

ENVIRONMENTAL IMPACT ASSESSMENT

EASTERN SHORES OF LAKE ST LUCIA

KINGSA / TOJAN LEASE AREA



SUMMARY REPORT

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The Environmental Impact Assessment for the Eastern Shores of Lake St Lucia (Kingsa/Tojan Lease Area) consists of three volumes:

| | |
|------------------|------------------------------------|
| Volume 1, Part 1 | Specialist Reports |
| Volume 1, Part 2 | Comments on the Specialist Reports |
| Volume 2 | Reports on the Key Issues |
| Volume 3 | Environmental Impact Report |

This report, the Summary Report, is an abridged version of the main Environmental Impact Report (Volume 3).

Additional copies

Additional copies of both the Summary Report and the main Environmental Impact Report are available from the Principal Consultants, attention: Karin Vink, CSIR Information Services, P.O. Box 395, PRETORIA, 0001, telephone: (012) 841-2880, telefax: (012) 86-2869:

- Summary Report at R10 each
- Environmental Impact Report (a limited number only) at R180, which includes a copy of the Summary Report.

Handling, postage and VAT included.

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The Summary Report is intended for wide distribution. It gives the reader a succinct summary of

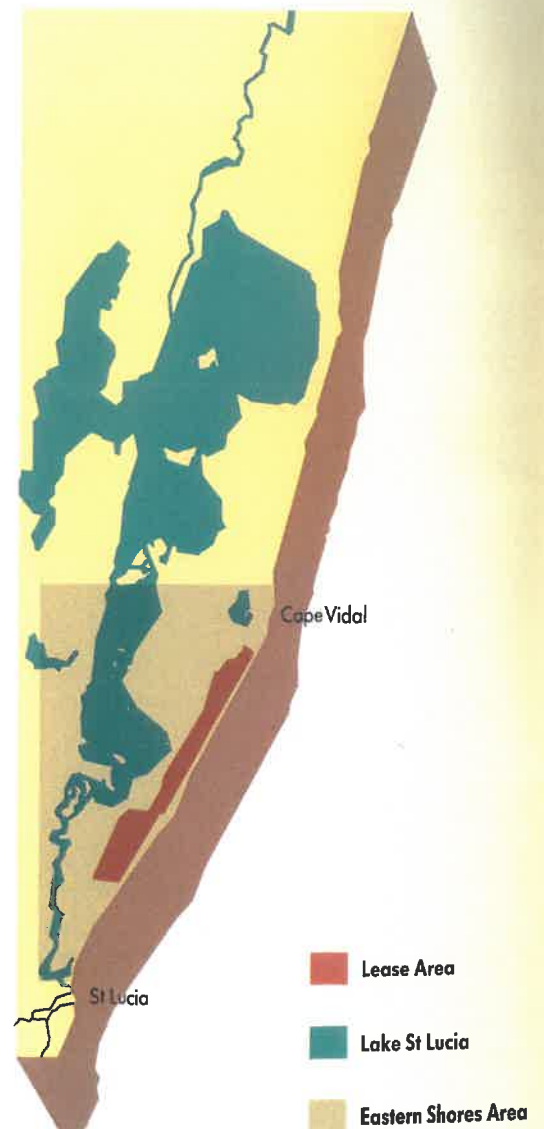
- the issues at stake
- the background to the EIA process
- a description of the Eastern Shores area
- the proposals for future land use of the area
- the major impacts predicted for both land-use options
- recommendations under each option.

The Environmental Impact Report (EIR) does not include a recommendation for future land use of the Eastern Shores area. It provides an assessment of both the negative and positive impacts predicted for each of the two land-use options. The Review Panel will use the EIR, together with further comment from interested and affected parties and the public, to make a recommendation to the South African Government on which option to adopt.

The three volumes of the Environmental Impact Assessment, as well as the Summary Report, have been lodged at the following venues for perusal by interested and affected parties:

- Durban Municipal Library
- Pietermaritzburg Municipal Library
- Richards Bay Municipal Library
- Empangeni Library
- Johannesburg Municipal Library
- Cape Town Municipal Library
- Pretoria Municipal Library
- Port Elizabeth Municipal Library
- Rhodes University Library
- University of Cape Town Library
- University of Zululand Library
- University of Natal Library, Durban
- University of Durban-Westville Library
- University of Natal Library, Pietermaritzburg
- Oceanographic Research Institute Library, Durban
- Natal Parks Board Offices, St Lucia

Written comment should reach the EIR Secretariat, CSIR Environmental Services, P.O. Box 395, Pretoria, 0001, by no later than 14 May 1993.



THE ISSUE AT STAKE



Appropriate forms of land use at Lake St Lucia and its surrounds on the east coast of northern Natal, South Africa, have long been a topic of controversy.

The region around the Lake is characterised by two major features. By various economic and social criteria of well-being, the people of the subregion lag significantly behind the majority of South Africans, ranking with the lower levels of the lower-income countries of the world. New, self-sustaining developments within the region and subregion would contribute significantly to enhancing human well-being and quality of life. But the region is also endowed with attractive wild scenery. There is a spectacular diversity of plant and animal life, offering substantial opportunities for nature conservation and ecotourism development.

Both mining and nature-based tourism could contribute significantly to economic development in this region.

Many decisions affecting the land use of the areas surrounding the Lake have been made during the last 40 years. When Richards Bay Minerals (RBM) applied for the rights to mine its Kingsa/Tojan lease area in 1989, the South African Cabinet instructed in September of that year that an environmental impact assessment (EIA) be carried out.

The Eastern Shores of Lake St Lucia, in which the lease area is situated, is intended to form part of the Greater St Lucia Wetland Park. The Park would constitute a prime component of South Africa's, and the world's, conservation areas. It would contribute significantly to the conservation of biodiversity, and of wetlands and forests in particular. It could also contribute significantly to regional and national economic development.

EVENTS AFFECTING THE LAND USE IN AREAS SURROUNDING LAKE ST LUCIA OVER THE PAST 40 YEARS

- **1950's** Commercial forestry commences on Eastern Shores. State Forest land is proclaimed and demarcated. Currently, 5 244 ha within the 12 874 ha of the Eastern Shores State Forest area has been afforested with slash pine (*Pinus elliottii*). This includes two thirds of the proposed mine path of 1 437 ha.
- **1950's – 1970's** Local people are moved from several State Forests, including the Eastern Shores and Sodwana State Forests, and resettled elsewhere.
- **1960's** Plans for afforestation on the Eastern Shores and the construction of a dam on the Hluhluwe River provokes a public outcry. Kriel Commission of Enquiry recommends in 1966 to Parliament to increase the size of conservation area and that the Eastern Shores be included. The Commission also recommends that the area be managed by a single body, that existing commercial afforestation be phased out and no new plantations be established. Recommendations not implemented.
- **1972 onwards** Prospecting leases (including the Kingsa lease) in the area granted to various bodies and companies. Some sensitive areas excluded in response to appeals by conservation bodies.
- **1976** Kingsa extension and Tojan prospecting leases on the Eastern Shores of Lake St Lucia granted.
- **1986** St Lucia system, including the Eastern Shores area with its extensive afforestation and existing prospecting leases, designated a wetland of international importance in terms of Ramsar Convention.
- **1989** RBM applies for mining rights. Cabinet instructs that the necessary EIA be conducted.
- **1990's** Minister of Environment Affairs announces in February 1990 proposals for a Greater St Lucia Wetland Park, including Eastern Shores area. In August 1992, management of Eastern Shores State Forest transferred to Natal Provincial Administration. Plantation forestry to be phased out.

THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The principles of Integrated Environmental Management as developed by the Council for the Environment in 1989, and revised by the Department of Environment Affairs in 1992, guided the EIA for the Eastern Shores of Lake St Lucia.

The Environmental Impact Assessment (EIA) commenced after the Cabinet instruction in September 1989.

The Department of Environment Affairs was given responsibility for seeing that a comprehensive EIA was successfully executed. The EIA investigated two land-use options for the area – the nature conservation and tourism option, and the mining option. The mining option includes conservation and tourism as far as it would be feasible in conjunction with mining.

The Department of Environment Affairs established three committees to guide the EIA process:

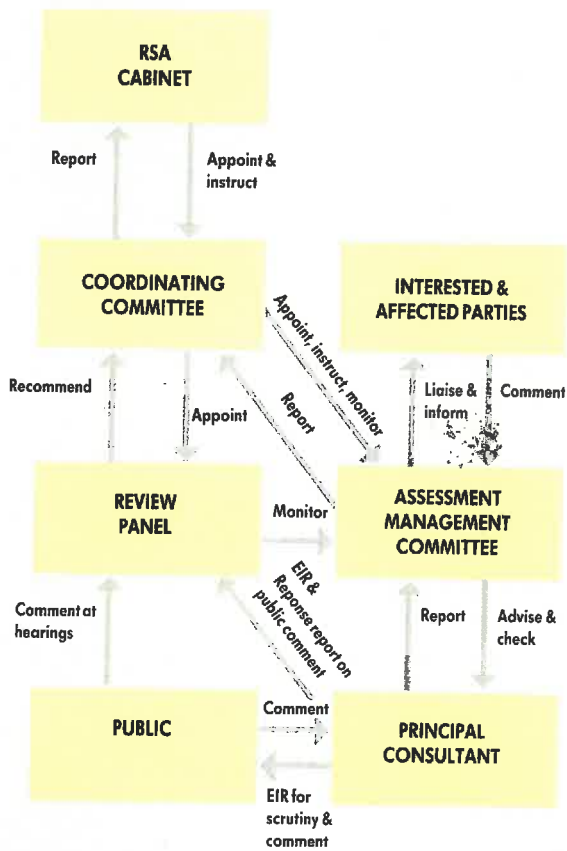
- a Coordinating Committee was appointed under Chairmanship of the Department to report to Cabinet,
- an Assessment Management Committee was ratified by the Coordinating Committee to ensure that the impact assessment was carried out,
- a Review Panel was also ratified by the Coordinating Committee to recommend to Cabinet on whether “unacceptable damage” was likely, which land-use option was to be preferred, and conditions under which a given option should proceed.

