

**A Socio-Economic Impact Assessment
of the Future Closure of a Diamond Mine
in Namaqualand, South Africa:
Planning for mine closure a decade in advance**

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This research report is submitted in partial fulfilment of the requirements for the degree Master of Philosophy in Environmental Science in the Department of Environmental and Geographical Science, University of Cape Town.

26 June 1992

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ACKNOWLEDGEMENTS

For support during the production of this research report, I am indebted to the following people and organisations:

- Most of all to my family - Mom, Dad and Gran - for their endless encouragement, love, guidance, patience and financial support throughout my university career.
- To Sandra Fowkes for her valuable time, insights and reassurance during the supervision of the report write up.
- To Richard Hill and Prof R. Fuggle: For supervision, guidance and administration during the coursework and project phases of the degree.
- To Dr John Raimondo and the Environmental Evaluation Unit for the opportunity to work on this project.
- To my fellow class mates - Greg, Hougaard, Judy, Lee, Mel, Mike, Paul, Rachel and Rob - for their friendship and different perspectives on matters; the course would never have been as valuable and enjoyable a learning experience without you.
- To Heather for thought provoking discussions and her time to read and comment on drafts of the report.
- To Chris Stokes for his willingness to help wherever needed.
- To Mrs Edith Deacon, my landlady, for her friendship, care and excellent cooking when I needed it most (over exams and the production of various reports).
- To De Beers Namaqualand Mines for providing us with the opportunity to work on this project.
- To the employees and communities in Namaqualand for the insights to this complex problem.
- To South African Breweries for a scholarship.

Many thanks.

EXECUTIVE SUMMARY

A. Introduction

A.1. Brief

De Beers Namaqualand Mines (DBNM) have appointed the Environmental Evaluation Unit to undertake an impact assessment of mine closure. According to recent estimates DBNM anticipate that their diamond mining operations in Namaqualand will have to be closed in approximately ten years time. DBNM requested that the study focus on the socio-economic implications of mine closure within the regional context of Namaqualand and not the broader context of South Africa. It is anticipated that the results and recommendations of the study will be used by DBNM in planning for mine closure.

A.2. Aims and objectives

The aims and objectives of the study are:

- 1) To assess the socio-economic consequences of future mine closure.
- 2) To recommend actions that will mitigate the impacts of mine closure.

The aims and objectives of this report are to:

- 1) Fulfil the academic requirements of the degree.
- 2) Assess and evaluate information collected during the data collection phase of this project (contained in the Baseline Information Report) and to present these findings clearly and concisely, highlighting significant impacts and options for mitigation.
- 3) To communicate these findings in a way as would make them useful to both the client as the decision-maker and the interested and affected parties.

A.3. Approach to the study

The approach to the study is illustrated in Figures A and B.

There were two purposes behind the study:

- 1) The primary purpose was to prepare a report on the impacts of mine closure for De Beers Namaqualand Mines (the client);

Figure A. The Study Process. This diagram shows where this report fits in the development of the impact assessment.

THE STUDY PROCESS

FOR:

PREPARED

BY:

GROUP

INDIVID

EEU

ACADEMICS
&
CLIENTS

ACADEMIC

CLIENT

1. Present 'BACKGROUND INFO DOCUMENT' to client

2. Conduct research on the socio-economic impacts of mine closure
This includes an employee and business survey and community meetings.

