operations and management;
- Monitoring;
- Stakeholder engagement; and
- Sustainability Reporting.

An essential component of tracking the port’s progress towards meeting the sustainability objectives and targets, is the communication of this progress to shareholders and stakeholders. Sustainability Reporting, or Triple Bottom Line Reporting, in terms of economic, environmental and social performance, is recommended as an essential component of port management. This is a practical and increasingly credible means to demonstrate to a wide range of stakeholders, the commitment of the National Ports Authority’s to sustainable port development.

The Sustainability Framework for the Port of Cape Town has therefore been developed to add value and to guide the port planning process, corporate social investment programmes and environmental management and to propose rigorous and appropriate means of engaging stakeholders during each of these processes. The Sustainability Framework is proposed as a means of tracking the port’s progress towards achieving its vision of sustainable development as well as a means for reporting on this performance to shareholders and stakeholders. The ultimate success in progressing towards sustainable port development lies in the commitment of the management structure of the National Ports Authority to implementing the recommended guidelines. In addition sustainable port development requires commitment from the port stakeholders to effectively engage with the various port processes.
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1. BACKGROUND

1.1 Sustainable port development

A global increase in environmental awareness has resulted in pressure on industries and organisations to be accountable for the environmental consequences of their activities. Ports are no exception in this regard. In recognition of the challenge to be accountable for the environmental consequences of port development, various international organisations such as the World Bank, International Maritime Organisation (IMO), European Sea Port Organisation (ESPO) and the International Navigation Association (PIANC) have published papers documenting the environmental risks of port and harbour operations and ways of managing these risks. Internationally accepted tools such as Environmental Impact Assessment (EIA) have also been developed to ensure the inclusion of biophysical and social environmental issues in the decision-making process for project specific developments. The challenge for port managers and operators, however, is heightened by the fact that while ports play an essential role in stimulating and developing the economy of a country they are also located within sensitive marine ecosystems and surrounded by complex socio-political environments.

The introduction of the notion of ‘sustainable development’ has promoted the challenge of integrating economic consideration with environmental and social considerations at all levels of decision-making. Strategic Environmental Assessment (SEA) is a tool that is used to proactively integrate environmental, social and economic aspects during the planning stages of development (DEAT, 2000). However, the definition of sustainable development in different contexts (developed versus developing), different sectors and different situations remains unanswered. Thus, this specific Strategic Environmental Assessment (SEA) process has dealt with the following question with regards to sustainable development:

**What is sustainable port development in the South African context?**

Research undertaken by the CSIR over the past 5 years (Heather-Clark et al, 1998, Heather-Clark, 1999, 2000, 2002) shows that for South African ports to move toward sustainable development the following need to be addressed:

- Improve port-city relationships and cooperative decision-making,
- Improve the individual port relationship with its stakeholders including port users, environmental stakeholders and the surrounding local communities,
- Improve environmental management and data collection within the port so that it can be used proactively during the port planning process to inform future operations through development of appropriate environmental management intervention strategies,
- Improve the understanding of how the port impacts on local community livelihoods and quality of life,
- Improve economic data collection and analysis (local, provincial, national and regional) for consideration during port planning processes,
- Improve the understanding of how relevant local, provincial, national and regional economic and other policies influence port development,
PORT OF CAPE TOWN: SUSTAINABILITY FRAMEWORK

1. Two important aspects of sustainable port development are port engineering/port safety aspects (i.e. maintaining port infrastructure such as breakwaters and entrance channels for safe operation of the port, etc.) and ensuring world-class competitiveness amongst South African ports. These two aspects have traditionally been the focus of port planning, development and operations and are being addressed through various processes. The above seven bullet points, however, are proposed as priorities for promoting sustainable port development within the South African ports system.

1.2 Why an SEA for the Port of Cape Town?

While the Port of Cape Town plays a core role in developing the economy of the Western Cape, it is surrounded by a complex built (city) and social environment and is established within a sensitive marine environment. In recognition of the importance of the port’s contribution to the economy and the need to effectively interact with the complex surrounding social and biophysical environment, the National Ports Authority of the Port of Cape Town appointed the CSIR-Environmentek and Sakaza Communications to undertake a Strategic Environmental Assessment (SEA) for the Port of Cape Town.

The SEA for the Port of Cape Town has been initiated to provide a framework to facilitate long-term sustainable port development. Grounded in the broadly accepted definition of sustainable development, this process considers the social, economic and biophysical environmental aspects of future port development. As a consequence, the outcome of the SEA will have a direct influence on the way in which port planning, corporate social investment and environmental management processes are managed by the National Port Authority.

This report should be read in conjunction with the Final Scoping Report: SEA for the Port of Cape Town (CSIR, 2003).

1.3 Legislative context

There are currently no legislative requirements for undertaking SEA within South Africa. However, the National Environmental Management Act (Act 107 of 1998, Chapter 5) provides for the formulation of assessment processes that ensure that the environmental impacts of policies, plans and programmes are considered (DEAT, 2000). The Department of Environmental Affairs and Tourism, together with the CSIR, compiled Strategic Environmental Assessment Guidelines (DEAT, 2000) that provide a framework for undertaking SEAs in South Africa.

Specifically with regards to ports, The White Paper on a National Commercial Ports Policy (National Department of Transport, 2002) recommends the following in Section 9.1:

“Strategic Environmental Assessment (SEA) should be used for the proactive integration of environmental issues with social and economic issues at the policy and planning level. The SEA should ensure close alignment with the Integrated Development Planning process in the region/city surrounding the port.”

In the absence of specific legislation with regards to SEA, the National Ports Authority has taken the initiative to undertake an SEA for the Port of Cape Town. In this regard, the documentation resulting from the SEA process (i.e.
the Final Scoping Report and the Sustainability Framework) will not be submitted to a particular authority for approval. The National Ports Authority of the Port of Cape Town will approve and accept both the Final Scoping Report and the Sustainability Framework document with a commitment to implementing the vision and recommendations contained in both reports.

1.4 Assessment methodology

The assessment process for the SEA for the Port of Cape Town broadly followed the approach advocated in the South African SEA Guidelines (DEAT, 2000). This process was initiated with a phase that focused on the identification of strategic issues and developing a vision for sustainable port development. Thereafter, specialists were appointed to investigate each strategic issue in detail. The broad methodology used by the specialists included describing the state of the environment with regards to the specific strategic issue, identifying sustainability objectives, targets and indicators and recommending guidelines and monitoring programmes to assist the port managers, planners, engineers, and environmental corporate affairs managers with implementation and the ability to track progress. Each aspect of the assessment methodology is discussed in detail below.

1.4.1 State of environment analysis

The state of environment analysis for each strategic issue broadly includes the following aspects:

β Identifying and describing the resources that should be maintained and/or enhanced;

β Identifying and describing trends in the resources on all relevant scales, which will influence the maintenance and enhancement of these resources; and

β Identifying existing institutions, legislation, policies, plans and programmes that will influence the maintenance and enhancement of the resources.

1.4.2 Sustainability objectives and targets

From an understanding of the state of the environment and the trends in the specific resource, sustainability objectives and targets were identified. This involved formulating objectives that are based on the concept of sustainability (sustainability objectives) and translating these into context-specific targets. The objectives relate directly to the environmental resources (strategic issues) identified in the Scoping phase and to the nature and scale of future port development. The objectives are generic, commonly recognised requirements for the sustainable utilization and existence of resources. They relate to a particular area, scale and level of decision-making.

The sustainability objectives were then translated into sustainability targets. These reflect the social, economic and biophysical context of the future development options of the Port of Cape Town. The targets are typically based on limits of acceptable change within the environment and are both quantitative and qualitative. Some are reflected in existing standards (e.g. SABS standards) and legislation, or developed through specialist research.

1.4.3 Sustainability indicators and monitoring

For monitoring to be effective, it is important to identify indicators and limits that can be used to indicate where management intervention is required to reduce the stressor(s) driving the change(s) in the environment. In this regard, specific indicators, for example, pertaining to the marine
Monitoring results will assist port managers and planners to track the impact that the port is having on the environment while also tracking performance. This data can be used in Sustainability Reporting to document the effects that the port development and operation is having on the surrounding biophysical, social and economic environment, thereby triggering planning and management intervention where this may be required.

1.4.4 Guidelines for sustainable development

Guidelines for port managers, port planners, environmental managers, corporate affairs managers and others have been recommended to assist with achieving the objectives and targets and thereby facilitating sustainable port development. The guidelines have been divided into six major sections, including:

1) Research/baseline studies,
2) Consideration for port planning,
3) Consideration for port operations and management,
4) Monitoring,
5) Stakeholder engagement,
6) Sustainability Reporting.

To facilitate effective implementation of each guideline, relevant departments within the National Ports Authority management structure have been identified as ‘implementing agents’. Where cooperative decision-making is required between the port and the city to effectively manage the issue, the City of Cape Town has also been identified as an ‘implementing agent’.

1.5 Linkages to port planning and environmental management and corporate social investment

It is important to note that the SEA process for the Port of Cape Town is not directly linked to the preparation of the existing Port Development Framework document or Port Planning Document (NPA 2002). The outcome of the SEA, specifically the Sustainability Framework, is expected, however, to have a direct influence on the preparation of future Port Development Framework documents as well as on the way in which the Port of Cape Town conducts environmental management and implements corporate social investment programmes in the future.

1.6 Sustainability Reporting

In response to environmental pollution issues in the 1960’s to early 1970’s, “command-and-control” policies and legislation were developed to force organisations to consider environmental issues. With increasing public awareness and pressure for organisations to ‘green’ their business by reducing their impact on the environment (e.g. by reducing pollution emissions), organisations have become more proactive in this regard. The last decade, however, has seen a shift in the environmental debate away from the greening of organisations to a more holistic arrangement that recognises the interrelationships that exist between the natural environment, economic development and social enhancement. This was encapsulated by a broadly accepted definition of sustainable development, which is “development that satisfies the needs of present generation without compromising the ability of future generation to meets their own needs” (World Commission on Sustainable Development, 1997). The understanding business has of sustainable development is one that recognises the
responsibility to promote economic impact whilst simultaneously acting in a manner that is environmentally acceptable to society. Implicit in this recognition is the realisation that in order to maintain their "license to operate" businesses must maintain a balance between the economic requirements and environmental and social responsibilities of their operations. A core part of maintaining this balance is the need to track and report on performance in the various spheres of operation and impact.

Traditionally this tracking and reporting has been in the form of financial reporting where the financial sustainability of the organisation is reported in a transparent way to shareholders. The need for organisations to be more transparent on the economic, social and environmental performance and to communicate this to a broad range of stakeholders requires new and innovative ways of reporting. As a result, many organisations have developed internal management systems to track their performance, set targets and measure progress on a range of economic, social and environmental issues. Key components of these systems are monitoring and reporting on performance to ensure continual improvement. Reporting helps organizations measure current impacts, formulate targets for improvement, and communicate, for example, with customers, communities, governments and other stakeholders about sustainability issues.

Sustainability Reporting Guidelines, or Triple Bottom Line Reporting, which include economic, social and environmental aspects have been developed through extensive international stakeholder engagement. The GRI Sustainability Reporting Guidelines (GRI, 2002) are internationally recognised as a way of reporting on an organisation's progress towards achieving sustainable development. The linkages between the Sustainability Framework for the Port of Cape Town and future Sustainability Reporting are discussed further in Chapter 7.
2. SEA AIMS, OBJECTIVES AND PROCESS

2.1 Aim and objectives of the SEA

2.2 SEA process

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2.2.1.1 General scoping process

2.2.1.2 Interaction with the City of Cape Town

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Figure 2.1: SEA Process for the Port of Cape Town
2. SEA AIMS, OBJECTIVES AND PROCESS

2.1 Aim and objectives of the SEA

The SEA for the Port of Cape Town is focused on the local port planning level of decision-making. In this respect, it aims to facilitate a more integrated and sustainable approach to future local port planning and development by:

- Identifying biophysical environmental issues that should be integrated into future port planning and development processes,
- Identifying socio-economic issues that should be integrated into future port planning and development processes,
- Identifying economic and policy issues that the port must address to contribute to the sustainable development of the local, provincial, national and regional economies, and
- Identifying port-city issues, which, unless addressed, may result in future conflicts between the city and port authority, thereby limiting the sustainable development of both the port and the city.

It is recognised that each of South Africa’s commercial ports serve a hinterland and that they play a significant role in the development of the local, provincial, national and regional economy. However, the SEA for the Port of Cape Town focuses mainly on the local issues of concern, which can be effectively addressed by the local port authority to ensure that the development of the port in its local context is sustainable. To achieve the aim of facilitating local sustainable port development, the following objectives must be achieved:

**SEA Objective 1:**
Improve port-city relationships and cooperative decision-making;

**SEA Objective 2:**
Improve the relationship between the port Authority and the various stakeholders, including port users, environmental stakeholders and the surrounding local communities;

**SEA Objective 3:**
Improve the understanding of how the surrounding biophysical environment relates to and may impact on future port development and operation;

**SEA Objective 4:**
Improve the understanding of how the livelihood and quality of life of local communities surrounding the port may be influenced by and impact on future port development and operation;

**SEA Objective 5:**
Improve the understanding of how relevant local, provincial, national and regional economic and other policies and plans will influence the future port development;

**SEA Objective 6:**
Improve the collection of economic, social and biophysical environmental data within the port sphere of influence, so that this information can be proactively used for environmental management, port planning and triple bottom line reporting.
This Sustainability Framework aims to address the above objectives, thereby ensuring that various departments within the Port of Cape Town understand how they can contribute to future sustainable port development. Beyond this internal process, close collaboration between the port and the city will be required to achieve certain of the objectives. The relative level of success or failure will depend to a large degree on the effectiveness of the relationship between the port and the city.

The above objectives imply that the SEA will, whilst taking a global perspective, focus on actions that can be implemented by the local port authority to influence the sustainability of the Port of Cape Town. Although the sustainability of the port can be directly affected by national policies such as the National Commercial Ports Policy, National Transport Policy, National Economic Policies such as GEAR and others, this SEA process will not be able to influence these policies. The SEA process can however, and should, have a direct influence on the local planning and policy initiatives, as well as providing a better understanding of the effects that the relevant national and regional policies may have on the port.

2.2 SEA process

The SEA process for the Port of Cape Town broadly followed the process defined in the SEA Guidelines, which were published by the Department of Environmental Affairs and Tourism (DEAT) in February 2000. The SEA process was divided into three distinct phases, namely:

- **Phase 1: Scoping**
- **Phase 2: Strategic Assessment (specialist studies)**
- **Phase 3: Development of a Sustainability Framework (integration)**

The overall process is illustrated in Figure 2.1 and each of the phases are discussed below.

### 2.2.1 Phase 1: Scoping

#### 2.2.1.1 General Scoping Process

The process followed during the Scoping Phase is summarised in Figure 2.1. The objectives of the Scoping Phase were to:

- Develop a vision for the sustainable development of the Port of Cape Town,
- Facilitate the involvement of stakeholders in the identification of the strategic issues which need to be assessed,
- Formulate and obtain agreement on the ToR for the specialist studies required to address the key strategic issues,
- Describe the existing environment of the Port of Cape Town, which includes the social, economic and natural environments, and
- Describe the way forward for Phases 2 and 3 of the SEA process.

The Scoping Phase of the SEA included the development of a vision for sustainable port development for the Port of Cape Town, the identification of strategic issues, as well as the drafting of specialist Terms of Reference (ToR) for the detailed investigation of the issues identified. In this respect, the involvement of the public in defining a vision for sustainable port development and identifying strategic issues is critical. The South African SEA Guidelines state that the stakeholder involvement programme should be designed in such a way as to enhance the SEA process. The focus should be on key stakeholder involvement without excluding those...
stakeholders that want to be involved in the process. To achieve this, stakeholders were divided into two groups, namely:

**KEY STAKEHOLDERS**: receive all documentation and invitations to workshops to provide constructive and valuable input into the process.

**GENERAL STAKEHOLDERS**: receive all documentation to keep up-to-date with the SEA process and comment when necessary.

Key stakeholders were actively engaged in defining the vision and identifying the strategic issues, while general stakeholders were kept informed of the SEA process through the distribution of information sheets. Information obtained from the key stakeholders was analysed and compiled as part of the Draft Scoping Report, which was made available for key stakeholder comment before being finalised and submitted to the National Ports Authority.

The key interactions and participatory approaches undertaken during the scoping process, a complete list of stakeholders contacted during the Scoping Phase and a summary of the issues raised is contained in the Final SEA Scoping Report (CSIR, 2002).

The SEA guidelines define a vision as “an overarching statement of what the plan or programme is aiming to achieve” (DEAT, 2000). In the context of this SEA, the broad vision is the long-term sustainable development of the Port of Cape Town. Strategic issues are defined as issues that if not addressed will prevent the port from achieving the goals/objectives as defined in the vision for sustainable port development. The vision that was developed during the Scoping Phase is discussed in Section 2.3. The Scoping Phase also provided a framework for the implementation of Phase 2 and Phase 3 of the SEA process.

**2.2.1.2 Interaction with the City of Cape Town**

At the start of the SEA process, it was acknowledged that cooperative decision-making between the National Ports Authority and the City of Cape Town with regards to future port-city issues was fundamental to facilitating sustainable port development. This was captured in the vision statement for sustainable port development, which states that the Port of Cape Town will:

| Have appropriate institutional structures in place to interact with the City of Cape Town and Provincial Government to facilitate informed and efficient decision-making with regards to port-city developments (see Section 2.3) |

As a result of the importance placed on the relationship between the Port and the City, meetings were held with the City of Cape Town throughout the process, the details of which are captured in Table 2.2. Several of the recommendations in this report relate to the City of Cape Town and the need for the Port and City to address these issues together. This aspect is referred to in detail in Chapter 4: Institutional arrangements and stakeholder engagement.

**2.2.2 Phase 2: Strategic Assessment (Specialist Studies)**

Draft terms of reference to address the strategic issues were developed as part of the Scoping Phase. These terms of reference were further refined with the specialists identified to undertake the necessary research into the
strategic issues. Specialist workshops were held to clarify the terms of reference and to facilitate integration between specialist studies. Specialist Reports were used to compile the integrated Sustainability Framework for the Port of Cape Town. A list of specialist studies and individuals involved in the process is included in Table 2.1.

Table 2.1: Specialists involved in the SEA process

<table>
<thead>
<tr>
<th>Specialist study No.</th>
<th>Specialist study</th>
<th>Name of specialist(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist study 1</td>
<td>Marine ecological aspects</td>
<td>Dr R Carter, Dr N Steffani, Ms S Lane</td>
</tr>
<tr>
<td>Specialist study 2</td>
<td>Shoreline stability</td>
<td>Mr G Smith, Mr C Soltan</td>
</tr>
<tr>
<td>Specialist study 3</td>
<td>Marine archaeology</td>
<td>Dr B Werz</td>
</tr>
<tr>
<td>Specialist study 4</td>
<td>Transportation</td>
<td>Mr J Jones, Mr A Friesla</td>
</tr>
<tr>
<td>Specialist study 5</td>
<td>Port-city land use planning</td>
<td>Mr N Schwartz</td>
</tr>
<tr>
<td>Specialist study 6</td>
<td>Institutional arrangements</td>
<td>Mr J Kleinsmith</td>
</tr>
<tr>
<td>Specialist study 7</td>
<td>Port economics</td>
<td>Dr H van Niekerk</td>
</tr>
<tr>
<td>Specialist study 8</td>
<td>Socio-economic</td>
<td>Mr P Kapelus</td>
</tr>
</tbody>
</table>

2.2.3 Phase 3: Sustainability Framework

The specialist studies were used to compile the Sustainability Framework for the Port of Cape Town. Various departments within the Port of Cape Town will be responsible for implementing the various actions required to ensure sustainable port development. Various departments within the City of Cape Town will also play a critical role in addressing port-city issues with the corresponding departments within the port. These aspects are discussed in detail in Chapters 5 and 6.

2.3 Vision for Sustainable Port Development

A vision is the overarching statement of what the plan or programme is trying to achieve. The effectiveness of the plan or programme is determined by the extent to which it guides development towards the vision (DEAT, 2000). The National Ports Authority has developed the following vision:

**National Ports Authority Vision:** to be a transformed, self-sufficient Port Authority that facilitates and enables competitiveness in a world-class port system.

The vision for the sustainable development of the Port of Cape Town must, based on the definition of sustainability, explicitly include social, economic and biophysical environmental aspects and must support the vision of the NPA.
Vision for the sustainable development of the Port of Cape Town:

In support of the National Ports Authority's vision and to promote sustainable port development, the Port of Cape Town will:

1) Have appropriate institutional structures in place to interact with the City of Cape Town and Provincial Government to facilitate informed and efficient decision-making with regards to port-city developments,
2) Have well-structured port user and stakeholder forums to ensure effective and transparent communication that leads to informed action to address issues of concern,
3) Facilitate local, provincial, national and regional economic growth by operating and sustaining port systems that facilitate and enable global competitiveness,
4) Ensure the protection of important ecosystems, habitats and biophysical processes to guarantee the conservation of biodiversity within the port boundaries and surrounds,
5) Facilitate appropriate socio-economic development within the port boundaries and surrounds that enhances the local social benefits of the port,
6) Ensure effective use of appropriate tools to integrate biophysical, social and economic aspects into all levels of decision-making, from policy formulation to planning, design, construction and operation (i.e. tools such as Strategic Environmental Assessment, Environmental Impact Assessment and ISO14001),
7) Have well-structured systems for monitoring biophysical, social and economic performance/delivery which allow for systematic data collection, storage, and analysis for use in day-to-day management decisions, as well as future strategic port planning processes and annual sustainability reporting.

Figure 2.1: SEA Process for the Port of Cape Town

Vision drives the implementation
### Table 2.2: Key participative approaches during the Scoping process of the SEA

<table>
<thead>
<tr>
<th>Method of interaction</th>
<th>Stakeholder Group</th>
<th>Aim of interaction</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project initiation meeting</td>
<td>National Ports Authority and project team</td>
<td>Introduction of SEA project and project team to port officials.</td>
<td>30/01/2002</td>
</tr>
<tr>
<td>Steering Committee Workshop 1</td>
<td>Port Steering Committee</td>
<td>Identification of Key Stakeholders and strategic issues; overview of SEA process &amp; its aims and objectives.</td>
<td>15/02/2002</td>
</tr>
<tr>
<td>Focus group meeting</td>
<td>City of Cape Town</td>
<td>Further identification key stakeholders with CCT; Overview of SEA process; identify Port-City issues.</td>
<td>01/03/2002</td>
</tr>
<tr>
<td>Advertisement in the Cape Times</td>
<td>All I&amp;APs</td>
<td>To invite all I&amp;APs to register either as Key or General stakeholder.</td>
<td>04/03/2002</td>
</tr>
<tr>
<td>Advertisement in the Die Burger</td>
<td>All I&amp;APs</td>
<td>To invite all I&amp;APs to register either as Key or General stakeholder.</td>
<td>05/03/2002</td>
</tr>
<tr>
<td>BID distribution &amp; Invitation of Key</td>
<td>General and Key Stakeholders</td>
<td>Inform I&amp;APs about SEA for Port of Cape Town, inviting their involvement in the process.</td>
<td>25/03/2002</td>
</tr>
<tr>
<td>Stakeholders to Workshop 2</td>
<td>City of Cape Town and other Key Stakeholders</td>
<td>Future Development of Port of Cape Town – City and port development plans presented, SEA process presented.</td>
<td>27/03/2002</td>
</tr>
<tr>
<td>Focus group meeting</td>
<td>City of Cape Town</td>
<td>Discuss identified strategic issues and a way forward.</td>
<td>14/05/2002</td>
</tr>
<tr>
<td>Focus group meeting</td>
<td>City of Cape Town</td>
<td>Discuss First Draft Scoping Report – Strategic Issues and Draft Terms of Reference.</td>
<td>11/06/2002</td>
</tr>
<tr>
<td>Key Stakeholder Workshop 2</td>
<td>Key Stakeholders</td>
<td>Presented First Draft Scoping Report – Strategic Issues and Draft Terms of Reference.</td>
<td>20/06/2002</td>
</tr>
<tr>
<td>Distribution of First Draft Scoping Report</td>
<td>Key Stakeholders</td>
<td>Report made available to key stakeholders for comment for 2 week period.</td>
<td>25/06/2002</td>
</tr>
<tr>
<td>(Version 3)</td>
<td>Key Stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distribution of Draft Scoping Report</td>
<td>All Stakeholders</td>
<td>Report distributed to key stakeholders for comment. Report made available to all stakeholders by placing the document in local libraries and adding it to an internet site.</td>
<td>22/07/2002 to 16/08/02</td>
</tr>
<tr>
<td>(Version 4)</td>
<td>All Stakeholders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with City of Cape Town representatives</td>
<td>All Stakeholders</td>
<td>Copies of the Final Scoping Report were distributed to a number of key departments in the City of Cape Town and placed in local libraries. The final report was made available on the internet site.</td>
<td>20/09/2002</td>
</tr>
<tr>
<td>Finalisation of Scoping Report (Version 5)</td>
<td>All Stakeholders</td>
<td></td>
<td>01/10/2002</td>
</tr>
<tr>
<td>Appointment of specialists</td>
<td>Specialists</td>
<td>Specialists were appointed to investigate each of the strategic issues.</td>
<td>10/2002 to 05/2003</td>
</tr>
<tr>
<td>Distribution of Draft Sustainability Framework</td>
<td>All Stakeholders</td>
<td>Report distributed to key stakeholders for comment. Report made available to all stakeholders by placing the document in local libraries and adding it to an internet site.</td>
<td>08/2003</td>
</tr>
</tbody>
</table>

Note: The lists of stakeholders, records of meetings and information sheets can be found in the Final SEA Scoping Report (CSIR, 2002).
3. PORT OF CAPE TOWN

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   3.1.2 The role of the National Ports Authority
   3.1.3 The structure of the National Ports Authority
   3.1.4 The structure of the South African Port Operations (SAPO)
   3.1.5 NPA’s vision and mission

3.2 Port Development Framework
   3.2.1 Introduction
   3.2.2 Future port development options
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3. PORT OF CAPE TOWN

This section of the report provides background information on the National Ports Authority, at both a national and local level. The Port Development Framework of the Port of Cape Town is then briefly described as this represents the vehicle through which the port will respond to the economic climate and other key factors influencing the port. A brief discussion is also included on the status of the environmental department within the Port of Cape Town and the Corporate and Social Investment Programme of the National Ports Authority. Port planning, environmental management and human resource management/corporate social investment will form the three pillars that will influence the future sustainable development of the port.

3.1 Transition from Portnet to National Ports Authority

3.1.1 Introduction

In line with the country’s restructuring strategy of state-owned enterprises, Portnet has undergone a transition and divided into two main disciplines, namely the National Ports Authority (NPA) and South African Port Operations (SAPO). Previously NPA and SAPO operated as a single comprehensive port authority (Portnet) but are now two different companies each with a different focus and mandate (PORTISSA, 2001).

NPA is a division of Transnet Ltd, which manages and controls all seven of the commercial ports on the South African coastline (including, Durban, Richards Bay, East London, Port Elizabeth, Mossel Bay, Cape Town and Saldanha Bay). The NPA, SAPO, other divisions of Transnet Ltd and private enterprises, provide services within the ports. At the end of August 2001 the NPA launched its new mandate, new personality and its new logo to clients and stakeholders. The institutional structure, which illustrates the position of NPA within the Government body, is shown in Figure 3.1.

The current NPA within Transnet, will be positioned outside Transnet once the end-state of Transnet has been determined and will report directly to the Department of Transport (Department of Transport, 2001:p. 13). The NPA, in as far as it reports to Transnet, will be accountable to the Department of Public Enterprise through Transnet (Department of Transport, 2001:p. 15). The NPA post Transnet end-state, will then be established as a new State-Owned corporate entity (it should be noted that this proposal is still under discussion). The role of the Ministry and Department of Transport, with respect to commercial ports, is to ensure that efficient and effective, seamless intermodal transportation is achieved in the national interests of South Africa.

Figure 3.1: Institutional hierarchy showing the position of NPA (NPA, 2002)
3.1.2 The role of the National Ports Authority

The following is summarised from the Draft White Paper on National Commercial Ports Policy published by the Department of Transport in March 2002.

In its new role, the NPA will act as a referee within the ports systems, to monitor the SAPO and other private terminal operators, to ensure that productivity levels are kept to high standards to keep the ports efficient and attractive to incoming vessels. The NPA is the landlord of the South African ports and owns all the land and the port infrastructures within the port estates (Department of Transport, 2001:p. 13). Within this landlord role, the NPA will not be involved in port operations; e.g. stevedoring and terminal operations.

The NPA’s role is to provide sufficient and appropriate port infrastructure, to ensure that the ports adequately respond to the market or to changes in the market. The NPA will avoid the unnecessary and unjustified duplication of port infrastructure that would be a wasteful use of resources. However, the terminal infrastructure such as terminal buildings, workshops, substations, surfacing, rail sidings and terminal services, and utilities (e.g. water lights, power, sewerage and telecommunications) and cargo handling equipment required such as cranes should be purchased and/or constructed, operated and/or maintained by the terminal operators in terms of a concession or leasehold contract with the NPA. NPA will remain financially autonomous and will not receive government funding except in special cases, for example:

- Where the NPA on request of the government must perform activities,
- Or cease to perform activities in circumstances where the NPA considers that it is not in their commercial interests.

3.1.3 The structure of the National Ports Authority

The new NPA Structure at Head Office in Johannesburg, is headed by CEO, Siyabonga Gama, supported by six main service departments as illustrated in Figure 3.2. As indicated in this figure, the Port of Cape Town is managed by the Port Manager, Sanjay Govan, who is supported by eight main service departments as illustrated in Figure 3.3.
Figure 3.2: The new NPA structure at Head Office (NPA, 2002).
Figure 3.3: The management structure for the NPA Port of Cape Town.
3.1.4 The structure of the South African Port Operations (SAPO)

The South African Ports Operations or SAPO, which is now an independent business unit within Transnet Limited, will focus on cargo handling and operations at all South African ports. At this stage, the SAPO is the major terminal operator, handling nearly 100% of containerised, 80% of break-bulk and 30% of the bulk cargoes in the South African ports (Department of Transport, 2001). The head office of SAPO has been moved from Johannesburg to Durban.

3.1.5 NPA’s vision and mission

The NPA vision and mission statements are as follows:

**Vision:** to be a transformed, self-sufficient Port Authority that facilitates and enables competitiveness in a world-class port system.

**Mission:** to facilitate economic growth in South Africa by providing and sustaining port systems that are amongst the best in the world.

3.2 Port Development Framework

3.2.1 Introduction

The SEA is related to the Port Development Framework in that it aims to provide a framework that will facilitate integrative port planning and provide solutions that are acceptable to all stakeholders from a biophysical, social and economic perspective. In this regard, the Port Planning Department at the Port of Cape Town is one of the key departments involved in the implementation of the recommendations, contained in the Sustainability Framework. The present Port Development Framework document (NPA, 2002), as developed by the Port Planning and Development Department, provides a starting point for identifying strategic issues that may have an impact on future long-term sustainable port development. As a result, it is important to have an understanding of the preferred options for future port development as expressed in this document.

The proposed short, medium and long term port development scenarios as shown in Figures 3.6, 3.7 and 3.8, are a result of the port planning process that was undertaken by the Port of Cape Town in 2001 (i.e. not as a result of the SEA process). The detailed discussion, planning and motivation for these scenarios can be found in the Development Framework for the Port of Cape Town (Port of Cape Town, January 2002).

3.2.2 Future port development options

The infrastructure of the Port of Cape Town is generally of the highest standard. The port is divided into many areas, which facilitate the core function of any typical port. In this respect, the port is roughly divided into three major areas (Figure 3.5): The Victoria and Alfred Basins which presently house the local fishing fleet and port marine services; the Duncan Dock, which contains berths A to L, including the Tanker Basin and Eastern Mole; and the Ben Shoeman Dock, which is used mainly for containerised cargo. Despite the high standard status of the port, there are still major issues that need to be addressed, two of which include:

- The lack of appropriate infrastructural capacity to handle current and future port operations,
The need to integrate the port with the city.

As a result of these challenges, the NPA has drafted the Port Development Framework, which includes the port status quo (Figure 3.5), expansion options and the preferred expansion options for different port industries. The Port Development Framework has clearly set out the short, medium and long-term development horizons for the Port of Cape Town. These are summarised as follows:

**Short Term Development (2002 to 2009) (Figure 3.6):**
- Expansion of the Container Terminal,
- Consolidate and expand the Ship Repair Industry in the Elliot Basin,
- Dedicate A Berth to Ship Repair,
- Relocate Fruit Terminal to berths 501/502/600,
- Develop basic infrastructure on Port Industrial Park and initiate move of business operations to this site.

**Medium Term Development (2009 to 2017) (Figure 3.7):**
- Integration of the Port Industrial Park into the Port,
- Possible realignment of Marine Drive and the N1/Marine Drive interchange,
- Dedicated on/off ramps to Port servicing major rubber wheel users - Container and Fruit plus the possible connection to N2 via Liesbeeck Parkway,
- Develop Cruise Liner Terminal.

**Long Term Development (2017 to 2027) (Figure 3.8):**
- Consolidation of major Port industries,
- Possible further expansion of Container Terminal stacking area.

### 3.2.3 Port planning and development/capital expenditure process

The port planning and development process for the Port of Cape Town is shown in Figure 3.4. The figure shows the linkages between the Port Planning and Development process and the Capital Expenditure/Operational Expenditure processes for the Port of Cape Town. The links to stakeholder participation in the process are also indicated. The outcome of the SEA is expected to have a direct influence pertaining to the input data for the Port Development Framework Planning process.
Figure 3.4: Port planning & development/capital expenditure process
National Port Authority: Port of Cape Town

NOTE: This process is subject to review and is a representation of the decision-making process with regards to allocation of funds for port infrastructural development projects.
PORT OF CAPE TOWN: SUSTAINABILITY FRAMEWORK

Figure 3.5: Port of Cape Town Status Quo (NPA-PDF, 2002)
Figure 3.6: The port short-term development scenarios (NPA-PDF, 2002)

See Port Development Framework (NPA, 2002) for full details of Multi-Purpose Terminal development

SUSTAINABILITY FRAMEWORK
Figure 3.7: The port medium-term development scenarios (NPA-PDF, 2002)

MEDIUM TERM
7 - 15 YEARS

Cruise Liner Terminal

Relocate Bunker Tanks to E.M.

Dolphin Berths

Integration of P.I.P into Port land area.

See MPT S/M/L Term Plans for details.

Deepen Berths
Figure 3.8: The port long-term development scenarios (NPA-PDF, 2002)
3.3 Environmental Management in the Port of Cape Town

3.3.1 Introduction

An Environment Management Department was recently established at the Port of Cape Town. This department has a number of core functions and is facing a number of challenges. This section briefly describes these functions and challenges as well as the recently formulated environmental policy. The Environmental Management Department at the Port of Cape Town will be one of the key departments involved in the implementation of the recommendations contained in this Sustainability Framework. It is, therefore, important to understand what initiatives the Environmental Management Department is currently involved in.

3.3.2 NPA environmental policy

In line with the vision and mission of NPA for South African ports, the Port of Cape Town environmental policy will focus on:

- Complying, as a minimum, with all relevant environmental legislation, as well as all other industry requirements to which the port subscribes,
- Implementing measures to conserve natural resources, reduce waste and prevent pollution,
- Influencing the implementation of acceptable environmental practices by suppliers, clients, tenants and surrounding landowners, and
- Promoting environmental awareness and responsibility among employees.

In order to meet the above policy objectives, the port needs to develop and implement environmental management systems that:

- Comply with the requirements of the ISO 14001 international standard,
- Are based on the principle of continual improvement of environmental performance, achieved through setting and achieving objectives and targets that address the significant environmental aspects and impacts of operations, and
- Are integrated into the port core business activities.

3.3.3 Core functions of the Environmental Management Department

The core functions of the Environmental Management Department include:

- To develop and implement an environmental management framework to encourage/facilitate legal compliance and cleaner production and technology,
- To develop, implement and maintain effective environmental management systems to ensure prevention of pollution and environmental degradation,
- To promote environmental awareness and ensure a healthy environment,
- Involvement in development planning in the port, and to ensure proper utilisation of land, property and other assets,
The conduct of Environmental Impact Assessments (EIA) where required in the case of port developments and liaison with both internal and external stakeholders, and

To promote sustainable port development.

### 3.3.4 Key Challenges

The two major challenges faced by the port Environmental Management Department are:

- To manage activities taking place in the port, in line with acceptable environmental management principles, through complying with local, provincial, national and international legislation, including conventions, treaties and protocols, and
- To change the mindset of all employees, tenants and operators within the port towards a high level of consideration for the environment.

Some of the other challenges and issues faced in the existing port situation involve the following:

- Port users still view their everyday business activities in isolation from environmental management,
- Business managers are not assessed on environmental performance and, therefore, place a lower priority on the environment than other performance targets,
- There is a strong tendency among port users to see the port as an industrial area that cannot be operated successfully without polluting the environment,
- The expectations of external stakeholders with regard to the need for organisations to integrate environmental issues into their day-to-day business is increasing.