Over 120 individuals and groups came forward as interested and affected parties (I&APs). Fourteen of these, identified as lead I&APs to represent the majority of I&APs, were involved frequently in the EIA process. The Assessment Management Committee facilitated communication with all I&APs through information circulars. In addition, a rural liaison programme established the concerns of black communities, and will communicate the results of the EIA to them. Further input from I&APs in the form of written comment on the Environmental Impact Report (EIR), and participation in public hearings, is encouraged.

Over 50 scientists and experts, selected on the basis of their professional standing in their particular fields, contributed to the three volumes of this EIA. These specialists were drawn from universities, research organisations, museums and other bodies in South Africa and overseas.

THE PRINCIPLES UNDERPINNING INTEGRATED ENVIRONMENTAL MANAGEMENT

- Informed decision-making.
- Accountability for information on which decisions are taken.
- Accountability for decisions taken.
- A broad concept of the term *environment* (i.e. one that includes physical, biological, social, economic, cultural, historical and political components).
- An open, participatory approach in the planning of proposals.
- Consultation with interested and affected parties.
- Due consideration of alternative options.
- Mitigation of negative impacts, and enhancement of positive aspects of proposals.
- The objective of ensuring that the ‘social costs’ of development proposals (those borne by society, rather than the developers), be outweighed by the ‘social benefits’ (benefits to society as a result of the actions of the developers).
- Democratic regard for individual rights and obligations.
- Compliance with these principles during all stages of the planning, implementation and decommissioning of proposals.
- The opportunity for public and specialist input in the decision-making process.



The process as implemented for the EIA for the Eastern Shores of Lake St Lucia.

Initially, 23 specialist studies provided basic information on the Eastern Shores area. The lead I&APs commented on these, the Specialist Reports, which were amended where necessary. Major comments, together with authors' responses, were captured in a Response Report (Volume 1, Parts 1 and 2 of this EIA).

The response to the first three circulars to I&APs provided a basis for generating a list of key issues. As a second stage in the EIA, reports on these key issues were compiled (Volume 2 of the EIA).

The Environmental Impact Report (EIR) (Volume 3) draws upon information from both the Specialist and Key Issue Reports in Volumes 1 and 2. It includes conclusions drawn on the impacts of the two land-use options for the area, and recommendations on the conditions under which either option should be allowed to proceed.

The EIA was specifically required to address the question of irreparable damage. Irreparable damage was defined, for the purposes of this EIA, as an impact of the highest order, i.e. there could be *no possible mitigation* of the impact in the long term.

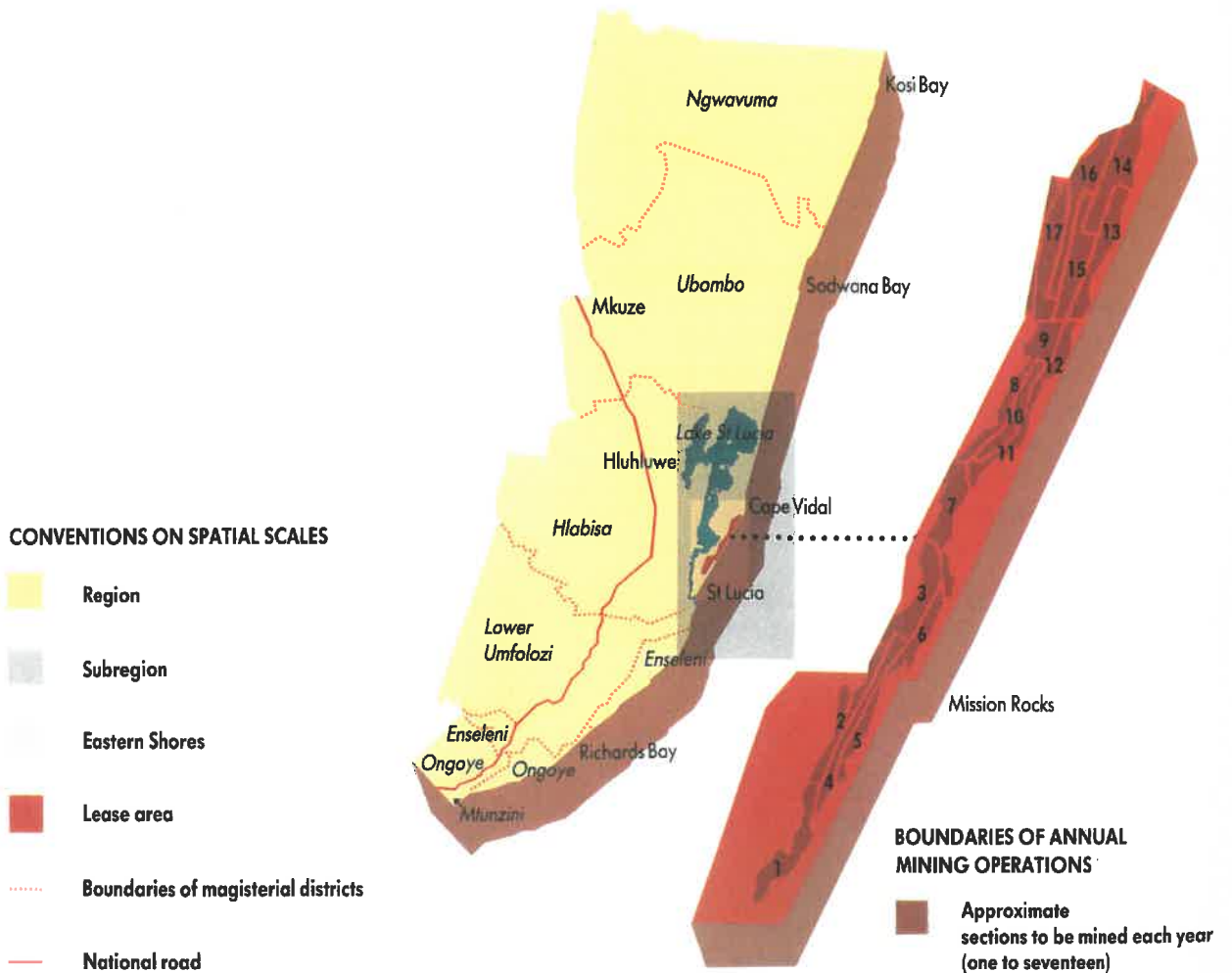
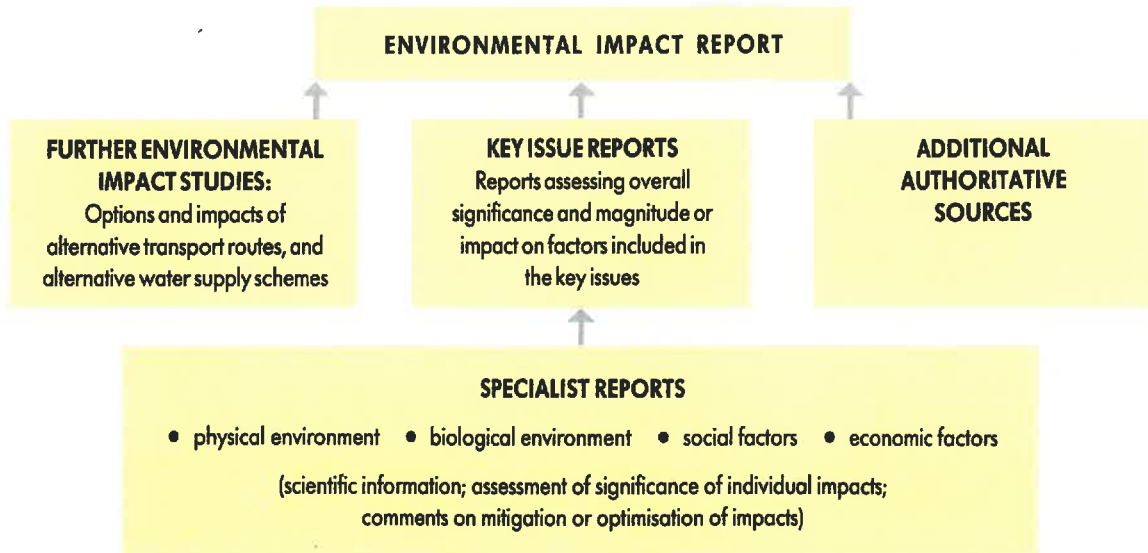
THE SPECIALIST STUDIES (VOLUME 1, PART 1)

- Landform, geomorphology and geology
- Hydrology
- Water quality and supply
- Sedimentology
- Climate, soils and land-use potential
- Vegetation and floristics
- Rehabilitation ecology
- Terrestrial vertebrates
- Ornithology
- Wetlands
- Archaeology
- History of Lake St Lucia Eastern Shores
- Ecological implications of past and present land use
- Commercial forestry
- Visual analysis of the Eastern Shores and its environs
- Landscape evaluation of the Eastern Shores
- Noise impact assessment
- Role of tourism
- Social assessment
- Economic impact
- Legal aspects
- Ramsar Convention
- St Lucia: the sense(s) of the place

THE KEY ISSUES (VOLUME 2)

- The functioning of terrestrial ecosystems
- The functioning of wetlands
- The functioning of estuarine and marine systems
- Biotic diversity
- Effect on the conservation perceptions and symbolic value of the area
- Effects on tourism
- Effects on the economy
- Community life and social services
- Plans, policies and laws
- Assessment of the alternative heavy mineral concentrate transport options
- Assessment of the alternative water supply schemes
- Economic evaluation of the mining and ecotourism alternatives

The Environmental Impact Report (Volume 3 of the EIA) draws on a range of sources.