3. WRITE-UP 'BASELINE INFORMATION REPORT'

J. Beaumont

L. Greeff

M. Gosling

P. Lochner

A. Mackenzie

G. McCulloch

R. Short

4. Write-up Individual Reports

5. EEU compiles final impact assessment report for client

6. Public report is prepared, comment is received and recommendations are finalised

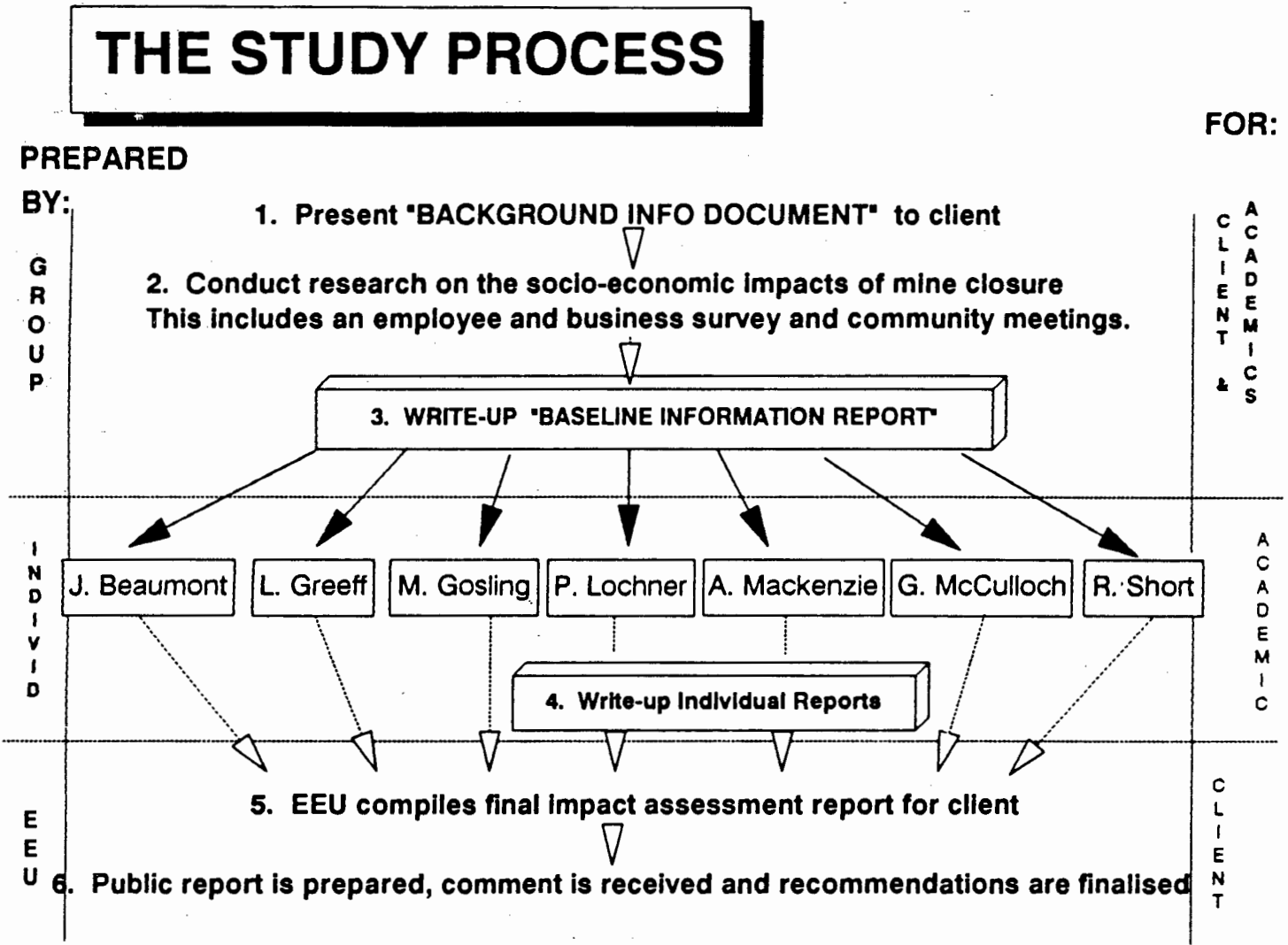
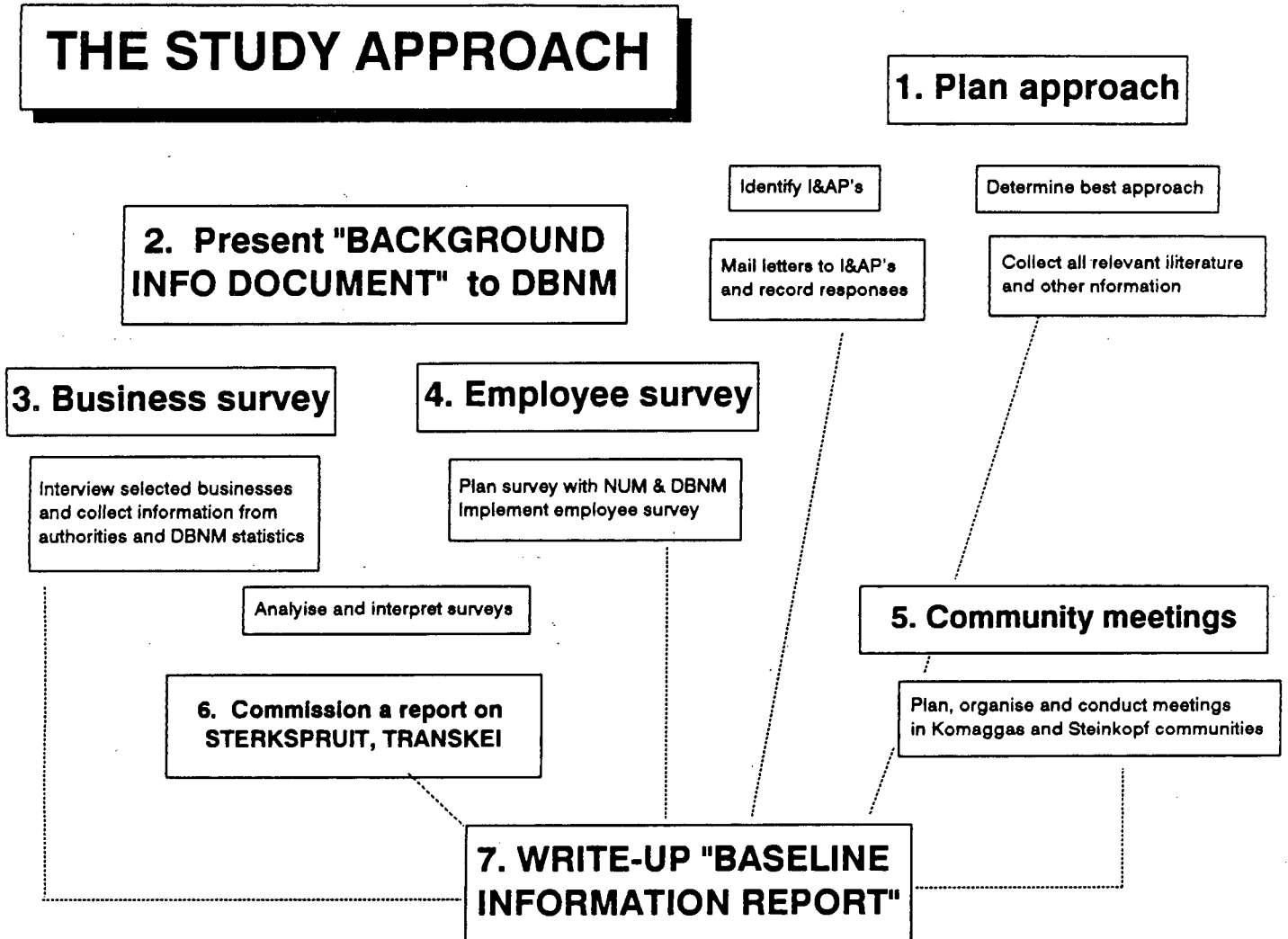


Figure B. The Study Approach. This diagram illustrates the basic components of the impact assessment up till the production of the Baseline Information Report.