### 3.3.5 Critical success factors

The critical aspects that need to be achieved to ensure the success of the Environmental Management Department include effective communication at all levels, appropriate delegation of authority, and sufficient funding for environmental improvement within the port. The need for integration of environmental management into the port’s core business and everyday operations is also fundamental to this success.

### 3.4 NPA’s Corporate Social Investment Programme

#### 3.4.1 Introduction

The NPA’s Corporate Social Investment (CSI) programme aims to empower communities to develop themselves through the redeployment of NPA resources to communities that are in need (www.npa.co.za, June 2002). Responsible corporations like the NPA believe that good corporate citizenship is an investment and, consequently, a progressive CSI programme has been designed to meet the needs of communities affected by the NPA. Corporate social responsibility is a core part of future sustainable port development and it is thus important to understand what initiatives the NPA are involved in, in this regard.
3.4.2 Areas of investment

The NPA’s main areas of investment through the CSI are:

- Investment in communities around the ports,
- Investment in previously disadvantaged communities,
- Programmes that engender development, and
- Programmes that foster empowerment and growth.

3.4.3 Key focus areas

The NPA’s key focus areas are: education, training and development, environmental management, arts and culture and sports development.

**Education, training and development includes:**

- Development of marine environmental awareness,
- Educational capacity enhancement programmes,
  - Maths, science and technology,
  - Information technology,
  - Teacher training and other educational upliftment programmes,
- Infrastructure support,
  - Science laboratories,
  - IT centres,
- Classrooms,
- Resource centres/libraries.

**Environmental Management includes:**

- Coastal zone management,
- Marine environment education, research and awareness,
- Marine culture resource management programmes, geared towards the conservation of cultural resources (e.g. Marine museums),
- Programmes on pollution control and reduction as well as waste management.

**Arts and Culture includes:**

Communicating through the arts and supporting arts and undertaking/supporting culture development programmes.

**Sports Development includes:**

Supporting sports development programmes.
4. INSTITUTIONAL ARRANGEMENTS AND STAKEHOLDER ENGAGEMENT

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4. **INSTITUTIONAL ARRANGEMENTS AND STAKEHOLDER ENGAGEMENT**

4.1 **Cooperative decision-making**

While the Port of Cape Town fulfils an important economic and transport role in the region it also has an influence on the surrounding social and biophysical environment. As a result, there are a number of authorities, departments, organisations, institutions and individuals that have an interest in, or are affected by, the port and its operations. Collaborative management of port-city strategic issues that have been identified as part of the SEA process and effective communication with all stakeholders is thus essential to promote sustainable port development. Port-city issues that require collaborative management include, for example, the marine environment and shoreline stability of Table Bay, dealing with port-city spatial planning issues and joint planning with regards to traffic and economic issues related to future port development.

There is a need to establish effective communication mechanisms and institutional arrangements between the National Ports Authority of the Port of Cape Town and relevant stakeholders. Effective communication mechanisms and appropriate institutional arrangements will ensure that there is adequate and consistent consultation and effective decision-making with regards to port development and operations. This notion is supported by both the National Commercial Ports Policy (National Department of Transport, 2002) and the Draft National Ports Authority Bill (Bill B5 of 2003). Exerts from both documents in this regard are contained in the boxes below:

---

**White Paper on National Commercial Ports Policy**

Section 3: Communication and Consultation:

There should be a consultative forum for such authorities and role players, where consultation could take place and information be made available. These local port consultative committees shall comprise of representatives of the port users and/or stakeholders.

Their functions are as follows:

- To facilitate an exchange of views between representatives of the industry,
- To improve understanding regarding the needs of interested parties to assist the National Ports Authority in providing a targeted service,
- To advise the National Ports Authority regarding the utilization of port land or facilities, including the expansion of port terminals and port facilities, an alteration in the use of a port terminal or facility,
- To facilitate the implementation of this policy.

The National Ports Authority shall, specifically, consult the port consultative committees on the following:

- Major port expansion schemes or the development of a particular port,
- Substantial and/or structural alterations to National Ports Authority Tariffs,
- Any other matter as directed by the Board of Directors or the Minister of Public Enterprises.

The National Department of Transport will be responsible for the co-ordination of relations with:

- SADC member states and bodies, including consultation with the provinces where appropriate,
- Foreign countries and multilateral bodies, but has an obligation to inform and consult the provincial governments where matters are likely to have a direct impact upon provinces,
- All other governments, national government departments and institutions, and
- All relevant role players in respect of the NDOT’s responsibilities and functions.
60. **Port Consultative Committees**

1. **The Minister must appoint for each port, a Port Consultative Committee,** consisting of the Harbour Master of the relevant port and:
   a. person representing the Authority,
   b. three persons representative of the local port users,
   c. two persons representing the local and provincial governments respectively of the area in which the port is situate,
   d. two persons representing organised labour,
   e. one person representing the South African Maritime Safety Authority,
   f. one person representing the Department of Transport, and
   g. one person representing the Department of Public Enterprises.

2. The function of the Port Consultative Committee is, with regard to any matter concerning a port:
   a. to provide a forum for exchange of views between the Authority and other interested parties,
   b. to advise the Minister.

3. **The Authority must consult the Port Consultative Committees regarding:**
   a. any major scheme relating to the expansion or development of a particular port,
   b. any substantial or structural alteration in the Authority tariffs,
   c. any other matter on which the Authority may be required by the Shareholding Minister to consult the Committee.

---

Co-operative governance

1. To give effect to the principles of co-operative government and inter-governmental relations contemplated in Chapter 3 of the Constitution of the Republic of the South Africa, 1996 (Act No. 108 of 1996), all organs of state, as defined in section 239 of the Constitution, including the Department of Transport, on which functions in respect of any aspect of Ports regulation are conferred by this Act or other legislation, must co-operate with one another in order to:
   a. ensure the effective management of all commercial ports,
   b. ensure the effective oversight of ports,
   c. co-ordinate the exercise of such function,
   d. minimize the duplication of such functions and procedures regarding the exercise of such functions,
   e. promote consistency in the exercise of such functions.

2. The Authority must conclude a co-operative Memorandum of Understanding with every relevant organ of state to give effect to the co-operation contemplated in subsection (1).

3. The Minister may, after consultation with the board and in consultation with ministers responsible for the relevant organs of state, make regulations regarding:
   a. time periods and procedures, including procedures for public participation and mechanisms for dispute resolution, in respect of the conclusion of co-operative agreements referred to subsection (2).
   b. matters that must be provided for in co-operative agreements, including provision for:
      i. the co-ordination of the functions referred to subsection (1) in a manner that avoids unnecessary duplication and omissions regarding port management and the issuing of conflicting instructions,
      ii. measures to be taken in the event of non-compliance with a co-operative agreement,
      iii. dispute resolution in respect of the interpretation or application of co-operative agreements referred to in subsection (3).

4. The Minister must publish by notice in the Gazette every co-operative agreement concluded in terms of subsection (2).
4.2 Institutional arrangements and communication mechanisms

From section 4.1 it can be seen that the White Paper on National Commercial Ports Policy and the Draft National Ports Authority Bill both promote the formation of a Port Consultative Committee to provide a platform for the exchange of views between the National Ports Authority and other interested parties. However, the roles and responsibilities of the members of this Committee are not spelt out. The recommendations also do not facilitate active engagement of the port and city authorities at all necessary (operational) levels.

The aspects discussed in this section extend beyond the legislative prescription as captured in the Draft National Port Authority Bill (Bill B5 of 2003), Chapter 11, Section 60 (1), which prescribes the appointment of a Port Consultative Committee. It is recommended that there should be a consultative forum, or forums, for authorities and role players, including port users and other stakeholders, where consultation can take place, information can be shared and collaborative decision-making facilitated.

The functions of these forums are to:-

- To facilitate an exchange of views between representatives of industry, the City of Cape Town and other stakeholders;
- To improve understanding of the needs of stakeholders to inform port planning and operation;
- To advise the NPA with respect to the utilisation of the port terminal and facilities;
- To facilitate the implementation of policy and decisions;
- To facilitate co-operative decision making with respect to port-city issues, and
- To keep external stakeholders informed of the port development agenda and sustainability performance.

It is proposed that a series of working forums be established by the National Ports Authority of the Port of Cape Town to consult at the operational level with relevant stakeholders. It is recommended that the following three forums be constituted by the National Ports Authority of the Port of Cape Town:

1. Port-City Forum
2. Port-User Forum
3. Port-Stakeholder Forum

The relationship between the above three forums and the Port Consultative Committee is shown in Figure 4.1 and is discussed in detail in the following sections.

Figure 4.1: Relationship between the Port Consultative Committee and other forums
4.2.1 Port Consultative Committee

The Draft National Ports Authority Bill makes recommendations that require the Minister to appoint a Port Consultative Committee for each port, consisting of the Harbour Master of the relevant port and:

- Persons representing the National Ports Authority,
- Three persons representing the local port users,
- Two persons representing the local and provincial governments of the area in which the port is situated,
- Two persons representing organised labour,
- One person representing the South African Maritime Safety Authority,
- One person representing the Department of Transport, and
- One person representing the Department of Public Enterprises.

This committee is to meet at least four times a year. The function of the Port Consultative Committee is, with regard to any matter concerning a port:

- To provide a forum for the exchange of views between the NPA and other interested parties, and
- To advise the Minister.

The National Ports Authority should consult the Port Consultative Committee regarding:

- Any major scheme relating to the expansion or development of a particular port,
- Any substantial or structural alteration in the National Ports Authority tariffs, and
- Any other matter on which the Minister or the Shareholding Minister may require the National Ports Authority to consult the Committee.

4.2.2 Port-City Forum

4.2.2.1 Introduction

The City of Cape Town envelops the port, which in turn contributes significantly to the income of the City and the region. Due to the nature of this relationship, there are several port-city and regional issues that require joint planning and management. A situation that does not naturally promote this essential interaction is the fact that the port falls under the jurisdiction of the National Ports Authority and port development is governed by the Legal Succession to South Africa Transport Services (SATS) Act (Act No. 9 of 1989). This Act and its amendments provide for the development of the harbour for transportation and related purposes, which may occur without any approval of the local authority. The port and its activities are considered as national assets under the Ministry of Public Enterprises and as an operational competency under the Ministry of Transport. The City of Cape Town, therefore, holds no jurisdiction over the port, notwithstanding the fact that many services and infrastructure associated with the port fall under the jurisdiction of the City. The port and the City thus operate as two separate entities, unaccountable to each other in terms of key legal frameworks.

In spite of the discontinuity regarding legal frameworks applicable to each party, both the port and the City believe it is in the best, long term interest of each entity, and the community of Cape Town, that they co-operate, liaise...
and jointly engage in dialogue regarding areas of planning, development, financing and other areas of mutual interest and benefit.

4.2.2.2 PURPOSE OF THE PORT-CITY FORUM

In view of the inter-relation between the City and the port, it is deemed important to establish a formal working relationship between the two entities to engage each other in an open and transparent manner. It is intended that any strategic policy or development decision of either party that impacts on the other party, should be transparent and, where possible, in concert with the other.

It is proposed that a forum be set up between the City and the port to consult, discuss, co-operate, jointly plan, finance and where possible execute programmes, projects and policy to the benefit of both entities. Representation on the Port-City Forum should have equal stature, with the understanding that the port and City need to co-operate in good faith in order to derive optimum benefit from co-operation. A critical component of the Port-City Forum will be the inclusion of the Provincial Government representatives.

4.2.2.3 RESPONSIBILITIES OF THE CITY AND THE PORT

It is proposed that the City of Cape Town and the National Ports Authority of the Port of Cape Town establish a Port-City Forum consisting primarily of port and city officials. The inclusion of relevant Provincial Government Departments is essential. Details on the structure and functioning of the Port-City Forum are included in Appendix 1.

| Port of Cape Town |
The National Ports Authority of the Port of Cape Town is responsible for establishing a committee as described in Section 4.2.2.4 and for ensuring that the members understand the nature of the Port-City Forum and attend meetings. To ensure that this materialises, requires discussion with relevant managers at National Port Authority Head Office.

| City of Cape Town |
The administration of the City of Cape Town shall establish a committee comprising of heads of relevant departments, or their designates, to serve on the Port-City Forum and attend all other relevant meetings with the National Ports Authority of the Port of Cape Town.

The Port-City Forum shall formulate its own terms of reference with the view of establishing a memorandum of understanding between the National Ports Authority of the Port of Cape Town and the City of Cape Town to facilitate the meaningful and desired outcome of this cooperation.

| Provincial Government of Western Cape |
Provincial Government representatives will be responsible for ensuring that the broader provincial issues as related to the port are tabled and discussed at the Port-City Forum.

4.2.2.4 COMPOSITION OF THE PORT-CITY FORUM

Due to the structure of the National Ports Authority with a Port Manager at each port, and the Executive Manager of the National Ports Authority residing in Johannesburg, a two-tier forum structure is proposed. The first tier and full forum comprises of the highest level of decision-making authority inclusive of:
National Ports Authority

- Chief Executive Officer or his/her appointee,
- General Manager Infrastructure or his/her appointee,
- Relevant General Managers or their appointee,
- Port Manager: Port of Cape Town.

Supported by a second tier Port of Cape Town officials including:
- Project leader of Port-City Relationship,
- Manager: Planning & Development,
- Manager: Safety, Health and Environment,
- Manager: Trade & Logistics,
- Manager: Infrastructure,
- Manager: Security,
- Legal Advisor.

Members that may be seconded from time to time include:
- Manager: Corporate Affairs,
- Manager: Port Engineer,
- Manager: Risk,
- Harbour Master.

City of Cape Town

- City Manager,
- Executive Mayor,
- Chairperson of Portfolio committees.

Supported by a second tier officials including:
- Project leader of City-Port Relationship,
- Heads of city departments including:
  - Planning,
  - Transport,
  - Environmental Management,
  - Spatial Planning,
  - Traffic,
  - Infra-structural Services.

Provincial Administration Western Cape (PAWC)

Representatives from the following departments should be identified for Tier 1 and Tier 2.
- Department of Transport and Public Works,
- Department of Economic Development and Tourism,
- Department of Environmental Affairs and Development Planning.

Areas of discussions that the forum will engage in may include but not limited to:
- Planning,
- Development,
- Financing,
- Environment,
- Transportation,
- Special Projects,
- Security,
- Services (Water, rates, electricity, waste etc.).

Details on the structure and functioning of the Port-City Forum are included in Appendix 1.

4.2.3 Port-User Forum(s)

4.2.3.1 Introduction

There are a number of port users who depend on the port and its services in order to conduct their business efficiently and cost-effectively. The National Ports Authority presently meets on an ad hoc basis with a variety of these port users to discuss issues that may impact on their day-to-day business. It is proposed that these forums continue, and that they serve as an opportunity for port users to engage the port management on operational
and strategic issues. However, it is also recommended that a single Port-User Forum meeting be convened on a regular basis to provide a link to the Port Consultative Committee.

Although port users, as a stakeholder group, will have three representatives on the Port Consultative Committee, it will be in the best, long term interest for port management to continue to consult with a more broadly representative body of users to discuss operational issues, planning and other areas of mutual interest and benefit (i.e. issues of a day-to-day operational nature the relevance of which may fall outside the scope of interest of this committee).

4.2.3.2 Purpose of the Port-User Forum(s)

It is deemed important to establish a formal working relationship between the port and the users of its facilities. It is proposed that forum(s) should be constituted and function with the aim of promoting consultation, discussion, co-operation, seeking solutions to problems relating to operational issues, and, where possible, execute programmes, projects and policy to the benefit of all parties. However, it is also recommended that a single Port-User Forum meeting be planned on a regular basis to provide a link to the Port Consultative Committee. The port as a service provider and the users as clients, recognise that each party will have to co-operate in good faith in order to derive optimum benefit from this co-operation.

The Forum(s) are not expected to have decision-making status, but will make representation to port management and, where necessary and appropriate, present issues to the Port Consultative Committee through its three members. The core function of the forum(s) is to facilitate accountability with regards to decision-making and actions by the Port Authority to issues that are raised by port users.

4.2.3.3 Responsibilities of the Port of Cape Town and Port Users

Port of Cape Town
The National Ports Authority should continue with the separate Port-User Forum(s) meetings that have already been initiated; however it should be the responsibility of the National Ports Authority of the Port of Cape Town to constitute a single combined Port-User Forum to provide input to the Port Consultative Committee. To this effect, the Port of Cape Town should maintain a database of all port users. A key contact person within the Port of Cape Town should be identified to liaise with all port users and organise meetings should the need arise. Appendix 1 provides some structure to formalise communication with port users. It is not intended duplicate or supersedes existing communication efforts that are being implemented successfully, but rather to systematise this process to deal, for example, with problems experienced by port users, where they feel that the National Ports Authority is not addressing their concerns.

Port Users
Port users will be responsible for ensuring that they are registered on the Port-User database, raising issues for inclusion on the agenda of the meetings, and for attending and participating in meetings.
4.2.3.4 Composition of the Port-User Forum(s)

The Forum(s) is open to all users of the port and its facilities. This may include tenants on port property, exporters, importers, trade unions, service-providers to the port and its customers.

The Port of Cape Town may be represented by:
- Port Manager,
- Manager: Planning & Development,
- Manager: Safety, Health and Environment,
- Manager: Property,
- Manager: Marketing,
- Harbour Master,
- Legal Advisor,
- Any other relevant port official.

The port users may be represented by:
- City of Cape Town official/s,
- Representative of South African Port Operators (SAPO),
- Representatives of other operators and organizations including:
  - Organised business,
  - Transport,
  - Logistics,
  - Freight,
  - Fruit,
  - Fishing,
  - Ship repair,
  - Petroleum,
  - Off shore oil,
  - Research and environmental industries
  - Others

Areas of discussions that the forum will engage in dialogue should include but not be limited to:
- Planning
- Development
- Port Operations
- Tariffs & Charges
- Special Projects
- Security
- Safety
- Other issues to be agreed upon by the parties.

4.2.4 Port-Stakeholder Forum

4.2.4.1 Introduction

Present port operations have an influence on the surrounding environment, which may affect ‘third party’ stakeholders that are not included in the Port-User forums. These stakeholders may include members of the public, environmental and other special interest groups with regards to port and marine related issues. Although these stakeholders are likely to be consulted, for example, during EIA processes in the courses of future port development planning, it will be in the best, long-term interest of port management to consult with a more broadly representative body of general stakeholders to discuss planning and developmental issues that maybe of interest to them; i.e. issue of a non project-specific nature.
4.2.4.2 **Purpose of the Port-Stakeholder Forum**

The purpose of the Port-Stakeholder forum is to provide members of the public, environmental and other special interest groups with an opportunity to engage the port management on strategic development, environment and other port and marine related issues that may impact on the well being of the city and its environment.

Although the Forum will have no decision-making status it can be used to identify issues of concern and to communicate the port environmental policy and management efforts to stakeholders. This forms an essential component of the port’s Environmental Management System.

4.2.4.3 **Responsibilities of the Port of Cape Town and Port Stakeholders**

**Port of Cape Town**

It will be the responsibility of the National Ports Authority of the Port of Cape Town to initiate the Port-Stakeholder Forum meetings. A database of all port stakeholders should be maintained by the Port of Cape Town. A key contact person within the Port of Cape Town should be identified to liaise with all port stakeholders, to maintain a database of issues and to organize meetings should the need arise.

**Port Stakeholders**

Port stakeholders will be responsible for ensuring that they are registered on the Port-Stakeholder database, raising issues for inclusion on the agenda of the meetings, and for attending and participating in meetings.

4.2.4.4 **Composition of Port-Stakeholder Forum**

The Forum is open to all interested and affected parties.

The Port of Cape Town may be represented by:

- Port Manager,
- Manager: Planning & Development,

Areas of discussions that the forum will engage in includes but not limited to:

- Planning,
- Development,
- Environmental issues,
- Other issues to be agreed upon by the parties.

Details on the structure and functioning of the Port-Stakeholder Forum are included in Appendix 1.
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5. MANAGEMENT FRAMEWORK FOR SUSTAINABLE PORT DEVELOPMENT

Strategic issues are defined as issues, that if not addressed, will prevent the port from achieving its vision for sustainable port development as presented in Section 2.3. In developing a management framework for the strategic issues, each issue has been broadly discussed under the following headings:

Issue statement: Why the issue has been identified as a strategic issue.

SEA Objectives: Which SEA objectives, as presented in Chapter 2, are met by addressing the specific strategic issue.

State of Environment: The existing state of the environment and the trends in this regard that may be obvious. This allows for the identification of sustainability objectives, targets and indicators.

Objectives, targets and indicators: Sustainability objectives, targets and indicators to direct future port planning and development. Monitoring the indicators will assist with tracking the port's progress towards sustainable development. Monitored data can also assist decision-makers in identifying the consequences of earlier decisions, assisting them with continual improvement of future decisions.

Opportunities and constraints: Opportunities for and constraints to future port development and operation that fall within the bounds of the identified objectives and targets.

Guidelines for future port development and planning: Guidelines for port planners, environmental managers, human resource managers and others to exploit opportunities and overcome constraints, thereby achieving the objectives and targets and facilitating sustainable port development. The guidelines may include specific guidelines and/or monitoring guidelines.

To ensure effective implementation, each guideline is identified with a specific department within the National Ports Authority's management structure. Some of the guidelines, however, relate to both the port and the City of Cape Town, and effective management therefore requires close collaboration between and joint decision-making by both parties. The implementation framework for recommended guidelines and monitoring programmes is contained in Chapter 6.

The information contained in this Chapter is primarily sourced from the specialist studies as shown in Table 2.1, Section 2.2.2.
5.1 Marine ecosystems
### 5.1.1 Issue statement

Present and future port operations and future port development could have an impact on the marine environment of Table Bay, thereby constraining the port from achieving its vision of sustainable port development.

The functioning of marine ecosystems within Table Bay was identified as a possible constraint to future port development. This strategic issue was identified because of a lack of understanding of the extent to which port development and operations impact the marine environment. An assessment of the potential impacts on the marine environment that may be attributed to future port development and operations is contained in Appendix 2.

### 5.1.2 SEA Objectives

The following SEA objectives relate to this section:

**SEA Objective 3:**
Improve the understanding of how the surrounding biophysical environment relates to and may impact on future port development and operation;

**SEA Objective 6:**
Improve the collection of economic, social and biophysical environmental data within the port’s sphere of influence, so that this information can be proactively used for environmental management, port planning and triple bottom line reporting.
5.1.3 State of environment

5.1.3.1 Overview of the marine ecosystems of Table Bay

The marine ecosystems of Table Bay comprise a range of habitats each supporting a characteristic biological community. Figure 5.1 shows that seven different ecological habitats are recognisable in Table Bay:

1) Sandy beaches extending from the Salt River mouth north past Blouberg,
2) Rocky shores extending south of the harbour past Sea Point, at Blouberg Rocks and at Robben Island,
3) Artificial surfaces of the harbour itself plus the shore protection extending towards Salt River,
4) Subtidal sand substrata,
5) Subtidal rock substrata in the bay,
6) The water body in Table Bay, and
7) The water body in the port.

Figure 5.1: Distribution of rocky shores, sandy beaches, kelp beds, seabird colonies and seal populations in Table Bay.
The listed habitats, except for the artificial surfaces associated with the Port of Cape Town, support biological communities characteristic of the West Coast region. There is no natural analogue for the artificial surfaces comprising the port (i.e. breakwaters and harbour walls), but species occurring in association with this created habitat are common in the region even though the community structure may be different.

Overall the benthic communities in Table Bay are typical for the West Coast, are not unique to Table Bay and cannot be classified as locally, regionally or internationally important biodiversity resources. This also applies to the pelagic fish and the marine mammals occurring in Table Bay, as these are widespread on the South African west (and south) coast. Further, Table Bay itself does not appear to be critically important as either a foraging or breeding area for these fauna or as a fishing area.

The resident seabird community is a strong exception to this, especially the endemic African Penguin and Bank Cormorants. Approximately 36% of the global population of penguins forage in continental shelf waters adjacent to Table Bay, these birds being associated with the breeding sites at Dassen and Robben islands and, to a lesser extent, Boulders Beach in False Bay. Robben Island supports the third largest breeding colony of Bank Cormorants in the world. Both species are considered vulnerable in terms of the IUCN criteria and represent internationally significant biodiversity resources.

Table Bay receives effluents and contaminants from pipelines and storm water outfalls from the City of Cape Town, and from spills and discharges from shipping, ship repair facilities and other activities in the Port of Cape Town. Atmospheric deposition of contaminants is also a risk source. In terms of ecological impacts, the most serious of these risk sources is oil pollution from operational and accidental spills from ships and discharges within the port, with chronic and acute effects on seabirds and other organisms in Table Bay and the port. Table Bay appears to be well flushed, through wave and circulation processes, especially by winter storms, and there is no evidence of contaminant build-up, for example, in sediments over time. There are, however, horizontal concentration gradients in contaminants, with sediments and biota adjacent to contaminant sources showing higher levels than more distant sites. There is no evidence of any marked distortion in biological community structure outside of the harbour area that is attributable to pollution. Within the harbour area, harbour wall communities at the heads of the various basins are depauperate. This appears to be due to chronic pollution by oil, trace metals and antifouling compounds (e.g. organotin compounds, Igarol-15) in these locations, the effects of which diminish towards the entrances of the basins.

### 5.1.3.2 Trends in Table Bay Pollution and Ecological Status

Generally, the most suitable indicators for detecting long-term trends in pollution status are contaminant concentrations in sediments and indicator species such as mussels (filter feeders: concentration of contaminants in tissue). Long-term signals in the sediments are confounded by the relatively short residence times of the surficial sediments in Table Bay. However, the available information does indicate that the contaminant deposition rate to the sediments does not exceed the supply rate of new sediments to the system, hence the apparently steady state in contaminant concentrations. Similar arguments can be applied to contaminant concentrations in mussels. Although there are horizontal gradients with mussels collected from point sources of contaminants showing higher concentrations than those collected from more distant stations, there is no consistent build up in any of
the contaminant levels over time except for Cadmium (CMC, 2001). The cadmium appears to be of a 'natural' marine origin and the increases may not be attributable to anthropogenic sources (Monteiro 1997; CMC, 2001).

Oil pollution in Table Bay arising from operational and small-scale accidental discharges also appears to be stable according to the spill records held by MCM (Marine and Coastal Management). This is supported to an extent by SANCCOB’s records of oiled penguins received for rehabilitation. However, this data set is distorted by the larger accidents that have recently occurred (e.g. 'Apollo Sea' and 'Treasure') as well as the fact that not all of the birds received would have been oiled in the Table Bay area.

In summary, although the supply of contaminants to Table Bay may have increased over the last two decades through increased industrialisation, increased storm water and sewage flows and larger shipping volumes, the physical dynamics of the system have apparently precluded increases in contaminant concentrations.

Similar to the situation pertaining to pollution there are no data that allow the establishment of trends in any of the identified communities, i.e. sandy beach, rocky shore, subtidal sand habitat, subtidal kelp bed, and harbour wall in Table Bay. In addition, data for the species targeted by commercial and recreational fishing is either non-existent or incomplete and a reliable time series cannot be established.

In fact, it is only seabirds that have received sufficient monitoring to establish trends in the community. Here the two important species are the African penguin and Bank cormorant, both breeding on Robben Island and both considered vulnerable under the IUCN criteria. Apart from birds lost due to oiling from the ‘Apollo Sea’ sinking in 1994 and the more recent loss due to the ‘Treasure’, breeding penguins on Robben Island have increased steadily since 1983 when the colony was re-established (Crawford et al 2000). However, the recorded increase appears to be the result of immigrating birds as opposed to increased breeding success, at least up to the time of the ‘Treasure’ oil spill in June 2000, Underhill 2000). Subsequently, penguin population growth may have been based more on increased breeding success, related to increased availability of pilchards (Sardinops sagax) in the southern Benguela region (Dr R Crawford, MCM, pers comm).

The Bank Cormorant population in the Table Bay has decreased over the recent past (MCM unpublished data), which may be a long-term effect of the ‘Treasure’ oil spill. However, this may also be linked to an overall decline in numbers of this species in the southern Benguela region (Dr J Cooper, ADU, pers comm) the underlying reasons for which are not yet clear. A consequence of this is that Bird Life South Africa is seeking to reclassify the species from ‘vulnerable’ to ‘endangered’ in terms of IUCN conservation status. Bank Cormorants mainly forage in kelp beds and shallow inshore waters where they prey on small fish and invertebrates (Berruti 1989) so apparent increases in pilchard availability will probably not help this species. Unfortunately due to the large areas over which especially penguins forage (MCM, unpublished satellite tracking data and observations) changes in Robben Island breeding colonies do not necessarily reflect changes in Table Bay.

Various studies on the shoreline stability off Table Bay (see Section 5.3) have shown that the sandy beaches have experienced some change (i.e. erosion or accretion, change in slope), most likely as a result of a change in wave energy. As the properties of the intertidal portion of sandy beaches and, consequently, the composition of their biota are related to the degree of wave energy, sand particle size and beach slope (McLachlan et al. 1993)
it is likely that some impact has resulted on the intertidal sandy beach communities of Table Bay.

In summary, with the important exception of seabirds, the available data and information are insufficient to establish trends in the important biological communities inhabiting or occurring in Table Bay, or even the harbour. Equally, there is no hard evidence that any of these communities are showing significant declines or alterations in structure.

### Table 5.1: Marine ecology: Objectives, targets and indicators

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Targets</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit the impact of future port expansion (physical expansion of port facilities or breakwater and dredging activities required to source fill material) on wave energy distributions, Table Bay beach characteristics (i.e. erosion or accretion, change in slope, sand particle size) and resultant impact on intertidal sandy beach fauna.</td>
<td>No or negligible modifications to wave energy distributions and no or negligible impact on Table Bay beach characteristics and intertidal sandy beach fauna structure.</td>
<td>For wave energy and beach characteristics see Section 5.3 Shoreline Stability. For intertidal sandy beach fauna: Presence/absence of <em>Bullia digitalis</em> and population size <em>Donax serrax</em>.</td>
</tr>
<tr>
<td>Eliminate inputs of pollutants to the port from ship repair operations and storm water inflows to the port.</td>
<td>Pollution entering the marine environment should be minimised. South African Water Quality Guidelines (DWAF 1995). Level of contaminant in mussel flesh should adhere to the Foodstuffs, Cosmetics and</td>
<td>Listed contaminants as per South African Water Quality Guidelines (DWAF 1995). See Table 5.2.</td>
</tr>
<tr>
<td>Objectives</td>
<td>Targets</td>
<td>Indicators</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Food, 2 Nov 1973 and Regulation related to metals and foodstuffs, 9 Sept</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure the highest level of control on fuel transfers to limit accidental</td>
<td></td>
<td></td>
</tr>
<tr>
<td>discharges.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prohibit untreated ballast water discharges in Table Bay and/or the port</td>
<td>Zero discharge – Policy to be finalised by Global Ballast Water</td>
<td>Presence/absence and population distribution of alien species.</td>
</tr>
<tr>
<td>where vessels are of distant origin (i.e. outside southern African</td>
<td>Management Programme for South Africa.</td>
<td></td>
</tr>
<tr>
<td>territorial waters). Follow recommendations on ballast water controls in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMO (2002).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prohibit discharging or dumping of biological material cleaned from ship</td>
<td>Zero discharge.</td>
<td></td>
</tr>
<tr>
<td>hulls in both the port itself and Table Bay.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through SAMSA and MCM seek to reduce probabilities of accidental spills</td>
<td>Enforcement.</td>
<td>Number of ships turned away.</td>
</tr>
<tr>
<td>through enforcement of traffic management systems and preventing entry to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table Bay of ships that clearly represent hazards (but observing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Convention for the Safety of Life at Sea (SOLAS) requirements).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Through SAMSA and MCM seek enforcement of existing legislation prohibiting</td>
<td>Minimise at all costs.</td>
<td>Number and volume of oil spills Number of oiled seabirds.</td>
</tr>
<tr>
<td>discharges to Table Bay and contribute to improving surveillance to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ensure compliance.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.1.4.1 Indicators

To establish whether the targets described above are being met, monitoring activities will be required. Specific indicators need to be monitored and checked against limits that, if exceeded, may result in environmental degradation and unacceptable impacts. Important issues for Table Bay in terms of sustaining its overall ecological structure and function are the prevention or limitation of degradation and/or loss of habitat and biodiversity, and the control of pollution and introduction of alien species.

Indications of changes caused by port development and/or operations manifest in the structure of the various biological communities that inhabit the bay. As described in Appendix 2, and given that appropriate mitigation will be applied where predicted or observed impacts are found to be significant, it is expected that there should be only slight, if any, modifications to community structure. This notwithstanding, it is beneficial for monitoring and management purposes to define relevant indicators for each of the main communities and/or habitats that may be affected. Table 5.2 summarises these.

<table>
<thead>
<tr>
<th>Biological community or habitat</th>
<th>Important Taxa/species</th>
<th>Enviroindicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intertidal sandy beaches</td>
<td>Bullia and Donax</td>
<td>Presence/absence (Bullia) and population size (Donax)</td>
</tr>
<tr>
<td>Intertidal rocky shores</td>
<td>Mussels – Mytilus galloprovincialis and Choromytilus meridionalis</td>
<td>Trace metal concentrations in mussel flesh</td>
</tr>
<tr>
<td>Intertidal rocky shore rock pools</td>
<td>Clinidae and Gobiesocidae</td>
<td>Abundance (between low and high water neap tide levels)</td>
</tr>
<tr>
<td>Subtidal Sand</td>
<td>Unknown (for Table Bay)</td>
<td>Species diversity and population structure</td>
</tr>
<tr>
<td>Subtidal Rock</td>
<td>Kelps (Ecklonia maxima and Laminaria pallida), mussel (Aulacomya ater) and rock lobster (Jasus lalandii)</td>
<td>Kelp bed community structure</td>
</tr>
<tr>
<td>Outer harbour walls</td>
<td>Barnacles (Octomeris angulosa, Austromegabalanus cylindricus and Notomegabalanus algicola) and rock lobster</td>
<td>Species diversity and rock lobster abundance</td>
</tr>
<tr>
<td>Marine mammals</td>
<td>Resident, semi-resident and migrant species</td>
<td>Presence/absence</td>
</tr>
<tr>
<td>Resident seabirds</td>
<td>African penguin (Spheniscus demersus) and Bank cormorant (Phalacrocorax neglectus)</td>
<td>Numbers oiled/year</td>
</tr>
<tr>
<td>All marine environments</td>
<td>Alien species</td>
<td>Presence/absence and population distributions.</td>
</tr>
</tbody>
</table>
5.1.5 Opportunities and constraints to future sustainable port development

Table Bay is not ecologically unique in the context of the southern Benguela ecosystem (West Coast system). Therefore, port development, if restricted to that envisaged in the Port of Cape Town Development Framework (NPA 2002) and given that appropriate mitigation will be applied where necessary, should not have negative ecological consequences at the regional scale. Various negative environmental impacts at the local scale (i.e. restricted to Table Bay itself) have been predicted, but with mitigation all are considered to be of low significance and should not constrain port development (see Appendix 2). Future port development (physical expansion) outside of the existing port boundaries (or wave shelter of the existing western breakwater) may result in a modification of beach slope and participle size distribution, which could negatively impact on Bullia, Donax and other faunal populations found in the intertidal sandy beaches. This may result in a constraint to achieving future sustainable port development; however, a more detailed understanding of the system is required in order to assess the possible scale of impact of future port development.

Most of the anticipated negative impacts associated with port operation are also judged to be of low significance at the local scale given the application of appropriate mitigation (see Appendix 2). Exceptions, however, are activities or accidents that may lead to African Penguins or Bank Cormorants becoming oiled. These are classified as significant negative impacts at the international scale because of the current conservation status of these endemic seabird populations. Although not expected to curtail or constrain port operations, mitigation and control measures need to be seen as being of high priority to minimize risks.

The consolidation of the ship repair industry in the Elliot Basin, Sturrock Dock and small craft basin area of the port, as envisaged in the Port Development Framework, may facilitate better control of associated activities than is presently the case. This should reduce the impact of the port on the Table Bay marine environment since inputs of contaminants (e.g. trace metals, paints, oils etc.) to the port water body should decrease. This potential positive development also applies to berths refurbishment associated with the consolidation of the various terminals in the port. In this respect, it is expected that losses of bunker and fuel oils through the fuel supply infrastructure in the port system should diminish as upgrades or replacements are effected (W Cilliers, NPA, persF comm.). Aside from the strategic business, economic and commercial motivations supporting future port development, there is also the potential for overall environmental benefits for Table Bay to be realized. Consequently, there do not appear to be any significant marine ecological constraints to future port development.