STANDARD SET OF CONVENTIONS TO ASSESS IMPACTS AND BENEFITS

Impacts, both negative and positive, related to both land-use options, were assessed by specialists according to a standard set of conventions specifically determined for this EIA.

| Spatial scales | Time scales | Significance rating | Degree of certainty |
|--|--|---|---|
| International | Short term (0 to 5 years) | VERY HIGH Of the highest order possible. No possible mitigation for adverse impacts at spatial or time scale for which predicted, or no other real alternative to achieving benefits. | Definite More than 90% sure of a particular fact. Substantial supportive data to verify assessment. |
| National | Medium term (6 to 30 years) | HIGH Impacts of substantial order. Mitigation feasible but difficult for adverse impacts, or only difficult and expensive other means of achieving benefits would be feasible. | Probable Over 70% sure of a particular fact, or of the likelihood of that impact occurring. |
| Region KwaZulu districts: Enseleni, part of Hlabisa, Ngwavuma, Ongoye, Ubombo. Natal districts: Hlabisa (in part), Lower Umfolozi, Mtunzini | Long term (more than 30 years) | MODERATE Impact real but not substantial. Mitigation feasible for adverse impacts, or other means of achieving same benefit will be about equal in time cost and effort. | Possible Only over 40% sure of a particular factor of the likelihood of an impact occurring. |
| Subregion | | | |
| Eastern Shores area (29 867 ha) | | LOW Impacts of low order with little effect. Mitigation easily achieved for adverse impacts or easier alternative means exist for achieving same benefit. | Unsure Less than 40% sure of a particular fact, or the likelihood of an impact occurring. |
| Prospecting lease area (3 419 ha) | | | |
| Proposed mine path (1 437 ha) | | VERY LOW Impacts negligible. No mitigation needed for adverse impacts, or better alternative means exist to achieve benefit. | |
| | | NO EFFECT No impact at all. | |

THE AFFECTED ENVIRONMENT

PHYSICAL FEATURES

THE DUNES. The Eastern Shores ecosystem incorporates a narrow strip of land bounded to the west by Lake St Lucia, and to the east by the Indian Ocean. The landscape is dominated by a dune cordon parallel to the coastline. The dunes reach heights of 130 m above sea level in places. Heavy minerals (rutile, ilmenite and zircon) in mineable quantities occur in a relatively shallow capping on the dunes in the cordon.

THE WETLANDS AND LAKES. The coastal plain between the dune cordon and Lake St Lucia contains many wetlands such as vleis, pans, swamp forests and hygrophilous (water-loving) grasslands. No wetlands of significant extent occur in the proposed mine path, although there are small patches of hygrophilous grassland in places.

Lake St Lucia occupies around 35 000 ha when full, with an average depth of just less than one metre. At certain times, the Lake contains fresh water. At other times, it becomes more saline than the sea, depending on rainfall in the catchment area.

THE MARINE SYSTEM. The Eastern Shores shoreline consists mainly of sandy beaches, with rocky outcrops at intervals, such as at Cape Vidal and Mission Rocks. Offshore, coral colonies occur in the warm tropical water of the Indian Ocean as thin veneers over the sandstone reefs, a unique tourist attraction in South Africa.

LAND-USE CHANGE ON THE EASTERN SHORES. The land uses of the people occupying the Eastern Shores area in the past had a significant impact on the vegetation and the landscape of the area (see aerial photographs opposite).

Both Early and Late Iron Age settlers on the Eastern Shores subsisted primarily on the basis of shifting agriculture, and exploited the resources of bog iron ore which is found in the vicinity of the Lake and other wetlands. As a result of these practices, forests would have been cleared from an early age. Pastoralists have also used the land in the past few centuries. As a result, secondary grassland and secondary scrub became prominent.

Since the establishment of commercial forestry in the area in the 1950s, however, effective fire control resulted in a larger degree of exclusion of fire from the dune cordon, which allowed a significant expansion of the coastal dune

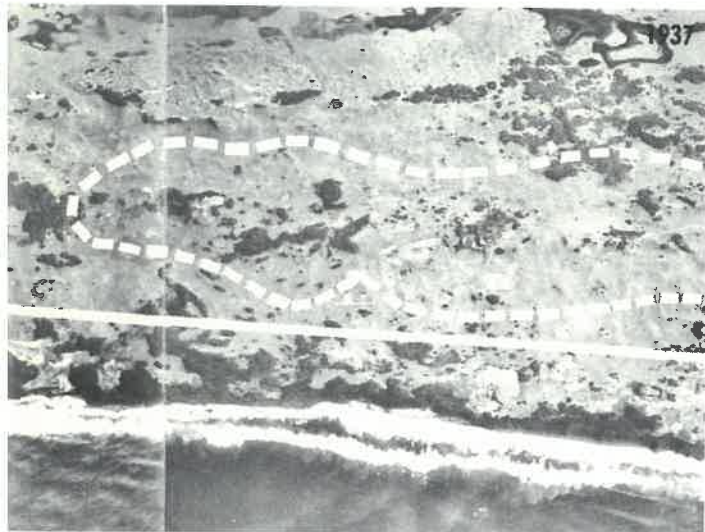
The dune cordon between Lake St Lucia and the sea gives the Eastern Shores its special character.



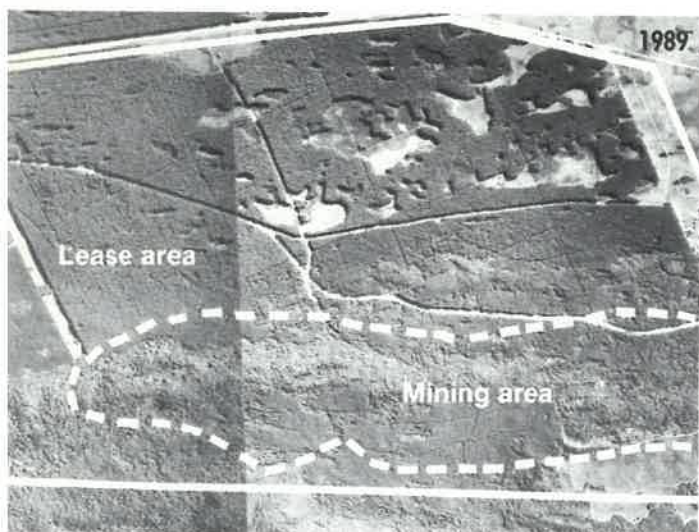
forest. The aerial photographic record for the Eastern Shores area indicates that the extent of indigenous forests was significantly less in 1937 than it was in the late 1980s.

This 1937 aerial photograph of the Eastern Shores shows that grassland was the dominant vegetation type at the time.

The aerial photographic record for 1989 indicates the significantly increased extent of indigenous forest.



Secondary grassland on the dunes of the Eastern Shores.



Acacia karroo woodland on the dunes, 40 - 60 years old.

BIOLOGICAL FEATURES

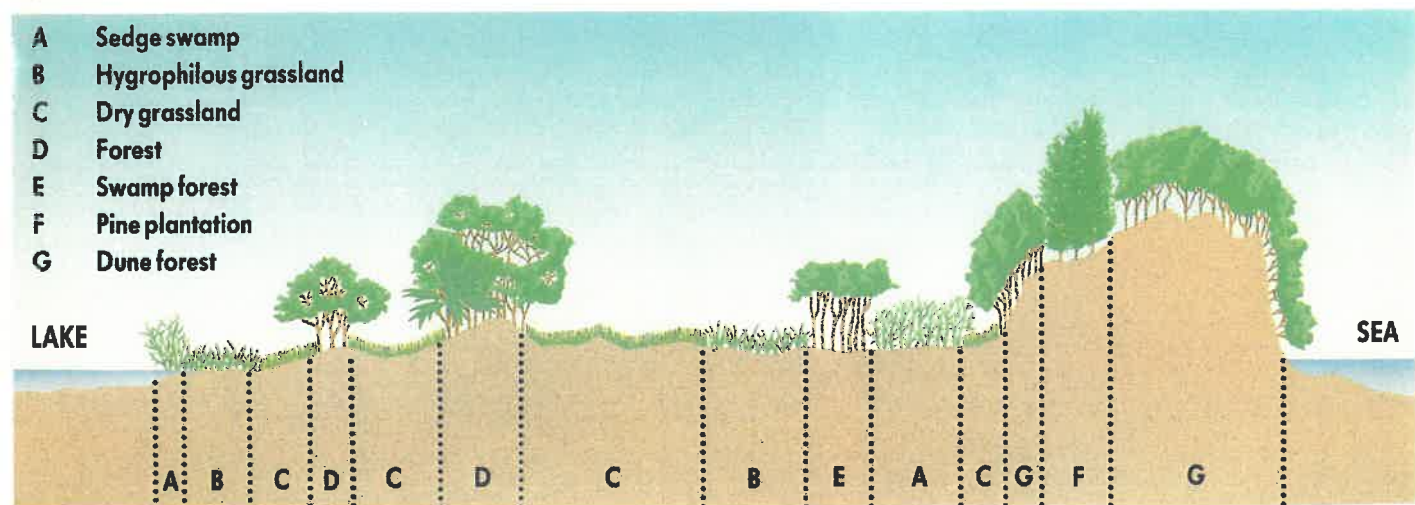
THE VEGETATION. The vegetation of the Eastern Shores reflects the sub-tropical moist climate, its nutrient-poor soils, and the disturbance regimes that prevail. Rainfall, around 1 200 mm per year, is adequate to support indigenous forests. Disturbances such as shifting agriculture in the past, and fire, play a major role in maintaining grasslands on the dune cordon. In the adjacent low-lying plain, seasonal flooding and periodic drought create a fluctuating mosaic of vegetation formations, where swamp forests, hygrophilous grasslands, and various forms of aquatic vegetation are prominent.