- 2) To use the opportunity for a group of Masters students to satisfy the academic requirements of the degree MPhil in Environmental Science.

Figure A summarises the process of the study and indicates the various reports produced. Responsibilities and reasons for the various stages/reports are shown on the side of the diagram.

Figure B describes the approach and methods used in the study culminating in the production of the Baseline Information Report. The Baseline Information Report is a collection of data on variables relevant to the prediction of the impacts of mine closure. It contains an introduction and overview of the study and elaborates on the methods used to collect data on the social and economic aspects of the study. It also contains the results of these methods but does not include any interpretation or analysis of this information. This report therefore follows on from where the Baseline Information Report ends. The purpose of this report is to assess and evaluate information presented in the Baseline Information Report. This report contains a discussion of social impact assessment, a discussion of the impacts of mine closure and possible steps that can be taken to mitigate the effects of mine closure. The conclusion highlights the key issues involved in the study and recommendations suggest alternative courses of action open to the client in addressing this problem.

A.4. The affected environment

Mine closure will affect a large number of groups to varying degrees and at various scales. DBNM asked that the impact assessment focus on impacts of mine closure within the Namaqualand context. There are therefore essentially three affected environments:

- (a) employees and their dependants at the mine;
- (b) communities in the Namaqualand region;
- (c) dependants of employees in the Herschel district of Transkei.

(a) De Beers Namaqualand Mines

De Beers Namaqualand Mines properties are located along a narrow 400km stretch of coastline on the arid West Coast of Namaqualand. The diamond mine properties are largely inaccessible to the general public because of strict security measures. The two mine towns, Kleinsee and Koingnaas are modern, fully serviced towns equipped with electricity, water, sewage and airstrips and tele-communication links. They provide a pleasant and protected quality of life to employees. The larger town of Kleinsee, for example, includes nearly 400 houses and administrative buildings, single quarters, a hostel, a range of sporting and recreational facilities, a shopping centre, schools, banks, post office, garage and modern hospital. DBNM employees reside both in the mine towns and commute daily from surrounding communities.

(b) Namaqualand

The surrounding communities, from where most DBNM employees originate, are a stark contrast to the modern mine towns. Komaggas, where the majority of worker originate, is an isolated coloured town located in the foothills of overgrazed communal land and is accessible only via poor quality dirt roads. The town has no electricity, sewage or running water and has only recently received a police station. The most modern looking buildings are those of the management board, the primary school and the pre-school. The town is a mosaic of different houses ranging from those of brick & zinc-roof construction to the most fundamental of shacks. There

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are two churches and a clinic in the town. The town is served by eight general dealer stores and there are no recreational facilities. Quality of life in these conditions is hard as poor health facilities, low education levels and lack of upward mobility entrap residents in a culture of poverty syndrome. In addition, communities are embittered and politically divided between supporters of the traditional management boards and the liberal civic community committees.

Other predominantly coloured communities are located at Steinkopf (the next most important source of DBNM workers); Leliefontein; Northern and Southern Richtersveld. Steinkopf is the largest and most developed of the coloured towns; the rest of the Namaqualand communities are in a similar condition to Komaggas.

Namaqualand is a physically harsh and isolated region with a low population density. The centre of activity is Springbok, a modern and picturesque town that houses 35% of the regions population. Most businesses are located here, the buzz of Namaqualand during the tourist season. Springbok was established as a town serving the mining industry, although today it also benefits from being on the major road link between Namibia and South Africa. Other towns in the region include Alexandra Bay (another mine town); Hondeklip Bay and Port Nolloth both centres of the fishing industry; Garies and Kamieskroon serve the agricultural sector.

Namaqualand is a highly politicized and polarised region. Within the white community, there is a predominantly conservative sentiment, Namaqualand forming part of a number of the proposals for a Afrikaner 'volkstaat'. The white community is distributed roughly equally in urban and rural areas. The predominantly rural-located, coloured community is one that has been embittered by the apartheid legacy and there is much resentment of the history of land disposition. More recently the establishment of a black settlement at Port Nolloth has borne the wrath and resentment of both coloured and white communities in Namaqualand. Blacks in Namaqualand have been regarded as migrants and are found mainly in the mine hostels.

(c) The Herschel district of Transkei

Herschel is a densely populated predominantly black, district located on the southeastern border of Lesotho. Employees originate from villages scattered around the trading centre of Sterkspruit where there is a mine recruitment office. Living conditions in the area are poor and typical of many of the other South African 'homelands' - soil erosion, overgrazing, overpopulated, poor health and social welfare facilities, lack of running water, sewage and electricity. Social problems in the area include unemployment, district poverty and lack of education. The survival of the vast majority of Herschels' population of roughly 350 000 depends on migrant labour remittances; farming activity and local enterprise merely contribute to subsistence.