Although Table Bay is not ecologically unique and does not pose major constraints to future port development, it does not preclude the need for specific assessments to be conducted within the framework of Environmental Impact Assessment (EIA) processes where future port expansions are anticipated, which may need to assess and inform mitigation option. This is particularly important due to the nature of port development and the risks this poses for cumulative impacts to ultimately manifest. It also does not preclude the need to monitor certain aspects of the marine environment to obtain a better understanding of the system and how the ports operations affect/influence the system. Monitoring should provide a comprehensive base of information on the functioning of the marine environment thereby improving the integrity of BA studies that may be conducted for future elements of port developments.
5.1.6 Guidelines for sustainable port development and operation

5.1.6.1 Guidelines for port planning and environmental management:

1) For future port expansion (physical expansion of port facilities or breakwaters and dredging activities required to source fill material) consideration should be given to the impact on the sandy beach ecosystem, specifically intertidal fauna. This should be done by:
   - Considering results of effects monitoring recommended under Section 5.1.6.2 Effects Monitoring,
   - Assessing the impact of future port development on the shoreline stability (slope and sediment size distribution) of Table Bay through monitoring and predictive modelling (see Section 5.3).

2) Water quality management should be implemented through the Port Environmental Management System. This should include the following:
   - Sediment quality sampling prior to dredging and dumping operations (see action levels from London Dumping Convention Annex 1 Substances, and special care ranges for Annex II Substances as listed in DEAT (1998),
   - Manage and monitor pollutant inputs from ship repair facilities,
   - Improve quality of storm water inflows into the port,
   - Ensure the highest level of control on fuel transfers to limit accidental discharges,
   - Ensure strict enforcement of the discharge prohibition by any ships in the port area,
   - Reduce probabilities of accidental oil spills through enforcement of traffic management systems and preventing entry to Table Bay of ships that clearly represent hazards (but observing International Convention for the safety of Life at Sea (SOLAS) requirements).

3) Prevention of the introduction of alien invasive organisms and pathogens to Table Bay should be achieved though the Environmental Management System by:
   - Prohibiting untreated ballast water discharges in Table Bay and/or the port where the vessels are of distant origin (i.e. outside southern African territorial waters). Ballast water management guidelines developed through the Global Ballast Water Management Programme for South Africa should be implemented,
   - Prohibiting the discharge or dumping of biological material cleaned from ship hulls both in the port and in Table Bay.

5.1.6.2 Monitoring guidelines

Although the marine environment does not pose major constraints to future port development, with exception of sensitive seabird species (Bank Cormorants and African Penguins), it still behoves the NPA of the Port of Cape Town to monitor contaminant/pollution levels and potential effects of operations on selected biological communities. The benefits or objectives of monitoring arise as follows:
1) To confirm or test past environmental response predictions that have been made,
2) To obtain time series data that can be used to assist with impact prediction of future project specific port developments (i.e. as part of an EIA specialist study),
3) To inform in a precautionary manner the management of contamination and/or pollution levels within known safe limits.

This monitoring falls into the two categories of precautionary and effects monitoring and should form part of the Port’s Environmental Management System.

**Precautionary Monitoring.**

This monitoring category is relates to the control of pollutants released into the marine environment. The purpose is provide an indications of trends (in particular, increases) regarding concentrations or frequencies of release of pollutants or contaminants into the environment. This will allow timeous management intervention to control discharges and/or spills of contaminants or pollutants. Aspects that need to be monitored in this category are described in Table 5.3.

Information derived from established monitoring programmes represents an extremely valuable resource for NPA to assess the situation regarding the water quality status of Table Bay, which may be attributed to the port and associated activities. Important for the NPA in this regard are the temporal trends. Increasing trends over time should trigger investigation to establish whether these are attributable to the port or its operations and where required, should also trigger management interventions.

In addition to the general marine water quality monitoring to these variables MCM records penguin and comorant populations and breeding success on Robben Island and the frequency of harmful algal bloom occurrences. Although both of these are mainly controlled or affected by mesoscale (10 – 100 km) physical and biological oceanographic features and processes (Randall 1989; Probyn et al 2000), the monitoring data can ‘protect’ the NPA from negative public perceptions on the role of the port. Consequently, it is recommend that the NPA Port of Cape Town, actively and formally support these monitoring efforts by engaging with the relevant institutions.

For these monitoring programmes to be useful to NPA it is necessary that the derived information (i.e. analyses and interpretations) should be incorporated into NPA’s environmental monitoring and management information systems (See Chapter 7). Statements regarding the environmental performance should be structured as annual ‘state of the environment’ reports for the Port of Cape Town and Table Bay. Such reporting permits both tracking of performance-related trends and publicising NPA’s efforts in reducing/controlling deleterious environmental impacts. The ‘state of the environment’ reports form one pillar of the overall Sustainability Report discussed in Chapter 7.
<table>
<thead>
<tr>
<th>Aspect to be monitored</th>
<th>Indicator</th>
<th>Target</th>
<th>Monitoring already being undertaken, i.e. potential for synergy.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of pollution in Harbour and Table Bay sediments</td>
<td>Trace metal and hydrocarbon concentrations</td>
<td>London Dumping Convention Annex 1 Substances, and special care ranges for Annex II Substances as listed in DEAT (1998).</td>
<td>NPA already conducts annual assessments of sediment quality in the harbour to determine suitability for dredge spoil disposal (Monteiro 1999, Monteiro and Scott 2000 and 2001). The City of Cape Town supports monitoring of Table Bay sediments at approximately 6-year intervals (Monteiro 1997 and survey commissioned for April/May 2003).</td>
</tr>
</tbody>
</table>
| Shipping and other port related accidents and operations resulting in spillages of oil and other contaminants | • Number and volume of oil spills  
• Frequencies and numbers of seabirds (African Penguins and Bank Cormorants) affected by oiling  
• Numbers, types and volumes of other spills in the port | Should be minimized at all costs | MCM and SAMSA maintain oil spill records and MCM and SANCCOB track frequencies of oiling in seabirds (e.g. penguins, cormorants, gannets etc). |
Another requirement for effectiveness of the monitoring programmes is for the NPA to have a clear understanding of what management interventions may be required should the monitoring indicate, for example, increasing amounts of contaminants in Table Bay. Defining such intervention requires that sources of contaminants are known, (e.g. oil spills, fuel supply system leaks, storm water flows), as well as an understanding of the vectors through which contaminants entering the port water body are exported into Table Bay. Implicit here is an understanding of transfers across the major interfaces of the port and city (mainly storm water) and the port and Table Bay (tidal and other exchanges, effects of storms, circulation and wave conditions, etc). This level of understanding has not yet been achieved and it is, therefore, recommended that appropriate research, incorporating model simulations and measurement programmes, be commissioned to inform decision-making regarding management interventions required to protect the Table Bay marine ecosystem ecology from deleterious impacts attributable to the port.

**Effects monitoring**

This monitoring initiative should aim to establish whether port development and/or operations are affecting important biological communities in Table Bay. Detection of such effects will indicate the need for management intervention to respond to (e.g. eliminate) the stressor(s). This requires that the links between the observed response(s) and the project activities and specific aspects thereof are known or are demonstrable. Clearly, if this is not the case there is no point in monitoring.

Port development (physical expansion of the port infrastructure into Table Bay and dredging in Table Bay) has potential consequences, in particular the intertidal sandy beach biota. Capital dredging and physical expansion of the port may change wave patterns within the bay, which may ultimately affect beach slope and particle size distribution - important habitat determinants. The important indicators for the sandy beaches (white mussel, Donax serra and the plough snail, Bullia digitalis) are sensitive to these determinants. Changes in the respective populations of bioindicator species can indicate critical environmental changes. Monitoring variables include population density and age structure for Donax and abundance for Bullia. An outline monitoring framework is set out in Appendix 3.1.

Port operation may affect all of the biological communities in Table Bay through its contribution to chronic toxicity effects of contaminants and pollutants and imports and releases of alien marine organisms. Convenient sites for monitoring bioindicator organisms/ecosystems include the outer harbour wall and kelp bed communities - the former, because of its proximity to the areas where contaminants, pollutants and alien species may be introduced into the Table Bay environment and its contribution to a rock lobster habitat, and the latter, because of the ecological contribution made to the Benguela ecosystem.

The premise underlying monitoring of the harbour wall habitat state and kelp bed biological communities is that chronic toxicity effects will modify community structure, for example, by reducing recruitment rates of some ecosystem components (Gray et al 1991). Invasive alien species also have the potential to modify habitat and communities through competitive replacement or elimination of biota. Both of these effects can result either in subtle or gross community changes, with the latter, potentially resulting in significant consequences for trophic relationships and ecological functioning.
Baseline information on the ecological status of the outer harbour wall is available from CMS (1995b). Through reference to this baseline condition, monitoring surveys would examine changes in overall community structure, presence of alien species and rock lobster abundance over time.

There is no recent survey data from which a baseline situation can be established against which changes in local kelp bed communities can be measured. Velimirov et al (1977) provide the most recent comprehensive description of the marine environment in the Sea Point area and it is clear that this source of information is out of date. Thus, a monitoring programme focussed on this environmental component would need to establish a baseline condition derived from an initial survey, with measurements of change over time, based on this reference state. This is expensive but there are possibilities for co-operation with the Cape Peninsula National Park authorities who have initiated a programme to monitor key indicators of community structure for the whole of the Cape Peninsula coastline (kelp, sea urchins, rock lobster, abalone, alikreukel and reef fish).

Outline monitoring frameworks for the harbour wall and kelp bed communities are described in detail in Appendix 3.1.
5.2 Marine archaeology

HISTORIC OVERVIEW

1870
1920
1933
1945
1966
1977
### 5.2.1 Issue statement

The location of shipwrecks within the area of future port expansion (physical expansion, source of fill material, dredge spoil dumpsite) may pose a constraint to future port development. In terms of the National Heritage Resources Act (Act No. 25 of 1999), shipwrecks older than 60 years are classified as National Heritage Sites and a full archaeological investigation may be required before the site can be disturbed.

As a result of the potential long lead times for a marine archaeological assessment should a shipwreck of significance be found, it is suggested that the area within Table Bay where future port development may take place in the next 25 years and beyond is investigated. This will allow the port sufficient time to deal with issues related to shipwrecks should they be identified.

### 5.2.2 SEA Objectives

The following SEA objectives relate to this section:

**SEA Objective 4:**

Improve the understanding of how the livelihood and quality of life of local communities surrounding the port may impact on future port development and operation;

**SEA Objective 6:**

Improve economic, social and biophysical environmental data collection within the port and surrounds, so that this information can be proactively used for environmental management, port planning and triple bottom line reporting.
5.2.3 State of environment

The different types of maritime archaeological sites that may occur in the Table Bay region include five general categories.

1) Historical occupation sites on shore,
2) Historical harbour works,
3) Pre-historical material under water and on shore,
4) Shipwrecks, and
5) Anchorage debris.

Of these five categories, the “historical occupation sites on shore” and “historical harbour works” are considered of lesser relevance. This is mainly because the “historical occupation sites on shore” fall outside the boundaries of the port and “historical harbour works” such as the Chavonnes Battery and harbour works, were covered up by later developments and reclamation activities. They are currently incorporated in existing land-based facilities and no indications have been given of planned development activities for these sites in the immediate future. The three remaining categories are considered relevant, warranting more detailed research.

5.2.3.1 Pre-historical material under water and on shore

The earliest evidence of hominid presence in the area available to date is represented by Acheulean hand axes, dating to the Palaeolithic period. This was found on the 4 February 1995, on the seabed at a distance of approximately 100 metres offshore opposite Paarden Eiland, underneath debris from the seventeenth century VOC ship Waddinxveen. The Acheulean hand axe, made from locally occurring quartzite, was found in situ. Although dated to between 300,000 and 1.4 million years old, the axe is still very sharp and represents one of the most pristine examples of its kind found in South Africa to date. Other Acheulean hand axes were found some time later south of Milnerton near the wreck site of the Oosterland, another VOC ship which sank nearby. These stone tools are unique in the way that they provide evidence for the earliest periods of human presence in the Table Bay region. Furthermore, they represent the oldest artefacts ever found under water worldwide. The hand axe which was excavated from the Waddinxveen site also gives an indication of past sea level changes, as it was found in its original context at an approximate water depth of seven metres below the present mean sea level.

Further archaeological evidence for human presence in the region is represented by various burials of indigenous people along the shores of Blaauwberg, Milnerton and Paarden Eiland. The earliest of these have been dated to approximately 3000 BP, whereas the more recent burials were deposited during the early colonial period. Ephemeral shell scatters and stone artefacts have been observed which might well originate from shell middens in the area. In addition, one isolated burial dating to the historical period was reported south of the Milnerton lighthouse. It probably dates to the late eighteenth or early nineteenth century. The skeleton could not be identified as belonging to any particular population group, but associated finds indicate that the individual formed part of a society with strong European influence.
5.2.3.2 Shipwrecks

Increased shipping movements and the growing importance of the area, especially during the nineteenth and twentieth centuries, stimulated trade and the Port of Cape Town started to develop. The nineteenth century saw a marked increase in shipping traffic compared to the previous period and, as a result, large-scale construction of harbour works such as jetties, wharfs and other transfer, storage and overhauling facilities was undertaken. Due to intensified maritime traffic, many shipping incidents occurred and these often resulted in total loss of vessels and their contents. The wrecks of these ships represent the most obvious subjects for maritime archaeological research and for this reason attention will now be concentrated on this part of the archaeological potential.

The first of the tables presented (Table 5.4) reflects the various nationalities of wrecks.

It can be observed that ships of at least 21 different nations met their end in Table Bay, partly reflecting the great diversity, which is characteristic for the research potential represented by South African wrecks. Of these, the number of British shipwrecks is predominant. Two main explanations can be given for this. Firstly, many local vessels were registered under the British flag as the Cape used to be a British colony during the greater part of the nineteenth century and the beginning of the twentieth century. Secondly, during the nineteenth century Britain occupied a dominant position with regards to international maritime traffic and commerce. These points are clearly reflected in the chronological spread.

<table>
<thead>
<tr>
<th>No.</th>
<th>Nationalities</th>
<th>Wrecks</th>
<th>No.</th>
<th>Nationalities</th>
<th>Wrecks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>British</td>
<td>146</td>
<td>12</td>
<td>Taiwanese</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Dutch</td>
<td>50</td>
<td>13</td>
<td>Austrian</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>American</td>
<td>25</td>
<td>14</td>
<td>Canadian</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>French</td>
<td>16</td>
<td>15</td>
<td>Greek</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>German</td>
<td>8</td>
<td>16</td>
<td>Irish</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Portuguese</td>
<td>8</td>
<td>17</td>
<td>Korean</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Danish</td>
<td>5</td>
<td>18</td>
<td>Russian</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Italian</td>
<td>4</td>
<td>19</td>
<td>Sardinian</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Swedish</td>
<td>3</td>
<td>20</td>
<td>South African</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Norwegian</td>
<td>2</td>
<td>21</td>
<td>Uruguayan</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Spanish</td>
<td>2</td>
<td>22</td>
<td>Nationality not specified</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From 1806, when the second British occupation of the Cape started, until 1910, when the Union of South Africa was established, at least 132 vessels flying the British flag foundered in Table Bay. This figure represents 90 per cent of the identified total number of British ships.

The number of Dutch shipwrecks is also substantial. Of the total number of 50, 44 or 88 per cent were lost before 1800. By far most of these vessels belonged to the VOC which occupied the Cape before British rule was imposed. Dutch ships included larger merchantmen or retourschepen which plied the trade routes between Europe and Asia. Of these, some seventeen foundered or were laid up in the Table Bay area during a stop-
over on the outward-bound or homeward-bound journey, whereas other vessels included smaller types used for fishing, transfer of goods and passengers, reconnaissance or relaying messages between the VOC post at the Cape and other regions. The number of American ships is also noteworthy and can be explained by the important role this nation started to play in nineteenth century commerce and trade, after having obtained independence from Britain towards the latter part of the eighteenth century. Ships from other nations are less represented. Table 5.5 reflects the various types of wrecks that amount to at least 27 different types in total.

Of the specified vessel types, the ratio between sailing vessels and engine-driven vessels is approximately eight to one. This already indicates to a certain extent that many shipping disasters in Table Bay are not to be attributed to human failure, but more to natural conditions and the level of technology at certain periods.

Sailing ships were often trapped and could not leave the bay, especially when strong westerly and north-westerly winds were blowing which are characteristic for the winter months. As a result, many were pushed into the shallows and even cast ashore near places such as Woodstock beach, the mouth of the Salt River, the Paarden Eiland beach or near the Castle. Engine-driven vessels were much less vulnerable to these natural conditions and this, together with other developments such as the building of harbour facilities since the mid-nineteenth century, the building of lighthouses and the availability of tugs, radar and radio communications, reduced the risks to navigation significantly.

<table>
<thead>
<tr>
<th>No.</th>
<th>Vessel types</th>
<th>Wrecks</th>
<th>No.</th>
<th>Vessel types</th>
<th>Wrecks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wooden sailing ship</td>
<td>110</td>
<td>15</td>
<td>Cargo boat (engine driven)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Barque (sailing ship)</td>
<td>72</td>
<td>16</td>
<td>Carrier (engine driven)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Brig (sailing ship)</td>
<td>42</td>
<td>17</td>
<td>Corvette (sailing ship)</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Schooner (sailing ship)</td>
<td>28</td>
<td>18</td>
<td>Fishing vessel (engine driven)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Motor vessel</td>
<td>10</td>
<td>19</td>
<td>Motor coaster (engine driven)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Steamship</td>
<td>9</td>
<td>20</td>
<td>Packet (sailing ship)</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Brigantine (sailing ship)</td>
<td>8</td>
<td>21</td>
<td>Pinnace (sailing ship)</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Snow (sailing ship)</td>
<td>5</td>
<td>22</td>
<td>Salvage vessel (engine driven)</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Cutter (sailing ship)</td>
<td>5</td>
<td>23</td>
<td>Trawler (steam ship)</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>Whaler (sailing ship)</td>
<td>3</td>
<td>24</td>
<td>Troopship</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Flute (sailing ship)</td>
<td>2</td>
<td>25</td>
<td>Tug (steam ship)</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Iron sail-steamer ship</td>
<td>2</td>
<td>26</td>
<td>Tuna catcher (engine driven)</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>Mail steamer</td>
<td>2</td>
<td>27</td>
<td>Whaler (steam ship)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Trawler (engine driven)</td>
<td>2</td>
<td>28</td>
<td>Type not specified</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>360</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
An attempt to indicate the approximate places of deposition for all of the 360 identified shipwrecks in Table Bay is not possible due to the earlier acknowledged incompleteness of available records. Of the known potential of wrecks, the place of foundering of 94 vessels is not stated. This equals to 26 per cent of the total. It might, however, be assumed that most of these wrecks were deposited proportionally at those places which are mentioned in Table 5.6.

Of the places that are indicated, the majority can be found near the southern and south-eastern shores of the bay. These include Granger Bay, the shores adjacent to the Imhoff and Amsterdam batteries, the old breakwater and the South Wharf, the beaches near Fort Knokke and the Castle, Woodstock beach, the old Salt River mouth and Paarden Eiland, where at least 155 vessels, or 43 per cent of the recorded total, went down or were laid up. Due to land reclamation since the latter part of the nineteenth century, it is to be expected that many of these sites are now situated underneath the Cape Town Waterfront and Foreshore areas. Other concentrations can be observed near Green Point and Mouille Point, which indicate the entrance to Table Bay. At these places, at least 44 vessels or 12 per cent were wrecked. Robben Island also takes up a dominant position, with 31 references (8.6 per cent). This number, however, seems to contradict the results of a cultural resource management project called Operation Sea Eagle, during which information was collected on 22 wrecks which were deposited within the one nautical mile zone surrounding the island. This discrepancy can be explained by the fact that Operation Sea Eagle only focussed on existing wreck sites and did not incorporate ships which were refloated after foundering or dismantled completely, such as the Schapenjacht. It also did not include the wrecks of two ships, the Han Cheng 2 and the Sea Challenger that foundered in 1998 after Operation Sea Eagle had been completed.

### Table 5.6: Recorded shipwrecks in Table Bay for the period 1610-1998 classified according to place of foundering

<table>
<thead>
<tr>
<th>Place of foundering</th>
<th>Number of wrecks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Woodstock Beach</td>
<td>81</td>
</tr>
<tr>
<td>2 Salt River mouth</td>
<td>42</td>
</tr>
<tr>
<td>3 Robben Island and Whale Rock</td>
<td>31</td>
</tr>
<tr>
<td>4 Green Point</td>
<td>23</td>
</tr>
<tr>
<td>5 Mouille Point</td>
<td>21</td>
</tr>
<tr>
<td>6 Blaaubergstrand</td>
<td>19</td>
</tr>
<tr>
<td>7 Paarden Eiland</td>
<td>12</td>
</tr>
<tr>
<td>8 Near the Castle</td>
<td>9</td>
</tr>
<tr>
<td>9 Rietvlei</td>
<td>5</td>
</tr>
<tr>
<td>10 Milnerton Beach</td>
<td>4</td>
</tr>
<tr>
<td>11 Granger Bay</td>
<td>2</td>
</tr>
<tr>
<td>12 Anchorage/Roadstead</td>
<td>2</td>
</tr>
<tr>
<td>13 Amsterdam Battery</td>
<td>2</td>
</tr>
<tr>
<td>14 Imhoff Battery</td>
<td>2</td>
</tr>
<tr>
<td>15 Breakwater</td>
<td>1</td>
</tr>
<tr>
<td>16 Fort Knokke</td>
<td>1</td>
</tr>
<tr>
<td>17 Oude Schip</td>
<td>1</td>
</tr>
<tr>
<td>18 South Wharf</td>
<td>1</td>
</tr>
<tr>
<td>19 Place not specified</td>
<td>94</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>360</strong></td>
</tr>
</tbody>
</table>

Note: For comprehensive details of each shipwreck please refer to Appendix 1 of the Specialist Study on Marine Archaeology.

It can be concluded that the potential of shipwrecks in Table Bay is considerable. A minimum of 360 such sites was identified from information provided by historical records and various shipwreck databases. The first recorded incident took place in the period 1610-1619. From 1840 to 1870, the number of maritime incidents in the bay reached its peak, resulting in
134 shipwrecks. This can partly be explained by increasing shipping traffic during this period, inadequate harbour facilities until 1870 and several great gales, mainly those of 1842 and 1865. The most recent incidents that resulted in ships being wrecked took place in 1998.

The diversity of the shipwreck potential is reflected in the number of nationalities represented by individual vessels, at least 21, and the different vessel types, at least 27. Although shipwrecks can be found in most parts of Table Bay, concentrations of wrecks are observed near the coast. The old beaches of Woodstock and Salt River seem to contain the greatest numbers, mainly as a result of the destructive forces of north-westerly winds. As the greater part of these beaches is presently under reclaimed land, future fieldwork might well involve terrestrial excavations.

### 5.2.3.3 Anchorage Debris

Important examples of “anchorage debris” may be found in the old anchorage grounds opposite the Castle. Parts of the old roadstead were covered up by later developments but it is quite possible that finds can still be made further north. As the exact perimeter of the old roadstead is not known, but also because ships may have anchored outside the roads on occasion, it is quite possible that material was also deposited outside the roads. This certainly applies to flotsam and jetsam.

For these reasons, it is not possible to exactly demarcate an area in which anchorage debris may be found. It is, however, advisable to exercise extra caution during development, should dredging operations be planned in the area east of 18°24' longitude and south of 33°50' latitude.

### 5.2.4 Objectives, targets and indicators

The following objective, targets and indicators have been defined to guide present and future port development and operations so that they do not negatively impact on the historical-cultural resources of Table Bay.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Targets</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure that historical-cultural resources within the area of the Port of Cape Town, as well as the greater Table Bay area, are proactively researched so that they can be effectively considered during port planning, design and construction activities.</td>
<td>Initiate more detailed marine archaeological research in areas outside of the port boundaries where the port may expand to in the future.</td>
<td>Financial contribution by the National Ports Authority to further research on the archaeological status of Table Bay.</td>
</tr>
<tr>
<td></td>
<td>Consider research data and information in the planning stages of future port development.</td>
<td>Number of reports and articles published as a result of the research.</td>
</tr>
<tr>
<td></td>
<td>Research information should feed into baseline studies that must be undertaken prior to any port specific expansion, or port-related activities outside of the port boundaries to assess the maritime archaeological potential of the area.</td>
<td>Number and quality of baseline studies undertaken by a qualified archaeologist prior to port expansion or other activities outside of the port boundaries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number and quality of initial assessments undertaken by a qualified archaeologist, should archaeological artefacts be found in the dredge material.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Presence of marine archaeologist during dredging activities.</td>
</tr>
</tbody>
</table>
5.2.5 Opportunities and constraints for sustainable port development

Opportunities exist for the Port of Cape Town to contribute to the continued research of the marine archaeological status of Table Bay. This will facilitate proactive consideration of this issue for future port development.

In terms of the National Heritage Resources Act (Act No. 25 of 1999), shipwrecks older than 60 years are classified as National Heritage Sites and a full archaeological investigation may be required before the site can be disturbed. If a full archaeological investigation is required, and this has not been identified early on in the project life cycle (i.e. during the planning phase), long lead times for a the assessment may be required. The time required for this type of assessment may have an impact on the project schedule resulting in lengthy delays.

5.2.6 Guidelines for sustainable port development and operation

It is essential to formulate basic principles and guidelines for the assessment, study and management of historical-cultural resources within the Port of Cape Town, as well as the greater Table Bay area. Such guidelines and principles include but are not limited to the following:

5.2.6.1 Guidelines for port planning

1. Due to the long lead-time for an archaeological assessment, should a significant archaeological site be identified during a specific port expansion, baseline research should be initiated early on, the results of which should be considered in future port planning (See Appendix 3.2 for research programme).
2. Research information gathered in this way should be made available and published in local and international literature.

5.2.6.2 Guidelines for port design and construction

The following investigations must be completed during the feasibility stages of future port development (physical expansion and dredging):

1. Before any development takes place, a baseline study must be undertaken to assess the maritime archaeological potential of the area. Information gathered as part of the above recommended research should be made available and used,
2. The results of this study must be taken into consideration when more detailed work plans are being designed,
3. Any work in designated areas must take the possible presence, importance and sensitivity of maritime archaeological sites into consideration,
4. The baseline study (i.e. desktop study) must be undertaken by a professional archaeologist with experience in maritime archaeology and archival research,
5. Potential future surveys and excavation must be undertaken by suitably trained and qualified personnel,
6. Whenever possible, located sites that are under threat must be adequately preserved in situ. If this is not feasible, an archaeological survey and (partial) excavation must be undertaken to save as much information as is reasonably possible,
7. Any material recovered during such operations must be adequately stored and preserved and must remain accessible for further study.
Excavation and recovery can only be done after a license from the Department of Customs and Excise has been issued and a permit from the South African Heritage Resources Agency (SARHA) has been granted.

8. Proper lines of communication between the developer (i.e. the Port of Cape Town), the EIA teams and the specialist for maritime archaeology must be maintained at all stages.

9. The various stages of the archaeological survey and information gained must be properly documented and made accessible.
5.3 Shoreline stability
### 5.3.1 Issue statement

The future physical expansion of the port into Table Bay and possible sourcing of fill material from the bay to support such development, may have an impact on the shoreline stability of Table Bay. If this potential impact is significant i.e. could result in substantial amounts of erosion of the coastline, the future long-term development of the port could be constrained.

Several studies have been conducted on the sediment dynamics of Table Bay. There is no doubt that severe erosion has occurred in the southern half of the bay. Anecdotal information, maps and previous reports describe severe erosion in the decades prior to completion of the Ben Schoeman dock in 1977, while more reliable survey data from 1967 to the present also indicates an ongoing erosion trend. There is a need to comprehensively understand the dynamics of the shoreline of Table Bay so that appropriate management action can be implemented where critical limits of erosion have already been exceeded.

### 5.3.2 SEA Objectives

The following SEA objectives relate to this section:

**SEA Objective 3:**

Improve the understanding of how the surrounding biophysical environment may impact on future port development and operation;

**SEA Objective 6:**

Improve economic, social and biophysical environmental data collection within the port and surrounds, so that this information can be proactively used for environmental management, port planning and triple bottom line reporting.
5.3.3 State of environment

5.3.3.1 Driving forces of sediment dynamics in Table Bay

Table Bay is a halfheart west-facing bay on the Atlantic coast (Figure 5.2). The limits of the bay are approximately defined by Green Point in the south and the rocks at the northern end of Table View beach (termed Blaauwberg rocks). Between the Port of Cape Town and Blaauwberg rocks, the beach extends along the bay perimeter. The configuration of this beach is influenced by (a) physical processes associated with prevailing winds and waves and (b) sand supply, from, for example, neighbouring coasts and rivers.

Several studies have been conducted on the sediment dynamics within Table Bay. There is no doubt that severe erosion has occurred in the southern half of the bay. Anecdotal information, maps and previous reports describe severe erosion in the decades prior to completion of the Ben Schoeman dock in 1977, while more reliable survey data from 1967 to the present also indicates an ongoing erosion trend.

In an effort to understand the sediment dynamics of Table Bay, the sediment budget (i.e. the sediment inputs, losses and transports) was estimated prior to development of Table Bay, i.e. before 1870 when the Alfred basin was constructed. The man-induced influences on this sediment budget and the resulting erosion were then explored, in order to outline the causes of erosion.

Figure 5.2: Sediment sources and sinks to Table Bay
However, prior to the assessment of pre- and post-development sediment budget, it was important to understand the relevant physical processes influencing sand movement in Table Bay. The physical processes influencing the beaches of Table Bay are summarised in Table 5.8 below:

<table>
<thead>
<tr>
<th>Table 5.8: Physical processes influencing sediment dynamics in Table Bay</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WAVE-GENERATED PROCESSES</strong></td>
</tr>
<tr>
<td><strong>Longshore transport</strong></td>
</tr>
<tr>
<td>A small angle occurring between breaking wave fronts and the shoreline results in the generation of a longshore current. Sediments stirred by wave action are transported by such currents, resulting in longshore transport. In the case of Table Bay this transport varies with offshore wave direction – at times it is northerly-directed and at times it is directed to the south. The process of longshore transport is the primary process responsible for transport of sand along the Table Bay shoreline. It is the process responsible for the loss of sand at the northerly boundary of the bay (i.e. at Blaauwberg rocks) and responsible for a very small input of sand at the southern end of the bay.</td>
</tr>
<tr>
<td><strong>Cross-shore transport</strong></td>
</tr>
<tr>
<td>During storm conditions sand is eroded from the upper beach and deposited further offshore (generally to depths of some 10-18 m depth). During interim calm periods, this sand is steadily returned to the beach. The result is an seasonal on- and offshore movement of the shoreline. In the case of Table Bay, such movements are generally greater than those caused by longshore transport.</td>
</tr>
<tr>
<td><strong>Nearshore transport</strong></td>
</tr>
<tr>
<td>In the region seaward of breaking waves, the nearshore region, a slower rate of sediment transport occurs. Bottom sediments are stirred up by wave orbital currents (i.e. the back-and-forth currents generated by passing waves). Movement of such sediments is induced by an asymmetry in the orbital currents and/or by other currents, such as wind- and/or tide-driven currents. This type of nearshore transport could be responsible for relatively minor sediment transport into Table Bay from the southern boundary of the bay.</td>
</tr>
<tr>
<td><strong>WIND-GENERATED PROCESSES</strong></td>
</tr>
<tr>
<td><strong>Aeolian transport (Wind blown sand)</strong></td>
</tr>
<tr>
<td>Wind plays an important role in transporting loose sediment in dunes or on the beach, in the form of aeolian transport. In Table Bay, the wind is primarily southerly to south-easterly. This wind direction would have resulted in a net supply of sand (assuming sand to be available) from beach and dunes in the south, and removal of sand from the beaches in the north.</td>
</tr>
<tr>
<td><strong>Wind generated currents</strong></td>
</tr>
<tr>
<td>Wind also contributes to the generation of currents, through the action of shear stress at the water/air interface, thus contributing to nearshore sediment transport. This action of the wind can also result in the setup (superelevation) of the water-level during onshore wind conditions (thus promoting erosion of the upper beach). However, such processes are generally secondary, relative to wave-generated processes.</td>
</tr>
<tr>
<td><strong>TIDE-GENERATED PROCESSES</strong></td>
</tr>
<tr>
<td><strong>Tides</strong></td>
</tr>
<tr>
<td>Tides cause variation of the mean water level. The mean spring tidal range in Table Bay is 1.6 m, with a mean neap tidal range of 0.6 m. While tides contribute to the generation of nearshore currents, their major influence is in terms of beach erosion, i.e. if a storm waves attack a beach during spring high tides, erosion of the upper beach will be more severe than the same storm in spring or neap low tide conditions.</td>
</tr>
</tbody>
</table>

5.3.3.2 Synthesis of the pre-development situation

From the analysis of historical sediment sources to and losses from Table Bay, it is evident that sources and losses were relatively small, each of these estimated to be in the order of 5 to 10 thousand cubic metres annually (on average). The fact that the sea-bed of Table Bay is largely rocky supports this observation that sources to and losses from the bay were relatively small. The alternative scenario of major sand sources over the years would
have resulted in a sandy sea-bed, such as occurs at Durban Bight for example. In addition, a theoretical analysis, employing equilibrium bay theory (Hsu et al, 1989) indicated the bay to be close to a state of equilibrium (CSIR, 1999) i.e. a state whereby net sand transport along the bay shoreline is small, and whereby no major transport of sand through the bay occurs. This finding also supports the observation of relatively minor sand sources to and losses from the bay. A relatively sediment-poor system such as this is likely to be sensitive to any changes through development of structures, influences on the sediment sources and/or losses or sea-level rise.

5.3.3.3 SYNTHESIS OF MAN-INDUCED EFFECTS ON SEDIMENT DYNAMICS OF TABLE BAY

Available information and an understanding of coastal processes indicate the primary influence on Table Bay in the last century or so to be the construction of the harbour. Harbour construction has affected the bay through the creation of a wave shelter zone that causes changes in sand transport rates along the shore. The change in transport rates causes the establishment of a new equilibrium configuration of the beach, generally resulting in some erosion. In addition, dredging of sand in the bay would have affected wave patterns and thus impacted on sediment transport, probably causing erosion.

Cutting of the wind-blown sand supply, commencing in dune stabilisation and culminating in the construction of the seawall soon after 1972, where coastal dunes formerly existed, has also promoted erosion in the bay. In addition, the mobilisation by wind of sand from dunes of which the vegetation is in a poor condition along the southern fringe of the golf course, has led to a loss of sand to the north.

Another influence is the dredging of the lagoon, resulting in a once-off reduction in sand supply to the coastal zone. Sea-level rise and changes to the river discharge of sand have probably had only a minor influence on shoreline stability in Table Bay.

Trends in beach erosion and accretion from 1965 to 2002

A number of beach surveys of Table Bay were conducted between 1965 and 2002. These encompassed beach cross-section/profile measurements at fourteen locations along the bay. These beach profile measurements have been plotted together with previous available measurements to investigate the erosion/accretion trends at each point.

When interpreting this data, it is important to bear in mind that each survey represents a snapshot of the beach state. On/offshore variations throughout the year are considerable and the standard deviation of the variation (excluding the long-term erosion trend) ranges from ±1.9 m to ±9.0 m. In particular, when considering the recent survey of 2002, it must be recognised that this survey was conducted at the end of a severe winter of storms. This winter extended somewhat into spring: during October 2002 at least five storms occurred with wave heights in excess of 4 m (as measured offshore). Thus a bias towards an eroded beach state would be expected.

The Table 5.9 provides a description of beach profile changes at each survey beacon as observed from the available data collected during the period from 1965 to 2002. The positions of the beach profiles are indicated in Figure 5.3. Detailed plots and analysis of the profiles are contained in the specialist study.
Figure 5.3: Location of survey beacons in Table Bay
### Table 5.9: Assessment of change in beach profiles from 1965 to 2002

<table>
<thead>
<tr>
<th>Beacon number</th>
<th>Area</th>
<th>Assessment of change from 1965 to 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Just north of the Outfall at Leisure bay (formerly Lagoongate)</td>
<td>Severe retreat of entire profile between 1965 and 1992, by almost 30 m. No significant change since that time. Since 1999, a slight (2 m) retreat of dune crest occurred.</td>
</tr>
<tr>
<td>7</td>
<td>Woodbridge Island</td>
<td>General erosion since 1965 through lowering of the beach profile. Variation evident, but 2002 profile is no worse than others from the last 10 years. Reduction of dune crest by 1 m is evident since 1999 survey.</td>
</tr>
<tr>
<td>8</td>
<td>Woodbridge Island</td>
<td>General erosion since 1965. Variation in surveys of the last 20 years, showing erosion and accretion. Severe retreat of dune by 5 m since 1999.</td>
</tr>
<tr>
<td>9</td>
<td>Woodbridge Island</td>
<td>General erosion since 1965. Variation in surveys, showing erosion and accretion since then. Severe erosion of lower beach profile of 2002–the most eroded profile surveyed - but dune position unchanged.</td>
</tr>
<tr>
<td>11</td>
<td>Golf clubhouse</td>
<td>General erosion since 1965. 2002 survey shows severe erosion of lower profile and retreat of the dune base (at MSL +3.5 m) by 8 m since 1999. Dune crest remained stable.</td>
</tr>
<tr>
<td>12</td>
<td>Golf course</td>
<td>Severe retreat of dune with relatively limited erosion of remainder of profile.</td>
</tr>
<tr>
<td>14</td>
<td>Golf course</td>
<td>Erosion of lower profile in 2002.</td>
</tr>
<tr>
<td>16</td>
<td>Winton wreck</td>
<td>Severe erosion of lower profile in 2002. Dune appears to be stable with only limited retreat since 1965, and accretion by 6 m at the +4 m MSL elevation relative to 1999.</td>
</tr>
<tr>
<td>31</td>
<td>South of Dolphin Beach</td>
<td>Profile appears stable with minor accretion since 1965.</td>
</tr>
<tr>
<td>41</td>
<td>Table View</td>
<td>Profile appears unchanged since 1965.</td>
</tr>
</tbody>
</table>
A trend of erosion between 1965 and the present is clearly evident for the more southerly profiles. Of concern is the recent severe erosion of the lower profile for 10 out of the 14 measured profiles. This is partly due to severe post-winter storms attacking the already-eroded winter profile. Only further measurements will determine to what extent this is a short-term effect, with recovery occurring in following months. Retreat of the dune, evident in 8 of the 14 profiles, is also of concern since recovery is a long process and may not occur at all if the dune is severely eroded.