Pine plantations (*Pinus elliottii*) to the extent of 5 244 ha have been established on the Eastern Shores. Some native plant species do invade the plantations, but biological diversity is much lower in the pine forests than in unafforested areas.

At least 15 alien invasive species occur in the area.

THE FAUNA. At least 450 vertebrate species (65 mammals, 286 birds, 60 reptiles and 39 amphibians) have been recorded in terrestrial habitats of the Eastern Shores area. Reedbuck, hippopotamus and crocodiles are abundant and bushbuck, red and grey duiker are common. Populations of black rhino, cheetah, buffalo, kudu, waterbuck and warthog have been established by re-introduction. Many of these species have been listed in the South African Red Data Books: 44 are considered to be rare, 14 vulnerable, and one, the black-rumped button quail, endangered.

View from the top of Mount Tabor overlooking secondary grassland, secondary dune shrub and pine plantations.



THE SOCIO-ECONOMIC ENVIRONMENT

THE PEOPLE OF THE REGION. The Eastern Shores area is situated in a region which includes many of the least-developed districts in South Africa, where many people are extremely poor. The human development index proposed by the United Nations Development Programme as a measure of quality of life ranks the KwaZulu districts in the region with the lower levels of the lower-income countries of the world.

The 850 000 people in the region live in a mainly rural environment. They are employed principally in agriculture, or government and community services, when they are able to find jobs. Migrant workers dominate the male population, and men are mostly away from their families. Population growth rates are relatively low, about 2.1% per annum, because of migration to the cities, but fertility rates are high. About 200 people, all employees of the Natal Parks Board, live on the Eastern Shores. About 1000 people live in the town of St Lucia.

People's income levels are extremely low. The 1990 estimates of per capita gross geographic product for the KwaZulu districts range from R400 to about R1 000 per year. The overall unemployment level for the region is estimated at 27%, with the burden falling mainly on the KwaZulu districts (31%, as opposed to 2.4% in Natal districts).

These districts are poorly supplied with services. There are few schools or colleges; adult literacy is low (64%). There are about 100 medical doctors per million people.

People were evicted from the Eastern Shores and surrounding areas from the 1950s to the early 1970s. Currently, applications by two groups for resettlement at Eastern Shores involve at least two parts of the Kingsa/Tojan lease areas, KwaSheleni and Manuveni. Both claim a traditional right of occupation to the area. Several areas around Lake Bhangazi are included in these claims.

URBAN AND INDUSTRIAL DEVELOPMENT. Urban and industrial development in the region is focused on Richards Bay with its large harbour. The industries which use the harbour, and their supporting businesses, provide a large proportion of the employment opportunities in the region. In the subregion, however, development is poor, and employment opportunities are limited.



TOURISM IN THE REGION. A wide range of accommodation facilities for tourists have been established around the Greater St Lucia Wetland Park and elsewhere in the region. Private-sector businesses are expanding their participation in ecotourism in the region, augmenting the opportunity offered by public-sector organisations. These include several hotels, flats, time-share developments and rest camps at private game reserves or ranches.

CONSERVATION AREAS. About 40% of the region currently enjoys formal conservation status in reserves such as the Greater St Lucia Wetland Park, Hluhluwe/Umfolozzi, Mkuze Game Reserve and Tembe Elephant Park. There are also extensive marine reserves along almost the whole coast north of Cape Vidal.

THE LAND-USE PROPOSALS AND THEIR PROPONENTS

Despite the diversity of land uses that has been sanctioned and practised in the Eastern Shores area over the past decades, the Assessment Management Committee, after extensive consultation with interested and affected parties and with the approval of the Coordinating Committee, identified only two land-use options for the area.

- THE NATURE CONSERVATION AND TOURISM OPTION**, which calls for the removal of forestry operations and the rehabilitation of the area to natural vegetation after clearfelling of the pine plantations, the re-introduction of game, and the development of ecotourism facilities. The proponent is the Natal Parks Board (NPB).

The Natal Parks Board is a semi-autonomous body funded by the Natal Provincial Administration, and is

the authority charged with the nature conservation function in the Province of Natal. The Board was established in 1947 (then the Natal Parks, Game and Fish Preservation Board), and today administers 81 reserves. The Hluhluwe, Umfolozi and St Lucia (a half-mile strip around Lake St Lucia) Game Reserves are the oldest existing game conservation areas in Africa, having been proclaimed in 1897.

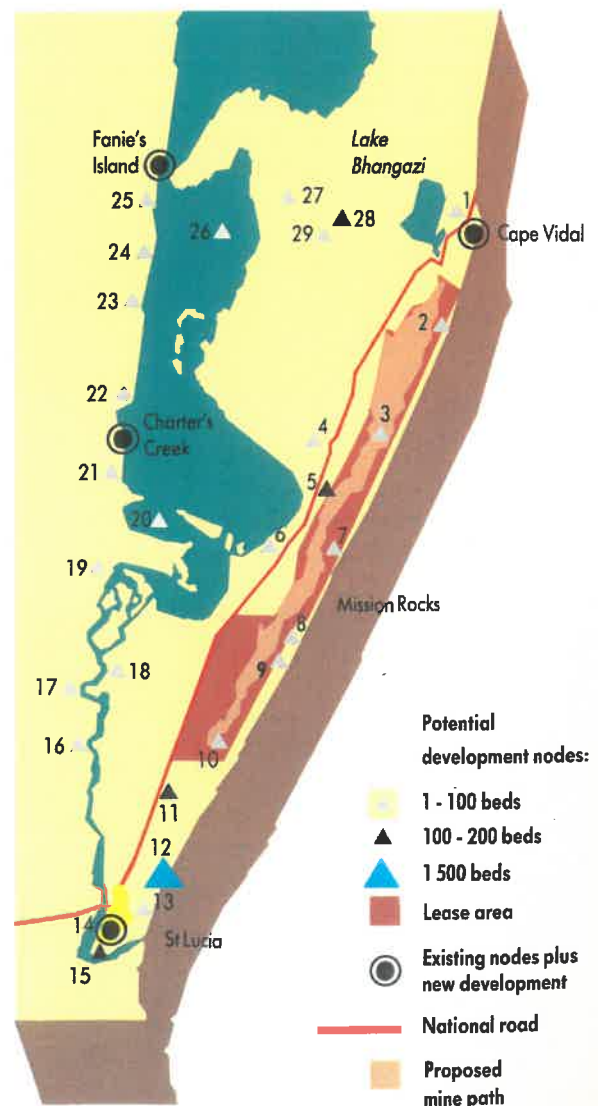
NATAL PARKS BOARD'S MANAGEMENT OBJECTIVES FOR THE GREATER ST LUCIA WETLAND PARK, IN WHICH THE EASTERN SHORES AREA IS INTENDED FOR INCLUSION

- Maintain and/or re-instate the ecological processes which determine ecosystem structure and function,
- minimise the rate of species extinction resulting from the activities of man,
- maintain and/or re-establish viable populations of species indigenous to the Park,
- preserve the integrity and wild character of the environment in all zones,
- preserve geological, palaeontological, archaeological and historical sites,
- encourage non-consumptive uses of natural resources, and
- contribute to national and regional programmes for nature and environmental conservation, education and interpretation, ecotourism activities and opportunities, and for economic growth.

The ecotourism opportunities and facilities to be provided in the Park would be:

- resource-based, i.e. orientated to public appreciation and enjoyment of the natural environment and natural communities,
- compatible with the management objectives, and
- of a type and character appropriate within a major protected area.

PROPOSED TOURISM DEVELOPMENT NODES



- **THE MINING OPTION**, also calling for the removal of forestry operations, the rehabilitation of the natural vegetation of the area, but allowing mining to proceed in conjunction with the nature conservation and tourism activities where feasible. After mining, the area would be rehabilitated to natural vegetation and would revert to conservation and tourism. The proponent is Richards Bay Minerals (RBM).

Richards Bay Minerals was formed in 1976 and commenced operations in 1977. The company consists of Tisand (Pty) Limited and Richards Bay Iron and Titanium (Pty) Limited, which are associated companies with common shareholders. The shareholders are the RTZ Corporation (50%), Gencor (25%), the South African Industrial Development Corporation (16.8%) and Old Mutual (8.2%). The company employs 2 500 people.

RBM has the capacity to supply 30% of the world's zircon, 23% of the titanium-dioxide feedstocks and 20% of the high-purity iron for ductile iron castings. Presently, Richards Bay Minerals is the sole South

African supplier of titanium-dioxide feedstock and zircon sand, and ranks first in the world in the production of these minerals.

RBM proposes to begin mining its Kingsa/Tojan leases in about 1999. At the planned rate of mining, it is estimated that the mine life would be 17 years at the site. A further three years would be required for closure, including removal of all plant and equipment, and rehabilitation of the recently mined areas. The Kingsa/Tojan deposit would allow RBM to continue smelting at full capacity for an additional five years.



- PROPOSED MINING INFRASTRUCTURE**
- Proposed powerline
 - Existing powerline
 - Water supply pipeline
 - Heavy mineral concentrate pipeline
 - Railway line
 - Proposed mine path
 - Roads
 - Lease area

RBM'S MISSION STATEMENT (ISSUES RELEVANT TO PROPOSAL TO MINE THE KINGSA/TOJAN LEASE)

- A commitment to ensuring a high standard of rehabilitation of mined-out areas,
- restoration of the environment to a condition acceptable to the community and the land-owner, and
- support of community projects that contribute to the health and wellbeing of the community.