B. The Impacts of Mine Closure

The impacts of mine closure are identified and described in the form of a table. This table is printed on coloured paper and can easily be located in the body of the text. The impacts of mine closure are discussed at four different levels:

- 1) impacts on employees
- 2) impacts on dependants

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- 3) impacts on communities
- 4) impacts on the Namaqualand region

At each of these four levels the impacts of mine closure are discussed in the context of three different groups:

- Mine group (predominantly white employees and towns)
- Namaqualand group (predominantly coloured employees and affected communities)
- Transkei group (black employees and their villages)

Although it is difficult to define precise criteria for evaluating and rating of an impact these criteria are where possible made explicit. The general criteria used for selecting and evaluating impacts were:

- the magnitude of the impact;
- duration of the impact: the long, short and medium term consequences of an action;
- perceptions and beliefs of affected parties about an impact;
- the importance of an effect as emphasised by interested and affected parties;
- the importance of an effect as identified and supported in the literature;
- professional opinion based on experience and understanding of the problem;
- a judgement of impact within the context of other factors characterising and influencing a group;
- a subjective comparison of impacts within and between the affected groups.

Comparison of the impacts on these groups based on the criteria the above leads to the following conclusions regarding the impacts of mine closure:

In all of the above groupings it was determined that the most significant impacts of mine closure would be on coloured communities in Namaqualand. Mine closure is likely to result in a substantial decrease in the 'quality of life' amongst employees, their dependants and the communities in which they live. Areas that will be negatively impacted are:

- employment: increases in unemployment due to lack of alternative work opportunities;
- health and welfare: loss of company medical benefits, more pressure on existing community services;
- education: affordability, and a possible decline in scholar numbers; also loss of mine as a training centre;
- migration: due to lack of work; affects community structure and possibly cultural identity;
- increased impoverishment and lack of mobility due to the loss of cash income;
- impact on local community economies where DBNM employees form a large part of the clientele (approx 40% of turnover);
- impact on provision of services and maintenance of infrastructure if retrenched employees cannot pay service fees.

In the group of black employees, the major impacts of mine closure will be concentrated on the employee and his direct dependants. Most employees have between 6-10 direct dependants and all are supported by his income. It is the only source of cash income and is used to provide: food, education, transport and medical care. The loss of other benefits does not affect the family. At the time of mine closure most workers will be at or near the age of retirement and company pension policy will therefore largely influence the nature and severity of impact of mine closure. Herschel district of Transkei is typical of conditions in the 'homelands' of South Africa in that the area is densely populated (estimated 350 000 people), overgrazed, eroded of soil, and there is no electricity, sewage or

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running water and a lack of basic infrastructure, education and health facilities. In the light of this, the retrenchment of 700 employees is not likely to change conditions in Herschel, it will only serve to reinforce the process of community decline.

The predominantly white, 'mine group' of employees will be the group most resistant to the impacts of mine closure. Fifty-six percent of this group of employees are above the C2 Patterson grade and at present therefore eligible for transfer within the De Beers group. Although it is difficult to generalise, this group is the most likely to find alternative employment because of the higher level of mobility and education. Mine closure may cause a decline in general 'quality of life' and will affect some employees more severely than others, however, this group is better equipped to deal with the consequences of mine closure.

DBNM business transactions comprise 17% of the turnover of Namaqualand and the company has links with over 75% of businesses in the region. The resultant loss of business with DBNM at the time of mine closure will require many businesses to take some form of action, however less than 5% predict that they will have to close. Had the mine closed today, businesses predict that closure would cause them to retrench approximately 20% of staff. Loss of revenue to the regional services council could lead to difficulties in the provision of services and the maintenance of infrastructure. The closure of DBNM has implications for the entire Namaqualand region.

The general loss of business, further retrenchments and closures in Namaqualand resulting as a consequence of DBNM mine closure will further aggravate the direct impacts of mine closure on the communities and region as a whole.

B.1. Issues and concerns surrounding mine closure

In the process of investigating the impacts of mine closure, a number of issues were raised by both employees and interested and affected parties.

The major issues raised during interviews with employees and meetings in the communities, focused on:

- 1) uncertainty about the reality and nature of mine closure;
- 2) lack of financial input into Namaqualand by DBNM;
- 3) the land ownership issue.

DBNM should be aware of these issues as they are sensitive points and well-meaning initiatives from the company to mitigate the impacts of mine closure may be jeopardised as a result of these issues.

C. Mitigation of the Impacts of Mine Closure

The section on the mitigation of the impacts of mine closure does not attempt to assess and recommend specific projects to be undertaken to mitigate the impacts of mine closure.

Instead it concentrates on developing a process whereby the impacts of mine closure can be addressed. Most of the mitigatory proposals are aimed at the region of Namaqualand. Most mitigation proposals are addressed at actions the company can take to mitigate the impacts of mine closure.

C.1. The role and responsibilities of the major players in mine closure

Many of the suggestions for the mitigation of impacts assume that the consequences of mine closure are the responsibility of the company. This is an unfair assumption, therefore the role and responsibility of the company and other major players in mine closure is discussed.

The role and responsibility of DBNM in mine closure are divided into three areas:

- 1) Legal Obligations
- 2) Corporate Policy Commitments
- 3) Moral Responsibilities

There are no South African statutory requirements for DBNM to undertake an impact assessment or to address the consequences of mine closure beyond a few minor details which are elaborated. The role and responsibilities that the company assumes in mine closure is at the discretion of management. These decisions will however be subject to shareholders approval and will be influenced by market pressures like investor confidence and consumer sentiment. This investigation of the potential socio-economic impacts of mine closure can be interpreted as a step in social and environmental responsibility and is in itself a bold undertaking by DBNM.