By extracting the location of the +2 m MSL beach contour relative to the survey beacon from the profile data at each of the survey beacons, the movement of this contour, which is representative of the shoreline, can be quantified over time. By applying a linear fit through the data, and assuming a linear relationship to be appropriate, the long-term trend can be quantified and is given in the table below for each of the fourteen survey beacons.

The data at each of the survey beacons is sparse at times, particularly in the 1970’s and 1980’s. In addition, a linear fit may not always be appropriate. Nevertheless, the fact that erosion occurs at all of the survey beacons except 31 and 41 (where very gradual accretion and negligible change were measured respectively) is significant. The greatest rate of erosion has occurred at beacons 7, 8 and 11. This analysis indicates that the average linear shoreline movement rate for all the beacons is 0.31 m of erosion per year over the whole period from 1965/7 to 2002. This may be compared to the average linear rate of 0.28 m/year determined in the 1999 analysis (CSIR, 1999). The fact that the erosion rate has apparently increased probably results from the December 2002 survey being conducted after a winter and spring period with many storms. This highlights the fact that more certainty can be obtained if more frequent surveys are conducted.

<table>
<thead>
<tr>
<th>Beacon</th>
<th>2 m contour change per year (-ve erosion, + ve accretion) in metres</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>-0.25</td>
</tr>
<tr>
<td>7</td>
<td>-0.65</td>
</tr>
<tr>
<td>8</td>
<td>-0.59</td>
</tr>
<tr>
<td>9</td>
<td>-0.34</td>
</tr>
<tr>
<td>10</td>
<td>-0.31</td>
</tr>
<tr>
<td>11</td>
<td>-0.61</td>
</tr>
<tr>
<td>12</td>
<td>-0.36</td>
</tr>
<tr>
<td>13</td>
<td>-0.33</td>
</tr>
<tr>
<td>14</td>
<td>-0.26</td>
</tr>
<tr>
<td>15</td>
<td>-0.30</td>
</tr>
<tr>
<td>16</td>
<td>-0.18</td>
</tr>
<tr>
<td>22</td>
<td>-0.25</td>
</tr>
<tr>
<td>31</td>
<td>+0.05</td>
</tr>
<tr>
<td>41</td>
<td>+0.01</td>
</tr>
<tr>
<td>Average</td>
<td>-0.31</td>
</tr>
</tbody>
</table>

### 5.3.3.4 Sensitive areas within Table Bay

Areas that are sensitive or will be sensitive in future to shoreline changes (erosion or accretion) have been identified. While excessive accretion of
of most concern are regions of present erosion and potential future erosion. Sensitive regions can be categorised in terms of potential impacts, such as:

A. Potential impact on beach amenity (Beach amenity implies there is (a) a reasonable width of beach for recreation/sunbathing as well as (b) dunes appearing to be in reasonable condition – eroded dunes can affect the aesthetics of the beach,

B. Potential property erosion,

C. Potential damage to structures,

D. Potential impact on ecology (beach fauna, birds, dune vegetation), and

E. Potential exposure of shipwrecks and archaeological artefacts.

In assessing sensitive areas, the present situation and erosion trends, as discussed above are taken into account. It is assumed that, with any future harbour extensions, exposure of new sensitive areas will either be totally avoided or stringent mitigation measures put in place to ensure that new sensitive areas are not exposed.

In Table 5.11, sensitive areas are assessed, from south to north along the shoreline, in terms of the categories A to E. A detailed description follows.
Figure 5.4: Location of specified shoreline areas

Approx 2 km
Table 5.11: Details of areas sensitive to erosion in Table Bay

<table>
<thead>
<tr>
<th>Area</th>
<th>Impact Category</th>
<th>Comment</th>
<th>Present status</th>
<th>Predicted future condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The Wedge”</td>
<td>A, E</td>
<td>Harbour developments in the vicinity are likely to change wave conditions.</td>
<td>Unaffected</td>
<td>Surfing wave quality is likely to be affected – sensitive.</td>
</tr>
<tr>
<td>Opposite the seawall</td>
<td>C, E</td>
<td>Harbour developments could result in erosion that could undermine the seawall.</td>
<td>Unaffected</td>
<td>Sensitive to any harbour extensions.</td>
</tr>
<tr>
<td>Just north of the seawall</td>
<td>A, C, D, E</td>
<td>Eroded rubble slope recently bolstered with rock.</td>
<td>Sensitive</td>
<td>Sensitive to further erosion.</td>
</tr>
<tr>
<td>Development South of Leisure Bay</td>
<td>A, C, D, E</td>
<td>Setback small but hidden revetment is in place.</td>
<td>Sensitive</td>
<td>Sensitive to future erosion.</td>
</tr>
<tr>
<td>At Leisure Bay development</td>
<td>A, B, C, D, E</td>
<td>Impression from photos that: (1) Marram dune grass was in better condition in 99 and (2) Dune was in slightly better condition</td>
<td>Eroded – sensitive</td>
<td>Sensitive to future erosion.</td>
</tr>
<tr>
<td>At Zonnekus House (Woodbridge Island)</td>
<td>A, B, C, D, E</td>
<td>Beach severely eroded at present aggravated by old debris from house structures. The presence of the Loffelstein wall aggravates dune erosion. Wall collapse (Sept 2001) and recent staircase undermining.</td>
<td>Beach in an eroded state. Stair foundations undermined.</td>
<td>Very sensitive to future erosion.</td>
</tr>
<tr>
<td>Milnerton Lifesavers’ club and adjacent concrete steps</td>
<td>A, B, C, D, E</td>
<td>Slight setback relative to neighbouring dune. However, slipway is on active beach profile.</td>
<td>In a sensitive position.</td>
<td>Sensitive to future erosion.</td>
</tr>
<tr>
<td>Sunset</td>
<td>A, D</td>
<td>Erosion increased since March 1999. Severe erosion and exposure of soil layers were not evident then but are at present.</td>
<td>Dunes in severely eroded state.</td>
<td>Sensitive to future erosion.</td>
</tr>
<tr>
<td>Northern end of Table View</td>
<td>A</td>
<td>Erosion of the dune slope. Exposed underlayers.</td>
<td>Eroded state</td>
<td>Sensitive to NW wave conditions.</td>
</tr>
</tbody>
</table>

* The northern boundary of the concentration of shipwrecks is not certain - (Dr Werze, pers comm.).
5.3.4 Objectives, targets and indicators

The following objective, targets and indicators have been defined to guide present and future port development and operations so that they do not negatively impact on the shoreline stability of Table Bay.

5.3.4.1 Objectives

The following objectives should be followed to maintain shoreline stability and beach functionality in Table Bay:

- Ensure that there is adequate safe setback of property and that safety from overtopping and consequent flooding is maintained at all times,
- Ensure that the integrity of existing structures in the eroded southern Table Bay are maintained (e.g. seawall at Paarden Island, the revetment at the southern end of the Paarden Island seawall, the outfall south of Leisure Bay, the car park south of the Diep River mouth, Milnerton Lifesavers Clubhouse, and the adjacent concrete steps),
- Ensure that beach amenity is maintained for an acceptable percentage of the time,
- Ensure that dune vegetation is maintained and that dunes are not excessively eroded,
- Anticipate impacts of future developments in Table Bay, by:
  - Assessing future erosion trends, thereby timeously identifying the need for solutions. It is entirely possible that the long-term erosion rate is decreasing, and therefore the nature of the trend affects the type of remedial solutions required,
  - Evaluating the performance of possible solutions. For example, any solution proposed can first be tested through computational models (such as a model of shoreline evolution) and/or physical scale models. This provides confidence in the functionality of the solution and allows economical design refinements,
  - Assessing the impact of future harbour developments on the shoreline. Future harbour extensions are inevitable. The impact of these on shoreline stability should be assessed by means of computational modelling during the port-planning phase.

5.3.4.2 Targets

In order to meet the above objectives a number of targets have been defined.

Safe setback of property

<table>
<thead>
<tr>
<th>Region</th>
<th>Minimum dune elevation (m)</th>
<th>Acceptable setback (m)</th>
<th>Emergency setback (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paarden Island Seawall to Diep River</td>
<td>3.3</td>
<td>30</td>
<td>18</td>
</tr>
<tr>
<td>Diep River to Zonnekus House</td>
<td>4.0</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>Zonnekus House to Lifesavers Building</td>
<td>5.0</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>Maestros Restaurant</td>
<td>5.9</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Start of Golf course northwards</td>
<td>5.0</td>
<td>20</td>
<td>12</td>
</tr>
</tbody>
</table>
Safety from overtopping and flooding
Target dune elevation: At least 4.5 m MSL

Integrity of exiting structures

Table 5.13: Targets for structures

<table>
<thead>
<tr>
<th>Structure</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paarden Island Seawall</td>
<td>Elevation of sea bed at structure toe must be at acceptable limit (and ensuring no erosive trend) Keep in functional condition.</td>
</tr>
<tr>
<td>Railway embankment</td>
<td>The minimum distance between the railway line and the upper edge of the embankment should be 6 m, i.e. No further erosion relative to the condition on 27 January 2003. Adequate height to minimise overtopping.</td>
</tr>
<tr>
<td>Outfall south of Leisure Bay</td>
<td>Keep in functional condition and aesthetically pleasing</td>
</tr>
<tr>
<td>Slipways, steps at Lifesavers' clubhouse</td>
<td>Keep in functional condition and aesthetically pleasing '</td>
</tr>
</tbody>
</table>

* Depends on seawall design. Indications from available drawings indicate the seabed should not be much lower than mean low water at springs. However, the limit will vary along the structure. Most important is to commence a series of measurements and to take action if an erosive trend is determined.

** This will require avoiding undermining of foundations, excessive corrosion, cracking of concrete and ingress of water, excessive settlement of structure and general degradation of materials.

*** At the time of printing this report, the revetment at the embankment had been repaired through substantial placement of rock

Beach amenity
Target beach width: The distance between +2 m MSL the base of the dune (which is clearly distinguished on a well-surveyed profile) should on average be at least 10 m for all profiles measured along Milnerton Beach, from the Diep River to the Golf Club Restaurant, and for all profiles from the Golf Club Restaurant to Sunset Beach.

Dune condition
Dune vegetation must be maintained in a reasonable condition.

Anticipated future developments

- Annually update the shoreline model incorporating all recent (within the last month) measurements of directional waves, sediment and bathymetry,
- Validate the model against updated shoreline evolution trend (from measurements), within an accuracy of ±7 m, on an annual basis,
- Provide predictions of the shoreline evolution for the next 10 years.

5.3.4.3 Indicators

The indicators below are measured parameters which will facilitate assessment against the targets as identified above. The indicators will be derived from:

- Quarterly surveys, conducted at several stations along the Table Bay shoreline, and
- Coastal Engineering and Botanist inspections.

Table 5.14 provides a summary of the objectives, targets and indicators.
### Table 5.14: Shoreline Stability: Objectives, targets and indicators

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target/s</th>
<th>Indicators</th>
<th>Monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe setback of property</td>
<td>Setback from dune crest as per Table 5.12.</td>
<td>Minimum distance from dune crest to each development</td>
<td>Dune surveys</td>
</tr>
<tr>
<td>Safety from overtopping/flooding</td>
<td>Dune crest +4.5 m MSL in south Table Bay</td>
<td>Minimum dune crest height at each development</td>
<td>Dune surveys</td>
</tr>
<tr>
<td>Integrity of beach structures</td>
<td>Acceptable elevation of sea-bed at toe of seawall</td>
<td>Sea-bed elevation at seawall toe.</td>
<td>Dune and structure surveys</td>
</tr>
<tr>
<td></td>
<td>Acceptable condition of seawall</td>
<td>Condition of seawall (engineering description)</td>
<td>Structure surveys</td>
</tr>
<tr>
<td></td>
<td>Acceptable distance from railway (minimum 6 m) (Table 5.13).</td>
<td>Distance from eroded edge to railway line.</td>
<td>Topographical beach survey Aerial photos</td>
</tr>
<tr>
<td></td>
<td>Acceptable condition of structures Table 5.13)</td>
<td>Condition of structure (engineering description)</td>
<td>Structure survey</td>
</tr>
<tr>
<td></td>
<td>Acceptable height/protection from overtopping</td>
<td>Condition of structure (engineering description)</td>
<td>Structure survey</td>
</tr>
<tr>
<td>Beach amenity</td>
<td>10 m average beach width at average tide, average waves</td>
<td>Distance from +2 m MSL to dune base (averages for Diep River to Golf Club Restaurant, and from this Restaurant to Rietvlei Reserve)</td>
<td>Topographical beach survey Aerial photos</td>
</tr>
<tr>
<td></td>
<td>All dunes in good condition in terms of appearance and vegetation cover</td>
<td>Condition of dune and vegetation cover</td>
<td>Dune surveys</td>
</tr>
<tr>
<td>To timeously anticipate future erosion (and to provide solutions where applicable)</td>
<td>Update and validate shoreline model (within 7 m of measured trend)</td>
<td>Model confidence report clarifying error between predicted and measured trends</td>
<td>Topographical Beach Surveys Sediment Sampling Directional Wave Measurements Aerial Photographs Model predictions</td>
</tr>
<tr>
<td></td>
<td>Prediction of future shoreline evolution</td>
<td>Predicted shoreline configuration at 1, 2, 5, and 10 years from the present</td>
<td>Shoreline model</td>
</tr>
</tbody>
</table>
Various objectives, targets and indicators have been defined above for understanding and managing the issues related to shoreline stability in Table Bay. It is however, of some concern that certain of the targets have been exceeded. The table below contains a summary of where this has occurred. A full description is contained in Specialist Study 2: Specialist Study on Shoreline Stability (CSIR Report No. ENV-S-C 2003-057).

Table 5.15: Exceeded Thresholds

<table>
<thead>
<tr>
<th>Target/threshold</th>
<th>Area where target/threshold has been exceeded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe setback of property</td>
<td>Leisure Bay</td>
</tr>
<tr>
<td></td>
<td>South of Leisure Bay – new development</td>
</tr>
<tr>
<td></td>
<td>Diep River to Zonnekus</td>
</tr>
<tr>
<td></td>
<td>Golf Club Restaurant</td>
</tr>
<tr>
<td></td>
<td>Golf Course – north of club house</td>
</tr>
<tr>
<td>Safety from overtopping/flooding</td>
<td>Leisure Bay</td>
</tr>
<tr>
<td></td>
<td>South of Leisure Bay</td>
</tr>
<tr>
<td></td>
<td>Woodbridge Island</td>
</tr>
<tr>
<td>Beach amenity</td>
<td>Diep River to Golf Club Restaurant</td>
</tr>
<tr>
<td></td>
<td>Golf Club Restaurant to Sunset Beach</td>
</tr>
<tr>
<td>Dune condition</td>
<td>Leisure Isle</td>
</tr>
<tr>
<td></td>
<td>Golf Course</td>
</tr>
<tr>
<td></td>
<td>Sunset Beach</td>
</tr>
</tbody>
</table>

5.3.5 Opportunities and constraints to future sustainable port development

The following opportunities could be employed in developing the port:

- Modify port extensions to improve shoreline stability. The wave shadow zone may be defined as the region behind (or south of) the end of the breakwater tip; this region is sheltered from the dominant wave directions. By strategically placing harbour extensions within the shadow zone, however, sand which would have accumulated in the shadow zone will not do so, if the area is already occupied with a harbour extension. However, care is needed at the edges of any extension. If a shoal is created in the construction, refraction on this shoal can cause wave direction changes which would tend to accumulate sediment adjacent to the structure.

- Port extensions can be designed to create beaches. The Wedge beach is an example of a beach that was inadvertently created. If required, more substantial beaches than the Wedge beach can be intentionally designed.

- Opportunities exist for creating good surfing waves, e.g. through the creation of artificial reefs or appropriately directing or reflecting waves off breakwaters. The Wedge beach is an example of such a creation. More successful versions, in areas more exposed to swell, could be designed. This is highlighted in case surfing amenity is removed through harbour development.

- The opportunity exists to expand the harbour in a region that is not a high priority for tourism or residential development, i.e. seaward of the seawall fringing Paarden Island. Apart from the imminent container terminal expansion, this general area has been earmarked for long-term (20 years plus) development (NPA, 2002).

- At least part of the above-mentioned area is situated in the wave shadow zone. Developments within this area should not have a large influence on shoreline stability (but should all be tested by means of computational modelling, to ensure that this is the case).
When dredging for port operations, the opportunity exists to
a. Dredge strategically - by creating a dredge hole in the appropriate location, breaking wave directions and heights can be altered such that sediment transport in desired directions is promoted. Sand from the dredged hole could be supplied where it is required.
b. Supply sand to the eroded beach.

The following constraints to port development are identified:

β Public pressure resulting from perceived aggravation of erosion,
β Cost of mitigatory actions to avoid beach erosion, such as:
   a. Measures applied to harbour structures (e.g. energy-absorbing revetments/ altered designs);
   b. Sourcing fill sand at remote sites so as to avoid impacts of wave regime changes on the sensitive Table Bay shoreline; and
   c. Dredging in such a way as to avoid impacts of wave regime changes on the shoreline.
β Cost of mitigatory actions to remedy beach erosion, should this occur as a result of port expansion (e.g. beach nourishment, protective revetments, etc).

5.3.6 Guidelines for sustainable port development and operation

This section provides various guidelines to be considered by the port planner, engineers and environmental manager during the port planning phase. Some of the guidelines may also be relevant to the City of Cape Town’s planning and environmental departments. If implemented, the guidelines should promote more effective decision making with regards to the shoreline stability issue within Table Bay. In some cases, erosion issues have reached critical proportions and management actions are required to ensure that the objectives and targets, as discussed in Section 5.3.4, are met. Preferred management actions are recommended, the implementation of which may not necessarily be the sole responsibility of the port (i.e. dune maintenance, protection structures etc). The implementation will need to be a combined effort between the Port of Cape Town, City of Cape Town and private landowners.

5.3.6.1 Guidelines for port planning

The following guidelines are proposed for future port planning to maximise the opportunities and overcome the constraints to future sustainable port development and operation:

Future port expansion

β Try to place any developments within the existing wave shadow zone. Wave conditions are on average small in this area and absolute changes to these wave conditions will also be small in magnitude resulting in a limited impact of shoreline dynamics.

β If a new wave shadow zone is created (i.e. extension of the outer breakwater) it should be “filled” with planned extensions. If not filled with extensions, sand is likely to accumulate in the sheltered shadow zone, at the expense of neighbouring beaches.

β If a new wave shadow zone is created (i.e. extension of the outer breakwater) subsequent development should be restricted to the shadow zone. Development in this zone should have relatively limited additional impact (i.e. apart from any headland shift) on erosion.
Be aware of the opportunity to create beaches (or surfing waves if desired). If well located, such beaches could become a public amenity. It is possible that beaches could be created with minimal additional effort, depending on the proposed extension design. In this regard, dialogue with a coastal engineer at the stage of preliminary conceptual design would be advisable.

The unused and revetted section of shoreline fringing Paarden Island is an appealing area for development, as this is already an industrial area that is not used by Milnerton residents or by tourists. The proviso is that port development should ideally not be too close to Leisure Bay, Neptunes Isle and other planned residential developments near the Diep River Lagoon.

Where appropriate, energy-absorbing revetments should be employed. In isolated cases reflecting structures could be desirable. For example, if accumulation of sand is undesirable, a reflective structure may prevent this.

**Future Dredging**

When planning, opportunities for strategic dredging should be borne in mind. While potentially risky, in that a poor design could result in undesirable erosion of a beach, this may not be an issue along the Paarden Island shoreline, where the major seawall can weather a degree of erosion. Strategic dredging can be designed employing the wave refraction and shoreline evolution models that have already been established for Table Bay.

Opportunities for the supply of sand to eroding beaches, or for supplying sand to avoid beach erosion should also be explored. If wave refraction and shoreline modelling shows that deposition in a region adjacent to a harbour extension is inevitable, then this deposition will probably occur at the expense of erosion of neighbouring beaches. However, if the predicted deposition area is filled with sand (or other material) this situation can be avoided. This logic can be extended to ensure a sand supply to beaches that are presently eroding.

A large volume of sand placed on or very near to the shoreline, adjacent to a harbour development, will be steadily reworked by wave action so that the neighbouring shoreline is supplied with sand. It should be cautioned that successful nourishment of a shoreline depends on appropriate sand being supplied at or very close to the shoreline (i.e. either on the upper beach, in the intertidal zone, or in the near surf-zone). Material placed beyond the surf zone could have deleterious effects, i.e. a localised shoal could cause wave focussing and thus localised erosion on the shoreline.

Any dredging required to source fill material for harbour developments should preferably be conducted in areas where no impact will occur on the sediment-depleted Table Bay. Dredging should be conducted well beyond the depth of meaningful natural nearshore sand movement (at least deeper than -15 m MSL). A general formula is that the deeper dredging is conducted, the less the effect on waves (and therefore on sand transport and consequently shoreline stability).

In relation to the configuration of future ‘dredge holes’ required for sourcing fill material, a relatively deep hole is likely to have more impact on wave changes than a wide shallow hole. A trench aligned with prevailing wave crests will generally have less impact than one aligned perpendicular to wave crests.

**Use of computer models for planning and conceptual design**

Computational modelling of wave transformation, resulting sediment transport and shoreline evolution, should be used to assist with
conceptual designs of future port expansion early on in the port planning phase. Results from the monitoring programme, as discussed in Section 5.3.6.2, should be used to continually update and calibrate modelling.

5.3.6.2 Monitoring Guidelines

In order to assist with managing the issue of shoreline stability, certain monitoring is required to evaluate if the targets are being met. Monitored data must be used to continually update and calibrate the shoreline model, to facilitate a better understanding of the system. This will allow for more informed decision-making with regards future port developments. Where targets have been exceeded then appropriate management actions are required as discussed in Section 5.3.6.3.

The following monitoring is required:

- Topographical Beach Surveys,
- Sediment Sampling,
- Directional Wave Measurements,
- Aerial Photographs,
- Structure Surveys, and
- Dune Surveys.

The details of monitoring programmes for each of the above are included in Appendix 3.3.

5.3.6.3 Management Actions Guidelines

Several target thresholds required to maintain shoreline stability have been exceeded, as outlined in Section 5.3.4. It is therefore evident that mitigatory measures should be considered to prevent further problems. There are various options/measures available to address the problem of long-term erosion along the Table Bay shoreline. Each of these options is described and assessed in detail in Specialist Study 2: Specialist Study on Shoreline Stability (CSIR report No. ENV-S-C 2003-057). The suitability, advantages and disadvantages, and relative costs of the solution measure are considered.

For each solution considered, there are two possible extremes of shoreline erosion. The actual situation may be between these extremes:

1. The average erosion rate (excluding storm and seasonal effects) is decreasing and will taper off in the next 10 years or so. Thus, erosion of the shoreline is slowing down as the coastline adjusts to a new equilibrium, after which point no further long-term erosion will occur. Under this scenario, storm effects will still be experienced at sensitive locations on the shoreline.

2. The average erosion rate (excluding storm and seasonal effects) effectively has a linear trend. Although the erosion rate is slowly decreasing and the shoreline will ultimately reach an equilibrium configuration, the time at which this will occur could be as much as 50 years. Furthermore, if sea-level rise occurs at the worst rate of the predicted range of possible sea-level rise erosion of the shoreline may not taper off. Storm effects will be aggravated, particularly at sensitive locations on the shoreline. This is effectively a worst-case scenario.
The following options/measures are considered in Specialist Study 2: Specialist Study on Shoreline Stability (CSIR report No. ENV-S-C 2003-057):

- "Do Nothing",
- Defence structures,
- Retreat of infrastructure,
- Beach nourishment,
- Groynes,
- Offshore breakwaters,
- Strategic dredging,
- Combination of solutions.

The "Do Nothing" option does not solve the erosion problem. Considering that there is virtually no section of shoreline that can afford a period of continued erosion under this option, it is not deemed to be a practical alternative.

Defence structures are the "most immediate" option that individual property owners can take, but it should be recognised that the option may only be temporary if the long-term erosion problem continues. It can therefore be used to prevent damage during storms, but may not provide long-term safety and will detrimentally affect the beach amenity in the event of severe long-term erosion. Despite these limitations, a defence structure is considered to be the only option available to the golf club restaurant, provided this is designed such that minimal impact on the neighbouring beach occurs during storms. A hidden defence (under a recreated dune) would be the ideal design.

The Retreat option could be attractive only in parts of Table Bay. For example, in the region of Sunset Beach, a managed retreat whereby severely eroded dunes could effectively be reconstructed further landward could be successful. However, this option should only be employed with the knowledge of when the erosion trend will taper off such that equilibrium is attained. Costs could be prohibitive if shoreline retreat continues at a high rate.

The solutions involving hard structures in and beyond the surf zone (groynes, emerged or submerged offshore breakwaters) require beach nourishment if they are to provide protection against storms and not create further erosion problems. The nourishment required in these cases would be of a similar magnitude to that for a nourishment-only solution. However, the hard structures do not afford significant advantages and instead carry very serious disadvantages, such as poor aesthetics and possible bathing safety impacts. The total costs for these measures would thus effectively comprise the costs of the structures and the cost of the beach nourishment solution.

Strategic dredging or dumping is perhaps an ideal solution, as it would solve the erosion by addressing its source, i.e. wave conditions. While the uncertainties and risks are deemed to be high to recommend it as a viable solution on its own, the option should be kept open to employ the approach in regions where a small loss of beach may be acceptable (e.g. possibly along the Paarden Island seawall) and in regions where sand fill is required anyway.

Beach nourishments are gaining popularity world-wide as effective measures of controlling beach erosion without creating further problems. A nourishment fulfills the dual role of addressing the long-term erosion while at the same time providing protection against storm effects. The disadvantages of a beach nourishment relate not to its effects on the
Shoreline, but only to the need for replenishment of the nourishment sand. It will be required to periodically re-nourish or maintain the nourishment through constant, low-rate feeding of sand.

Shoreline model simulations indicate that an initial nourishment of 175,000 m$^3$ to 350,000 m$^3$ sand (considering possible offshore losses) is required to restore a safe beach width of and additional 12 m or so along the presently most threatened stretch of coastline.

The constant feeding rate required to maintain the nourishment is low (20,000 m$^3$/yr to 40,000 m$^3$/year - including offshore losses), with the nourishment sand having beneficial impacts for the downdrift coastline. Additionally, nourishment only needs to be replenished if severe erosion of the initial nourishment occurs. Assuming an initial nourishment and annual re-nourishment as above, then a total volume of 1,100,000 m$^3$ would be required to ensure a safe beach width for a period of twenty years. This volume is small when compared to nourishment volumes at Durban, for example, where 6,000,000 m$^3$ is nourished in the same period.

It is therefore recommended that a beach nourishment solution be considered to address the erosion problems along the southern Table Bay shoreline. A practical approach would be the placement of a large volume of sand during the future port expansion, while dredgers are accessing sand from the plentiful source north-west of Robben Island (provided this sand is suitable). This could be achieved by piping it to shore under calm conditions, or possibly “rainbowing” material closer to shore. Nourishment should go hand-in-hand with an intensive beach monitoring program in order to accurately assess erosion rates and the degree of success of the operation. Following this initial nourishment, subsequent nourishments of up to 40,000 m$^3$ annually could conceivably be accessed from the surf zone seaward of the Paarden Island seawall. In summer this region is frequently calm enough for deployment of a pontoon with jet pumps to access the sand and pump it along the beach at least as far as Woodbridge Island (where shoreline model simulations illustrated the potential of this solution). It is unlikely that this rate of depletion from Paarden Island region will impact on the seawall structure or its function as a wave protection.

It is also recommended that protective/defence measures be implemented in the interim to prevent further storm erosion of those areas presently under most threat, i.e. the golf club restaurant.

Furthermore, it is recommended that:
- The dune at Leisure Bay is restored to a height of +4.5 m MSL,
- The new development further south is closely monitored,
- The four isolated areas of the dune along the edge of the golf course that are extremely narrow be supplied with sand and vegetated to restore the minimum safe dune width of 12 m.
5.4 Accessibility of the port
## 5.4.1 Issue statement

The restricted access to the port via city, regional and national road and rail routes, may prevent the port from achieving its future economic and efficiency goals and therefore pose a constraint to meeting the long-term sustainable vision for the port.

Efficient road and rail access to the Port of Cape Town is essential for the port to fulfil its economic role. Understanding the ‘access limits’ under which the port can operate, while still facilitating the economic development of the city and region, and meeting the efficiency requirements of the ports clients, is a key requirement. Understanding the movement of port-generated road traffic within the port boundaries and the links to the city-generated road traffic with regards to future access to the port, is an important sub-component. Understanding these aspects will assist in quantifying the need to address the access issues to the Port of Cape Town, while at the same time offering some assessment of possible alternative solutions to the challenge.

## 5.4.2 SEA Objectives

The following SEA objectives relate to this section:

**SEA Objective 1:**

Improve port-city relationships and cooperative decision-making.
5.4.3 State of environment

5.4.3.1 Road access

There are a number of existing developments taking place in proximity to the port with many additional planned developments. These developments and planned developments are discussed in more detail in Section 5.5. All of these developments are relevant to the issue of access to the port as many of them will attract additional road traffic thus resulting in additional congestion. The Port is currently served by the N1 Freeway, Marine Drive, Paarden Eiland Road, Table Bay Boulevard and South Arm Road via Dock Road. Duncan and Container Roads are the internal access routes with access intersections at Marine Drive, Oswald Pirow, Heerengracht and South Arm Road. Figure 5.5 shows the major road access routes into the Port of Cape Town.

The N1 is a very important Class 1 Freeway facility linking the Central City and port to the rest of the Metropolitan area and the hinterland. In the vicinity of the port, the N1 carries very high commuter peak periods flows and operates under congested conditions in the peak direction of flow, for approximately two hours during each of the weekday commuter peak periods. During the off peak period, the route remains busy, carrying business and freight traffic to and from the port and Central City. In the vicinity of the port, the N1 is called Table Bay Boulevard. Table Bay Boulevard extends under that Foreshore Freeway where it intersects with both Oswald Pirow and the Heerengracht. The section of Table Bay Boulevard under the Foreshore Freeway operates at under capacity conditions during the weekday morning peak period. During the weekday evening peak period, backup from the Koeberg interchange results in congestion on this section of Table Bay Boulevard.

Marine Drive is a very important Class 2 facility linking the Central City and port to the Milnerton and Table View Areas. The route also links the port to the important industrial areas of Paarden Eiland, Marconi Beam and Montague Gardens. This route currently operates under congested conditions during the weekday morning and evening peak periods, due to high tidal commuter flows to and from the Central City. The existing single lane on-ramp, from Marine Drive onto the N1, has been operating at capacity during the weekday morning peak period since 1989, resulting in the backup of traffic through the Marine Drive/Paarden Eiland Road intersection.

South Arm Road has recently been upgraded to a dual carriageway between Dock Road and Duncan Road. During the weekday morning and evening peak period, this route operates under capacity conditions. The current peak period congestion on both the N1 and Marine Drive has had an influence on the scheduling of deliveries to and from the port, as heavy vehicle operators attempt to avoid trucks being affected by congestion for extended periods.

At present, the critical two lane section of Duncan Road, east of Oswald Pirow Street, is operating at capacity in the peak direction of travel during the weekday evening peak hour. The same section of Duncan Road operates at near capacity conditions in the peak direction of travel, during the weekday morning peak hour. The remaining sections of Duncan Road operate at under capacity conditions during the peak hours under consideration.

At present, Container Road operates at under capacity conditions during all three peak hours under consideration.
Figure 5.5: Major road access routes into the Port of Cape Town
5.4.3.2 Rail access

The modal share of rail is decreasing due to the competition presented by road based freight haulage. Rail still has a role to play in the movement of bulk, long distance items and empty containers.

The future of rail transport to the port should be safeguarded due to a number of factors:

- The metropolitan rail network has significant reserve capacity to accommodate growth in rail based freight transport,
- Rail operations are not effected by the growing weekday commuter peak period congestion,
- The rail network within the port is extensive, serving all areas of the port,
- Rail will continue to offer travel time savings over east coast ports, for import items destined for the Gauteng area,
- The efficiency of rail in the transportation of certain bulk items, and
- Possible opportunities for an increase in the use of rail due to the proximity of the rail transfer facility to the expanding container terminal.

The capacity implications on the port rail network of the possible introduction into the port of the mainline train services and the Blue Train Station in the Roggebaai Canal Precinct, will need to be assessed, to ensure that this strategic transport service to the port is safeguarded.

5.4.3.3 Public transport

Public transport traffic generated by the port is concentrated predominantly at the South Arm and Heerengracht access intersections to the port. Heerengracht provides the least congested traffic route between Cape Town Station and the port during the weekday morning and evening commuter peaks, and should remain relatively uncongested in future. The route to South Arm via the Buitengracht corridor is already congested for extended periods during the weekday morning and PM commuter peaks, and this situation is likely to worsen overtime.

Based on the projected growth in port activities, it is likely that peak period public transport demand will increase.

5.4.3.4 Pedestrian traffic

The predominant pedestrian routes to and from the port are via South Arm Road and via the pedestrian bridge across the N1, opposite the Elliot Basin. Pedestrians destined for the South Arm area, have to cross the Buitengracht corridor en route from Cape Town Station. During the weekday morning and PM peak period, vehicle/pedestrian exposure rates are extremely high, resulting in frequent pedestrian/vehicle conflicts. The timing of the pedestrian signals at both the Hans Strijdom and Coen Steytler intersections with Buitengracht, are suboptimal. Furthermore, guidance mechanisms have not been introduced to prevent pedestrians from making unsafe crossing manoeuvres along this corridor.
Based on the projected growth in port activities, it is likely that peak period pedestrian flows on both of these pedestrian routes will increase.

5.4.3.5 **Assessment of Port Development Scenarios on Future Internal Traffic**

In order to assess the impact of future development scenarios (see Chapter 3 for details of the port development scenarios) on the road network serving the port, an operations model of the port was created. The model has been set up to assess the critical weekday morning and evening peak hours and the weekday midday peak hour. An intersection and link analysis of Duncan Road and Container Road was undertaken to assess the impact of future port development scenarios and through traffic on the ports internal access routes. Table 5.16 shows the traffic scenarios that were assessed. The detailed assumptions used for these analyses are contained in Appendix 4, together with the performance criteria.

**Table 5.16: Summary of traffic scenarios assessed**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Year</th>
<th>Including through traffic</th>
<th>Excluding through traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>2002</td>
<td>Assessed</td>
<td>Not assessed</td>
</tr>
<tr>
<td>Short term</td>
<td>2009</td>
<td>Assessed</td>
<td>Assessed</td>
</tr>
<tr>
<td>Medium term</td>
<td>2017</td>
<td>Assessed</td>
<td>Assessed</td>
</tr>
<tr>
<td>Long term</td>
<td>2027</td>
<td>Assessed</td>
<td>Assessed</td>
</tr>
</tbody>
</table>

The results of the link analysis and the intersection analysis with regards to the short, medium and long-term port development scenarios, are discussed below.

**Link analysis**

The Internal Route Level of Service is used to describe the level of performance of a route in terms of volume to capacity (v/c) ratio. An acceptable level of service for urban routes is a v/c ratio of less than 0.85. The performance of the links analysed were assessed according to the volume to capacity ratio of the link as shown Table 5.17.