It is the stated policy of the company to mine the Kingsa/Tojan lease areas with sensitivity and care, and to cooperate with conservation bodies to ensure that positive benefits from mining would be equitably distributed.

RBM'S REHABILITATION OBJECTIVES

- To restore the land to a form and productivity to conform with pre-mining land capabilities (except for pine plantation removal),
- to restore the landscape to a form which approximates the original dune topography and which is consistent with surrounding aesthetic values,
- to ensure that the rehabilitation process does not limit future land-use options,
- to ensure that rehabilitation takes place continuously and is fully integrated with the mining operation, and
- to ensure that the rehabilitation programme meets with statutory requirements and is consistent with those of the land-owner.

THE PROPOSED DEVELOPMENT PLAN FOR NATURE CONSERVATION AND TOURISM.

The proposal for nature conservation and tourism consists of two parts. Nature conservation activities involve the management of vegetation (through fire, the control of invasive weeds, and rehabilitation), the management of game populations, and law enforcement. Tourism centres on the provision of visitor facilities compatible with nature conservation, such as camps or other forms of accommodation, and the infrastructure needed to support this. The NPB intends to upgrade the existing facilities on the Eastern Shores by establishing several new accommodation nodes, and upgrading existing nodes. These proposed additions would add almost 3 000 beds to the area over a 20-year period, starting in 1996. This would involve an aggregate capital investment of about R150 million (in 1992 Rands).

The 36 log cabins at Cape Vidal can accommodate more than 250 people at any one stage. The cabins have been sited so that they are hardly visible from a distance.

Current visitor impact at Cape Vidal illustrated by an early-morning coastal fishing scene.



THE PROPOSED DEVELOPMENT PLAN FOR MINING.

The mineralised sands of the Kingsa/Tojan lease area would be mined and processed by the same technology that is used at RBM's Richards Bay site. This encompasses a mining plant that floats on a man-made pond. The plant consists of a suction dredge coupled to a concentrating plant, where the heavy minerals are separated from the sand particles. The tailings (remaining sand) are stacked behind the dredge pond and shaped before being rehabilitated.

The freshwater requirements for the mine would be drawn from the Mfolozi river and either pumped directly to site during the rainy season, or stored in an off-channel reservoir at KwaMsane for use through the year. Water would only be drawn from the river during periods of high flow. This option was chosen after a detailed investigation of the impacts of all available alternatives.

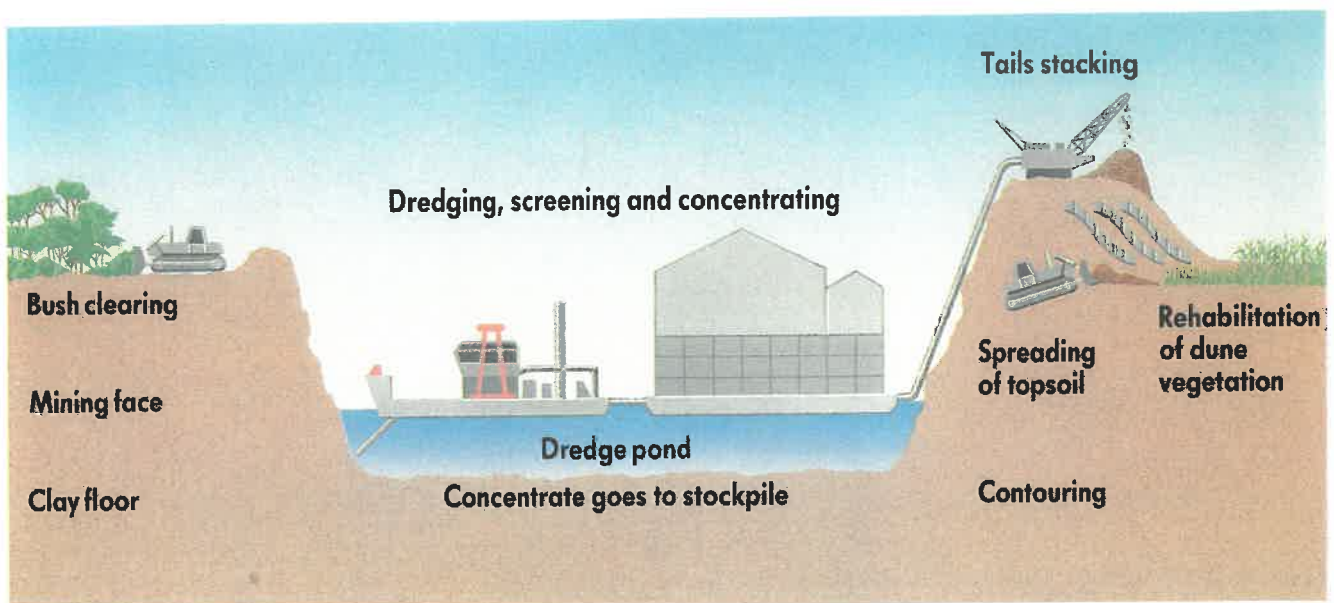
The heavy mineral concentrate (HMC) would be pumped from the lease area, under The Narrows of the St Lucia estuary to the Fernwood siding, from where it would be railed to the beneficiating facilities at Richards Bay. This was determined to be the most environmentally-acceptable means of transporting the HMC.

RBM's current mining plant D under construction at Zulti North lease.

The dredge pond for the proposed Eastern Shores mining would be constructed in the same way, and the proposed mining plant would be the same size.



Schematic diagram of proposed mining operations.



COMPARISON OF THE IMPACTS

The environmental impact assessment predicted both negative and positive impacts that would arise from the two proposed land-use options. The impacts were grouped into four main categories.

- **environmental**, which includes the impacts on the terrestrial, wetland, estuarine and marine systems, as well as the issue of biodiversity, addressed in these Key Issue Reports
- **economic and developmental**, which focus on international trade, the national, regional and sub-regional economies, and infrastructural development, addressed in the Key Issue Reports on tourism, economics and community and social services
- **the indirect and intrinsic values associated with the Eastern Shores**, which embrace archaeological and historical issues, the visitor's perceptions and the sense of place, entitlement to the land, and other ethical or moral issues; these issues were addressed in the Key Issue Reports on effect on the conservation perceptions and symbolic value, effects on tourism, and on community life and social services
- **issues related to institutional, policy and statutory frameworks**, which were addressed in the Key Issue Report on plans, policies and laws.

Bird life associated with Lake St Lucia and wetlands in the area would not be affected by mining.

CASES WHERE NO IMPACTS ARE PREDICTED IN THE EVENT OF MINING

Many concerns raised early on in the EIA were investigated by the specialist consultants. Those on which mining is predicted to have **NO EFFECT**, or **VERY LOW** effects, are:

- Lake St Lucia – the closest the mining operations would approach the Lake is 600 metres; mostly, it would be several, up to five, kilometres away,
- there would be no sediment accumulation in the wetlands around Lake St Lucia – observations at present mining operations near Richards Bay indicate that this would be unlikely,



- there would be no pollution of wetlands adjacent to the proposed mine path, and **VERY LOW** effects on the quality of water in wetlands,
- populations of fish, waterfowl and crocodiles associated with the wetlands would not be affected,
- no marine or estuarine organisms would be affected,
- the activities of marine turtles nesting in the area would not be affected,
- there would be **NO EFFECT** on the majority of terrestrial mammals, birds and reptiles, including most of the rare species (mining would impact 1 437 ha of the 2874 ha of the Eastern Shores State Forest),
- Bat's Cave near Mission Rocks would not be affected,
- the ecotourism industry, and foreign exchange arising from this, would not be affected at a national or regional scale – mining on the Eastern Shores would not deter foreign visitors to South Africa,
- the mine would not be visible from St Lucia town, neither would it be heard, and
- there would be no pollution or disruption of traffic in the town of St Lucia.

Hippopotamus populations in Lake St Lucia and The Narrows would not be significantly affected by mining.

Marine turtles would not be affected by mining operations.

There would be no visual impact at any stage of the proposed mining operations from this point at Mission Rocks. Noise from the mining operation would be masked by the sound of the surf.





ENVIRONMENTAL IMPACTS

The mining operation would result in several severely negative impacts to the topography, soils, vegetation and fauna in the proposed mine path. Many of these impacts could be mitigated, especially in the long term. The wetlands abutting on the lease area are not expected to be severely impacted, neither are the estuary and marine components of the area.

Development of ecotourism infrastructure would result in only localised impacts.

A summary of the environmental impacts predicted is presented in the table opposite.



Samango monkey and red duiker both occur in the proposed mine path.

Natural vegetation on Mount Tabor. This site falls in the proposed mine path.