The role and responsibilities of other affected parties are discussed. These include the role and responsibilities of:

- a) All individuals affected by mine closure
- b) DBNM employees
- c) Affected communities
- d) Local and regional government
- e) Affected businesses

C.2. Alternative courses of action in mitigating the impacts of mine closure

The alternative courses of action open to the company range from:

DO MINIMUM	Concentrate on EMPLOYEES well-being	Concentrate on COMMUNITY & REGIONAL development
------------	-------------------------------------	---

These courses of action represent the extremes cases in the courses of mitigation the company could chose to take. Most likely the type of mitigatory action that will be taken will involve a mix of these extremes. This mixture of alternatives is dependent on:

- a) what role the company chooses to follow;

- b) where the company chooses to give assistance;
- c) where the company's priority responsibilities lie;
- b) which alternative will produce the greatest net mitigatory benefit.

C.3. Efforts to mitigate the consequences of mine closure on employees

The primary responsibility of DBNM in mine closure lies with concern for its employees. Mitigation of the impacts of mine closure on employees, will not only benefit the employees direct dependants but will indirectly trickle down through to all aspects of community life and will alleviate the impact on the region of Namaqualand as a whole.

By focusing mitigation of the impacts of mine closure on employees DBNM can:

- act fairly and equitably by directing assistance to those employees who most require it irrespective of group (e.g. although the Namaqualand group has been identified as the most severely affected there may be senior coloured individuals who do not require it and there may be poor white employees who do);
- act effectively and efficiently by directing assistance to precise areas where it is required;

For example, in a district of 350 000 people like Herschel employees may not even realise the benefit of DBNM assistance in regional development. Likewise in Namaqualand, Dunne (1988) identifies the facilitation of mobility as an essential component of development in Namaqualand.

Suggestions made by employees to mitigate the impacts of mine closure were:

- 1) investigate transfers and relocations of employees
- 2) find alternative employment opportunities for employees
- 3) offer attractive early retirement options that could sustain families in the long-term
- 4) offer good retrenchment packages that could enable employees to relocate and stand a good chance of finding employment elsewhere
- 5) run retraining programs, etc.
- 6) establishes health and welfare programs for employees

C.4. Mitigation of the impacts of mine closure on Namaqualand and its communities

Mitigating the impacts of mine closure on communities and the region of Namaqualand would be in line with company policy which reads:

"...we will continue to concentrate our social investments in South Africa, the area of greatest need."
(Chairman's Statement 1991)

For addressing impacts of mine closure at the community and regional level it is necessary to support the process of regional development in both Namaqualand and the Herschel district of Transkei.

The process of development is however a complex matter. DBNM should recognise the development constraints of area and it is suggested that DBNM support development initiatives only after careful consideration of these factors.

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DBNM should not in itself tackle specific projects but should direct 'aid' through appropriate development agencies with a record of successful undertakings in the region. Projects deserving of support should be identified in consultation with employees who would be able to advise the company on appropriateness and probability of success. Development aid can be administered through the existing Chairmans Fund.

Suggestions given by communities for mitigation of impacts of mine closure include:

- Establishment of a fund by DBNM to offset impacts
- Return of land to Rural Coloured Areas
- Provision of education facilities
- Programmes to improve stockfarming
- Irrigation schemes
- Promotion of tourism
- Establishment of small industries in mine towns
- Establishment of factories
- Development of harbour at Kleinzee
- Improvement of infrastructure, services and facilities
- Expansion by DBNM into other mineral exploitation
- Suggestions for retrenchments

D. Conclusions

Namaqualand's dependence on mining and a dwindling resource base is a fundamental problem in Namaqualand. The problem of DBNM mine closure cannot not be addressed in a isolated context. Other mines in the region are also expected to close in the future. DBNM mine closure is part of the broader regional issue and it should be addressed in this context. Attempts should be made to stimulate planning in the region as sustainable development is required for the future prosperity of the region.

An important factor in mitigating the impacts of mine closure is the process of open communication between DBNM, employees, and communities. In mitigation of the impacts of mine closure there will be very different outcomes of either being planned upon or being planned with. It is recommend that for the most successful mitigation of the impacts of mine closure that DBNM plan with the affected parties.

It is not at this stage possible to make step-by-step recommendations for the process of mine closure of DBNM. It is recommended that a process of facilitated workshops involving expertise from within the company will be useful in determining the best way to close the mine. Studies such as this one should inform the process. Open communication and negotiation with affected parties will influence and guide the best possible way to close the mine.

Changes in government and international trends in social and environmental responsibility are likely to have fairly profound implications for the manner in which an organisation operates. Factors beyond the mere maximisation of profits are going to become important in determining the success of a business. DBNM should be able to gain publicity and recognition in its efforts to address the impacts of mine closure.

E. Recommendations

E.1. Recommendations to De Beers Namaqualand Mines (DBNM)

(a) General

- 1) Investigate the statutory requirements and legal obligations of the company in mine closure.
- 2) Having defined its legal responsibilities, determine the role that DBNM wants to assume in the region with respect to mine closure, and the communicate the reasons for these decisions.
- 3) Consider and list factors that will influence DBNM's decision to undertake and implement mitigatory measures.
- 4) Determine the limitations of DBNM assistance in mitigating the impacts of mine closure and consider constraints of the Namaqualand region.
- 5) Notify authorities of mine closure at an early stage in order to stimulate advance planning for the future of Namaqualand.
- 6) Initiate a public communications exercise that explains the reasons for mine closure.
- 7) Concentrate efforts at mitigating the impacts of mine closure on employees.
- 8) Support development in both Namaqualand and Herschel by funding existing and proposed projects and programmes.
- 9) Anticipate problems that will result from the announcement of mine closure (e.g. loss of morale and productivity, land claims and unrealistic expectations from the surrounding communities).
- 10) Investigate the establishment of a fund from excess production.