**Table 5.17: Link performance levels (volume to capacity ratio)**

<table>
<thead>
<tr>
<th>Performance Level</th>
<th>v/c Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Capacity</td>
<td>0 &lt; v/c &lt; 0.85</td>
</tr>
<tr>
<td>Near Capacity</td>
<td>0.85 &lt; v/c &lt; 0.95</td>
</tr>
<tr>
<td>At Capacity</td>
<td>0.95 &lt; v/c &lt; 1.05</td>
</tr>
<tr>
<td>Over Capacity</td>
<td>v/c &gt; 1.05</td>
</tr>
</tbody>
</table>

Based on the link analysis, the following findings should be highlighted:

**Short Term:**
For the short term scenario, without the removal of through traffic from the port, the critical two lane section of Duncan Road, east of Oswald Pirow Street, will operate over capacity in the peak direction of travel during the weekday evening peak hour. This will result in congestion, low operating speeds and vehicle queuing on Duncan Road. The same section of Duncan Road will operate at capacity in the peak direction of travel, during the weekday morning peak hour. The remaining sections of Duncan Road and Container Road will continue to operate at under capacity conditions during the peak hours under consideration.
The removal of through traffic from the port in the short term will result in all sections of Duncan Road and Container Road operating at under capacity conditions during the three peak hours under consideration.

**Medium Term:**
For the medium term scenario, without the removal of through traffic from the port, the critical two lane section of Duncan Road, east of Oswald Pirow Street, will operate over capacity in the peak direction of travel during the weekday morning and evening peak hours, resulting in severe congestion, very low operating speeds and extensive vehicle queuing on Duncan Road. The remaining sections of Duncan Road will continue to operate at under capacity conditions during the peak hours under consideration.

During the weekday evening peak hour, the southbound carriageway of Container Road will operate over capacity. The removal of through traffic from the port in the medium term will result in all sections of Duncan Road and Container Road operating at under capacity conditions during the three peak hours under consideration.

**Long Term:**
For the long term scenario, without the removal of through traffic from the port, the majority of the Duncan Road and Container Road sections will operate at capacity or over capacity in the peak direction of travel during the weekday morning and PM peak hours. The removal of the through traffic in the long term, will result in all sections of Duncan Road and Container Road operating at under capacity conditions during the three peak hours under consideration.

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**Intersection analysis**

The impact of traffic generated by the anticipated port development and growth, together with background growth in the commuter traffic, has been assessed by analysing the performance of the following access and internal intersections to the port, for the existing and short-term scenarios:

- Duncan Road/South Arm traffic circle,
- Duncan Road/Heerengracht unsignalised intersection,
- Duncan Road/Oswald Pirow Street unsignalised intersection,
- Duncan Road/Container Road signalised intersection, and
- Marine Drive/Paarden Eiland/Container Road signalised intersection.

Intersection performance is evaluated in terms of Level of Service (LOS). The LOS of an intersection is related to the average control delay per vehicle using that intersection within the specified analysis period (typically an hour). An acceptable level of service for urban intersections is LOS D or average delay per vehicle of 55 seconds at signalised intersections and 35 seconds per vehicle at unsignalised intersections. The range of levels of service and the corresponding vehicular delays for signalised and unsignalised intersections are summarised in Table 5.18.
Table 5.18: Level of service for signalised and unsignalised intersection

<table>
<thead>
<tr>
<th>Level of Service (LOS)</th>
<th>Average Vehicular Control Delay (sec/veh)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Signalised Intersection</td>
</tr>
<tr>
<td>A</td>
<td>0 to 10</td>
</tr>
<tr>
<td>B</td>
<td>10 to 20</td>
</tr>
<tr>
<td>C</td>
<td>20 to 35</td>
</tr>
<tr>
<td>D</td>
<td>35 to 55</td>
</tr>
<tr>
<td>E</td>
<td>55 to 80</td>
</tr>
<tr>
<td>F</td>
<td>Greater than 80</td>
</tr>
</tbody>
</table>

The analysis of intersections has been confined to the existing and short term scenarios to demonstrate that the access intersections to the Port, will already operate at very low levels of service in the short term, without the removal of through traffic from Duncan Road. The situation for the medium and long term scenarios would be similar, but worse than the short term scenario, see Table 5.19.

Based on the analysis of intersections, the following findings should be highlighted:

Duncan Road/South Arm Road Intersection:
At present this traffic circle operates at a high level of service (LOS B) during all three peak hours under consideration. This intersection will continue to operate at the current level of service for the short-term scenario, with or without through traffic.

Duncan Road/Heerengracht Intersection:
At present, this 3 way stop controlled intersection operates at a very low level of service (LOS F) during the weekday morning and evening peak hours and at a high level of service (LOS B) during the weekday midday peak hour.

For the short-term scenario with through traffic from the port, the performance of the intersection will deteriorate during both the weekday morning and evening peak hours, resulting in longer vehicle delays and vehicular congestion. The intersection will continue to operate at a high level of service (LOS B) during the weekday midday peak hour. In order to improve the performance of this intersection, consideration could be given to the signalisation of this intersection or the removal of through traffic from the port.

The removal of through traffic from the port will result in this intersection operating at high levels of service (LOS A/B) during all three peak hours under consideration.

Duncan Road/Oswald Pirow Street Intersection:
At present, this 3 way stop controlled intersection operates at a very low level of service (LOS F) during the weekday morning and evening peak hours and at a very high level of service (LOS A) during the weekday midday peak hour.
### Table 5.19: Summary of results of intersection analysis.

<table>
<thead>
<tr>
<th>NO</th>
<th>NAME</th>
<th>PEAK HOUR</th>
<th>EXISTING</th>
<th>SHORT TERM (2009) WITH THROUGH TRAFFIC</th>
<th>SHORT TERM (2009) WITHOUT THROUGH TRAFFIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>V/C Ratio</td>
<td>Delay (sec/veh)</td>
<td>LOS</td>
</tr>
<tr>
<td>1</td>
<td>Duncan Road/ South Arm Road (Traffic Circle)</td>
<td>AM</td>
<td>0.36</td>
<td>12.0</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MID</td>
<td>0.41</td>
<td>13.2</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>0.65</td>
<td>15.5</td>
<td>B</td>
</tr>
<tr>
<td>2</td>
<td>Duncan Road/ Heerengracht (3 way stop road)</td>
<td>AM</td>
<td>243.7</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MID</td>
<td>10.1</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>97.8</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Duncan Road/ Oswald Pirow Street (3 way stop)</td>
<td>AM</td>
<td>101.8</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MID</td>
<td>9.7</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>193.2</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Duncan Road/ Container Road (Signalised Intersection)</td>
<td>AM</td>
<td>0.63</td>
<td>3.8</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MID</td>
<td>0.30</td>
<td>7.3</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>0.49</td>
<td>6.6</td>
<td>A</td>
</tr>
<tr>
<td>5</td>
<td>Marine Drive/ Paarden Island Road (Signalised Intersection)</td>
<td>AM</td>
<td>0.99</td>
<td>43.8</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MID</td>
<td>0.59</td>
<td>18.2</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>0.88</td>
<td>25.7</td>
<td>C</td>
</tr>
</tbody>
</table>
For the short-term scenario with through traffic, the performance of the intersection will deteriorate during both the weekday morning and evening peak hours, resulting in longer vehicle delays and vehicular congestion. The intersection will continue to operate at a high level of service (LOS B) during the weekday midday peak hour. In order to improve the performance of this intersection, consideration could be given to the signalisation of this intersection or the removal of through traffic from the port.

The removal of through traffic from the port will result in this intersection operating at high levels of service (LOS A/B) during all three peak hours under consideration.

Duncan Road/Container Road intersection:
At present, this intersection operates at a high level of service (LOS A) during the three peak hours under consideration.

For the short-term scenario, the intersection will continue to operate at high levels of service (LOS A/B) with or without through traffic. It should be noted that for the short term scenario with through traffic, that although the intersection is operating at a high level of service during the weekday morning and evening peak hour, the volume to capacity ratios for the intersection are in the near capacity range (i.e. v/c between 0.85 and 0.95). This indicates that the intersection will have limited reserve capacity for medium term developments without the removal of through traffic.

Marine Drive/Paarden Eiland/Container Road Intersection:
This intersection operates under congested conditions during the weekday morning peak hour due to backup from the city-bound N1 onramp at the Marine Drive interchange. During the weekday evening peak hour, the intersection operates at a reasonable level of service (LOS C), because of the metering of traffic from the N1, as a result of congestion on the N1. During the weekday midday peak hour, the intersection operates at a high level of service (LOS B). For the short term scenario with through traffic, the performance of the intersection will deteriorate significantly to operate at a very low level of service (LOS F) during the weekday morning and evening peak hours, and at a reasonable level of service (LOS C) during the weekday midday peak hour.

Should the port close Duncan Road to through traffic, the theoretical performance of this intersection would improve during the weekday morning peak hours. In reality, the performance of this intersection will only improve during the weekday morning peak hour, once the downstream bottleneck effects of the Marine Drive interchange have been addressed. During the weekday evening peak hour, the performance of the intersection will further deteriorate to operate at a very low level of service (LOS F). As expected, the performance of the intersection during the midday peak hour will be unaffected by the removal of through traffic i.e. continue to operate at a reasonable level of service (LOS C).

5.4.3.6 SUMMARY OF TRANSPORTATION ASPECTS

Based on the foregoing discussion and assessment, the following problems and issues relating to the transportation aspects of the port and surrounds are summarised as follows:

Traffic Congestion on access routes to the port
- Peak period congestion along access routes to the port have resulted in a decrease in the accessibility of the port during these periods. Indications are that peak period traffic is growing at between 2% and
3% per annum on both the N1 Freeway and Marine Drive. Interpeak and off peak traffic flows are growing at between 2% and 6% per annum on these routes. Should current growth trends continue, the accessibility of the port will decrease for longer periods on weekdays, severely hampering the movement of cargo to and from the port.

Increased traffic congestion on the access routes to the port will result in an increased level of through traffic in the port (via Duncan Road), which will severely impact on the internal functioning of the port for longer periods on weekdays.

The Salt River Power Station site, which has been earmarked as a future Port Industrial Park, is constrained by poor access possibilities and severe peak period congestion. The future development of this land parcel may thus be adversely affected.

The present road system in the vicinity of the Marine Drive interchange is not conducive to the utilisation of small and unmanageable parcels of land adjacent to Marine Drive.

Increased congestion on the access routes (in particular South Arm Road) will result in further delays to the high number of public transport vehicles that act as a feeder service between the port and Cape Town Station.

Excessive traffic delays on the N1 Freeway will have a major impact on the quality of palletised fruit destined for the Fruit Terminal, which has to be moved between hinterland and port cold storage facilities with limited delay.

**Internal access routes - Duncan Road and Container Road**

A potential clash of operations has been identified between the proposed Blue Train station and the Multi-Purpose Terminal.

The Roggebaai Canal Precinct Developers have earmarked a portion of the Multi-Purpose Terminal stacking area for use as an access route to their development should the Cape Town International Convention Centre (CTICC) expand into the Customs House building. The developers of the CTICC have also expressed an interest in the abovementioned portion of the Multi-Purpose Terminal, to increase the footprint of the exhibition hall and to accommodate the Roggebaai Canal Precinct access road. This access road could either be Duncan Road itself or a route parallel to Duncan Road.

The Roggebaai Canal Precinct has indicated possible future access intersections onto Duncan Road.

Duncan Road is a significant through traffic route, accommodating approximately 800 vehicles through the port during the weekday morning peak hour and 1 350 vehicles during the weekday evening peak hour. The predominant “rat-run” is from the Marine Drive/Paarden Eiland Road intersection to Oswald Pirow, Heerengracht and South Arm Road during the weekday morning peak hour and the reverse during the weekday evening peak hour.

At present, the critical two lane section of Duncan Road, east of Oswald Pirow Street is operating at capacity in the peak direction of travel during the weekday evening peak hour. The same section of Duncan Road operates at near capacity conditions in the peak direction of travel, during the weekday morning peak hour. The remaining sections of Duncan Road operate at under capacity conditions during the peak hours under consideration.

When considering the short, medium and long term port development scenarios, Duncan Road, east of Oswald Pirow Street, will operate at overcapacity, if through traffic continues.

The remaining sections of Duncan Road and Container Road will operate under capacity in the short and medium term and at capacity in the long term, if through traffic continues.
The anticipated annual increase in commuter peak period congestion and the associated decreasing levels of accessibility of the port during these peak periods, is likely to continue during the short term. The current political emphasis on transport provision is on public transport as opposed to private/road based transport. This has implications for the port, as funding for road based capacity improvements on the N1 and Marine Drive will be extremely limited. Effective public transport improvements along Marine Drive and the N1 that target single occupant private vehicle commuters, should slow down the growth in commuter peak period flows, which will have positive implications for the accessibility of the port.

**Future Transport Planning**

- The Culemborg Development Framework Collector-Distributor (C-D) road proposals indicate that the on-and off ramps from Marine Drive to and from the east on the N1 Freeway will be removed. These movements will be served via a U-turn manoeuvre using the C-D roads and via the upgraded Lower Church Street interchange. Travel distance will be increased for heavy vehicle and other port related traffic using the N1.
- The proposed realignment of the Marine Drive interchange to incorporate the Salt River Power Station site will be extremely costly, result in increased travel distance for commuter travel and would result in limited additional access opportunities between the port and the Salt River Power Station site.
- The alignment proposed for the Bellville-Cape Town cycle path, is through the port along Duncan Road.
- Conceptual proposals for enhanced public transport corridors have been indicted along the Harbour railway line alignment. These include the CBD Underground rail link and more recently, a possible N1 Corridor rapid transit route.

- In order to accommodate the Atlantis commuter rail proposals, it is planned to move the long distance train terminal to the proposed Blue Train Station in the port.
- The current emphasis on transport infrastructure provision is on public transport over private/road based freight transport. Due to the enormous backlog in public transport provision, possibilities for increased road based capacity in the short term, are not foreseen.

**Road versus Rail**

- Spoomet are in the process of rationalising their rolling stock. This rationalisation has led to the limited availability of rail carriages has resulted in the loss of valuable on site storage space for commodities.
- The rail network within the port is no longer electrified due to a lack of ongoing maintenance.
- The logistics of changing from electric to diesel units to serve the port, together with the reduced availability of rail trucks to move containers, is making rail less attractive when compared to the convenience and flexibility of road transport.
- The deregulation of road based freight haulage to the port has created an open market and hence strong competition with rail.
- Significant sections of the rail network within the port (particularly in the vicinity of the Multi Purpose Terminal) have been lifted.

**5.4.4 Objectives, targets and Indicators**

The following objective, targets and indicators have been defined to guide present and future port development and operations so that they do not negatively impact on the accessibility of the Port of Cape Town.
Table 5.20: Port accessibility: Objectives, targets and indicators

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Targets</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROAD TRANSPORT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintain high levels of accessibility to and from the port, by road based freight transport.</td>
<td>Access Intersection Level of Service LOS = D, Table 5.18</td>
<td>Average vehicular control delay (sec/veh)</td>
</tr>
<tr>
<td>Maintain the road network serving the port to ensure a high quality riding surface.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Maintain free flow traffic conditions on Duncan Road and Container Road to facilitate efficient port activities.</td>
<td>Volume to Capacity ratio of less than 0.85, Table 5.17</td>
<td>Volume to Capacity ratio (v/c ratio)</td>
</tr>
<tr>
<td>Schedule road- and rail-based transport to and from the port to minimise emissions and delays caused by weekday peak period congestion.</td>
<td>Reschedule road based transport outside of peak hour traffic.</td>
<td>-</td>
</tr>
<tr>
<td><strong>RAIL TRANSPORT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rationalise, re-electrify and maintain the rail access links and internal port rail network and facilities i.e weighbridge and rail transfer depot.</td>
<td>To be set after more detailed analysis</td>
<td>-</td>
</tr>
<tr>
<td>Promote rail-based transport over road transport, due to rail’s independence of growing weekday peak period road congestion.</td>
<td>Increase the ratio of rail versus road based freight</td>
<td>Ratio of rail versus road based freight on a monthly or annual basis.</td>
</tr>
<tr>
<td><strong>PUBLIC TRANSPORT AND PEDESTRIAN ACCESS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Promote the use of public transport through the facilitation of feeder services from the surrounding railway stations for port workers to reduce private vehicle trip generation to and from the port.</td>
<td>Increase the use of public transport</td>
<td>Passenger modal split ratio</td>
</tr>
<tr>
<td>Provide and maintain safe, high quality pedestrian links to the port from surrounding railway stations.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
5.4.5 Opportunities and constraints for sustainable port development

Opportunities that exist for the port to improve on access to the port include the following:
- The port has two important rail network links to the rest of the metropolitan rail network, both of which are highly underutilised,
- Rail traffic can be scheduled to avoid peak commuter service periods,
- Conceptual proposals for the N1 Comid could possibly improve the access to the Salt River Power Station site, with the aid of C-D roads,
- The possibility of accommodating the Mainline train station within the port could result in the upgrading (re-electrification) of the port’s rail network on a shared cost basis,
- With the movement of the Fruit Industry to the area vacated by the Container Terminal, the consolidation of the Ship Repair Industry in the Elliot Basin and the relocation of the Coode Crescent activities to the Port Industrial Park, could create the opportunity to make Duncan Road a public road between Oswald Pirow and South Arm Road.

Several constraints exist with regards to accessibility to the Port of Cape Town, including the following:
- Peak period and ultimately off peak traffic congestion will continue to reduce the accessibility of the port for longer periods on weekdays,
- Increased levels of through traffic within the port will continue to reduce the mobility of traffic within the port,
- The competitive advantage that road based transport has over rail transport is on the increase,
- The availability of rail rolling stock is in doubt should SpoorNet’s rationalisation process continue.

5.4.6 Guidelines for sustainable port development

5.4.6.1 GUIDELINES FOR PORT PLANNING

Based on the assessment of the transport aspects of the Port Development Framework, the following conclusions have been drawn:

- The port is well served by four major access intersections, three of which are in close proximity and well connected to the N1 Freeway and Marine Drive. Weekday commuter peak period congestion on both the N1 Freeway and Marine Drive have already resulted in a reduction in the accessibility of the port during these peak periods. Trends in metropolitan traffic growth on these routes of between 2% and 3% per annum will continue to reduce the accessibility of the port for longer periods on weekdays,
- The level of weekday commuter peak period through traffic use on Duncan Road has already resulted in this route reaching its threshold (i.e. capacity). Further growth in through traffic on Duncan Road will result in congestion within the port during peak periods, which will adversely affect the internal circulation of the port,
- Rail access to the port should be retained at current levels until a more in depth study of the rationalisation of the rail network with the port is undertaken, based on longer term port and main line rail service requirements,
- Pedestrian access to the port should be enhanced through the provision of a safe and efficient pedestrian network. In particular, pedestrian access via the Buitengracht corridor to the port, requires attention.
The national vision for commercial ports is that they be seamlessly integrated into the transport network and offer high levels of service and increasing efficiency for a growing customer base, so as to enhance South Africa’s global competitiveness and the expansion of the South African economy. The maintenance of a high level of accessibility for the Port of Cape Town is therefore of metropolitan, regional and national significance. The following guidelines, to be considered in future port planning, are therefore recommended:

- Retain the flexibility provided by encouraging and maintaining both modes of transport serving the port, namely rail and road,
- Road accessibility to the port is set to deteriorate on an annual basis. The port may need to consider strategies that counteract this loss in accessibility as follows:
  - The provision of additional storage/cold storage facilities in close proximity to the port where cargo can be brought in during the off peak periods,
  - Scheduling of all road based transport to and from the port to maximise efficiency and minimise travel time delay,
  - The increased use of rail, which is independent of road based congestion,
  - Encourage and enhance public transport provision and pedestrian access routes to the port,
  - Discourage through traffic within the port, particularly on the section of Duncan Road between Marine Drive and Oswald Pirow Street,
- Limit on site parking for private vehicles.
- Develop a long-term vision with Spoornet, for rail transport, to ensure the rationalisation process of rail carriages does not go too far.

5.4.6.2 MONITORING GUIDELINES

To ensure road accessibility to the port it is recommended that the following data be monitored:

- Hourly monitoring of all vehicles entering or leaving the port by vehicle type, at each access point, using automatic counting machines,
- Daily monitoring of all freight into and out of the port by mode,
- Annual monitoring of the following:
  - Weekday peak period through traffic flows,
  - Weekday peak period port trip generation,
  - Weekday peak period public transport use,
  - Weekday peak period pedestrian flows,
  - Weekday peak period access intersection delay assessments,
  - Weekday peak period access route travel time assessments.

The port development and metropolitan traffic growth rates measured, can be fed back into the operations model to refine the predictions made for the medium and long-term development scenarios.
5.5 Port-city land use planning
The demand for land for non port-related activities adjacent to the port is increasing and a number of developments have recently been approved and completed in close proximity to the port. The existing and future developments could place unrealistic operational constraints on port activities while resulting in a decrease in the accessibility of the port due to an increase in road traffic. The city has developed certain plans and policy documents for the development of the foreshore area and city-port link, which are not necessarily aligned with the vision of the port. As a result, the interface between the port and the city needs to be effectively planned and managed, to ensure that potential port-city conflicts are minimised.

### 5.5.2 SEA Objectives

The following SEA objectives relate to this section:

- **SEA Objective 1:**
  Improve port-city relationships and cooperative decision-making.
5.5.3 State of environment

5.5.3.1 Planning legislative and policy context

The legislation that controls development in the port is the Legal Succession to South African Transport Services Act (Act No. 9 of 1989). This Act and its amendments make provision for the development of the harbour for transportation and related activities. Such development may continue without further approval from the local authority. Section 13 of the Act states that all land owned by the Company, Transnet, used generally for transport, railway, harbour, pipeline or related activities “shall be deemed to have been zoned for transport uses in terms of such zoning schemes as of right and without having to obtain the consent of any competent authority.” It is important to note, however, that undertaking any non-transportation activities in the port, would require the agreement of the City. In addition, Transnet is required to comply with National Acts that would influence development options in certain instances and would need to be considered in the long-term development of the port, as envisaged in the Port Development Framework. Examples of such Acts include:

- National Building Regulations, No. 103 of 1977,
- Environment Conservation Act (Act No. 73 of 1989),
- The Development Facilitation Act (Act No. 67 of 1995),
- The National Environment Management Act (Act No. 107 of 1998),
- The National Heritage Resources Act (Act No. 25 of 1999), and

Although the main legislation informing the Port’s activities is the Legal Succession to SATS Act, the legislation affecting adjoining landowners is mainly the Land Use Planning Ordinance (LUPO) No. 15 of 1998 and the City of Cape Town’s Zoning Scheme. The replacement for LUPO, the Western Cape Planning and Development Act (Act No. 7 of 1999), has been promulgated, but for the most part, not yet implemented. In terms of the Local Government: Municipal Systems Act, No. 32 of 2000, the City of Cape Town has produced an Integrated Development Plan (IDP) which reflects the City’s vision for long-term development in metropolitan Cape Town. In the IDP the City states, inter alia, that its mission is to: “establish a safe city that is clean, attractive to investors, welcoming to visitors and underpinned by a vibrant, growing economy”.

While the document clarifies the City’s general views on development priorities, it does not clarify how specific areas are to be developed or how some “corporate lead projects”, such as the Foreshore freeway, are to be funded. Related to this shortcoming, the document acknowledges that a Comprehensive City Development Strategy, involving all stakeholders in the City, needs to be produced.

In addition to the legislative controls described, there are a number of City Council planning policies that influence the development of the city centre. The most significant of these planning policies and studies include:

- The Cape Metropolitan Area – Peninsula Urban Structure Plan, 1998,
- The Contextual Framework for Cape Town Central Waterfront, 1989,
- The Cape Town Metropolitan Spatial Development Framework (MSDF), 2001,
- The Cape Town Administration: Municipal Spatial Development Framework (Muni-SDF), 1999 (Figure 5.6),
- The Draft City Bowl Development Area: Executive Summary, 1997 (Figure 5.7),
- The Draft Cape Town Central City Development Framework, 2002 (Figure 5.8),
- The Urban Design Framework for the Cape Town Foreshore, 2002 (Figure 5.9), and
Figure 5.7: Draft City Bowl Development Area, Strategic Framework, 1997
Figure 5.8: Cape Town Central Draft Development Framework, District 11, 2002

LEGEND

- District Boundary
- District Foci
- Visual Axes
- Visual Foci
- Defined Edges
- Pedestrian Improvement
- Public Square
- Greening
- Water elements
- Infill sites
PORT OF CAPE TOWN: SUSTAINABILITY FRAMEWORK

Figure 5.9: Urban Design Framework for the Cape Town Foreshore
There are a number of common themes contained in these reports which the Port should be cognisant of when engaging with the City. These themes include:

- The development of three green mountain-sea links via Portswood Road (“West Link”), Heerengracht (“Central Link”) and Searle Street extension through Culemborg (“East Link”)/“Trafalgar Park Public Way”). The West Link does not have any direct implications for the Port, but the Central and East Links, would permit public access to the water’s edge. This would obviously have implications for port operations and security.

- The development of five view corridors and ultimately public access to Duncan Dock via Buitengracht, Long, Heerengracht, D.F. Malan and Oswald Pirow Streets. If the port and City agree on these view corridors, they would inform the siting and massing of new buildings within the port.

- The construction of a new Duncan Road or parallel facility for public access along the water’s edge, for public access. Unrestricted access to Duncan Road is likely to create conflict between passing traffic and port cargo activities. In addition, Duncan Road crosses railway lines at several occasions, which compromises safety and could cause impeded traffic movement.

- The development of a new public square, referred to as “Harbour Square” or ‘Port Square” at the intersection of the Heerengracht extension and Duncan Dock. This public square is envisaged as a mechanism for re-establishing the City Bowl’s connection with the sea and creating opportunities for recreational and commercial development within walking distance of the CBD. Such development would clearly have major implications on the operations of the port and would compromise security along the western section of the Duncan Dock.

- The establishment of Duncan Dock and the Yacht Basin as tourism destinations with a cruise-liner terminal to be constructed within Duncan Dock or at the northern end of South Arm. In terms of the planning for the Foreshore, a tourist facility for cruise-liner passengers would ideally be located in the vicinity of E, F and G Berth, as this would complement the public activities of Port Square, the Convention Centre Extension and the possible Roggebaai Canal extension. The port, however, favours the northern end of South Arm, as it does not interrupt the activities of the multi-purpose cargo terminals. In the case of the Yacht Basin, the City envisages major tourist activities and the termination point of the Trafalgar Park Public Way/East Link. In the Port Development Framework (PDF), this area is to be consolidated into the ship repair industry precinct.

It can therefore be concluded that the City has a clear idea of making parts of the port more accessible to the public and thereby making the city centre a port-city for everyone. The port on the other hand, has a clear mandate to its shareholders and while cognisant of the need to broaden the function of the port, does not wish to see the core business of cargo handling compromised.

### 5.5.3.2 Current Zoning

The Cape Town Zoning Scheme applies to the whole of the study area and is shown in Figure 5.10.
Except for an isolated pocket near Sturrock Dock, the entire port (including Customs House) is zoned Undetermined. In terms of this zoning, all activities require the consent of the Council. The zoning of the areas around the port are summarised in Table 5.21. The zoning scheme does not restrict floor area for sub-zones B6 and C6 by means of a bulk factor or building lines, but by means of special provisions applicable to Roggebaai (Section 100).

<table>
<thead>
<tr>
<th>Area/site</th>
<th>Zoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roggebaai Canal Precinct</td>
<td>Subdivisional Area</td>
</tr>
<tr>
<td>V&amp;A Waterfront</td>
<td>Development Zone (this is a similar zoning to a Subdivisional Area zoning)</td>
</tr>
<tr>
<td>Majority of properties in the Foreshore</td>
<td>General Business (B6) zoning</td>
</tr>
<tr>
<td>Culemborg</td>
<td>Undetermined (Railway Purposes)</td>
</tr>
<tr>
<td>PX Site</td>
<td>Subdivisional Area (presently underway).</td>
</tr>
<tr>
<td>The Cullinan and Holiday Inn Hotels on the ICS/Power station site and the streetblocks between Martin Hammerschlag and Jack Craig Streets</td>
<td>General Commercial Zoning (C6)</td>
</tr>
<tr>
<td>CTICC</td>
<td>General Business (B5)</td>
</tr>
<tr>
<td>Artscape Complex and the Theatre Gardens</td>
<td>Zoned for Government Purposes</td>
</tr>
<tr>
<td>Motor City at Culemborg</td>
<td>Operates as a consent use</td>
</tr>
<tr>
<td>Woodstock Industrial Area</td>
<td>The Woodstock Industrial Area has a General Commercial Zoning (C4) on the western side of Lower Church Street and a General Industrial zoning on the eastern side. Sub-zone C4 has a bulk-factor of 5.6, while the floor area in the Industrial Zone is not restricted by bulk factor.</td>
</tr>
<tr>
<td>Extensive road reserve of the Marine Drive Interchange</td>
<td>This road reserve is zoned for Government purposes.</td>
</tr>
<tr>
<td>Salt River Power Station site</td>
<td>General Commercial Zoning (C4)</td>
</tr>
<tr>
<td>Paarden Island and Metro Industrial Townships</td>
<td>General Industrial</td>
</tr>
<tr>
<td>Major tracts of land around Heerengracht and Hertzog Boulevard</td>
<td>Public Open Space</td>
</tr>
<tr>
<td>Wide strip of land between Marine Drive and the port</td>
<td>Public Open Space</td>
</tr>
</tbody>
</table>
Figure 5.10: Current Zoning of the Port of Cape Town and surrounds
5.5.3.3 **Current Land Ownership**

Current land ownership is presented in Figure 5.11.

**Figure 5.11: Current land ownership**
5.5.3.4 Current Land Use

The main land uses surrounding the Port are shown in Figure 5.12 and discussed in Table 5.22.

<table>
<thead>
<tr>
<th>Area/site</th>
<th>Land use</th>
</tr>
</thead>
<tbody>
<tr>
<td>The V&amp;AW</td>
<td>This area comprises a range of uses, namely: retail, entertainment, restaurants, cinemas, special uses (e.g. an aquarium), offices, corporate head offices, educational, hotels, a residential marina, fishing industry and pleasure craft activities.</td>
</tr>
<tr>
<td>The Foreshore</td>
<td>This area consists mostly of office towers, with the exception of three hotels, the convention centre and hotel and civic uses, (including the Civic Centre and Artscape Complex).</td>
</tr>
<tr>
<td>Oswald Pirow Precinct</td>
<td>This area consists of mainly motor-related retail, including the Culemborg Motor City.</td>
</tr>
<tr>
<td>Culemborg Precinct</td>
<td>The Culemborg Precinct is largely derelict land, accommodating the PX Shed and a few small industrial uses, with Spoornet’s marshalling yards and coach maintenance facilities further south.</td>
</tr>
<tr>
<td>Woodstock Industrial Area, in the vicinity of Lower Church Street</td>
<td>This area accommodates manufacturing and service industrial uses, with a number of offices.</td>
</tr>
<tr>
<td>Salt River Power Station site</td>
<td>This site is largely vacant, except for the historical section of the entrance building.</td>
</tr>
<tr>
<td>Paarden Island Industrial Area</td>
<td>This area is fully developed and accommodates a range of manufacturing and service industrial uses and retail outlets. Due to its proximity to the port and Cape Town CBD this industrial township has the highest land prices in the entire City of Cape Town, reaching approximately 30% more per square metre than the average for the greater Cape Town.</td>
</tr>
</tbody>
</table>
Figure 5.12: Current land use
5.5.3.5 Major Development Projects

During the past decade a number of major development projects have been initiated around the port (see Figure 5.13). Several of these projects are the result of public-private partnerships. It is believed that the synergistic relationship between these projects will further stimulate commercial and tourist-related development, with positive and negative implications for the port.

In order to gauge the scale and character of the major projects in the CBD, these projects from west to east around the port are briefly described below.

Victoria and Alfred Waterfront (V&AW)
The V&AW has been the most popular tourist destination in the Western Cape for a number of years and consistently draws domestic and foreign tourists, as well as local visitors. The development rights for the V&AW were approved in 1989 in terms of the Legal Succession to SATS Act. These rights are indicated in the V&AW Development Framework, September 1989. An updated plan was produced and although no formal approval of the revision has taken place, the City Council has approved developments in the V&AW with reference to the revised plan, since 1997.

In terms of future development, it is envisaged that both commercial and residential expansion will occur. For example, commercial bulk is to be developed in the Clocktower and Gateway precincts and residential expansion is envisaged in areas such as the Marina Basin and Granger Bay.

The port can therefore expect the momentum of development in the Waterfront to be maintained over the next few years. The implications of this are a growing residential population half a kilometre from port operations and a constant flow of pedestrians and motorists through the Coen Steytler Avenue entrance to the Waterfront.

Roggebaai Canal and Tourism Precinct
This is a mixed-use development, initially developed by SunWest International (Pty) Ltd as a condition of the successful casino bid, was approved in June 2000. In terms of the subsequent Precinct Plan (April 2001) the uses include residential development, hotels, amenity/tourist facilities, offices and retail and entertainment. Permanent vehicular access to this development will occur off Lower Long Street. The first phase of the development (i.e. the canal infrastructure) is completed. The next phase will consist of a hotel, restaurants, bars, retail, residential and office development. Proposals for these developments are being reviewed and the intention is to start construction before the end of 2003.

ICS/Power Station Site
This site comprises two hotels, The Cullinan and the Holiday Inn, as well as the Investec Offices. Development rights for the site are described by Council drawing T.P.R. 11746. Two new commercial developments are planned for 2003, which if completed on schedule, would bring the total amount of development bulk on the site, to approximately 100 000 m² during 2005. Further development of the site will be related to future demand for CBD offices and for tourist hotels or hotels linked to the CTICC.
Figure 5.13: Location of major development project around the Port of Cape Town.
Northern Foreshore Development Subdivisional Area
In terms of this document, development rights were allocated to three strategic land parcels on the Foreshore. The total permissible floor area approved was 399,000 m². While existing city transportation infrastructure is likely to limit the full utilisation of all of this bulk in the medium term and the fact that existing development of the CTICC is effectively an under-utilisation of Subdivisional Area bulk, it should be noted that large developments occurring in close proximity to the Oswald Pirow entrance are a possibility in the long term.

Cape Town International Convention Centre (CTICC)
On 30 November 2001 the City approved the final, amended site development plan (SDP) for the CTICC. Two phases of this development have been approved and Phase One of the complex will be completed by July 2003. Phase Two allows for the development of an office block and parking bays.

A further 7,000 m² convention/exhibition space and a further 20,000 m² commercial space can still be developed on the CTICC site. Early indications are that additional exhibition space will be needed. A study of international convention and exhibition centers indicated that double the amount of exhibition space at the CTICC could be needed within the next five to ten years. An analysis of this requirement points to the state-owned Customs House being suitable for expansion of exhibition facilities at CTICC. Customs House currently accommodates the Department of Public Works and Home Affairs with the Customs and Excise Department in the warehouse. If the CTICC expands to Customs House, alternative accommodation would need to be found for these state departments. In addition, CTICC expansion to Customs House would require the closure of the atgrade Table Bay Boulevard link between Lower Long Street and Heerengracht.

An alternative expansion option that has been investigated is the Naspers site across the Heerengracht. The CTICC has indicated that this site may be needed in addition to the Customs House site, which is the preferred initial expansion option.

Expansion into Customs House obviously has implications for the functioning of the port. If this option is to be explored any further, the port will need to assess the consequences of the intention to link Heerengracht to Lower Long Street via Duncan Road. Such a connection will also require the removal of certain rail lines.

Given the potential impact on the port, proposals for altering traffic movement patterns within the port, as a result of the requirements of CTICC or any other major development on the Foreshore, would need to be assessed in conjunction with NPA, SAPO, Spoornet, Propnet and the City Council.

Naspers Site
This site comprises four vacant parcels of land that are currently used for parking and excludes the existing Naspers building. In terms of the Northern Foreshore Development Subdivisional Area document, the permissible bulk is 114,000 m². Most of this will be developed for office purposes. It is estimated by the City Planner's Department that 34,200 m² of this will be developed by 2005 and 22,800 m² by 2010.

Culemborg Precinct
The Culemborg Precinct covers approximately 300 ha. It is owned by a number of Transnet business units, including Propnet, Promat, SARCC and Spoornet. The Culemborg-Black River Contextual Framework of 1998...
outlined several design concepts that were incorporated into subsequent policy documents by the City Council. In 2000 an amendment was made to the Peninsula Urban Structure Plan and the designation of the site changed to “Urban Development”.

The Culemborg Precinct Development Framework, was approved by the City Council in July 2002. This Framework includes two development scenarios, namely the medium term (2015) and the long term (+2015). The site is subdivided into 8 precincts. Current indications from Spoornet are that Precincts 7 and 8 will not be fully developed in the medium term (2015) as the marshalling yard to the south-west of Esplanade Station will not be relocated in the next 15 to 20 years.

The urban design plan includes the notion of visual and symbolic links to the port. This notion may be in conflict with port planning and therefore, the port and the City will need to review development plans for Culemborg and the port, before Precinct Plans are developed for certain parts of Culemborg.