ENVIRONMENTAL ISSUES: MAJOR IMPACTS PREDICTED

| Environmental factor | Mining option, with ecotourism development where feasible. Proponent: RBM | Nature conservation and tourism option (no mining and full ecotourism development). Proponent: NPB |
|------------------------|---|--|
| Terrestrial vegetation | VERY HIGH negative impact on the mine path in the short term, but with mitigation (the implementation of a programme of rehabilitation), LOW to VERY LOW in the long term. A total of 7.5% of the natural vegetation on the Eastern Shores would be affected by mining. A localised negative impact at tourism development nodes. | Localised negative impacts at tourism development nodes |
| Terrestrial animals | MODERATE loss of numbers of some species such as red duiker, gaboon adder, Samango monkey and dwarf chameleon from mine path in the medium term. Mitigation in the form of capture and transfer to other areas or retention in captivity is possible. | LOW positive impacts, through re-introductions of game. |
| Topography | HIGH to VERY HIGH negative impacts on dune topography in the mine path in the long term. While major topographic features could be recreated, they would be displaced by about 500 to 1 000 metres. Some steep slopes would become flatter. Changes to topography are expected to have NO EFFECT on ecosystem function. | NO EFFECTS |
| Soils | HIGH decrease in soil nutrient status in the mine path in the medium term. Mitigation in the form of rehabilitation would probably lead to a return of soil nutrient levels in the long term. | NO EFFECTS |
| Wetlands | Some LOW or VERY LOW negative impacts due to mining in the medium term, on the Eastern Shores. In cases where water from the mine pond would impact groundwater levels, mitigation in the form of toe-drains or pumping from deep boreholes would easily rectify these impacts. LOW negative impacts associated with ecotourism developments in the long term, on the Eastern Shores. | Some LOW negative impacts associated with ecotourism developments in the long term on the Eastern Shores. |
| Biodiversity | VERY HIGH reduction in biodiversity at the scale of the mine path in the short term, reducing to MODERATE or LOW in the long term. Mitigation in the form of rehabilitation is possible; rescue plans for rare species could be implemented. | LOW to MODERATE positive impacts through re-introductions, and rehabilitation of pine plantations |

Tailings being stacked at RBM's current mining plant C in the same way as it would during the proposed Eastern Shores mining operation.



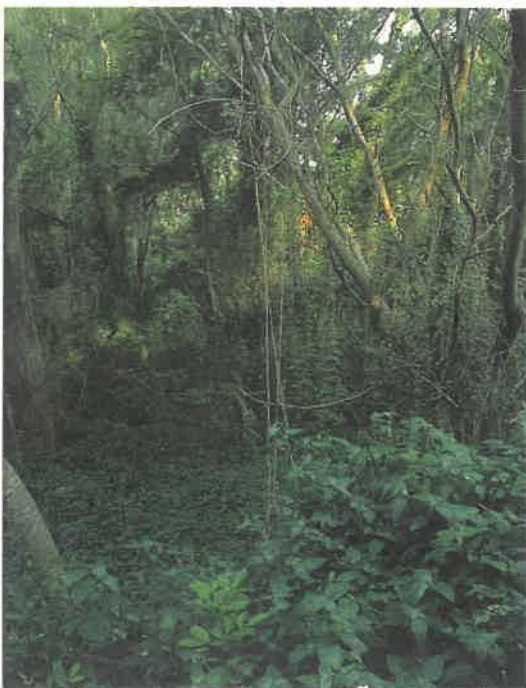
Rehabilitation of tailings stackings start with spreading of topsoil imported from bush-cleared areas ahead of the mine path. Topsoil from recently mined areas is used.



A cover crop of cereals is sown on the topsoil, and windbreaks erected. The cereals, such as sunflowers in bloom in this picture, die within one year. Thereafter, natural vegetation regenerates from seed in the topsoil. This includes Acacia karroo, which is not actively planted.



Ten-year-old acacia trees on a rehabilitated site near Richards Bay. Seedlings of trees associated with later successional stages to forest can be seen establishing below the Acacia karroo canopy.



Rehabilitated dunes two to five years after tailings were stacked. Well-established acacia seedlings, which grew from seed surviving in the topsoil, are visible in the background.

ECONOMIC AND DEVELOPMENTAL IMPACTS

From an economic perspective, there is significant advantage to be gained by proceeding with mining at the Kingsa/Tojan lease areas. Because such development would not exclude the further development of ecotourism facilities, and because the mine path would be rehabilitated and become available for NPB purposes afterwards, the economic gains from joint development would be significant.

A major concern about the economic development in the

St Lucia subregion is that neither ecotourism nor mining would contribute to the wellbeing of local people in ratio to the revenues generated. This is because of the anticipated high "leakage" of revenues from the area. Most expenditure in the subregion flows out again to pay for goods and services acquired outside, in the region, in South Africa, or abroad. Social responsibility programmes would be needed to address these problems.

A summary of the economic and developmental impacts predicted is presented in the table below:

ECONOMIC AND DEVELOPMENTAL ISSUES: MAJOR IMPACTS PREDICTED

| Economic indicator | Mining option with ecotourism development where feasible. Proponent: RBM | Nature conservation and tourism option (no mining and full ecotourism development). Proponent: NPB |
|---|--|---|
| Aggregate discounted revenue | R 460 million to RBM for the life of the mine R 196 million to NPB for future ecotourism activities feasible in conjunction with mining | R 265.7 million to NPB for future ecotourism activities |
| Discounted net present value | R 153.5 million for the life of the mine | NPV values are zero as NPB is a non-profit organisation |
| Direct jobs | 300 temporary jobs during commissioning phase 313 life-time jobs for the life of the mine Between 212 and 392 life-time jobs in ecotourism feasible in conjunction with mining | Between 212 and 392 life-time job on ecotourism |
| Indirect jobs | Between 1 275 and 4 675 life-time jobs indirectly through multiplier effects associated with the proposed mine | NO EFFECT at a national scale |
| Net incremental tax revenues, discounted | R 157.1 million in tax would be paid by RBM during the life of the mine | None. The Natal Parks Board does not pay tax |
| Net incremental foreign exchange earnings, discounted | R 606 million in foreign exchange earnings gained during life of the mine | At a national scale foreign exchange earnings from ecotourism would be unaffected |
| Social responsibility programmes | R 8 million per year would be invested by RBM for an additional five years | Expenditure by the NPB on social responsibility programmes is not known. Between R100 000 and R200 000 per year is gained by local people through access to natural resources |



A photomontage of the view from Charters Creek across the St Lucia estuary with mined dunes in the process of rehabilitation in the distance. Here rehabilitation in progress forms most of the visual impact, which would be lessened once vegetation cover was established.

Bushclearing ahead of mining operations would have a HIGH impact on the visual quality of the area, and would be noisy.

INDIRECT AND INTRINSIC IMPACTS

Impacts on indirect and intrinsic values include those on historical and archaeological heritage, and on people's perceptions of the value of the St Lucia subregion in various ways. The most important impacts include those on visual quality, increased traffic, noise, and people's sense of the place.

The Eastern Shores is characterised by superb scenery offered by the forested dune cordon along the coast. **VERY HIGH** negative impacts are predicted on the visual quality of the area.

There exists a relatively small but influential body of opinion that holds that the St Lucia area should be regarded as sacrosanct. To these people, the area symbolises wilderness. Their perceptions are strongly developed, and it would be correspondingly difficult to influence their thinking, or mitigate impacts on their perception. The effects of the group's active lobbying are manifested in growing international pressure to ensure that mining is not detrimental to the perceived integrity of the St Lucia wetlands, and in a private members bill, the Wetlands Conservation Bill, to be introduced at the next sitting of Parliament.

On the other hand, the emerging social groups in South Africa that will speak for the poorer and less influential elements of society will sometimes tend to support mining. The perceptions of these people are difficult to characterise but are almost certainly less entrenched than those of the anti-mining lobby. The interests of the people of the region, and the nation, are likely to be focused on job opportunities, land rights, and their immediate material and domestic circumstances. The adoption of one or the other land-use option on the Eastern Shores would have a lower impact on perceptions in these groups.

A summary of the impacts predicted on indirect and intrinsic values is presented in the table on the opposite page.





*Two thirds of the proposed mine path (1 437 ha) is covered by slash pine, *Pinus elliottii*. Trees are clearfelled at age 20 years, leaving large unsightly areas for 12 to 24 months. During clearfelling of slash pine, logs are sawn into lengths on site. Chainsaws are used during felling operations; heavy vehicles remove the logs.*

The popular NPB holiday resort at Sodwana Bay receives many thousands of visitors over peak holiday seasons. Many visitors make use of four-wheel drive vehicles. Similar impacts can be expected at node 12 on the Eastern Shores.



INDIRECT AND INTRINSIC ISSUES: MAJOR IMPACTS PREDICTED

Indirect and intrinsic value

**Mining option, with ecotourism development where feasible.
Proponent: RBM**

**Nature conservation and tourism option (no mining and full ecotourism development).
Proponent: NPB**

The archaeological heritage of the Eastern Shores

VERY HIGH positive impact on an international scale through increased knowledge of Iron Age sites if archaeological material exposed by mining could be used for study

NO EFFECT

The historical heritage of the Eastern Shores

VERY HIGH negative impact on some historical sites: destruction of Norwegian Mission Station and RAF outpost on Mount Tabor. Mitigation would entail dismantling and reconstruction of the structures after mining

NO EFFECT

Continued

INDIRECT AND INTRINSIC ISSUES: MAJOR IMPACTS PREDICTED

| Indirect and intrinsic value | Mining option, with ecotourism development where feasible. Proponent: RBM | Nature conservation and tourism option (no mining and full ecotourism development). Proponent: NPB |
|---|---|---|
| Visitors' perceptions of the quality of the environment in the St Lucia subregion | <p>MODERATE negative impacts due to noise from the mining operation at the scale of the Eastern Shores in the medium term</p> <p>Some noise from ecotourism nodes, on the Eastern Shores</p> <p>MODERATE negative impacts of noise from forestry clearing operations in the medium term on the Eastern Shores</p> <p>HIGH negative impacts on tourism in the subregion in the short term during the construction phases to establish the mine</p> <p>LOW positive impacts on increased accessibility in the long term on the Eastern Shores</p> <p>HIGH negative impacts on game viewing and noise levels, due to increases in visitor numbers in the long term, on the Eastern Shores</p> | <p>Some noise from ecotourism nodes in the long term, on the Eastern Shores</p> <p>MODERATE negative impacts of noise from forestry clearing operations in the medium term, on the Eastern Shores</p> <p>HIGH negative impacts on game viewing and noise levels in the long term on the Eastern Shores, due to increases in visitor numbers</p> |
| Impacts on the visual quality of Eastern Shores landscapes | <p>VERY HIGH negative visual impacts of mining in the medium term. These can be mitigated to some degree, for example by restricting activities to a small area, making use of existing plantations to screen the view of the mine from the road and rapid rehabilitation</p> <p>LOW negative visual impacts of tourism development in the long term on the Eastern Shores, easily mitigated</p> <p>MODERATE negative impacts in the medium term due to clearfelling of forestry plantations on the Eastern Shores</p> | <p>LOW negative visual impacts of tourism development in the long term on the Eastern Shores, easily mitigated</p> <p>MODERATE negative impacts in the medium term due to clearfelling of forestry plantations on the Eastern Shores</p> |
| Impacts on the sense of place | <p>Unsure, but could be VERY HIGH negative in the short term at national and even international scales, particularly among conservationists, decreasing with time. Could be mitigated by means of a proactive awareness campaign</p> | <p>Unsure, but could be MODERATE to VERY LOW positive in the medium to long term at a national scale, and seen as a major victory for conservation</p> |