(b) Mitigating impacts of mine closure on employees

- 1) Develop a process of ongoing and open communication with employees on the issue of mine closure.
- 2) Investigate transfers and relocation of employees within the De Beers Consolidated group, as well as alternative sources of employment.
- 3) Investigate early retirement and retrenchment packages.
- 4) Involve employees in the process of planning for mine closure
- 5) Negotiate suggestions for the mitigation of the impacts of mine closure.

(c) The Future

- 1) Reassess the situation
- 2) Monitor any changes in the magnitude and significance of impacts.
- 3) Formulate step-by-step procedure for mine closure in consultation with employees.

E.2. Recommendations to affected Namaqualand communities

- 1) Take note of the potential mine closure and clarify uncertainties with DBNM.
- 2) Plan for the future; use all channels to address this problem (e.g. representations to authorities, press, etc.)
- 3) Encourage DBNM to mitigate the impacts of mine closure.
- 4) Within the communities; recognise the limits of company assistance and consult with DBNM on the issue.
- 5) Recognise the physical constraints to development in the Namaqualand region.

E.3. Recommendations to businesses and other affected parties

- 1) Take note of potential mine closure and assess the consequences of this action on the individual / business / organisation.
- 2) Plan in advance for mine closure.

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CHAPTER 1. INTRODUCTION

1.1. Aims and Objectives of this Study

The aims and objectives of the study are:

- 1) To assess the socio-economic consequences of future mine closure.
- 2) To recommend actions that will mitigate the impacts of mine closure.

1.2. Aims and Objectives of this Report

The aims and objects of this report are drawn from memoranda circulated within the Department of Environmental and Geographical Science and represent a mixture between the requirements of a client and those of academia. These are summarized below.

The aims and objectives of this report are to:

- 1) Fulfil the academic requirements of the degree MPhil in Environmental Science (with emphasis on completing the report within the imposed time limitations).
- 2) Assess and evaluate information collected during the data collection phase of this project (contained in the Baseline Information Report) and to present these findings clearly and concisely, highlighting significant impacts and options for mitigation.
- 3) To communicate these findings of the report in such a way as would make them useful to both the client as the decision-maker and the interested and affected parties.

In order to fulfil the academic requirements of the degree it is necessary that the report:

- demonstrates a grasp of principles, methods and techniques used for analyzing, evaluating and presenting information in impact assessments;
- be a logical and coherent account of the study;
- demonstrates an ability to deal with problems of an interdisciplinary nature;
- it need not constitute a distinct advance of knowledge of the subject, nor does it need to necessarily include a major component of theory.

In order to achieve aim two (assess and evaluate impacts) it is necessary that the report:

- demonstrates power of critical assessment, alertness to significance of results and resourcefulness in the analysis of data.

And to accomplish aim three (aid communication) it is necessary that the report:

- satisfies general and specific requirements of a good assessment report;
- comprises a logical and coherent account of the project;
- displays diligence and care in the presentation of the report with attention to style and layout and the execution of maps and diagrams.

1.3. Background to the degree M.Phil in Environmental Science:

The degree Master of Philosophy in Environmental Science spans one and a half years of full-time study, and is structured to include two components. The first component comprises supervised coursework, fieldtrips and practical exercises and takes one year; the second component is a project and takes six months. The first year culminates with examinations, the result of which forms two-thirds of the final mark for the degree. The project report, which this work represents, is written up and submitted in thesis form and comprises the remaining third of the final mark for the degree.

The objectives of the Masters Programme in Environmental Science have been to produce graduates with:

- a synthesising and holistic approach to problem solving;
 - an understanding and appreciation of the linkages between biophysical and socioeconomic systems;
 - an ability to communicate across disciplines relevant to environmental issues;
 - analytical and decision-making skills in the areas of environmental assessment and management;
 - an understanding of legal and administrative structures relevant to environmental matters
- (Departmental course outline, 1991).

1.3.1. The Coursework Component

The course provides exposure to the concepts and techniques of a number of disciplines through short courses in environmental economics, environmental law, philosophy, planning, geomorphology, climatology and ecology, amongst others. The focus of the course has however been on environmental management. The above theory was reinforced through intense practical training and a number of fieldtrips as well as through interaction and cross-pollination of ideas and experiences within the group itself. Members of the group were drawn from a diverse range of backgrounds, some with previous work experience and others as recent graduates of Honours courses. Disciplines represented within the group included two civil engineers, one mechanical engineer, two biologists, a psychologist, a journalist, an industrial psychologist and a geographer.

1.3.2. The Project ("NM2005 Impact Assessment")

The project has been a practical synthesis and consolidation of theory learnt during the year of coursework. The project is an exercise in the application of scientific method to real life issues in environmental planning, impact assessment and management.

The project entitled "NM2005 Impact Assessment" is a study that has been commissioned by a client (De Beers Namaqualand Mines) to investigate and address the impacts of the predicted closure of their mine in Namaqualand in about 10 years time. Mining forms the backbone of the economy in Namaqualand and any change in mining activity can be expected to produce significant socio-economic impacts.

The project has been tackled in a unique way, to satisfy both the requirements of the client and of academia. The group with its diverse range of backgrounds and skills has worked together during the initial data collection stage of the project. Under the supervision of Dr John Raimondo, General Manager of the Environmental Evaluation Unit, the group planned, organised and performed the execution of the project.