Other developments
Cape Town Station is one of several sites in the central city that have been earmarked for redevelopment. Intersite’s application to rezone the station site to General Commercial (C2) and amend the Peninsula Urban Structure Plan to Urban Development, was approved in 2002. The bulk allocated is transferable between office, retail and entertainment uses. The Spatial Development Framework for the site aims at the continuation and improvement of the station as a transport interchange and public facility. Redevelopment has not yet begun, however, it is anticipated that it would start when the first phase of the Inner-City Public Transport Initiative is implemented.

The potential exists for considerable additional commercial development in the city centre. New development may include the development of unutilised rights and attempts to increase the value obtained from existing sites. Some properties in the city centre are being developed for residential purposes and there could therefore be a growing residential population in the city centre.

Conclusion
The momentum of development, in the area around the port, is likely to be maintained over the next few years. There are a number of issues that would need to be managed as a result. These issues include, for example: access to the port; the maintenance of port operations and security; the management of pedestrian and vehicular movement and the potential visual impact of new developments in and around the port.

The likelihood of the preceding developments, (discussed in this Section 5.5.3.5), occurring is to a large extent dependent on the construction of major transportation infrastructure. Should this public investment occur, the timing or phasing of development will depend on the performance of the local economy and in particular, the development economy of the CBD.

5.5.4 Objectives, targets and indicators
The following objectives, targets and indicators have been defined to guide port planning and development, to ensure that future port-city planning is integrated and that the Port and the City are working towards a common objective.
<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure that port planning is informed by the social, economic and biophysical environment.</td>
<td>Integrate the port’s social, economic and biophysical objectives, targets and indicators into the port planning processes.</td>
<td>The extent to which the plans of the port reflect social, economic and biophysical objectives.</td>
</tr>
<tr>
<td>Develop the port-city linkages in a way that enables and enhances the effective operation and development of both the Port and the City.</td>
<td>Port to participate as a stakeholder in relevant city planning processes and the city is to be included as a stakeholder in relevant port planning processes.</td>
<td>The number of relevant city planning processes in which the port participates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The extent to which port issues are included in city planning processes and outcomes.</td>
</tr>
<tr>
<td></td>
<td>Develop an effective Port-City Forum and port-stakeholder forum (See Chapter 4: Institutional Arrangements)</td>
<td>No. of meetings of the forum Number of members of the Forum attending the meetings Quality of the outputs of the Forum.</td>
</tr>
<tr>
<td></td>
<td>Develop an integrated port-city land use planning strategy that deals with the key port-city issues in a single framework.</td>
<td>The development of an effective integrated framework that addresses the port-city interface and is supported by the port and the city. The elements of this integrated framework are incorporated into port and city planning.</td>
</tr>
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5.5.5 Opportunities and constraints to future sustainable port development

The challenges to the development of effective port-city linkages include the fact that there are different development controls and approval procedures applicable to the port as to the City, as well as the differences between the planning policies of the City and the objectives of the port.

The primary legislation informing the port’s activities is the Legal Succession to SATS Act, while the legislation affecting adjoining landowners is mainly the Land Use Planning Ordinance (LUPO) No 15 of 1985 and the City of Cape Town’s Zoning Scheme. In addition, several plans and policies of the City include the idea of making part of the port more accessible to the public, thereby making the City Centre a Port-City for everyone. The port, however, has a mandate to its stakeholders and while aware of the need to broaden the function of the port, does not wish to see the core business of cargo handling compromised.

An opportunity exists, however, for the port and the City to undertake integrated planning that meets both of their objectives. In addition, the Integrated Development Planning (IDP) process provides an opportunity for the National Port Authority to contribute to city planning related to central city issues, while the Port Development Planning process provides an opportunity for the City to contribute to port planning.

5.5.6 Guidelines for sustainable port development

Four key elements are proposed as part of the overall port planning process. Implementing these guidelines should facilitate the integration of port-city issues into both port and city plans. The four key elements are as follows:

1. Clearly identify the Port’s social, economic and biophysical objectives and incorporate these into current and future Port Development Framework planning processes,
2. Identify the key issues at the Port-City interface that need to be considered,
3. Develop and integrated plan for the Port and the City, and
4. Undertake effective engagement with key stakeholders (including participation in relevant city planning processes).

A brief listing of the type of issues that are currently relevant to each planning element is provided below. The specific issues to be addressed are likely to change overtime.

1. **Clearly identify the Port’s social, economic and biophysical objectives and incorporate these into current and future spatial planning processes**

These objectives would relate to all aspects discussed in Chapter 5 which include:

- Maintenance of marine ecosystem functioning and habitats,
- Assessment, study and management of historical-cultural resources,
- Maintenance of the shoreline stability and beach functionality in Table Bay,
- Ensuring efficient and effective road and rail access to the port,
Maximising economic impact, employment and income generation within the scope of activities of the port,
Assessing the local, regional and national economic demands for port facilities,
Maintenance and enhancement of the economic competitiveness of the port,
Identification of spatial requirements for future short, medium or long-term expansion,
Communication and interaction with key stakeholders,
Management of port security and access to the port (For example, restricting access to the port through identified security controlled entrances), and
Undertaking effective sustainability reporting.

2. Identify the key issues at the Port-City interface that need to be considered

Currently, these issues include:

The implications of Central City Planning Policies and Design Frameworks on the operations of the port e.g. In many instances planning policy has advocated stronger linkages (both physical and visual) between the City and the port, with increased public access to the water’s edge. This would have implications for Port operations and security.

The implications on the port as a result of developments in the CBD. This includes the implications of the future pedestrian and vehicular movement system in the CBD on the port. For example: there is potential for considerable additional commercial development in the city centre, much of which is less than a kilometre from the boundary of the port. New development may include the use of unutilised rights as well as attempts by property owners to extract more value from existing sites. In addition, some properties in the city centre are now being developed for residential purposes. Therefore, in the near future there could be a growing residential population in the city centre and the potential implications of this on current and future port planning and operations should be determined. A further example is that the extensive scale of public and private investment in the study area will have a marked impact on traffic circulation within the City Bowl and on the operation of the port.

The implications of increased development on the borders of the port on traffic volumes and consequently on access to the port, port operations, port security and traffic safety. e.g. Traffic generated due to the development of the V&AW is placing the Coen Steytler Avenue/Dock Road entrance to the V&AW, and effectively South Am Road under increasing pressure. Proposals for altering traffic movement patterns within the port as a result of the CTICC or any other major development on the Foreshore would need to be assessed in conjunction with NPA, SAPO, SpoorNet, PropNet and City Council.

The implications for the port as a result of tourism planning and development initiatives by the public sector and private organisations,

Maximising the use of port facilities while minimising the nuisance factors such as noise and dust,

The potential visual impact of any new developments within the port. For example, if the port and the City agree on view corridors as a form of linkage between the City and the port, this would inform the siting and massing of new buildings in the port,
6. The impact of moving the ship repair facilities away from the V&AW, on the “working harbour” ambience at the V&AW.

3. Undertake effective engagement with key stakeholders (including participation in relevant city planning processes)

The planning process, whether for the port or specifically for the Port-City interface, should be informed by effective stakeholder engagement. Three Forums that can be used to facilitate this engagement are the Port-City Forum, Port-User Forum and the Port-Stakeholder Forum, as described in Chapter 4. The function of these forums is to: facilitate an exchange of views, improve understanding of the needs of interested parties, facilitate cooperative decision-making with respect to Port-City issues, facilitate the implementation of policies and decisions and to keep external stakeholders informed of the port development agenda and sustainability performance.

In addition, effective stakeholder engagement should include the participation of the port in city planning processes, such as the Integrated Development Planning (IDP) process. The City’s involvement in port planning and the port’s involvement in city planning should be conducted via the Port-City Forum. This should ensure that each entity is integrally involved as a ‘partner’ in dealing with Port-City issues in either the port planning or city planning process.

4. Develop and integrated port-city land use plan

In this regards it is critical that the planning process be guided by the Port-City Forum.

It is proposed that an integrated port-city land use planning strategy is produced that addresses key port-city issues, as identified above, in a single framework. This strategy could be, for example, a Contextual Framework for the City and the port, for the interface between the port and the city. This framework could: facilitate coordination between the port and the city, ensuring that they are working towards the same objectives; provide continuity in the form of a single strategic document, rather than various potential disparate plans for specific areas or topics; provide documentation for endorsement by the relevant city and port authority and ensure that when changes in personnel take place, previous work and understandings have been properly documented. The resulting document should be a key part of both the Port Development Framework and the City’s Integrated Development Plan.
5.6 Socio-economics/corporate and social responsibility
### 5.6.1 Issue statement

The Port of Cape Town plays a vital role in the socio-economic development of the region as well as the City of Cape Town. To maximise the benefits to the communities and stakeholders around the port the National Ports Authority needs to adopt proactive policies. Apart from job opportunities and corporate social responsibility programmes, it is important that the port consider the variety of other issues raised by stakeholders affected by port development and operations.

### 5.6.2 SEA Objectives

The following SEA objectives relate to this section:

**SEA Objective 4:**
- Improve the understanding of how the livelihood and quality of life of local communities surrounding the port may impact on future port development and operation;

**SEA Objective 6:**
- Improve economic, social and biophysical environmental data collection within the port and surrounds, so that this information can be proactively used for environmental management, port planning and triple bottom line reporting.
5.6.3 State of environment

5.6.3.1 International trends in corporate citizenship

There are a number of international trends that are driving the change for greater private sector commitment to corporate citizenship and the formulation of a sustainable development agenda. These trends include: globalisation; the voice of society; reputation management concerns; the linking of investment decisions to social risk and the development of social reporting, the promotion of a sustainable development agenda and the increasing need for effective stakeholder engagement.

Over the past two decades, there has been an expansion in multinational/transnational corporation activity. The private sector is being seen as having more than simply economic influence, but also political and socio-economic influence. There is an increase in pressure for companies to develop an agenda for corporate citizenship. The World Bank Business Partners in Development have articulated a number of global motivations for being actively involved in sustainable development. These motivations include:

- Gaining and maintaining a ‘licence to operate’ from society,
- Reducing long term dependency on any given industry,
- Resolving or preventing disputes that might compromise financial returns,
- Creating a new social capital to be called on in times of difficulty, and
- Becoming an ‘organisation or company of choice’ for governments, and those granting leases, as well as for customers and employees.

(Business Partners for Development, 2002)

There is a growing ‘voice of society’, particularly in South Africa, where companies and industries are seen to have benefited from previous government’s policies, to address past inequalities and broaden the economic base of society. Public concerns related to corporate governance have given rise to various codes of conduct including the United Nation’s Global Compact, the Rio Earth Summit’s Agenda 21, ISO 14001, the Commonwealth and OECD principles on corporate governance and the International Chamber of Commerce’s Business Charter for Sustainability. In South Africa, the recently released update to the King Report on Corporate Governance gives significant attention to the role of stakeholders and looks at the growing focus on triple bottom line reporting (i.e. reporting on economic, social and environmental performance).

Increasingly, social and environmental risk, both real and perceived, will have a significant bearing on the promotion of a good reputation of companies and organisations. In this new environment, companies that are strong on risk management will have a proactive policy and strategy on corporate citizenship. Factors that will be rewarded include effective multi-sector partnership building, stakeholder management, social integrity and accountability (particularly when verified through a reputable third party).

Increasingly, investors and creditors are realising that issues related to good corporate citizenship can reduce potential social risks and future liabilities. Consequently, a number of investors and creditors have conditions in this regard. This is being supported by the explosive growth in Europe and the US of socially responsible investment funds and the establishment of social indexes such as the Dow Jones Sustainability Index, Domini Index the...
FTSE4Good. In South Africa there has been recent but growing attention to socially responsible investment with the imminent launch of the JSE Sustainability Index.

There is increasing international pressure for all companies and organisations to incorporate transparent accountability into their operating principles. This would involve the development of management frameworks that do not only take account of financial accountability, but also social and environmental accountability, leading ultimately to triple bottom line accounting.

Internationally, companies and industries are increasingly expected to develop an ongoing relationship with a range of stakeholders. These stakeholders include shareholders, employees, customers, partners, key stakeholders (including government) and a range of external stakeholders that represent broader society interests that are key to the long-term success of a particular business. There is a growing awareness that ensuring the social performance of a business requires the management of internal and external stakeholders.

5.6.3.2 **Overview of the Western Cape Economy and the Port of Cape Town contribution to this**

This is discussed in detail in Section 5.7.

5.6.3.3 **Employment in the Port and Related Activities**

There is a range of employment opportunities within the operations of the port or in the activities directly linked to the port or its property. Before the restructuring of Portnet, Smith (1999: 54ff) identified four categories of employment:

- Operational employment in activities related to the operation of the port (direct Portnet employees) - almost 1000 employees in 1998,
- Employment in activities linked to the port e.g. ship repair - about 4000,
- Employment in firms working on the port property or providing marine services e.g. engineering - about 300,
- Employment in firms located on the port property, but with no direct association - about 30.

Therefore in 1998, there were about 5 300 people who depended on the port for work, just under half of which were directly employed by the port authority (then Portnet).

The organisational restructuring of port management must be considered when examining more recent estimates of employment. Hence, 735 people are currently employed by NPA and about 1000 by the SAPO. A recent figure for the total wage bill for the port is R119 252 715 (Harry Dladla, NPA, pers comm). However, these figures do not include employment in companies active within the port.

More than 90% of the port’s direct labour force comes from the Cape Metropolitan Area. Importantly, a large proportion of the workers come from the ‘Cape Flats townships’, such as Khayalitsha, Nyanga, Gugulethu, and Mitchell’s Plan (Harry Dladla, NPA, pers comm). Although this implies long travel distances for these workers, it means that the port contributes significantly to income generation in these poorest areas of the metropole.
The number of people employed in the port in future may increase due to the expansion of the port’s activities. In addition to the proposed expansion of the container terminal, there are other activities likely to increase in scope, for example, the cruise ship tourism sector, ship repair and other activities. Also, there are an increasing number of oilrigs and ships using the port for repairs and refurbishment. However, employment in the port is significantly affected by the port’s strategy and management. Current policies that intend the commercialisation/privatisation of certain parts of the port’s operations will have a significant impact on employees.

5.6.3.4 THE INTERACTION BETWEEN THE PORT AND INTERNAL STAKEHOLDERS

(i) The port and its employees

The policies and planning frameworks of the port need to be carefully assessed in terms of their potential impact on employees. Apart from health and safety issues, there are three particular issues that deserve special mention here.

**Employment equity:** The NPA has submitted an employment equity plan to the Department of Labour. The plan has been signed by management and the trade unions. There are annual reviews of the plan, one of which has already been undertaken. The review found that the targets in the current 5-year plan have not been met due to aspects such as restructuring, however, it is expected that the targets will be reached in the required timeframe (Harry Dladla, NPA, pers comm).

The Port of Cape Town scrutinizes all new leases they enter into with companies, in terms of black economic empowerment and employment equity. A task team from NPA headquarters is reviewing the current lease agreements (Harry Dladla, NPA, pers comm).

**Freedom of Association & Collective Bargaining:** 92% of the workers are unionised, the majority of membership is in the Transport and Allied Workers Union. There is a collective bargaining forum under the auspices of the Transnet Collective Bargaining Council to negotiate salary increases. There are also communication forums and structures that can negotiate port-specific issues such as shift patterns. An increasingly important issue of concern to unionised labour is the issue of commercialisation/privatisation of the South African Ports Operations (SAPO), as considered below.

**Potential impacts of privatisation of SAPO:** Many of the organisational changes taking place in terms of the National Ports Authority Bill (2003) contain elements of commercialisation, while it is the intention to privatise the port terminals under the South African Port Operators (SAPO). While it is not in the scope of this report to comment on such restructuring, it is important to note that it can obviously have significant implications for workers, their families and their communities. This is a critical issue for the sustainability of the port and the dependent communities.

(ii) HIV/AIDS

The National Port Authority has developed a policy, strategy and implementation plan for HIV/AIDS (Sister Zintu, NPA. pers comm). The policy is based on a number of principles including: consultation with employees, review, joint responsibility between employer and employee, protection from discrimination and preclusion from benefits, a commitment to resources and education, leadership and human resource contingency planning.
Programmes implemented at the Port of Cape Town include:

- An awareness campaign,
- Home based care training,
- Peer educator training,
- Condom distribution through the clinic,
- A 24-hour help line,
- Employee Assistance Programme (also includes counselling for alcohol abuse and other issues).

The Port of Cape Town clinic provides some of these programmes to the employees of SAPO (South African Port Operator), however, this programme is not well structured [Sister Zintu, NPA. pers comm]. Although review is provided for in the policy there has not been a formal review and evaluation process to establish whether the programmes are having an impact.

The NPA provides anti-retroviral treatment to employees, but not to members of their families. If an employee leaves the NPA then they are not provided with treatment. This is not replaced by government treatment (the Western Cape government only provides mother to child transmission treatment).

Although the National Ports Authority of the Port of Cape Town and SAPO have a firm strategy and programme in place, the other enterprises active in the port (e.g. the container operators and fruit terminals) do not have adequate strategies. This undermines the efforts of the National Ports Authority of the Port of Cape Town to have an impact on HIV/AIDS. Also, there is no provision for awareness training to the crews from international shipping lines. In addition, commercial sex workers are also not provided with any awareness programmes and training.

There has been some attempt to co-ordinate activities amongst port stakeholders in this respect. Safmarine and the City of Cape Town had some initial discussions with the Port of Cape Town, but this has not yet led to any specific initiatives. It is apparent that increased efforts should be made to coordinate and invigorate the HIV/AIDS programmes of the various parties.

(iii) The port’s Corporate Social Investment (CSI) programme

The NPA has a national Corporate Social Investment Programme (CSI), which is implemented at each port including the Port of Cape Town. The anchor projects include a harbour festival, sports sponsorships (power boating, boxing, basketball), education development fund, maritime research, schools adoption programme, arts and culture and a joint NPA / Safmarine HIV/AIDS project [NPA of SA CSI Policy, 2002].

According to the CSI policy document the main aim of the programme is to:

- Positively increase awareness and improve the image of the company,
- Reach specialised markets,
- Ensure involvement of the company in the local area,
- Have a beneficial impact on employee morale, loyalty and pride,
- Supplement the company’s direct advertising and marketing promotion initiatives, and
- Strategically position the NPA.

The projects are chosen according to:

- The location of communities around the port, and the residential location of the employees, and
Focus areas of environment, education (maths, science and information technology) and youth development. These are seen as important areas for the port to sustain their human resource development.

The CSI programme engages with trade unions, local authorities, schools, international economic delegations, national government and Port of Cape Town management. There is no engagement with local NGOs except sporting clubs. Furthermore, there is little integration of the CSI programme with local government to align CSI projects with local government development requirements. Finally, there has been no impact assessment or evaluation of the CSI projects.

Considerable scope therefore exits to increase the efficacy of the port’s CSI initiatives, and initial steps should include efforts at engaging more local stakeholders in these programmes, attempting improved coordination with other related initiatives, and initiating an impact measurement, monitoring and evaluation system, based on Key Performance Indicators.

5.6.3.5 The interaction between the port and external stakeholders

(i) Economic activities related to the port

Commercial users: The commercial activities within the port that need to be considered by port management include: cold storage facilities and the container depots and container operators. The extent to which these businesses are collectively represented is uncertain. Shipping lines and agents are represented by associations such as the Association of Shipping Lines (SAL).

Industries: The industries making use of the port for import and export are represented by associations such as Wesgro and the Chamber of Commerce. These bodies are important stakeholders of the port.

Leaseholders: Several terminals of the port, including storage and cargo handling facilities, are leased from the port and operated by private
enterprises. The emphasis on terminals being operated on leasehold contracts is increasing in line with the recent restructuring of port management and operations. Increasingly, the NPA will become less of an operating entity and play a more facilitatory role.

Petroleum Products: The port is a vital conduit of petroleum products with a throughput of 3 million tons per annum. Fuels and lubricants are supplied from the Caltex Oil Refinery in Milnerton to vessels at the port. The oil industry has fairly well established representative associations with which the port authority can engage.

Fishing activities: The port provides a base for numerous local and foreign fishing boats of various types and sizes. The fishing industry is experiencing pressure in response to the government’s efforts to provide broader access, as well as to conserve fish stock. The port is therefore an important site for the support, as well as the control of the fishing industry. The Marine and Coastal Management division of the Department of Environmental Affairs and Tourism (DEAT) is an important stakeholder in this regard.

In addition to the larger fishing boats berthed at the port’s piers, there are a number of small fishing vessels launched from the Oceana Power Boat Club. There have been plans since 1974 to relocate this Club. Although not located within the port boundaries, the plans to relocate the Oceana Power Boat Club have caused tension, as the relocation would significantly affect both small-scale fishermen, as well as recreational users (boaters, kayakers, divers, universities). Transnet has commissioned a technical feasibility study of possible alternative locations for a small craft launching facility. The information was presented to a City of Cape Town working group, followed by a public presentation at the Sub Council 5 meeting (City Councillors) in June 2003. Comments were received from certain stakeholders and further discussions are planned.

(ii) Recreational and tourism and other activities related to the port

Recreational and tourism activities: The Yacht Club, Robben Island Museum and ferry and the docking of luxury cruise liners are the main recreational and tourism users of the port. The location of a Cruise Liner Terminal within the port is at present a point of discussion. Some city plans propose a tourist facility for cruise-liner passengers located in the vicinity of E, F and G Berth, as this would complement the public activities of Port Square, the Convention Centre Extension and the possible Roggebaai Canal extension. The port however favours the northern end of South Arm, as it does not interrupt the activities of the multi-purpose cargo terminals.

A complex relationship exists between the port and the V&A Waterfront and the Cape Grace Hotel. The maritime atmosphere provided by the port is a key draw card for visitors to the Waterfront. In addition, there has been some cooperation between the port and the Waterfront in providing entertainment activities for visitors. However, the Cape Grace Hotel has previously complained about certain effects (e.g. spray paint affecting cars, dust and noise) of operations of the ship repair industry located near the hotel. The NPA, however, has addressed this problem and there have not been any complaints in the last 6 months. Improved communication between the port and these two neighbours should allow for the identification of possible improvements in their interaction.

Other community stakeholders include: It is estimated that about 100 homeless people live in abandoned buildings, under bridges and other isolated places, within the confines of the port (SAPS). According to the South African Police Services (SAPS) many of these places are unsafe. Housing was provided by the City of Cape Town for these people in Delft. However, they have since returned to the port to live. From time to time, these people are searched for illegal substances. They sustain their
livelihoods by collecting and selling scrap metal, by selling liquor or narcotics, or by being involved in sex work. The homeless people are seen as a security risk and it is suggested by the SAPS that the port needs sufficient fencing and a camera network.

There are obvious challenges to engaging the homeless people as a stakeholder group. Port management will need to communicate with the relevant City of Cape Town officials who have been interacting with the homeless community, and, in addition, there are a number of Non-Governmental Organisations (NGOs) active in Cape Town that may be approached for help. (The Cape Town office of ‘The Big Issue’ magazine may be a useful initial contact point.)

The communities of Woodbridge Island and Milnerton have lodged several complaints regarding beach erosion allegedly caused by increased wave action due to port development. The tension between the residents of Woodbridge Island and the port has been highlighted in the Scoping Report for the expansion of the port container terminal. Communication between the community and the port is being mediated through the public participation programme of the Environmental Impact Assessment (EIA) and by meetings between the residents association and the port planning authority.

(ii) Interaction between the port and the City of Cape Town

Until South Africa’s democratic transition in 1994, the port functioned in relative isolation from the City of Cape Town. For example, the port was not required to pay rates and taxes, as it was situated outside the City’s jurisdiction. Since then, however, interaction and inter-dependence between the port and the city has increased. For example, the port began to purchase water from the City of Cape Town in 1995 and the development of the Waterfront has encouraged greater integration between the port and the public and to some extent with the planners at the City of Cape Town.

There are a number of important reasons for a stronger relationship between the port and the City. These issues include: improvement of road infrastructure and the ease of congestion; growing tourism opportunities and improving cruise liner facilities; public access to the port; safety and security; the development of the Roggebaai Canal Precinct Project; potential employment opportunity creation; and the provision of social welfare and housing for homeless people present in the port. Therefore, closer links and improved communication between the port and City should be developed to facilitate more informed and coordinated decision making with respect to issues of common concern. This issue is discussed in further detail in Section 4.2.2 and 5.5.

The issues discussed above highlight the need for proper social management systems and management plans for stakeholder relations.

5.6.4 Objectives, targets and indicators

The following objectives, targets and indicators have been defined to guide the National Ports Authority in dealing with communication and relationships with both internal and external stakeholders to ensure that social issues are being appropriately addressed.

It is recognised that the National Ports Authority has various plans and policies in place to address issues such as employment equity, labour relations, HIV/AIDS, corporate and social investment, safety and security, and other issues discussed in Section 5.3.6.5. Objectives, targets and indicators have been recommended for these policies and plans, realising
that some of them have already been implemented. The targets and indicators will allow the National Ports Authority to track progress in this regard which will allow for comprehensive social reporting to external stakeholders.

5.6.4.1 **INTERNAL STAKEHOLDER RELATIONSHIPS**

### Employment equity and diversity

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>To create a diverse workforce and leadership that can enhance the sustainability of the Port of Cape Town and provide opportunities for previously disadvantaged people.</td>
<td>Opportunities provided to previously disadvantaged groups in South Africa in accordance with the employment equity legislation.</td>
<td>% of total workforce comprising previously disadvantaged groups.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Description of equal opportunity programmes, as well as monitoring systems to ensure compliance and the results of monitoring.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Composition of senior management and corporate governance bodies.</td>
</tr>
</tbody>
</table>

### Labour relations

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>To promote freedom of association amongst employees.</td>
<td></td>
<td>Percentage of employees represented by trade union organisations.</td>
</tr>
<tr>
<td>To have appropriate negotiation, bargaining and information sharing structures.</td>
<td>-</td>
<td>Percentage of employees covered by collective bargaining agreements.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provision for formal worker representation in decision making or management, including corporate governance.</td>
</tr>
<tr>
<td>To ensure there is adequate training of employees.</td>
<td>-</td>
<td>Average hours of training per year per employee by category of employee.</td>
</tr>
<tr>
<td>To promote job creation and income generation within the scope of activities of the Port of Cape Town.</td>
<td>To increase the number of jobs within the total value chain in the Port of Cape Town.</td>
<td>Total increase in number of employees per annum in the Port of Cape Town and port related industries.</td>
</tr>
</tbody>
</table>
## HIV/AIDS

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
</table>
| To manage HIV/AIDS in those that are affected and to raise awareness. | To provide an awareness campaign and counselling for all employees affected by HIV/AIDS. | • Awareness campaign  
• Counselling facilities. |

## Community development

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
</table>
| To promote community development initiatives that benefit the company and the community, while ensuring that the community is not dependent on the company in the long term. This programme should utilise the skills and capacity of the Port of Cape Town to enhance development and should not be a stand-alone department. | To have a Corporate Social Investment programme in place which mitigates the social impact of the Port of Cape Town as well as enhances the development of Cape Town and surrounding areas. | • Total value of CSI programmes and social, cultural, geographical distribution of projects.  
| To have a comprehensive stakeholder engagement plan involving all relevant parties including civil society. | | • Quantitative and qualitative assessment of stakeholder engagement ensuring that adequate stakeholder consultation has taken place. |

## Safety and security

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that employees, customers, suppliers and members of the public are safe from injury and criminal actions.</td>
<td>To reduce the number of accidents and criminal activities.</td>
<td>• Number of accidents and incidents of crime.</td>
</tr>
</tbody>
</table>

## Issues with regards to leaseholders in the port: privatisation and child labour**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>To mitigate the potential impacts of privatisation.</td>
<td>To minimise job losses associated with privatisation.</td>
<td>• Creation of an employment retention policy and management plan for privatisation.</td>
</tr>
<tr>
<td>To promote employment opportunities for potentially retrenched workers.</td>
<td></td>
<td>• Description of the skills development undertaken and life skills policy and programme compiled, relating to potentially retrenched workers.</td>
</tr>
<tr>
<td>To develop a policy on child labour within the supply chain.</td>
<td>To develop a policy that is sensitive to the socio-economic and cultural environment.</td>
<td>• A policy is developed.</td>
</tr>
</tbody>
</table>

**Note: Although it is realised that the National Ports Authority is not directly linked to the privatisation of port terminals that fall under the South African Port Operations (SAPO), or directly to the operation of these terminals, the NPA does however have some influence which may be express via lease agreements.**
### 5.6.4.2 External stakeholder relationships

#### Social reporting

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>To produce an accurate and verifiable annual social report.</td>
<td>Produce first Sustainability Report (including social, environmental and economic) aspects by then end of 2004 and ensure continuous improvement in quality and acceptance of the report.</td>
<td>§ Increased interaction with stakeholders via reporting and information management process. § Increased stakeholder feedback on Sustainability Report. § External verification of report, with increasing measures of independent auditing.</td>
</tr>
</tbody>
</table>

#### External stakeholder communication

<table>
<thead>
<tr>
<th>Objective</th>
<th>Target</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>To develop and implement a comprehensive stakeholder relationship management (SRM) plan for all stakeholders including port users, residential communities, authorities, suppliers and customers.</td>
<td>To have a comprehensive SRM in place that has been thoroughly researched and has involved all relevant stakeholders.</td>
<td>• A SRM plan is in place and associated training, infrastructure and human resources are allocated.</td>
</tr>
<tr>
<td>To undertake a stakeholder mapping exercise with all relevant departments that have a social dimension to their business. This also needs to include the management structures of leaseholders and concessionaires active in the port.</td>
<td>A stakeholder mapping process has been implemented and a stakeholder map has been developed. • The stakeholder map is updated every 6 months and the results integrated into the stakeholder relationship management system.</td>
<td></td>
</tr>
<tr>
<td>To develop a stakeholder database that integrates stakeholder relationships in all aspects of the Port of Cape Town organisation.</td>
<td>A database is in place and all relevant training is provided to database users. • A methodology is in place that enables ‘database mining’ to ensure active engagement rather than passive reaction to stakeholder needs.</td>
<td></td>
</tr>
<tr>
<td>To be able to resolve conflicts and other issues that create tensions between the port and stakeholders within a framework of transparency and accountability.</td>
<td>To develop a conflict resolution mechanism with stakeholders, that includes adequate opportunity for discussion and participation.</td>
<td>Number of conflicts appropriately resolved between the port and stakeholders.</td>
</tr>
</tbody>
</table>
5.6.5 Opportunities and constraints to future sustainable port development

A key challenge to meeting the objectives will be the effective management of issues that arise between the port and its stakeholders. Proactive engagement with stakeholders, the development of a conflict resolution mechanism, as suggested above, and the initiation of the Port-Stakeholder Forum should assist in this regard. More broadly, the challenges posed by the socio-economic environment relate, for example, to rising unemployment, increasing levels of poverty, crime, HIV/AIDS, very high levels of TB, the housing backlog and child labour in the agricultural sector.

However, the existing socio-economic environment also provides the port with a number of opportunities to move towards these objectives. These opportunities include the fairly high levels of socio-economic development in the Western Cape, the relatively high levels of economic growth and the relatively well-developed public service provision in the Province. Within the more immediate port environment opportunities to meet these objectives are provided by, for example: the increasing interaction and inter-dependence between the port and the City since South Africa’s democratic transition in 1994 (e.g. in 1995, the port began to purchase water from the City of Cape Town); the Port’s current initiatives related to employment equity, HIV/AIDS and Corporate Social Investment; and existing employee and other stakeholder associations and communication forums.

5.6.6 Guidelines for sustainable port development

HIV/AIDS

- HIV/AIDS affects the entire company and therefore an integrated approach to management is required. In addition, the CSI HIV/AIDS initiative must work strategically with the clinic activities.
- The supply chain is a good opportunity to impact on HIV/AIDS. A set of tender guidelines can be developed for all suppliers and contractors regarding the management of HIV/AIDS in their own companies.

Community development

- The engagement of all stakeholders with regards to community development projects is essential. Non-governmental organisations, local authorities and community based organisations included,
- To identify competencies within the Port of Cape Town which can be utilised for development. This requires all departments to establish where they can make a contribution to development within the policies and procedures of the CSI programme.

Issues with regards to leaseholders in the port: privatisation and child labour

Although it is realised that the National Ports Authority is not directly linked to the privatisation of port terminals that fall under the South African Port Operations (SAPO), or directly to the operation of these terminals, the NPA does, however have some influence which may be express via lease agreements. In this regard the following should be considered:
Strategic Environmental Assessment

Strategic Environmental Assessment

On notice of privatisation all human resource planning needs to be negotiated with labour organisations and representatives,

Develop a plan to mitigate the social impacts of privatisation, including a skills development plan and retrenchment counselling,

Develop a database of employment within the Port of Cape Town to facilitate the potential redeployment of employees within the organisation or to other companies, which might be expanding,

There is on-going concern amongst international customers and NGOs regarding child labour and these issues need to be addressed with suppliers, especially in the fruit industry. It is however realised that the National Ports Authority may have a limited influence on this.

Social Reporting

The scope and nature of the accounting process: social accounts should be complete and material in the accounting sense. They should address the organisation’s entire social impact or acknowledge omissions and that which is accounted for should be relevant. Materiality, to a large extent, will be ensured through stakeholder consultation,

The meaningfulness of information: the quality of data collected in the accounting process must be of the highest possible standard in order to ensure reporting integrity. This depends on the robustness of measurement systems implemented to collect the social performance data,

The management of social accounting on an on-going basis: the quality of social accounts can only be secured over the long term if data is collected and managed on an ongoing basis. Social accounting management systems must be embedded in the organisation’s operations.

External stakeholder communication

Stakeholders have a keen sense of an organisation’s social obligations towards them and strong opinions about whether those obligations are being fulfilled. They are also often best placed to decide what indicators reflect an organisation’s performance accurately. Without stakeholder engagement the primary purpose of social accounting - being answerable to those who are subject to the organisation’s social impacts - is significantly undermined,

Develop a stakeholder database with sufficient fields to capture all relevant data and produce accurate reports. The database should be updated on a regular basis and reports generated for key management on a monthly basis,

A database should not exist just for information; rather it is required for the development of strategic relationships,

The development of the database will require a stakeholder relationship audit of all departments and functions to ensure that the database is fully integrated into the organisation as a whole,

Develop a conflict resolution mechanism with stakeholder input,

The conflict resolution mechanism should also be fully integrated into the organisation as a whole and used by all departments and functions, which interact with stakeholders.
5.7 Economic impact of the port
## 5.7 Economic Impact of the Port

### 5.7.1 Issue statement

Ports play a vital role in the development of the country’s economy. It is therefore essential that future port development and infrastructure investment be adequately informed by regular assessments of the local, regional and national economic growth of key sectors.

### 5.7.2 SEA Objectives

The following SEA objectives relate to this section:

**SEA Objective 5:**

Improve the understanding of how relevant local, regional and national economic plans and policies will influence the future port development.

**SEA Objective 6:**

Improve economic, social and biophysical environmental data collection within the port and surrounds, so that this information can be proactively used for environmental management, port planning and triple bottom line reporting.
5.7.3 State of environment

5.7.3.1 Overview of the Western Cape macro economics

The core economic sectors in the Western Cape are agriculture and fishing, manufacturing, tourism, trade and professional services. Since 1995, the average growth in the Western Cape’s Gross Domestic Regional Product (GDRP) has exceeded the average growth of the national Gross Domestic Product (GDP), as shown in Table 5.24. The Western Cape houses just less than 10% of the population of South Africa, i.e. 4.4 million people, of which 3.1 million live in the Cape Town Metropole. The labour force comprises 41% of the Western Cape population (WESGRO, 2002).

<table>
<thead>
<tr>
<th>Region</th>
<th>Average growth over the period 1995 - 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Cape</td>
<td>3.1</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>2.4</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>-0.3</td>
</tr>
<tr>
<td>Free State</td>
<td>2.0</td>
</tr>
<tr>
<td>KwaZulu-Natal</td>
<td>2.5</td>
</tr>
<tr>
<td>Northwest</td>
<td>0.1</td>
</tr>
<tr>
<td>Gauteng</td>
<td>3.3</td>
</tr>
<tr>
<td>Mpumulanga</td>
<td>2.5</td>
</tr>
<tr>
<td>Limpopo</td>
<td>3.8</td>
</tr>
<tr>
<td>Growth in SA GDP</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Table 5.24: Average gross domestic product per region: 1995 - 2000

Source: Statistics SA

The GDRP of the Western Cape for 2001 was R136 billion (current prices). It is estimated at R149.5 billion for 2002 and at R168bn for 2003 by the Bureau for Economic Research (BER), University of Stellenbosch, whilst the GDP of Cape Town is estimated at R112,1bn for 2003 and R126bn for 2004 (WESGRO, 2002). Cape Town’s contribution to the GDRP is calculated at 67%.

The population of the Western Cape of 4.4 million has an average per capita GDRP of R34 000 per annum. The BER has estimated a real regional growth of 2.8% in 2001/2 and 3% in 2002/3. A sustainable growth of between 2.8% and 3.6% per annum is expected over the next 30-year period.