CONCLUSIONS

The Eastern Shores is not a pristine environment. It has had a long history of some or other form of disturbance, including traditional occuputory land use, which involved shifting agriculture, and more lately, plantation forestry. Some of the current disturbances, such as timber vehicle traffic, are larger than what the equivalent disturbance associated with mining would be. Also, the envisaged development of ecotourism facilities would have significant impacts of certain kinds.

Despite this, the area is a vital part of the conservation network in Africa, for a number of important reasons. These include the size of the undisturbed area, the unique nature of the estuary, the area's coastal location, its declaration as a wetland of international importance, and its potential to support big game and to attract tourists.

The Eastern Shores area is situated in a part of South Africa marked by low educational levels, deep poverty, high fertility rates among the people, high infant mortality, and high absenteeism among heads of families. Economic and social development plans focus on a balanced strategy, building on the comparative advantages of the region, with a priority for development at the Richards Bay node. Both mining and tourism developments can and do contribute to successful execution of this strategy.

Finally, the product which RBM exports enjoys an advantage on international markets: continuation and enhancement of these exports play, and will continue to play, an important role in South Africa's economy. Mining in the Eastern Shores area would constitute a significant addition of value to the regional and national economy, and could contribute to further investment and development in the region.

It is possible to gain maximum value by developing ecotourism concurrently with mining.

IRREPARABLE DAMAGE

MINING The predicted impacts that would qualify as irreparable damage are those associated with the alterations to topography, and with people's sense of the place. The consequences of damage to the topography are largely visual, as no severe persistent effects of altered

View of the proposed mining operation from Catalina Bay on the shore of the St Lucia estuary, simulated by photomontage.



topography on the biota, or the functioning of the ecosystem, have been predicted. In terms of people's sense of the place, irreparable damage would occur to the perceptions of only some of the people who view the St Lucia subregion as pristine wilderness.

NATURE CONSERVATION AND TOURISM No impacts that would qualify as irreparable damage have been identified.

TRADE-OFFS BETWEEN ECONOMIC GAIN AND ENVIRONMENTAL DAMAGE

The process of deciding on a given land-use option would involve weighing up costs and benefits. A cost arising from the adoption of one land-use option must at least be matched (and preferably exceeded) by the benefits it produces.

The problem would be a simple one if all costs and benefits could be reduced to monetary terms. In the case of mining on the Eastern Shores of St Lucia, however, costs of impacts such as visual quality, the sense of the place, and a sense of wilderness, are almost impossible to evaluate. This leads to the notion of "willingness-to-pay".

The benefits of social responsibility programmes include education and health care.



In the case of the adoption of the mining option, the decision would turn (in essence) on weighing the environmental and intrinsic impacts against the economic benefits that would be derived from mining. The predicted net present value of the mining option (in other words future net economic benefits discounted to present-day values), is around R153.5 million. The most simple question that can thus be addressed is:

“Would South Africans be willing to pay, in other words forego by not mining, R153.5 million in order to avoid the predicted impacts on the environment?”.

Associated with this net benefit, or loss of it, are a variety of indirect benefits. These would arise from a significant influx of foreign exchange, the multiplier effect that would be created by the supply of RBM’s additional needs largely by South African firms (mainly from outside the region), and additional tax revenues to the government.

Positive impacts on community life through, for example, the benefits of RBM’s social responsibility programme, would also be foregone. These benefits evidently weigh heavily in the equation which attempts to balance developmental, environmental and indirect costs and benefits of the mining proposal, but are difficult to assess fully. The reader is referred to the main Environmental Impact Report (Volume 3) for an account of the assumptions underlying this question. The loss of such social benefits would not be off-set by similar contributions from the NPB, given their current policies and practices.

The answer to the question of “willingness-to-pay” would of course depend on which individual South African one asks. In the final analysis, the decision would hinge on society’s willingness to forego the benefits of an option in order to prevent the impacts. This willingness would essentially turn on the importance attached to a given group of benefits or impacts.



RECOMMENDATIONS

RECOMMENDATIONS SHOULD MINING PROCEED

Should mining be allowed to proceed on the Eastern Shores, the following conditions should apply:

- **FURTHER RESEARCH INTO REHABILITATION.**

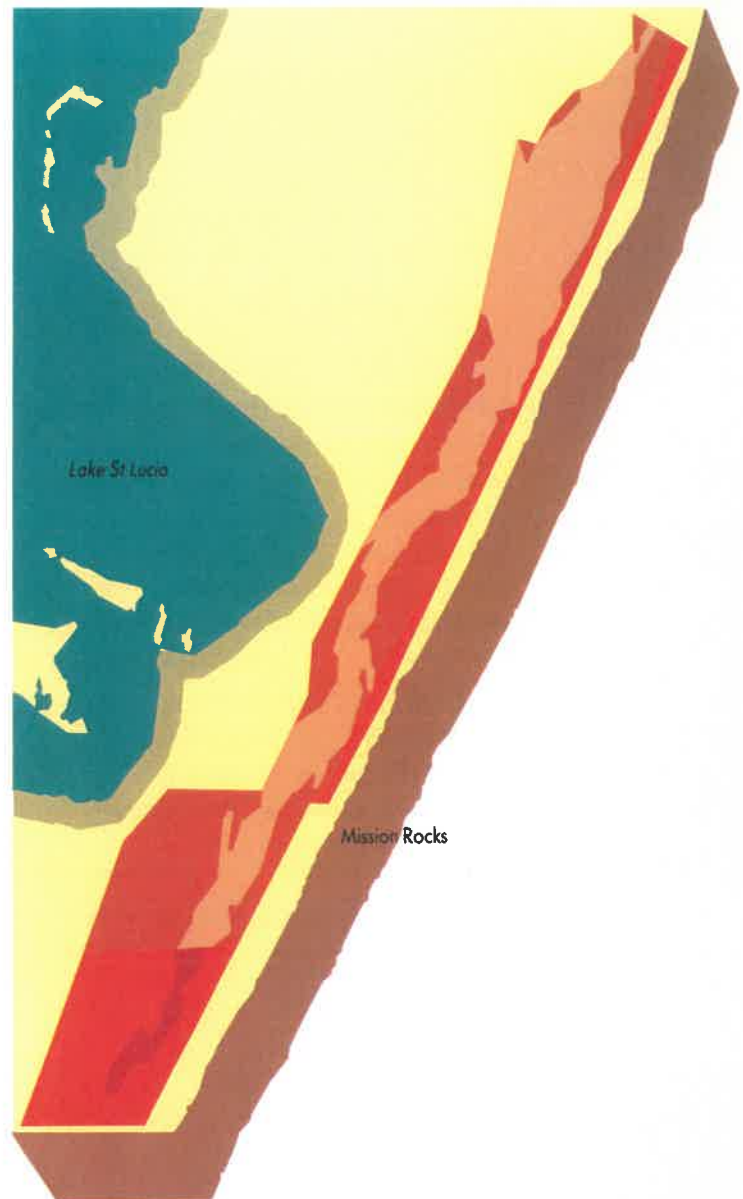
A research programme on soil fertility and plant succession is required to enhance the rehabilitation techniques presently available, and should be funded by RBM.

- **EXCLUSION OF SENSITIVE FOREST AREAS.**

Sixty-two hectares of sensitive forest areas occur in the southern extremity of the mine path. If this area were excluded, 22% of the total area of 277 ha of sensitive sites in the mine path would be saved in return for the loss of only 87.5 ha (6%) of the area of mine path. Mining could simply commence slightly further to the north than was originally proposed.

- **A 400-METRE EXCLUSION ZONE WEST OF THE HIGH-WATER MARK.** Not mining closer than 400 metres to the high-water mark would reduce the risk of dune slumping and protect an adequate corridor for species migration and habitats from which the rehabilitated areas could be recolonised. It would also protect 124 ha of coastal forest, almost 172 ha of vegetation with a high or moderately high conservation importance rating, 165 ha of the Natal Parks Board's identified sensitive areas, and 174 ha of the visible frontal dune (these areas overlap). The 400-metre exclusion zone would exclude only 3.9 ha of the proposed mine path, implying a loss of 0.3% of the ore body.

- **EXTENT OF MINING OPERATION.** Should a mining lease be granted to cover the whole of the lease areas, RBM would be free to mine outside the proposed mine path. This could result in impacts not yet assessed. Mining should be confined to the dune cordons. It should not approach the wetlands to the west of the dunes to any extent that may increase impact. The total area of the final mine path should not exceed the total area of the proposed mine path.