Research and administrative tasks were divided equally between members of the team according to ability, enthusiasm and experience. The research tasks fell into two major categories, the social aspects and the economic aspects. A co-ordinator was appointed to aid and facilitate communication between the two research groups and ensure that each knew what the others were doing. Decision making was a democratic process; regular meetings were held to evaluate progress and discuss problems before any major decisions were taken. These decisions (mainly on approach and methodology) were however subject to the approval of the client and project manager (Dr Raimondo). As a result, and subject to the above constraints, the team as a whole were responsible for the approach taken and methods employed in the study.

A wide range of outside consultants were approached to advise on procedural and specific aspects of the study, when and where required. The two major consultants appointed to the study were:

- Ms Fiona Archer: appointed as a consultant on Social Impact Assessment in Namaqualand because of her experience and knowledge of the area.
- Ms Susan Lund: for a report on the socio-economic impacts of mine closure in the Herschel District of Transkei.

The compilation of the Baseline Information Report marks the end of the data collection stage of the project. The approach to this stage of the study is illustrated in Figure 1. The Baseline Information Report contains the background to the development of this project as well as the methods and results of the study; all the data relevant to the prediction of the impacts of mine closure.

Figure 2 illustrates in a simplified manner the entire process of this socio-economic impact assessment. Following completion of the Baseline Information Report the group split-up and each group member wrote their own report. This report, representing the original work of the author, is submitted as part of the individual requirements for the degree Master of Philosophy in Environmental Science. It includes a discussion of the results, with an identification and assessment of the impacts of mine closure, and recommendations for mitigation of impacts.

Figure 1. The Study Approach. This diagram illustrates the basic components of the impact assessment up till the production of the Baseline Information Report.