Exports have grown from R19 billion in 2001 to R22 billion in 2002 and are expected to grow to R26.9 billion in 2003. There are 108 000 businesses in the Western Cape. The foreign direct investment in the Western Cape was R1.3 billion in 2002, the majority of which was property investments – private and popular niche markets such as golf estates and wine farms, as well as the establishment or expansion of foreign (co-)owned small and medium-sized enterprises (WESGRO, 2003).

Table 5.25 summarises the trade and investment opportunities in the Western Cape as identified by WESGRO. Only the opportunities that will influence the ports directly have been summarised in the table.
Table 5.25: Investment and trade opportunities in the Western Cape that may influence the port

<table>
<thead>
<tr>
<th>Sector</th>
<th>Subsectors or niches</th>
<th>Investment and trade opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and food processing</td>
<td>§ Grapes, citrus and deciduous fruit</td>
<td>§ Purchase of farms; plant new cultivars; exports</td>
</tr>
<tr>
<td></td>
<td>§ Introduce, expand or process niche products</td>
<td>§ Vegetables, organic food, teas, olives, flowers, seeds/bulbs, herbs</td>
</tr>
<tr>
<td></td>
<td>§ Fruit juices, wine, liquor</td>
<td>§ Modernise and expand wine and beverage facilities</td>
</tr>
<tr>
<td></td>
<td>§ Dairy products</td>
<td>§ Value-adding processing for local and export markets</td>
</tr>
<tr>
<td></td>
<td>§ Packaging sector</td>
<td>§ Packaging, freezing, canning, etc. for exports</td>
</tr>
<tr>
<td>Fishing</td>
<td>§ Fish processing</td>
<td>§ Modernisation of facilities; turnover steady</td>
</tr>
<tr>
<td></td>
<td>§ Mari- and aqua-culture</td>
<td>§ New, promising sector with significant investment potential</td>
</tr>
<tr>
<td></td>
<td>§ Fishing equipment</td>
<td>§ Accessories for local needs and exports from Africa</td>
</tr>
<tr>
<td>Mining, gas, petro-chemicals and energy</td>
<td>§ Granite, lime, tiles, diamonds</td>
<td>§ Limited scope for exploration and extraction</td>
</tr>
<tr>
<td></td>
<td>§ Natural gas along the West Coast</td>
<td>§ Pipeline to Cape Town/Mossel Bay (including turbines)</td>
</tr>
<tr>
<td></td>
<td>§ Oil &amp; gas exploration equipment and services</td>
<td>§ Service centre for West African oil and gas exploration activities</td>
</tr>
<tr>
<td></td>
<td>§ Petro-chemical products downstream</td>
<td>§ Value-adding refinery products for Mossgas (Petro SA) and Caltex refineries</td>
</tr>
<tr>
<td>Metal processing, machinery, etc.</td>
<td>§ Semi-processed metals</td>
<td>§ Processing by Saldanha Steel/duferco and others</td>
</tr>
<tr>
<td></td>
<td>§ Equipment and components</td>
<td>§ Demand linked to clothing/textile, beverages, food processing, fishing and other sectors</td>
</tr>
<tr>
<td></td>
<td>§ Automotive components</td>
<td>§ High-value/quality (exported) components</td>
</tr>
<tr>
<td></td>
<td>§ Electronic machinery and equipment</td>
<td>§ High-quality niche products for local and export markets</td>
</tr>
<tr>
<td></td>
<td>§ Specialised jobs</td>
<td>§ Development of advanced job facilities (i.e. for African markets)</td>
</tr>
<tr>
<td></td>
<td>§ Leisure yacht and boat building, repairs, etc.</td>
<td>§ Promising niche sector, especially luxury yachts for exports</td>
</tr>
<tr>
<td>Textile, clothing, crafts and leather</td>
<td>§ Textiles and clothing</td>
<td>§ Specialised, high-value/designer products with export potential (incl. AGOA opportunities)</td>
</tr>
<tr>
<td></td>
<td>§ Leatherwear and crafts</td>
<td>§ Ostrich-ware and high-value crafts for tourists and exports</td>
</tr>
<tr>
<td></td>
<td>§ Jewellery</td>
<td>§ Quality/designer jewellery for local and export markets</td>
</tr>
</tbody>
</table>

Table 5.26 indicates the contribution in 1999 of the main sectors in the Western Cape to the Gross Domestic Product. The agricultural sector is the most prominent in terms of absolute value and the fishing sector in terms of relative value for commodities that have a direct link with the port. The value of the cargo exported by the Western Cape is summarised in Table 5.27, and the number of people employed in Table 2.28.

### Table 5.26: Western Cape’s contribution to the Gross Domestic Product (1999 R millions)

<table>
<thead>
<tr>
<th>Sector</th>
<th>GGP Western Cape (R million)</th>
<th>GGP Total (R million)</th>
<th>Percentage of total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5 770,0</td>
<td>24 727,9</td>
<td>23,3</td>
</tr>
<tr>
<td>Forestry</td>
<td>90,5</td>
<td>1 462,6</td>
<td>6,2</td>
</tr>
<tr>
<td>Fishing</td>
<td>331,4</td>
<td>443,6</td>
<td>74,7</td>
</tr>
<tr>
<td>Mining</td>
<td>492,5</td>
<td>47 138,7</td>
<td>1,0</td>
</tr>
<tr>
<td>Food, beverages and tobacco products</td>
<td>4 658,0</td>
<td>18 825,6</td>
<td>24,7</td>
</tr>
<tr>
<td>Textiles, clothing and leather goods</td>
<td>4 132,2</td>
<td>10 786,7</td>
<td>38,3</td>
</tr>
<tr>
<td>Wood and wood products</td>
<td>2 845,6</td>
<td>13 648,3</td>
<td>20,8</td>
</tr>
<tr>
<td>Fuel, petroleum, chemical and rubber products</td>
<td>4 213,1</td>
<td>25 663,6</td>
<td>16,4</td>
</tr>
<tr>
<td>Other non-metallic mineral products</td>
<td>1 464,2</td>
<td>9 442,2</td>
<td>15,5</td>
</tr>
<tr>
<td>Metal products, machinery and hold appliances</td>
<td>2 518,5</td>
<td>33 251,6</td>
<td>7,6</td>
</tr>
<tr>
<td>Electrical machinery and apparatus</td>
<td>148,1</td>
<td>1 964,8</td>
<td>7,5</td>
</tr>
<tr>
<td>Electrical appliances</td>
<td>710,4</td>
<td>4 409,6</td>
<td>16,1</td>
</tr>
<tr>
<td>Furniture</td>
<td>773,9</td>
<td>3 862,0</td>
<td>20,0</td>
</tr>
<tr>
<td>Transport equipment</td>
<td>465,0</td>
<td>10 785,9</td>
<td>4,3</td>
</tr>
<tr>
<td>Construction</td>
<td>4 329,1</td>
<td>20 918</td>
<td>20,7</td>
</tr>
<tr>
<td>Community services</td>
<td>50 053,9</td>
<td>274 021,8</td>
<td>18,3</td>
</tr>
<tr>
<td>Trade</td>
<td>27 963,8</td>
<td>115 994,5</td>
<td>24,1</td>
</tr>
<tr>
<td>Finance</td>
<td>17 412,1</td>
<td>56 541,3</td>
<td>30,8</td>
</tr>
<tr>
<td>Transport</td>
<td>11 028,7</td>
<td>54 168,9</td>
<td>20,4</td>
</tr>
</tbody>
</table>

Source: Adjusted from statistics from W EFA
### Table 5.27: Value of the key export commodities in the Western Cape

<table>
<thead>
<tr>
<th>Product</th>
<th>1999 (R million)</th>
<th>2000 (R million)</th>
<th>2001 (R million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td>2 648</td>
<td>2 438</td>
<td>2 953</td>
</tr>
<tr>
<td>Wine</td>
<td>1 239</td>
<td>1 597</td>
<td>2 109</td>
</tr>
<tr>
<td>Fish</td>
<td>1 360</td>
<td>1 282</td>
<td>1 800</td>
</tr>
<tr>
<td>Processed agri-food</td>
<td>977</td>
<td>1 018</td>
<td>1 120</td>
</tr>
<tr>
<td>Machinery and appliances</td>
<td>118</td>
<td>1 016</td>
<td>1 117</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>316</td>
<td>1 095</td>
<td>991</td>
</tr>
<tr>
<td>Ore</td>
<td>544</td>
<td>789</td>
<td>720</td>
</tr>
<tr>
<td>Textiles</td>
<td>291</td>
<td>517</td>
<td>568</td>
</tr>
<tr>
<td>(Semi-)precious stones</td>
<td>343</td>
<td>428</td>
<td>541</td>
</tr>
<tr>
<td>Clothing</td>
<td>388</td>
<td>414</td>
<td>509</td>
</tr>
<tr>
<td>Plastic products</td>
<td>269</td>
<td>341</td>
<td>503</td>
</tr>
<tr>
<td>Hides, skins, leather</td>
<td>298</td>
<td>399</td>
<td>440</td>
</tr>
<tr>
<td>Meat</td>
<td>84</td>
<td>129</td>
<td>260</td>
</tr>
<tr>
<td>Wood</td>
<td>111</td>
<td>188</td>
<td>245</td>
</tr>
<tr>
<td>Boats/yachts</td>
<td>206</td>
<td>356</td>
<td>217</td>
</tr>
<tr>
<td>Automotive components</td>
<td>123</td>
<td>127</td>
<td>281</td>
</tr>
<tr>
<td>Furniture, lamps</td>
<td>181</td>
<td>245</td>
<td>294</td>
</tr>
<tr>
<td>Electricity and telecom equipment</td>
<td>350</td>
<td>330</td>
<td>401</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>9 846</strong></td>
<td><strong>12 709</strong></td>
<td><strong>19 146</strong></td>
</tr>
</tbody>
</table>

*Source: WESGRO and Customs and Excise*
### Table 5.28: Number of people employed in the Western Cape

<table>
<thead>
<tr>
<th>Industry</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, fishing and mining</td>
<td>156 400</td>
<td>164 800</td>
<td>168 400</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>243 200</td>
<td>257 000</td>
<td>274 050</td>
</tr>
<tr>
<td>Construction and repairs</td>
<td>104 400</td>
<td>110 400</td>
<td>87 200</td>
</tr>
<tr>
<td>Electricity, gas and water</td>
<td>11 500</td>
<td>12 600</td>
<td>13 800</td>
</tr>
<tr>
<td>Trade</td>
<td>125 500</td>
<td>137 600</td>
<td>169 750</td>
</tr>
<tr>
<td>Tourism</td>
<td>145 500</td>
<td>161 100</td>
<td>183 600</td>
</tr>
<tr>
<td>Transport and communication</td>
<td>107 200</td>
<td>115 800</td>
<td>126 100</td>
</tr>
<tr>
<td>Financial and business services</td>
<td>99 400</td>
<td>108 600</td>
<td>119 900</td>
</tr>
<tr>
<td>Social, personal and community services</td>
<td>372 800</td>
<td>400 000</td>
<td>414 200</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1 365 900</td>
<td>1 467 900</td>
<td>1 557 000</td>
</tr>
</tbody>
</table>

Source: WESGRO

If the forecasted GDP until 2008 is taken into account, combined with the expectation of an average growth in the Western Cape Regional Product of 3.2%, the forecasted GDRP will be as summarised in Table 5.29.

### Table 5.29: Forecasted Western Cape Gross Regional Product

<table>
<thead>
<tr>
<th>Years</th>
<th>GDRP (R billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>2 103</td>
</tr>
<tr>
<td>2004</td>
<td>2 177</td>
</tr>
<tr>
<td>2005</td>
<td>2 257</td>
</tr>
<tr>
<td>2006</td>
<td>2 324</td>
</tr>
<tr>
<td>2007</td>
<td>2 406</td>
</tr>
<tr>
<td>2008</td>
<td>2 493</td>
</tr>
</tbody>
</table>

The growth expected is an indication of an expected growth in container imports and exports and therefore a growth in the economic activities of the Port of Cape Town. The forecasted TEUs through the Port of Cape Town is summarised in Table 5.30.

### Table 5.30: Forecasted container volumes through the Port of Cape Town

<table>
<thead>
<tr>
<th>Years</th>
<th>TEU’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>485 905</td>
</tr>
<tr>
<td>2004</td>
<td>517 791</td>
</tr>
<tr>
<td>2005</td>
<td>549 677</td>
</tr>
<tr>
<td>2006</td>
<td>581 564</td>
</tr>
<tr>
<td>2007</td>
<td>613 450</td>
</tr>
<tr>
<td>2008</td>
<td>645 337</td>
</tr>
</tbody>
</table>

Source: Cape Town Container Terminal Study

Growth in container throughput will result in more economic activities in the Western Cape maritime sector, provided the South African economy keeps to its policy to promote international trade. However, it should be kept in mind that the value/volume ratio of commodities fluctuates and if the value density of commodities increases due to beneficiation, the volumes of cargo will not necessarily increase in the same ratio. However, the increasing tendency to containerise more breakbulk commodities will again increase the volumes.
### Table 5.31: Traffic captive to South African ports at present

<table>
<thead>
<tr>
<th>PORT</th>
<th>COMMODITY</th>
</tr>
</thead>
</table>
| Richards Bay | Chrome ore  
|            | Coal  
|            | Rock phosphate  
|            | Some base metals  
|            | Titanium slag  
|            | Zircon  
|            | Rutile  
|            | Vanadium  
|            | Andalusite  
|            | Vermiculite  
|            | Ore and minerals from the mines in the natural hinterland |
| Durban    | Granite  
|          | Sugar  
|          | Chemicals  
|          | Petroleum  
|          | Ferro-alloys  
|          | Timber and wood pulp  
|          | Rice  
|          | Steel  
|          | Paper  
|          | Fertilisers  
| East London | Motor car components and assembled vehicles for Daimler Chrysler |
| Port Elizabeth | Motor components for Uitenhage  
|            | Textiles  
|            | Manganese ore  
| Mossel Bay | Off-shore oil  
| Cape Town | Deciduous fruit  
|            | Scrap metal  
|            | Agri-bulk  
| Saldanha  | Iron ore  

#### 5.7.3.2 The Port of Cape Town in relation to the other ports in South Africa

South Africa has seven commercial ports, constituting a complementary system of ports. Each port serves mostly its own unique hinterland, but overlapping sometimes occurs, especially the container hinterlands. Table 5.31 summarises the major bulk and breakbulk commodities that are captive to specific South African ports at present.

The percentage total volume of cargo, breakbulk cargo, bulk cargo and containerised cargo handled by each of South Africa’s commercial ports is shown in Table 5.32. Of the total cargo handled through the ports of South Africa during 2002, the Port of Cape Town handled 4.72%, the Port of Saldanha 15.84%, and the Port of Mossel Bay 1.01% In total the three Western Cape ports handled 21.57%, which is slightly more than the Port of Durban, but substantially less than the Port of Richards Bay. The majority of breakbulk cargo is handled through the Port of Durban. The break-bulk cargo handled at the Port of Cape Town mainly consists of deciduous and citrus fruit. The Port of Saldanha handles some metals in breakbulk, for example steel, copper, lead, titanium slag, zircon, rutile and granite, while the Port of Mossel Bay handles a negligible amount of breakbulk cargo.

The 25 million tonne of iron ore exported through the Port of Saldanha constitute the major bulk exporting commodity in the Western Cape. The ports of Cape Town (0.13%) and Port Elizabeth (1.09%) handle negligible volumes of bulk cargo. The Port of Mossel Bay handles the majority of its petroleum through a pipeline from the single buoy mooring (SBM).
Containerised cargo is normally the highest-earning commodity and therefore a high income is earned by the Port of Durban. The Port of Cape Town is the second largest container-handling port with no container-handling facilities at either of the other two Western Cape ports. The container growth in the country is expected to grow in line with the gross domestic product (GDP). According to various Drewry reports the growth in empty containers is expected to be 25% of the total container traffic by the 2020s, which will add to the container volumes.

<table>
<thead>
<tr>
<th>Cargo type</th>
<th>South African Ports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Saldanha</td>
</tr>
<tr>
<td>Total Volume</td>
<td>15.84%</td>
</tr>
<tr>
<td>Breakbulk</td>
<td>12.99%</td>
</tr>
<tr>
<td>Bulk</td>
<td>19.68%</td>
</tr>
<tr>
<td>Containers</td>
<td>-</td>
</tr>
</tbody>
</table>

5.7.3.3 The Port of Cape Town’s Contribution to the Western Cape Economy

The main commodities exported by the Port of Cape Town are summarised in Table 5.33 and are expressed as a percentage of the total traffic landed through all the regions and at all the South African ports. The exports through the Port of Cape Town for 2000/01 total more than 3.9 million tons which represents 2.9% of South Africa’s total exports though its ports. Although this appears to be a small percentage of the total tonnage of exports through South African ports, Smith (1999:41) states that the port’s exports in 1997 supported economic activity in the Western Cape employing almost 500 000 people (directly and indirectly linked to the port) and produced over 16% of the provincial GRP. The ports importance in terms of the export of deciduous fruit and other fresh produce, the majority of which originate from the Western Cape, further highlights the ports importance to the regional economy.

The main commodities imported through the Port of Cape Town are summarised in Table 5.34 and are expressed as a percentage of the total traffic landed through all the regions and at all the South African ports. The imports through the Port of Cape Town for 2000/01 total more than 2.9 million tons and represents 12.71% of South Africa’s total imports though its ports. Smith (1999:39) lists the major products imported through the Port of Cape Town in 1997. These imports supported economic activity in the port hinterland that employed over 500 000 people (directly and indirectly linked to the port) and produced almost 40% of the provincial GRP (Smith, 1999).

Smith (1999) concluded that it can be assumed that the exports and imports both contribute to exclusive economic activities, given the diverse range of imports and the fairly low amount of imported inputs into the provincial agricultural sector. The economic impacts of the exports can therefore be added to those of the imports, and the port therefore supported economic activity in 1997 involving about 1 million people, representing almost a quarter of the provincial population and about 80% of those formally employed in the province.1 The economic activity supported represented almost half of the provincial GRP.

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1 These figures should be considered with caution, as statistics of formal and informal employment have a high degree of uncertainty and Smith’s methodology is not rigorously defined. Yet the significance of the port’s indirect economic contribution is evident.
### Table 5.33: Main commodities exported through the Port of Cape Town

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Total</th>
<th>Cape Town</th>
<th>Cape Town as % of total</th>
<th>Cape Town Commodity importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish, fresh/frozen not prepared</td>
<td>169 898</td>
<td>161 496</td>
<td>95,05%</td>
<td>4,11%</td>
</tr>
<tr>
<td>Citrus fruit</td>
<td>1 943 651</td>
<td>635 779</td>
<td>32,71%</td>
<td>16,18%</td>
</tr>
<tr>
<td>Deciduous fruit</td>
<td>1 429 442</td>
<td>1 356 805</td>
<td>94,92%</td>
<td>34,54%</td>
</tr>
<tr>
<td>Exotic fruit</td>
<td>173 784</td>
<td>165 324</td>
<td>95,13%</td>
<td>4,21%</td>
</tr>
<tr>
<td>Veg. fresh/frozen not prepared</td>
<td>63 550</td>
<td>48 577</td>
<td>76,44%</td>
<td>1,24%</td>
</tr>
<tr>
<td>Fruit prepared/dried fruit</td>
<td>126 112</td>
<td>83 979</td>
<td>66,59%</td>
<td>2,14%</td>
</tr>
<tr>
<td>Beverages</td>
<td>419 764</td>
<td>350 537</td>
<td>83,51%</td>
<td>8,92%</td>
</tr>
<tr>
<td>Foodstuffs prepared not specified</td>
<td>143 973</td>
<td>42 180</td>
<td>29,30%</td>
<td>1,07%</td>
</tr>
<tr>
<td>Cement &amp; clinker</td>
<td>75 380</td>
<td>72 411</td>
<td>96,06%</td>
<td>1,84%</td>
</tr>
<tr>
<td>Textiles &amp; products thereof</td>
<td>211 570</td>
<td>70 979</td>
<td>33,55%</td>
<td>1,81%</td>
</tr>
<tr>
<td>Steel &amp; products thereof</td>
<td>4 352 052</td>
<td>197 970</td>
<td>4,55%</td>
<td>5,04%</td>
</tr>
<tr>
<td>Mech/elec/electr appl &amp; spares</td>
<td>544 427</td>
<td>47 785</td>
<td>8,78%</td>
<td>1,22%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>125 952 344</td>
<td>694 915</td>
<td>55,00%</td>
<td>17,69%</td>
</tr>
<tr>
<td>Total</td>
<td>135 605 947</td>
<td>3 928 736</td>
<td>2,90%</td>
<td>100,00%</td>
</tr>
</tbody>
</table>

Source: Compiled from NPA statistics (2001)
Table 5.34: Main commodities imported through the Port of Cape Town

<table>
<thead>
<tr>
<th>Commodities</th>
<th>Total</th>
<th>Cape Town</th>
<th>Cape Town as % of total</th>
<th>Cape Town Commodity importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, fresh/frozen not prepared</td>
<td>194 417</td>
<td>45 640</td>
<td>23,48%</td>
<td>1,57%</td>
</tr>
<tr>
<td>Fish, fresh/frozen not prepared</td>
<td>137 344</td>
<td>120 739</td>
<td>87,91%</td>
<td>4,15%</td>
</tr>
<tr>
<td>Skins/hides &amp; products thereof</td>
<td>299 981</td>
<td>79 503</td>
<td>26,50%</td>
<td>2,74%</td>
</tr>
<tr>
<td>Rice &amp; products thereof</td>
<td>675 107</td>
<td>55 675</td>
<td>8,25%</td>
<td>1,92%</td>
</tr>
<tr>
<td>Grain &amp; products thereof</td>
<td>50 904</td>
<td>39 188</td>
<td>76,98%</td>
<td>1,35%</td>
</tr>
<tr>
<td>Barley &amp; products thereof</td>
<td>221 521</td>
<td>179 898</td>
<td>81,21%</td>
<td>6,19%</td>
</tr>
<tr>
<td>Agri-prod/seaweed not specified</td>
<td>860 080</td>
<td>304 594</td>
<td>35,41%</td>
<td>10,48%</td>
</tr>
<tr>
<td>Containers not specified</td>
<td>371 270</td>
<td>221 598</td>
<td>59,69%</td>
<td>7,62%</td>
</tr>
<tr>
<td>Foodstuffs prepared not specified</td>
<td>214 389</td>
<td>72 254</td>
<td>33,70%</td>
<td>2,49%</td>
</tr>
<tr>
<td>Fertiliser &amp; products thereof</td>
<td>682 164</td>
<td>139 068</td>
<td>20,39%</td>
<td>4,78%</td>
</tr>
<tr>
<td>Acids</td>
<td>212 954</td>
<td>81 003</td>
<td>38,04%</td>
<td>2,79%</td>
</tr>
<tr>
<td>Chem &amp; products thereof not spec.</td>
<td>1953589</td>
<td>215 538</td>
<td>11,03%</td>
<td>7,42%</td>
</tr>
<tr>
<td>Household/personal (excl. Clothing)</td>
<td>827 720</td>
<td>93 699</td>
<td>11,32%</td>
<td>3,22%</td>
</tr>
<tr>
<td>Paper &amp; paper products</td>
<td>408 459</td>
<td>120 393</td>
<td>29,47%</td>
<td>4,14%</td>
</tr>
<tr>
<td>Timber &amp; products thereof (excl. Furniture)</td>
<td>269 972</td>
<td>88 774</td>
<td>32,88%</td>
<td>3,05%</td>
</tr>
<tr>
<td>Plastic &amp; products thereof</td>
<td>231 297</td>
<td>49 160</td>
<td>21,25%</td>
<td>1,69%</td>
</tr>
<tr>
<td>Textiles &amp; products thereof</td>
<td>681 459</td>
<td>124 764</td>
<td>18,31%</td>
<td>4,29%</td>
</tr>
<tr>
<td>Glass &amp; glassware</td>
<td>190 947</td>
<td>43 992</td>
<td>23,04%</td>
<td>1,51%</td>
</tr>
<tr>
<td>Steel &amp; products thereof</td>
<td>580 436</td>
<td>29 063</td>
<td>5,01%</td>
<td>1,00%</td>
</tr>
<tr>
<td>Copper &amp; products thereof</td>
<td>36 475</td>
<td>30 093</td>
<td>82,50%</td>
<td>1,04%</td>
</tr>
<tr>
<td>Mech/elec/electr appl &amp; spares</td>
<td>1 852 201</td>
<td>217 701</td>
<td>11,75%</td>
<td>7,49%</td>
</tr>
<tr>
<td>Hardware, tools &amp; paints</td>
<td>502 234</td>
<td>103 193</td>
<td>20,55%</td>
<td>3,55%</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>15 124 863</td>
<td>1 708 978</td>
<td>11,30%</td>
<td>58,80%</td>
</tr>
<tr>
<td>Total</td>
<td>22 872 605</td>
<td>2 906 350</td>
<td>12,71%</td>
<td>100,00%</td>
</tr>
</tbody>
</table>

Source: Compiled from NPA statistics (2001)
From the information presented in this section, together with the information presented in Tables 5.27 and 5.28, it is evident that the development and competitiveness of the Port of Cape Town is integrally linked to the economic growth of the City of Cape Town and the Western Cape region. Numerous factors point to a growing acceleration in both Western Cape exports and imports. It is vital that port development and infrastructure investment is adequately informed by an assessment of the future economic growth of key sectors. It is also important to be able to quantify the ports economic contribution to the local, regional and national economy.

5.7.3.4 Local and Provincial Governments role in developing the local and regional economy

The Constitution states that one of the objects of local government is to “promote economic and social development” (Section 152(1)(c)) (City of Cape Town Economic Development And Tourism, 2002). Internationally and locally, local governments are playing a pro-active and strategic role in enhancing the global competitiveness and growth of key sectors of the local economy (for example, manufacturing, information and communications technology, boat-building, fishing, and tourism) (City of Cape Town Economic Development And Tourism, 2002). In line with this trend, the City of Cape Town, together with the Provincial Administration of the Western Cape, initiated the Joint Marketing Initiative (JMI). The prime focus of the JMI is “to promote the Western Cape and the City of Cape Town to national and international markets (so as) to attract trade, investment and tourism”. This it intends to do by co-ordinating various development strategies and utilising management resources more efficiently in the sectors of tourism, major events, film, investment promotion and trade and export promotion.

The JMI stands to be a very effective and powerful mechanism for ensuring that the benefits of growth in industries such as tourism and film are felt throughout the region. As a highly organised group with provincial and local government support, the JMI will be able to favourably position the region and City internationally. Together with the Integrated Development Plan (IDP), the JMI has established the institutional framework in which public and private investment (both local and international) in the CBD can prosper.

The City of Cape Town’s Economic Development and Tourism Directorate views the Port of Cape Town as a facility which is critical to achieving the City and Province’s economic strategies of maximising export growth and tourism promotion. The Directorate feels that it is therefore critical that the NPA and the City of Cape Town implement formal management mechanisms to promote the integration of port planning, budgeting, infrastructural development and port operations service delivery with City and regional economic strategies, as well as city spatial planning, budgeting, infrastructure development, and service delivery.

5.7.4 Objectives, targets and indicators

The following objectives, targets and indicators (Table 5.35) have been defined to guide port planning, to ensure it considers a wide perspective of local, provincial and national economic plans and policies to support economic development.
## Table 5.35: Port economic: Objectives, targets and indicators

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Targets</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximise the economic impact of the Port of Cape Town on the local, regional and national economies i.e. ensure that the port facilitates economic growth.</td>
<td>Ensure that optimum use is made of scarce land and financial resources, by identifying the highest economic value contributors to the local, regional and national economic.</td>
<td>Value added economic analysis used to prioritise port development through the Port Development Framework.</td>
</tr>
<tr>
<td>Include relevant stakeholders in identifying and analysing future local and regional economic trends that may have an impact on the port.</td>
<td>Through the Port-City Forum, collaborate with the Economic Development and Tourism in the City of Cape Town, relevant provincial authorities and other stakeholders (such as WESGRO) in identifying and analysing relevant local and regional economic initiatives in terms of their impact on the port. Integrate the Port of Cape Town’s Port Development Framework with the City of Cape Town’s Economic Strategy, Integrated Development Plan, and the Western Cape Government’s Economic Strategy (see Chapter 5 for more details on this).</td>
<td>Co-funding of economic analyses for future port development Integrated Port-City Land Use Planning Strategy (see Section 5.5.7)</td>
</tr>
</tbody>
</table>
| Monitor local, regional and national economic impact of the port on an annual basis. | Identify appropriate economic indicators and include monitoring results as part of annual sustainability report. | • Total value of exports through the port  
• Total value of imports through the port  
• Direct and indirect job creation  
• Contribution of the port to local and regional economic growth |
5.7.5 Opportunities and constraints to future sustainable port development

There is an opportunity for the National Ports Authority to define additional port economic indicators, to those provided in Table 5.35. These indicators should provide a clear indication of the ports contribution to the local, regional and national economy. The opportunity also exists to report on these indicators through annual Sustainability Reports, which allow the NPA to communicate the external impact that it is having on the various levels of economic development. This information can be used by the NPA to justify the need to maintain acceptable levels of accessibility to the port, to address port-city issues, where these issues have a negative impact on the port, and to justify the need for future port expansion.

Ports are often regarded as catalysts for the creation of economic wealth and a key source of sustainable value added to the local economy. In comparing the value that ports are adding to the various economies (local, regional and national) it is sometimes difficult to make meaningful comparisons without first understanding and identifying the differences between the contributing factors for each port. For example, the Port of Richards Bay is handling the highest volume of cargo of all South African ports, but the Port of Durban yields the highest income. The question then is, which of the two ports is adding the highest value to the national economy. In addition, the socio-economic contribution should also be considered, which is not indicated in any of the two aforementioned measures.

Two different approaches are normally used to calculate the economic impact of a port, i.e. the calculation of the economic impact in terms of the size of port activity and related activities, and the value added by the port activity.

In the calculation of the economic impact, the effect on the economy in general is calculated and forward effects, spill-over to customers and backward effects on suppliers, are taken into account. Two methods could be used to assess the impact, i.e. “sudden death” and “second best”. The “sudden death” method measures the effect of the sudden disappearance of the economic activity (cluster), while the “second best” method analyses the alternative option if the first option was not available. In other words, the generalised cost difference is calculated between the option of having the cluster and the alternative option if the cluster does not exist. The economic effect will obviously be different for the local, regional and national economies, as the distributive effect of such changes needs to be taken into account. For example, if the “sudden death” approach is adopted and the Port of Cape Town is suddenly closed:

i) the local economy will suffer severely as a result of the closure due to the loss of income from the port activity; many people will lose their jobs; local supporting industries will lose business and there will be a loss in spending from the multiplier effect

ii) the region will suffer to the extent that additional production costs occur, due to the diversion of traffic to other ports in the region and/or the resettlement of employees. In the event of job losses or the loss of contracts by supporting industries, the services will be rendered by other service providers at the other port, i.e. a redistribution of activities will occur; if the diversion is to another region, obviously the Western Cape region will suffer losses similar to those suffered by the port-city, in this case, Cape Town
iii) the national economy will suffer a loss if the country loses trade as a result of the additional cost of the diversion, otherwise no more than a redistribution of the economic activity will be experienced. The latter statement is only true if all conditions are considered to be equal in each port, which will depend on the value added by each port.

In the calculation of the value added, the size of the economic activity, i.e. the demarcation of the activities or clusters, is important. The delimitation of the economic activity is therefore important to define clusters precisely for comparative purposes. Specific rules need to be developed to measure the size of the clusters to ensure equality. The economic size of a port (or value added) can differ substantially from the total throughput of the port.

The methods used to calculate the value a port adds to the relevant economies differ. For example, in the Port of Rotterdam the port value added is derived from the total values added to the region, while in Le Havre the employment and associated labour costs are taken into account and each business is then valued according to a ratio at national level. In Hamburg the comparison is made through comparisons with other activities in the City of Hamburg. These are a few examples. However, the importance is that if meaningful comparisons are to be made, a clear definition of the activities involved, the extent of those activities, the spatial distribution or limitations of such activities and the data needed for comparison, should be clearly spelled out.

The value added method is proposed to assist with identifying the economic value that various port clusters contribute to the local and regional economy. This will assist the port planners with allocating scarce land and financial resources for port infrastructure development, to the highest economic value contributors.

5.7.6 Guidelines for sustainable port development

The following guidelines are proposed:

1) Consult relevant stakeholders during the economic studies that are used to compile the Port development Framework planning document.

2) Undertake an economic analysis of the regional growth scenarios over the medium term (5-10 years) of the identified port clusters, taking into account:
   - Industries expectations and forecasts,
   - Global demand and supply expectation,
   - Economic forecasts,
   - National and local port development strategies,
   - National, regional and local (city) developments/strategies that have an influence on sustainable port development (e.g. tourism strategies), and
   - Historical trends.

3) Analyse the port’s capacity and productivity to meet the demand for the future growth of the cargo taking into consideration:
   - The existing port activities, capacities and utilisation,
   - The expansion potential,
   - The demands of shipping lines,
   - Future shipping trends and networks,
   - Future port business (e.g. concessioning of terminals), and
   - Future supply chains and their requirements.

4) Describe the direct and indirect economic impact of the port clusters on local, regional and national economies:
• Direct port benefits,
• Multiplier effect,
• Port-related employment, and
• Benefits to port service providers.

5) Develop a set of parameters and weighing rules to convert the traffic through the Port of Cape Town into value adding tons, taking into consideration all the abovementioned points.

6) Calculate the value added of the Port of Cape Town to the local, regional and national economy by means of the weighing rules determined above.

7) Identify suitable economic indicators that show the ports contribution to local and regional economic developments.

8) Report on trends in economic indicators of the Port of Cape Town in annual sustainability reports.
6. SUSTAINABILITY REPORTING

6.1 Introduction
6.2 Sustainability Report
6.3 Data and information for Sustainability Reporting
6.4 Data collection, storage, analysis and presentation
6. SUSTAINABILITY REPORTING

6.1 Introduction

Through the SEA process, strategic issues have been identified and assessed in order to facilitate sustainable port planning, development and operation. For each strategic issue, sustainability objectives and targets have been identified and guidelines recommended as to how the port planner, environmental manager and corporate affairs manager can integrate these into day-to-day decision making processes. Indicators and monitoring programmes have also been recommended to assist the port manager in tracking progress towards achieving the sustainability objectives and targets. An essential component of tracking the port’s progress towards meeting the objectives and targets, is the communication of this progress to shareholders and stakeholders.

Sustainability Reporting (or Triple Bottom Line Reporting, in terms of economic, environmental and social performance), is therefore an essential component of sustainable port planning, development and operation. Public reporting on the port’s economic, environmental and social performance is one practical and increasingly credible means to demonstrate to a wide range of stakeholders, the commitment of the National Ports Authority to sustainable port development.

The primary goal of sustainability reporting is to contribute to an ongoing dialogue with various port stakeholders (GRI, 2002). The reports alone will provide little value if they fail to effectively inform stakeholders or support a dialogue that influences the decisions of both the National Ports Authority, as the reporting organisation, and the stakeholders. Continuous stakeholder engagement is therefore essential, the mechanisms of which are discussed in detail in Chapter 4.

6.2 Sustainability Report

The Global Reporting Initiative (GRI, 2002) has provided detailed Sustainability Reporting Guidelines. These guidelines are internationally recognised and have been developed through an extensive international stakeholder engagement process. It is therefore recommended that future sustainability reporting for the Port of Cape Town be designed according to the GRI Sustainability Reporting Guidelines. The GRI guidelines comprise five sections, which must be included in the report for it to conform to the minimum GRI requirements. The five sections are as follows:

Section 1: Vision and Strategy
This section should provide a description of the organisation’s strategy with regards to sustainability, including a statement from the CEO of the organisation.

Section 2: Company Profile
This section should provide an overview of the organisation’s structure and operations as well as the scope of the report.

Section 3: Governance Structure and Management Systems
This section should provide a description of the organisation’s structure, policies, and management systems, including stakeholder engagement efforts.
Section 4: GRI Content Index

This section should provide a table identifying where the information listed in Part C (Report Content) of the GRI Sustainability Reporting Guidelines is located within the organisation’s report.

Section 5: Performance Indicators

This section should provide performance indicators which measure the impact or effect of the organisation in terms of integrated, economic, environmental and social performance.

Although the SEA process provides substantial information that can be used to compile a Sustainability Report for the Port of Cape Town, additional work will need to be done to identify additional economic, social and environmental performance indicators. The indicators already identified in this document under each strategic issue should from an integral part of these performance indicators and should be reported on.