AREAS RECOMMENDED TO BE EXCLUDED

- Areas recommended to be excluded from the lease area
- 400 - m setback line from lake
- Proposed mine path
- Lease area

■ **PERFORMANCE BOND FOR REHABILITATION.**

In order to provide the assurance that adequate rehabilitation and decommissioning after mining would be guaranteed, RBM should be required to provide a R3.2 million performance bond by way of adequate insurance to satisfy this concern. The insurance may cease once rehabilitation and decommissioning have been completed.

■ **MITIGATORY ACTIONS FOR PREDICTED IMPACTS.**

An extensive list of mitigatory actions recommended in this EIA is provided in the Environmental Impact Report (Volume 3). All actions necessary to mitigate the impacts of mining should be funded by RBM.

■ **A MITIGATION MONITORING COMMITTEE (MMC) TO ADMINISTER MITIGATION.**

Should the mining option be accepted, two parties would have interests in the management of the lease areas for different purposes: RBM for mining and rehabilitation of cleared areas, and the NPB as the body responsible for conservation in Natal, and ultimate land-user in the area. It is recommended that a Mitigation Monitoring Committee with clear terms of reference consisting of one representative each of RBM and NPB as members, with appropriate avenues for arbitration, be established.

■ **AUDITING OF THE IMPLEMENTATION OF RECOMMENDATIONS.**

Auditing of the success of mitigatory actions, and of the activities of the Mitigation Monitoring Committee and the statutory monitoring bodies, should be conducted annually by suitably qualified, independent consultants, and funded by RBM. The MMC would make its records, and documents upon which they are based, available for auditing.

EXAMPLES OF MAJOR MITIGATORY ACTIONS RECOMMENDED AS CONDITIONS SHOULD RBM BE GRANTED MINING RIGHTS

(see the Environmental Impact Report, Volume 3, for a full list)

- A research programme to provide the techniques to mitigate the loss of soil nutrient status.
- Roads, pipe- and powerlines to be designed so that the main routes can accommodate usual traffic to Cape Vidal together with mining and forestry traffic, to obviate the need for superfluous routes. Pipes and powerlines should follow the course of this route except when buried.
- The water-table in the dunes should be monitored to predict the possibility of slumping.
- Inventory of species in the mine path in advance of mining to enable rescue operations. Animals in Red Data Book categories that would be displaced should be captured and relocated or held in captivity.
- Nurseries should be established for the propagation of species from local sources for replanting into rehabilitated areas.
- Re-creation of the original topography: the reconstructed land form must resemble the original as closely as possible; hills, interdune valleys and drainage lines to be reconstructed.
- Mine plant to be camouflaged: lights to be shrouded at night, existing plantations along the access road not to be felled until mine has passed.
- Clearing ahead of the mine to be minimised, burning of material prohibited. Cleared vegetation to be chipped and spread on relocated topsoil.
- Construction activities to be restricted to low tourist season, where feasible.
- RBM and NPB must immediately begin collaborating on plans for the development of a suitable ecotourism infrastructure that would fit into the mining plans.
- RBM's social responsibility programme to focus on people and other communities in districts which abut on Eastern Shores subregion, in proportion to the values generated from the Kingsa/Tojan lease relative to other leases.

TERMS OF REFERENCE OF THE PROPOSED MITIGATION MONITORING COMMITTEE

- To ensure that the necessary mitigatory actions are incorporated into rehabilitation plans required in terms of the Minerals Act, Act 50 of 1991
- to resolve conflict in the case of any dispute arising between the Natal Parks Board and Richards Bay Minerals
- to report on a quarterly basis to the Regional Director of Mineral and Energy Affairs on the progress regarding the stipulations in terms of sections 38 to 41 of the Minerals Act
- to report on an annual basis to the Department of Environment Affairs on the implementation of the recommendations of the EIA
- to advise the Regional Director of Mineral and Energy Affairs on the issuance of a clearance certificate in terms of section 12 of the Minerals Act
- to advise the Regional Director of Water Affairs on the issuance of a permit to use water optimally (in terms of section 12 of the Water Act, Act 54 of 1956, as amended), and on the issuance of a permit (or a waiver of such a permit) to dispose of effluent in terms of section 21 of the Water Act
- to recommend measures to ensure the survival of rare or endangered species which would be affected by mining
- to recommend a course of action to exclude or restore ecologically-sensitive areas which will be affected by mining
- to recommend appropriate scientific research projects which would meaningfully contribute to the effective management of the area
- to advise on the planning of the development, siting and potential future use of infrastructure
- to recommend appropriate action for dealing with archaeological sites and historical objects and other artefacts that may be affected by mining, and
- to recommend on the management of the performance bond.

RECOMMENDATIONS SHOULD MINING NOT BE PERMITTED

The following conditions, amongst others as detailed in the Environmental Impact Report (Volume 3), are recommended should mining not be permitted:

- **FEASIBLE WAYS TO ACCESS ALTERNATIVE ORE RESERVES TO BE EXPLORED.** Mitigation would be necessary to anticipate and offset the economic losses to the country that would arise when ore recovery from RBM's existing leases begins to decline. The parties concerned, that is RBM, its major shareholders, government and other stakeholders, should consult to develop plans for ways to access alternative reserves through technical innovation, appropriate trade measures, or whatever steps may be feasible.
- **ENSURING EQUITABLE BENEFITS FROM ECOTOURISM.** The basis of management for ecotourism development in the subregion should be reviewed by the Natal Parks Board together with appropriate central government bodies such as the Industrial Development Corporation, regional authorities, community representatives and representatives of the private sector, in order to establish approaches that would maximise the social and economic benefits, and especially to local communities.

RECOMMENDATIONS FOR THE NATURE CONSERVATION AND TOURISM OPTION, WHETHER MINING IS ALLOWED OR NOT

- **THE ENSCONCEMENT OF THE GREATER ST LUCIA WETLAND PARK.** Concerns have been expressed as to the real measure of legal protection enjoyed by the proposed Greater St Lucia Wetland Park against any future mining or similar development. The concept of such a park has long been envisaged; one of the most important recommendations of the 1966 Kriel Commission was that a new and enlarged conservation area, centred on Lake St Lucia, should be managed by a "single body with the necessary experience and executive powers." This recommendation was not implemented, and none of the current areas that constitute the proposed Park enjoy legal status that would prevent mining in future.

In the case of mining not being allowed to proceed, and should current sentiment prevail, it is recommended that the Government, in consultation with the NPB, the Joint Executive Authority for Natal/KwaZulu, as well as representatives of people who may be entitled to land within the area of the proposed Park, could proceed with the proclamation of the area in terms of Schedule 1 of the National Parks Act, 1976 (Act 57 of 1976). This would effectively prevent any possibility of further prospecting or mining. Schedule 1 of the National Parks Act specifically prohibits these activities. It is the only statute that can provide protection at this level.

In the case of mining being allowed, the same recommendation applies, except that the Kingsa/Tojan lease areas should be not included initially, but only after mining has ceased.

The National Parks Act should be amended to allow for the devolution of the management of the Park to the Natal Parks Board if necessary, and to allow private-sector operators to manage tourism operations within the Park.

- **PRIVATISATION OF TOURISM.** The Natal Parks Board's proposals call for the development of tourism infrastructure at a rate of around 12% growth in capacity per annum – a highly improbable scenario,

given the economic constraints that prevail in South Africa. However, rapid development of the ecotourism infrastructure is necessary to:

- cater for a growing ecotourism industry;
- provide the necessary employment and other opportunities that would ensure the acceptance of the Park as a conservation area, that constitutes a significant part of the beneficial economy, by the local people;
- provide an attraction for foreign tourists, and therefore attract foreign exchange;
- to provide a source of funds to facilitate sound ecological management of the area for conservation purposes.

In addition, the question of equitability is of major concern. Because the NPB is a non-profit organisation, it cannot allocate a portion of its profits to social responsibility programmes. This constrains its ability to distribute the benefits that flow from ecotourism to local people.

In order to ensure that these needs and concerns are addressed, the following is recommended:

- **Development of ecotourism facilities to be devolved to the private sector.** This would ensure the greatest financial and economic value. Private-sector operators in the park should be required to have social responsibility programmes along the lines of major South African companies today, to ensure equitable distribution of benefits to local people.
- **Prior and ongoing consultation with representatives of local communities.** This should be done to ensure that social responsibility programmes are directed at people's real needs.
- **The relevant government conservation authority should remain the land owner.** Private-sector operators should be required to observe development guidelines laid down by the conservation authority, and to pay a proportion of their profits to this authority for use in the ecological management of the area.

TOWARDS A DECISION – NEXT STEPS

The three volumes of the Environmental Impact Assessment have been sent to lead I&APs and the Review Panel, and have been placed in public venues for a period of eight weeks for comment.

Written comment on the report should reach the EIR secretariat, CSIR Environmental Services, P O Box 395, Pretoria, 0001, by 14 May 1993.

These comments will be collated and addressed by the principal consultants, the CSIR, in a comments report. The comments report will also be sent to the lead I&APs and the Review Panel, and will be lodged for information at the same venues.

Public hearings will be held for those individuals or groups requesting an opportunity to address the Review Panel on the findings of the report. Comments received at these hearings will be minuted for the Department of Environment Affairs and the Review Panel. The dates of these hearings will be announced in the press, as well as communicated directly to those wishing to make presentations.

As a result of the hearings, the comments report and the Environmental Impact Report, the Review Panel will make recommendations on a preferred option, and under what conditions that option should proceed. The Review Panel recommendations will be given to the Cabinet and released to the public. Afterwards, the Coordinating Committee will report to the Cabinet concerning the accomplishment of the original Cabinet instruction.

The Cabinet will consider the information and recommendations which it receives, after which the Minister of Mineral and Energy Affairs will make a final decision on the land-use option to be adopted. He will issue a written public record of the rationale leading to his decision.