6.3 Data and information for Sustainability Reporting

It is recommended that the following be reported on in the first Sustainability Report for the Port of Cape Town:

<table>
<thead>
<tr>
<th>Strategic Issue</th>
<th>Aspect to be reported on</th>
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</thead>
<tbody>
<tr>
<td>Institutional arrangements and stakeholder engagement</td>
<td>Progress on Port-City Forum, port-user forum and port-stakeholder forum</td>
</tr>
<tr>
<td>Marine ecology</td>
<td>Sediment monitoring results</td>
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<td></td>
<td>Number of shipping accidents and/or operational spills</td>
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<td></td>
<td>Progress on effects monitoring programme (Sandy beaches, Outer harbour wall, Kelp bed communities) (Appendix 3.1)</td>
</tr>
<tr>
<td>Marine archaeology</td>
<td>Progress on marine archaeological research (Appendix 3.2)</td>
</tr>
<tr>
<td>Shoreline stability</td>
<td>Shoreline monitoring results (increase or decrease in erosion and mitigation measures undertaken by port where required) (Appendix 3.3)</td>
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<tr>
<td>Accessibility of the port</td>
<td>Accessibility of the port</td>
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<tr>
<td>Port-city land use planning</td>
<td>Progress on integrated port-city land use plan</td>
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<tr>
<td>Socio-economic and corporate and social investment</td>
<td>Employment equity and diversity</td>
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<td>Direct and indirect employment</td>
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<td>HIV/AIDS programme</td>
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<td></td>
<td>Corporate and Social Investment (CSI) programme</td>
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<td></td>
<td>Safety and security</td>
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<tr>
<td>Economics</td>
<td>Economic contribution of the port to the local, regional and national economy</td>
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</tbody>
</table>
6.4 Data collection, storage, analysis and presentation

Indicators have been recommended for each strategic issue, together with comprehensive monitoring programmes. In this regard, it is essential that the monitored data is captured according to agreed protocols and stored in a systematic fashion, so that they can be interrogated when required. The information needs to be presented in such a way as to assist planners and decision makers with making more informed decisions. In this way the information base for planning and decision making is founded on is extended and the same rigor applied to biophysical and social data collection, analysis, storage and presentation as is applied to economic and operational data. The stored data and the analysis thereof can then be used to report on the triple bottom line performance of the port i.e. through Sustainability Reporting. Specialists for project specific environmental impact assessment studies can also use the long-term data sets and trends. In this way, the specialist studies will be more informed, with a better understanding of the surrounding environment. To ensure this occurs, a database storage and management system must be designed to meet the port requirements.
### 7. IMPLEMENTATION FRAMEWORK FOR SUSTAINABLE PORT DEVELOPMENT

<table>
<thead>
<tr>
<th>Section</th>
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<tbody>
<tr>
<td>7.1.1 Research/baseline studies</td>
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<td>7.1.2 Considerations for Port Planning</td>
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<tr>
<td>7.1.3 Considerations for Port operations and management</td>
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<tr>
<td>7.1.4 Monitoring</td>
</tr>
<tr>
<td>7.1.5 Stakeholder engagement</td>
</tr>
<tr>
<td>7.1.6 Sustainability Reporting and data collection, storage, analysis and presentation</td>
</tr>
</tbody>
</table>
Guidelines for implementation

The Port of Cape Town is challenged by the need to balance local and regional economic and socio-economic benefits of the port with social and biophysical environmental costs. The mechanisms used to achieve this balance are founded in the port planning process, corporate social investment programmes and environmental management systems. Essential to all these processes is appropriate stakeholder engagement.

Guidelines have been recommended in Chapter 5 to assist the Port Planner, Safety, Health and Environmental Manager, Corporate Affairs Manager and others with achieving the sustainability objectives and targets, and thereby facilitating sustainable port development. The guidelines have been summarised in this section under six major headings:

1. Research/baseline studies,
2. Consideration for port planning,
3. Consideration for port operations and management,
4. Monitoring,
5. Stakeholder engagement, and
6. Sustainability Reporting.

To facilitate effective implementation of each guideline, relevant departments within the National Ports Authority management structure have been identified as ‘implementing agents’. Where cooperative decision-making and management is required between the port and the city, the City of Cape Town has also been identified as an ‘implementing agent’. Each guideline relates back to a specific objective and targets and a cross reference to the relevant section in Chapter 5 is provided. The following abbreviations have been used to identify the ‘implementing agent’:

- PPlan: Port Planning and Development
- PSHE: Port Safety, Health and Environment
- PMan: Port Manager
- PCAM: Corporate Affairs Manager
- PMarket: Port Marketing
- CCT: City of Cape Town
### 7.1.1 Research/baseline studies

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<th>Xref to obj/targets</th>
<th>Research/baseline studies</th>
<th>Responsible department</th>
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<tr>
<td></td>
<td>Marine archaeology guidelines</td>
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<td>Section 5.2.4</td>
<td>Due to the long lead-time that may be required in the event of identifying a significant archaeological sites during a specific port expansion, baseline research should be initiated early on, the results of which should be considered for future port planning (See Appendix 3 for research programme).</td>
<td>PPlan</td>
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<tr>
<td>Section 5.2.4</td>
<td>Research information gathered in this way should be made available and published in local and international literature.</td>
<td>PPlan</td>
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</table>
7.1.2 Considerations for Port Planning

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<thead>
<tr>
<th>Reference to obj/targets</th>
<th>Consideration for port planning</th>
<th>Responsible department</th>
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<tbody>
<tr>
<td>Marine ecology guidelines</td>
<td>For future port expansion (physical expansion of port facilities or breakwaters and dredging activities required to source fill material) consideration should be given to the impact on the sandy beach ecosystem, specifically intertidal fauna. This should be done by:</td>
<td>PPlan</td>
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<td>6. Considering results of effects monitoring recommended under Section 5.1.6.2 Effects Monitoring (Appendix 3.1).</td>
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<td></td>
<td>6. Assessing the impact of future port development on the shoreline stability (slope and sediment size distribution) of Table Bay through monitoring and predictive modelling (see Section 5.3).</td>
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<tr>
<td>Marine archaeology guidelines</td>
<td>Information gathered from the baseline research programme should be used to identify potential showstoppers during future port planning processes.</td>
<td>PPlan</td>
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<tr>
<td>Section 5.2.4</td>
<td>The following investigations must be completed during the feasibility stages of future port development (physical expansion and dredging):</td>
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<td>1. Before any development takes place, a baseline study must be undertaken to assess the maritime archaeological potential of the area. Information gathered as part of the baseline research programme should be made available and used.</td>
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<td>2. The results of this study must be taken into consideration when more detailed work plans are being designed.</td>
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<td>3. Any work in designated areas must take the possible presence, importance and sensitivity of maritime archaeological sites into consideration.</td>
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<td>4. The baseline study (i.e. desktop study) must be undertaken by a professional archaeologist with experience in maritime archaeology and archival research.</td>
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<td>5. Potential future surveys and excavation must be undertaken by suitably trained and qualified personnel.</td>
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<td>6. Whenever possible, located sites that are under threat must be adequately preserved in situ. If this is not feasible, an archaeological survey and (partial) excavation must be undertaken to save as much information as is reasonably possible.</td>
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<td></td>
<td>7. Any material recovered during such operations must be adequately stored and preserved and must remain accessible for further study. Excavation and recovery can only be done after a license from the Department of Customs and Excise has been issued and a permit from the South African Resources Heritage Agency (SAHRA) has been granted.</td>
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<td>8. Proper lines of communication between the developer (i.e. the Port of Cape Town), the EIA teams and the specialist for maritime archaeology must be maintained at all stages.</td>
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<td>9. The various stages of the archaeological survey and information gained must be properly documented and made accessible.</td>
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<tr>
<td>Shoreline stability guidelines</td>
<td>Future port expansion</td>
<td>PPlan</td>
</tr>
<tr>
<td>Section 5.3.4</td>
<td>6. Try to place any developments within the existing wave shadow zone. Wave conditions are on average small in this area and absolute changes to these wave conditions will also be small in magnitude resulting in a limited impact of shoreline dynamics.</td>
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<td>6. If a new wave shadow zone is created (i.e. extension of the outer breakwater) it should be “filled” with planned extensions.</td>
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### Consideration for port planning

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<th>Xref to obj/targets</th>
<th>Consideration for port planning</th>
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<td>filled with extensions, sand is likely to accumulate in the sheltered shadow zone, at the expense of neighbouring beaches.</td>
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<td>- If a new wave shadow zone is created (i.e. extension of the outer breakwater) subsequent development should be restricted to the shadow zone. Development in this zone should have relatively limited additional impact (i.e. apart from any headland shift) on erosion.</td>
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<td>- Be aware of the opportunity to create beaches (or surfing waves if desired). If well located, such beaches could become a public amenity. It is possible that beaches could be created with minimal additional effort, depending on the proposed extension design. In this regard, dialogue with a coastal engineer at the stage of preliminary conceptual design would be advisable.</td>
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<td>- The unused and revetted section of shoreline fringing Paarden Island is an appealing area for development, as this is already an industrial area that is not used by Milnerton residents or by tourists. The proviso is that port development should ideally not be too close to Leisure Bay, Neptunes Isle and other planned residential developments near the Diep River Lagoon.</td>
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<td>- Where appropriate, energy-absorbing revetments should be employed. In isolated cases reflecting structures could be desirable. For example, if accumulation of sand is undesirable, a reflective structure may prevent this.</td>
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<td></td>
<td>Section 5.3.4 Future dredging</td>
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<td>- When planning, opportunities for strategic dredging should be borne in mind. While potentially risky, in that a poor design could result in undesirable erosion of a beach, this may not be an issue along the Paarden Island shoreline where the major seawall can weather a degree of erosion. Strategic dredging can be designed employing the wave refraction and shoreline evolution models that have already been established for Table Bay.</td>
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<td></td>
<td>- Opportunities for the supply of sand to eroding beaches, or for supplying sand to avoid beach erosion should also be explored. If wave refraction and shoreline modelling shows that deposition in a region adjacent to a harbour extension is inevitable, then this deposition will probably occur at the expense of erosion of neighbouring beaches. However, if the predicted deposition area is filled with sand (or other material) this situation can be avoided. This logic can be extended to ensure a sand supply to beaches that are presently eroding.</td>
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<td>- A large volume of sand placed on or very near to the shoreline adjacent to a harbour development will be steadily reworked by wave action so that the neighbouring shoreline is supplied with sand. It should be cautioned that successful nourishment of a shoreline depends on appropriate sand being supplied at or very close to the shoreline (i.e. either on the upper beach, in the intertidal zone, or in the near surf-zone). Material placed beyond the surf zone could have deleterious effects, i.e. a localised shoal could cause wave focussing and thus localised erosion on the shoreline.</td>
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<td>- Any dredging required to source fill material for harbour developments should preferably be conducted in areas where no impact will occur on the sediment-depleted Table Bay. Dredging should be conducted well beyond the depth of meaningful natural nearshore sand movement (at least deeper than -15 m MSL). A general formula is the deeper dredging is conducted the less effects on waves (and therefore sand transport and therefore shoreline stability).</td>
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<td>- In relation to the configuration of future ‘dredge holes’ required for sourcing fill material, a relatively deep hole is likely to have more impact on wave changes than a wide shallow hole. A trench aligned with prevailing wave crests will generally have less impact than one aligned perpendicular to wave crests.</td>
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### Section 5.3.4 Use of computer models for planning and conceptual design

Computational modelling of wave transformation, resulting sediment transport and shoreline evolution should be used to assist with

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*August 2003*
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<th>Xref to obj/targets</th>
<th>Consideration for port planning</th>
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<td></td>
<td>conceptual designs of future port expansion early on in the port planning phase. Results from the monitoring programme as discussed in Section 5.3.6.2 should be used to continually update and calibrate modelling.</td>
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<tr>
<td><strong>Access to the port guidelines</strong></td>
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<tr>
<td>Section 5.4.4</td>
<td>The national vision for commercial ports is that they be seamlessly integrated into the transport network and offer high levels of service and increasing efficiency for a growing customer base, so as to enhance South Africa’s global competitiveness and the expansion of the South African economy. The maintenance of a high level of accessibility for the Port of Cape Town is therefore of metropolitan, regional and national significance. The following guidelines to be considered for future port planning are thus recommended:</td>
<td>PPlan, CCT, Spoornet</td>
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<td>1. Retain flexibility provided by encouraging and maintaining both modes of transport serving the port namely rail and road.</td>
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<td>2. Road accessibility to the port is set to deteriorate on an annual basis. The port may need to consider strategies that counteract this loss in accessibility as follows:</td>
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<td>o The provision of additional storage/cold storage facilities in close proximity to the port where cargo can be brought in during the off peak periods.</td>
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<td>o Scheduling of all road based transport to and from the port to maximise efficiency and minimise travel time delay.</td>
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<td>o The increased use of rail, which is independent of road based congestion.</td>
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<td>o Encourage and enhance public transport provision and pedestrian access routes to the port.</td>
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<td>o Discourage through traffic within the port particularly on the section of Duncan Road between Marine Drive and Oswald Pirow Street.</td>
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<td>o Limit on site parking for private vehicles.</td>
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<td>3. Co-determine with Spoornet a long-term vision for rail transport to ensure that the rationalisation process of rail carriages does not go too far.</td>
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<td><strong>Port-city spatial planning guidelines</strong></td>
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<tr>
<td>Section 5.5.4</td>
<td>Four key elements are proposed for future port planning process. These should result in improved port plans while facilitating integration of port-city issues into both port and city plans. The four key elements are as follows:</td>
<td>PPlan</td>
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<td></td>
<td>1. Clearly identify the port’s social, economic and biophysical objectives and incorporate these into current and future Port Development Framework planning processes,</td>
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<td>2. Identify the key issues at the port-city interface that need to be considered,</td>
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<td>3. Develop an integrated plan for the port and the city,</td>
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<td>4. Undertake effective engagement with key stakeholders (including participation in relevant city planning processes).</td>
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<td></td>
<td>Clearly identify the Port’s social, economic and biophysical objectives and incorporate these into current and future spatial planning processes</td>
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<td>These objectives would relate to all aspects discussed in Chapter 5 which include:</td>
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<td>o Maintenance of marine ecosystem functioning;</td>
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<td>o Assessment, study and management of historical-cultural resources;</td>
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<td>Xref to obj/targets</td>
<td>Consideration for port planning</td>
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<td>ß Maintenance of the shoreline stability and beach functionality in Table Bay;</td>
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<td>ß Ensuring efficient and effective road and rail access to the port;</td>
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<td>ß Maximising economic impact, employment and income generation within the scope of activities of the port;</td>
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<td>ß Assessing the local, regional and national economic demands for port facilities;</td>
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<td>ß Maintenance and enhancement of the economic competitiveness of the port;</td>
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<td>ß Identification of spatial requirements for future short, medium or long-term expansion;</td>
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<td>ß Communication and interaction with key stakeholders;</td>
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<td>ß Management of port security and access to the port (For example, restricting access to the port through identified security controlled entrances);</td>
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<td>ß Effective sustainability reporting.</td>
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Identify the key issues at the port-city interface that need to be considered

Currently, these issues include:

ß The implications of Central City Planning Policies and Design Frameworks on the operations of the port e.g. In many instances planning policy has advocated stronger linkages (both physical and visual) between the City and the port, with increased public access to the water’s edge. This would have implications for port operations and security.

ß The implications on the port as a result of developments in the CBD. This includes the implications of the future pedestrian and vehicular movement system in the CBD on the port. For example: there is potential for considerable additional commercial development in the city centre, much of which is less than a kilometre from the boundary of the port. New development may include the use of unutilised rights as well as attempts by property owners to extract more value from existing sites. In addition, some properties in the city centre are now being developed for residential purposes. Therefore, in the near future there could be a growing residential population in the city centre and the potential implications of this on current and future port planning and operations should be determined. A further example is that the extensive scale of public and private investment in the study area will have a marked impact on traffic circulation within the City Bowl and on the operation of the port.

ß The implications of increased development on the borders of the port on traffic volumes and consequently on access to the port, port operations, port security and traffic safety. E.g. Traffic generated due to the development of the V&AW is placing the Coen Steytler Avenue/Dock Road entrance to the V&AW, and effectively South Arm Road under increasing pressure. Proposals for altering traffic movement patterns within the port as a result of the CTICC or any other major development on the Foreshore would need to be assesses in conjunction with NPA, SAPO, Spoornet, Propnet and City of Cape Town.

ß The implications for the port as a result of tourism planning and development initiatives by the public sector and private organisations.

ß Maximising the use of port facilities while minimising the nuisance factors such as noise and dust.

ß The potential visual impact of any new developments within the port. For example, if the port and the City agree on view...
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<th>Xref to obj/targets</th>
<th>Consideration for port planning</th>
<th>Responsible department</th>
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<td></td>
<td>corridors as a form of linkage between the City and the port, this would inform the siting and massing of new buildings in the port.</td>
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<td></td>
<td><strong>Undertake effective engagement with key stakeholders (including participation in relevant city planning processes)</strong></td>
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<td></td>
<td>The planning process, whether for the port or specifically for the Port-City interface, should be informed by effective stakeholder engagement. Three Forums that can be used to facilitate this engagement are the Port-City Forum, Port-User Forum and the Port-Stakeholder Forum, as described in Chapter 4. The function of these forums are to: facilitate an exchange of views, improve understanding of the needs of interested parties, facilitate cooperative decision-making with respect to port-city issues, facilitate the implementation of policies and decisions and to keep external stakeholders informed of the port development agenda and sustainability performance.</td>
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<td></td>
<td>In addition, effective stakeholder engagement should include the participation of the port in city planning processes, such as the Integrated Development Planning (IDP) process. The City's involvement in port planning and the ports involvement in city planning should be conducted via the Port-City Forum. This should ensure that each entity is, rather than being just a stakeholder on the other entities planning process, integrally involved as a ‘partner’ dealing with port-city issue in either the port planning or city planning process.</td>
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<tr>
<td></td>
<td><strong>Develop and integrated port-city land use plan</strong></td>
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<td></td>
<td>It is proposed that an integrated port-city land use planning strategy is produced that addresses key port-city issues, as identified above, in a single framework. This strategy could be, for example a Contextual Framework for the City and the port, for the interface between the port and the city. This framework could facilitate coordination between the port and the city, ensuring that they are working towards the same objectives; provide continuity in the form of a single strategic document, rather than various potential disparate plans for specific areas or topics; provide documentation for endorsement by the relevant city and port authorities and ensure that when changes in personnel take place, previous work and understandings have been properly documented. The resulting document should be a key part of both the Port Development Framework and the City’s Integrated Development Plan. In this regards it is critical that the planning process be guided by the Port-City Forum.</td>
<td></td>
</tr>
<tr>
<td>Port economic impact</td>
<td>Undertake an economic analysis of the regional growth scenarios over the medium term (5-10 years) of the identified port clusters, taking into account:</td>
<td>PPlan</td>
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<tr>
<td></td>
<td>- Industries expectations and forecasts</td>
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<td></td>
<td>- Global demand and supply expectation</td>
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<td>- Economic forecasts</td>
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<tr>
<td></td>
<td>- National and local port development strategies</td>
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<td>Consideration for port planning</td>
<td>Responsible department</td>
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<td>• National, regional and local (city) developments/strategies that have an influence on sustainable port development (eg. tourism strategies)</td>
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<td>• Historical trends</td>
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<td></td>
<td><strong>Analyse the port capacity and productivity to meet the demand for the future growth of the cargo taking into consideration:</strong></td>
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<td></td>
<td>• The existing port activities, capacities and utilisation</td>
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<td></td>
<td>• The expansion potential</td>
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<td></td>
<td>• The demands of shipping lines</td>
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<td></td>
<td>• Future shipping trends and networks</td>
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<td></td>
<td>• Future port business (eg. concessioning of terminals)</td>
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<td>• Future supply chains and their requirements</td>
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<td></td>
<td><strong>Describe the direct and indirect economic impact of the port clusters on local, regional and national economies:</strong></td>
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<td></td>
<td>• Direct port benefits</td>
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<td></td>
<td>• Multiplier effect</td>
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<td></td>
<td>• Port-related employment</td>
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<td></td>
<td>• Benefits to port service providers</td>
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<td></td>
<td><strong>Develop a set of parameters and weighing rules to convert the traffic through the Port of Cape Town into value adding tons taking into consideration all the abovementioned points.</strong></td>
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<tr>
<td></td>
<td><strong>Calculate the value adding of the Port of Cape Town to the local, regional and national economy by means of the weighing rules determined above.</strong></td>
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### 7.1.3 Considerations for Port operations and management

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<th>Xref to obj/targets</th>
<th>Considerations for port operations and management</th>
<th>Responsible department</th>
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<tbody>
<tr>
<td>Section 5.1.4</td>
<td>Water quality management should be implemented through the Port Environmental Management System. This should include the following:</td>
<td>PSHE, CCT</td>
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<tr>
<td></td>
<td>- Sediment quality sampling prior to dredging and dumping operations (see action levels from London Dumping Convention Annex 1 Substances, and special care ranges for Annex II Substances as listed in DEAT (1998)).</td>
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<td></td>
<td>- Manage and monitor pollutant inputs from ship repair facilities</td>
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<td></td>
<td>- Improve quality of storm water inflows into the port</td>
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<td>- Ensure the highest level of control on fuel transfers to limit accidental discharges</td>
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<td></td>
<td>- Ensure strict enforcement of the discharge prohibition by any ships in the port area</td>
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<td></td>
<td>- Reduce probabilities of accidental oil spills through enforcement of traffic management systems and preventing entry to Table Bay of ships that clearly represent hazards (but observing the International Convention for the safety of Life at Sea (SOLAS), 1974 requirements).</td>
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<td></td>
<td>Another requirement for effectiveness of the monitoring programmes is for the NPA to have a clear understanding of what management interventions may be required should the monitoring indicate, for example, increasing amounts of contaminants in Table Bay. Defining such intervention requires that sources of contaminants are known, (e.g. oil spills, fuel supply system leaks, storm water flows), as well as an understanding of the vectors through which contaminants entering the port water body are exported into Table Bay. Implicit here is an understanding of transfers across the major interfaces of the port and city (mainly storm water) and the port and Table Bay (tidal and other exchanges, effects of storms, circulation and wave conditions, etc). This level of understanding has not yet been achieved and it is, therefore, recommended that appropriate research, incorporating model simulations and measurement programmes, be commissioned to inform decision-making regarding management interventions required to protect the Table Bay marine ecosystem ecology from deleterious impacts attributable the port.</td>
<td>PSHE, CCT</td>
</tr>
<tr>
<td></td>
<td>Prevention of the introduction of alien invasive organisms and pathogens to Table Bay should be achieved though the Environmental Management System by:</td>
<td>PPlan, SHE, CCT</td>
</tr>
<tr>
<td></td>
<td>- Prohibiting untreated ballast water discharges in Table Bay and/or the port where the vessels are of distant origin (i.e. outside southern African territorial waters). Ballast water management guidelines developed through the Global Ballast Water Management Programme for South Africa should be implemented.</td>
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<td></td>
<td>- Prohibiting the discharge or dumping of biological material cleaned from ship hulls both in the port and in Table Bay.</td>
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<tr>
<td>Section 5.3.4</td>
<td>Several target thresholds required to maintain shoreline stability have been exceeded, as outlined in Table 5.15. It is therefore evident that mitigatory measures should be considered to prevent further problems. Various options/measures available to address the problem of long-term erosion along the Table Bay shoreline have been assessed and it is recommended that a beach nourishment solution be considered to address the erosion problems along the southern Table Bay shoreline. A practical approach</td>
<td>PPlan, CCT, Private Land Owners</td>
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### Considerations for port operations and management

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<td>would be the placement of a large volume of sand during the future port expansion, while dredgers are accessing sand from the plentiful source north-west of Robben Island (provided this sand is suitable). This could be achieved by piping it to shore under calm conditions, or possibly “rainbowing” material closer to shore. Nourishment should go hand-in-hand with an intensive beach monitoring program in order to accurately assess erosion rates and the degree of success of the operation. Following this initial nourishment, subsequent nourishments of up to 40 000 m³ annually could conceivably be accessed from the surf zone seaward of the Paarden Island seawall. In summer this region is frequently calm enough for deployment of a pontoon with jet pumps to access the sand and pump it along the beach at least as far as Woodbridge Island (where shoreline model simulations illustrated the potential of this solution). It is unlikely that this rate of depletion from Paarden Island region will impact on the seawall structure or its function as a wave protection. It is also recommended that protective/defence measures be implemented in the interim to prevent further storm erosion of those areas presently under most threat, i.e. the golf club restaurant. Furthermore, it is recommended that:</td>
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<tr>
<td>The dune at Leisure Bay is restored to a height of +4.5 m MSL;</td>
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<tr>
<td>The new development further south is closely monitored.</td>
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</tr>
<tr>
<td>The four isolated areas of the dune along the edge of the golf course that are extremely narrow be supplied with sand and vegetated to restore the minimum safe dune width of 12 m.</td>
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### Socio-economic guidelines

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<thead>
<tr>
<th>Section 5.6.4</th>
<th>PCAM</th>
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<tbody>
<tr>
<td><strong>HIV/AIDS</strong></td>
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<tr>
<td>HIV/AIDS affects the entire company and therefore an integrated approach to management is required. In addition, the Corporate Social Investment (CSI) HIV/AIDS initiative must work strategically with the clinic activities.</td>
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<tr>
<td>The supply chain is a good opportunity to impact on HIV/AIDS. A set of tender guidelines can be developed for all suppliers and contractors regarding the management of HIV/AIDS in their own companies.</td>
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<table>
<thead>
<tr>
<th>Section 5.6.4</th>
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<tbody>
<tr>
<td><strong>Community development</strong></td>
<td></td>
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<tr>
<td>The engagement of all stakeholders with regards to community development projects is essential. Non-governmental organisations, local authorities and community based organisations included.</td>
<td></td>
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<tr>
<td>To identify competencies within the Port of Cape Town which can be utilised for development. This requires all departments to establish where they can make a contribution to development within the policies and procedures of the CSI programme.</td>
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<thead>
<tr>
<th>Section 5.6.4</th>
<th>PMARKET</th>
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<tbody>
<tr>
<td><strong>Issues with regards to leaseholders in the port: privatisation and child labour</strong></td>
<td></td>
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<tr>
<td>Although it is realised that the National Ports Authority is not directly linked to the privatisation of port terminals that fall under the South African Port Operations (SAPO), or directly to the operation of these terminals, the NPA does however have some influence which may be express via lease agreements.</td>
<td></td>
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<tr>
<td>On notice of privatisation all human resource planning needs to be negotiated with labour organisations and representatives.</td>
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<tr>
<td>Develop a plan to mitigate the social impacts of privatisation, including a skills development plan and retrenchment counselling.</td>
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<tr>
<td>Develop a database of employment within the Port of Cape Town to facilitate the potential redeployment of employees within the</td>
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There is on-going concern amongst international customers and NGOs regarding child labour and these issues need to be addressed with suppliers, especially in the fruit industry. It is however realised that the National Ports Authority may have a limited influence on this.

### Social Reporting

<table>
<thead>
<tr>
<th>Xref to obj/targets</th>
<th>Considerations for port operations and management</th>
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<tr>
<td></td>
<td>the scope and nature of the accounting process: social accounts should be complete and material in the accounting sense. They should address the organisation’s entire social impact or acknowledge omissions and that which is accounted for should be relevant. Materiality, to a large extent, will be ensured through stakeholder consultation. The meaningfulness of information: the quality of data collected in the accounting process must be of the highest possible standard in order to ensure reporting integrity. This depends on the robustness of measurement systems implemented to collect the social performance data. The management of social accounting on an on-going basis: the quality of social accounts can only be secured over the long term if data is collected and managed on an ongoing basis. Social accounting management systems must be embedded in the organisation’s operations.</td>
<td>PCAM</td>
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### 7.1.4 Monitoring

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<th>Xref to obj/targets</th>
<th>Monitoring</th>
<th>Responsible department</th>
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<tbody>
<tr>
<td><strong>Marine ecology guidelines</strong></td>
<td>Section 5.1.4 Undertake regular precautionary water quality and sediment monitoring to provide warnings if concentrations or frequencies of releases of pollutants or contaminants increases. Existing monitoring efforts in Table Bay are included in Table 5.3.</td>
<td>PSHE</td>
</tr>
<tr>
<td>Section 5.1.4</td>
<td>Undertake effective monitoring of the following communities:</td>
<td>PSHE</td>
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<tr>
<td></td>
<td>§ Intertidal sandy beach biological communities</td>
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<td>§ Kelp bed biological communities</td>
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<td>§ Outer harbour wall biological community</td>
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<tr>
<td></td>
<td>See Section 5.1.6.2 and Appendix 3.1 for monitoring details</td>
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<tr>
<td><strong>Shoreline stability guidelines</strong></td>
<td>Section 5.3.4 In order to assist with managing the issue of shoreline stability certain monitoring actions are required to evaluate if the targets are being met. Monitored data must also be used to continually update and calibrate the shoreline model to facilitate a better understanding of the system thereby allowing for more informed decision to be made with regards future port developments.</td>
<td>PPlan CCT</td>
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<tr>
<td></td>
<td>The following monitoring is required:</td>
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<tr>
<td></td>
<td>§ Topographical Beach Surveys</td>
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<td></td>
<td>§ Sediment Sampling</td>
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<td></td>
<td>§ Directional Wave Measurements</td>
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<td></td>
<td>§ Aerial Photographs</td>
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<td></td>
<td>§ Structure Surveys</td>
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<td></td>
<td>§ Dune Surveys</td>
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<td></td>
<td>The details of monitoring programmes for each of the above are included in Appendix 3.3.</td>
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<tr>
<td><strong>Accessibility of the port guidelines</strong></td>
<td>Section 5.4.4 To ensure that the trends in road accessibility to the port are monitored and the information used for future port planning, it is recommended that the following data be monitored:</td>
<td>PPlan CCT</td>
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<td>§ Hourly monitoring of all vehicles entering or leaving the port by vehicle type at each access point using automatic counting machines.</td>
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<td>§ Daily monitoring of all freight into and out of the port by mode.</td>
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<td>§ Annual monitoring of the following:</td>
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<td>Monitoring</td>
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<td>o Weekday peak period through traffic flows</td>
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<td>o Weekday peak period port trip generation</td>
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<td>o Weekday peak period public transport ridership</td>
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<td>o Weekday peak period pedestrian flows</td>
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<td>o Weekday peak period access intersection delay assessments</td>
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<td>o Weekday peak period access route travel time assessments</td>
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The measured port development and metropolitan traffic growth rates can be fed back into the operations model to refine the predictions made for the medium and long-term development scenarios.
### 7.1.5 Stakeholder engagement

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<tr>
<td></td>
<td><strong>Institutional arrangements</strong></td>
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<tr>
<td>Section 4.2.1</td>
<td>Investigate the establishment of a Port Consultative Committee for the Western Cape in terms of the White Paper on National Commercial Ports Policy and the National Ports Authority Bill.</td>
<td>PPlan PManage</td>
</tr>
<tr>
<td>Section 4.2.2</td>
<td>Formally constitute a Port-City Forum and develop a Memorandum of Understanding between the National Ports Authority, Port of Cape Town and the City of Cape Town with regards to cooperative decision making related to port-city issues – See Appendix 1.</td>
<td>PPlan PManage CCT</td>
</tr>
<tr>
<td>Section 4.2.3</td>
<td>Formally constitute a Port-User Forum and develop a Cooperation Agreement between the Port of Cape Town and the port users – see Appendix 1. Maintain a port user database.</td>
<td>PSHE PManage</td>
</tr>
<tr>
<td>Section 4.2.4</td>
<td>Formally constitute a Port-Stakeholder Forum and develop a Cooperation Agreement between the Port of Cape Town and the port stakeholders – see Appendix 1. Maintain a Port stakeholder database.</td>
<td>PSHE PManage</td>
</tr>
</tbody>
</table>

### Port-city spatial planning

- The planning process, whether for the port or specifically for the Port-City interface, should be informed by effective stakeholder engagement. Three Forums that can be used to facilitate this engagement are the Port-City Forum, Port-User Forum and the Port-Stakeholder Forum, as described in Chapter 4. The function of these forums is to: facilitate an exchange of views, improve understanding of the needs of interested parties, facilitate cooperative decision-making with respect to port-city issues, facilitate the implementation of policies and decisions and to keep external stakeholders informed of the port development agenda and sustainability performance.

  - In addition, effective stakeholder engagement should include the participation of the port in city planning processes, such as the Integrated Development Planning (IDP) process. The City’s involvement in port planning and visa versa should be conducted through the Port-City Forum. This should ensure that each entity is, rather than being just a stakeholder on the other entities planning process, integrally involved as a ‘partner’ dealing with port-city issues in either the port planning or city planning process.

### Section 5.7.4 Consult relevant stakeholders during economic studies used to compile the Port Development Framework planning document.

### Corporate Social Investment

- Stakeholders have a keen sense of an organisation’s social obligations towards them and strong opinions about whether those obligations are being fulfilled. They are also often best placed to decide what indicators reflect an organisation’s performance accurately. Without stakeholder engagement the primary purpose of social accounting – being answerable to those who are subject to the organisation’s social impacts – is significantly undermined.

- Develop a stakeholder database with sufficient fields to capture all relevant data and produce accurate reports. The database should be updated on a regular basis and reports generated for key management on a monthly basis.

- A database should not exist just for information; rather it is required for the development of strategic relationships.

- The development of the database will require a stakeholder relationship audit of all departments and functions to ensure that the
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<td>database is fully integrated into the organisation as a whole.</td>
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<td>β</td>
<td>Develop a conflict resolution mechanism with stakeholder input. The conflict resolution mechanism should also be fully integrated into the organisation as a whole and used by all departments and functions, which interact with stakeholders.</td>
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### 7.1.6 Sustainability Reporting and data collection, storage, analysis and presentation

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<th>Sustainability Reporting and data collection, storage, analysis and presentation</th>
<th>Responsible department</th>
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<tbody>
<tr>
<td><strong>Sustainability Reporting</strong></td>
<td>First sustainability report for the Port of Cape Town should report on the following aspects:</td>
<td><strong>PPlan</strong> <strong>PSHE</strong> <strong>PCAM</strong> <strong>PMan</strong></td>
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<tr>
<td>§ Progress on Port-City Forum, port-user forum and port-stakeholder forum</td>
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<td>§ Sediment monitoring results</td>
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<td>§ No. of shipping accidents or operational spills</td>
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<td>§ Progress on effects monitoring programme (Appendix 3.1)</td>
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<td>§ Progress on marine archaeological research (Appendix 3.2)</td>
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<tr>
<td>§ Shoreline monitoring results (Appendix 3.3)</td>
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<td>§ Status of accessibility of the port</td>
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<td>§ Progress on integrated port-city land use plan</td>
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<td>§ Employment equity and diversity</td>
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<td>§ Direct and indirect employment</td>
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<td>§ HIV/AIDS programme</td>
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<tr>
<td>§ Corporate and Social Investment (CSI) programme</td>
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<td>§ Safety and security</td>
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<td>§ Economic contribution of the port to local, regional and national economy</td>
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<tr>
<td><strong>Section 7.3</strong></td>
<td>All monitored data should be stored, analysed and presented as part of the Port Environmental Data Storage and Management System. Selected information should be presented in the ports annual sustainability report.</td>
<td><strong>PPlan</strong> <strong>PSHE</strong> <strong>PCAM</strong> <strong>PMan</strong></td>
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8. CONCLUSION
8. CONCLUSION

The Port of Cape Town plays an essential role in developing the local and regional economy. The port is surrounded by a complex built and social environment and established within a sensitive marine environment. This has lead to the challenge of balancing the need for the port to meet its economic mandate whilst maximising benefits to the surrounding communities and minimising the impact on the biophysical environment. The mechanisms used to maximise the port’s economic and social benefit and to manage the port’s biophysical environmental impact, are founded in the port planning process, corporate social investment programmes and environmental management systems respectively. Essential to all these processes is appropriate stakeholder engagement.

To promote appropriate stakeholder engagement, the formation of a number of forums has been proposed for interaction with the City and provincial authorities, the port users and the broader port stakeholders. To guide port planning, corporate social investment and environmental management, strategic issues have been analysed and objectives, targets, indicators and monitoring programmes recommended. Trends in the indicators must be used by Port Management to track the port’s progress towards achieving its vision of sustainable development and used to drive management interventions where the sustainability objectives and targets are not being achieved. To assist with implementation, guidelines have been recommended, which are grouped under the following headings: research/baseline studies, considerations for port planning, considerations for port operations and management, monitoring, stakeholder engagement and sustainability reporting.

An essential component of tracking the port’s progress towards meeting the sustainability objectives and targets is the communication of this progress to shareholders and stakeholders. Sustainability Reporting, or Triple Bottom Line Reporting, in terms of economic, environmental and social performance, is recommended as an essential component of port management, as it is a practical and increasingly credible means to demonstrate to a wide range of stakeholders, the commitment of the National Ports Authority to sustainable port development.

The Sustainability Framework for the Port of Cape Town has therefore been developed to add value and to guide the port planning process, corporate social investment programmes and environmental management systems, and to propose rigorous and appropriate means of engaging stakeholders during each of these processes. The Sustainability Framework is proposed as a means of tracking the port’s progress towards achieving its vision of sustainable development as well as a means for reporting on this performance to shareholders and stakeholders. The ultimate success in progressing towards sustainable port development lies in the commitment of the management structure of the National Ports Authority to implementing the recommended guidelines. In addition, sustainable port development requires commitment from the port stakeholders to effectively engage with the various port processes.
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