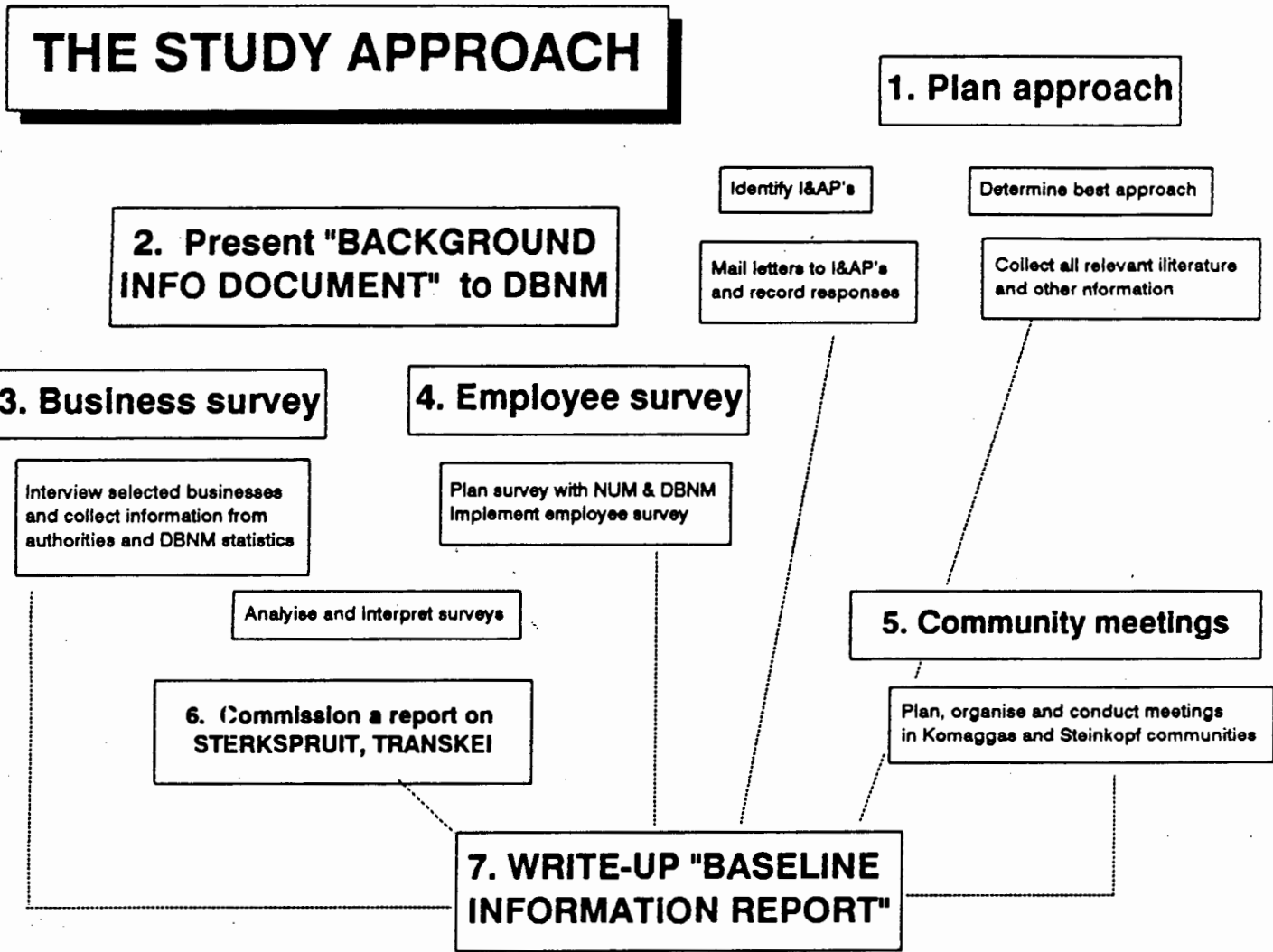
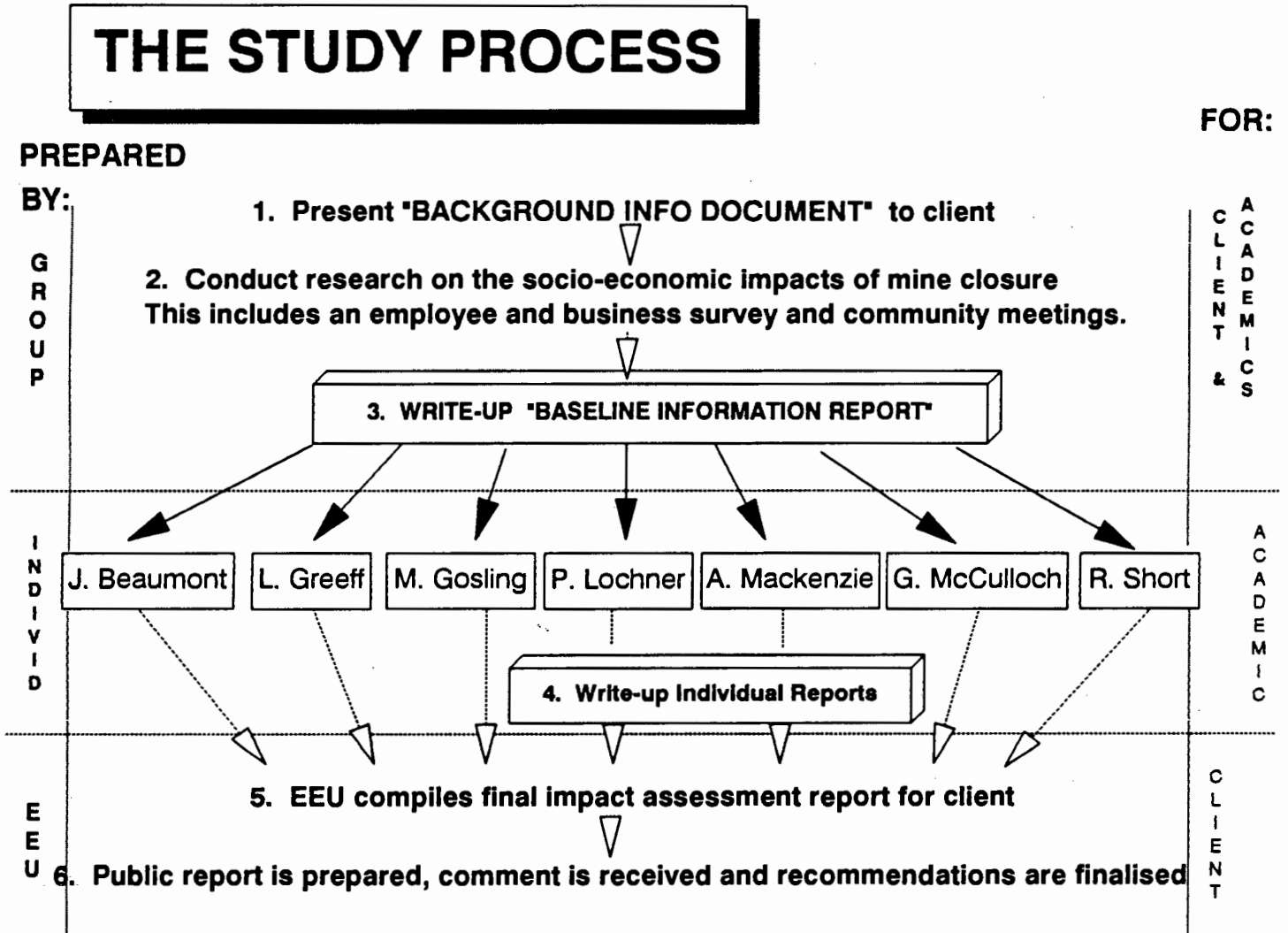


Figure 2. The Study Process. This diagram shows where this report fits in the development of the impact assessment.



1.4. How this report follows from the Baseline Information Report

The Baseline Information Report is a collection of data on variables relevant to the prediction of the impacts of mine closure. It contains an introduction and overview of the study and elaborates on the methods used to collect data on the social and economic aspects of the study. It also contains the results of these methods but does not include any interpretation or analysis of this information.

This report therefore follows on from where the Baseline Information Report ends. The purpose of this report is to assess and evaluate information presented in the Baseline Information Report. This report is not a summary of the Baseline Information Report and it is assumed that the reader is familiar with the content of the Baseline Information Report.

1.5. Background to the study

1.5.1. The Brief

According to recent estimates De Beers Namaqualand Mines (DBNM) anticipate that their diamond mining operations in Namaqualand will have to be closed in approximately ten years time.

De Beers Namaqualand Mines (DBNM) have appointed the Environmental Evaluation Unit to undertake an impact assessment of mine closure. DBNM requested that the study focus on the socio-economic implications of mine closure within the regional context of Namaqualand and not the broader context of South Africa. It is anticipated that the results and recommendations of the study will be used by DBNM in planning for mine closure.

1.5.2. The context of mine closure

(a) A description of the affected environment

Mine closure will affect a large number of groups to varying degrees and at various scales. DBNM asked that the impact assessment focus on impacts of mine closure within the Namaqualand context. There are therefore essentially three affected environments in the context of mine closure:

- 1) employees and their dependants at the mine;
- 2) communities in the Namaqualand region;
- 3) dependants of employees in the Herschel district of Transkei.

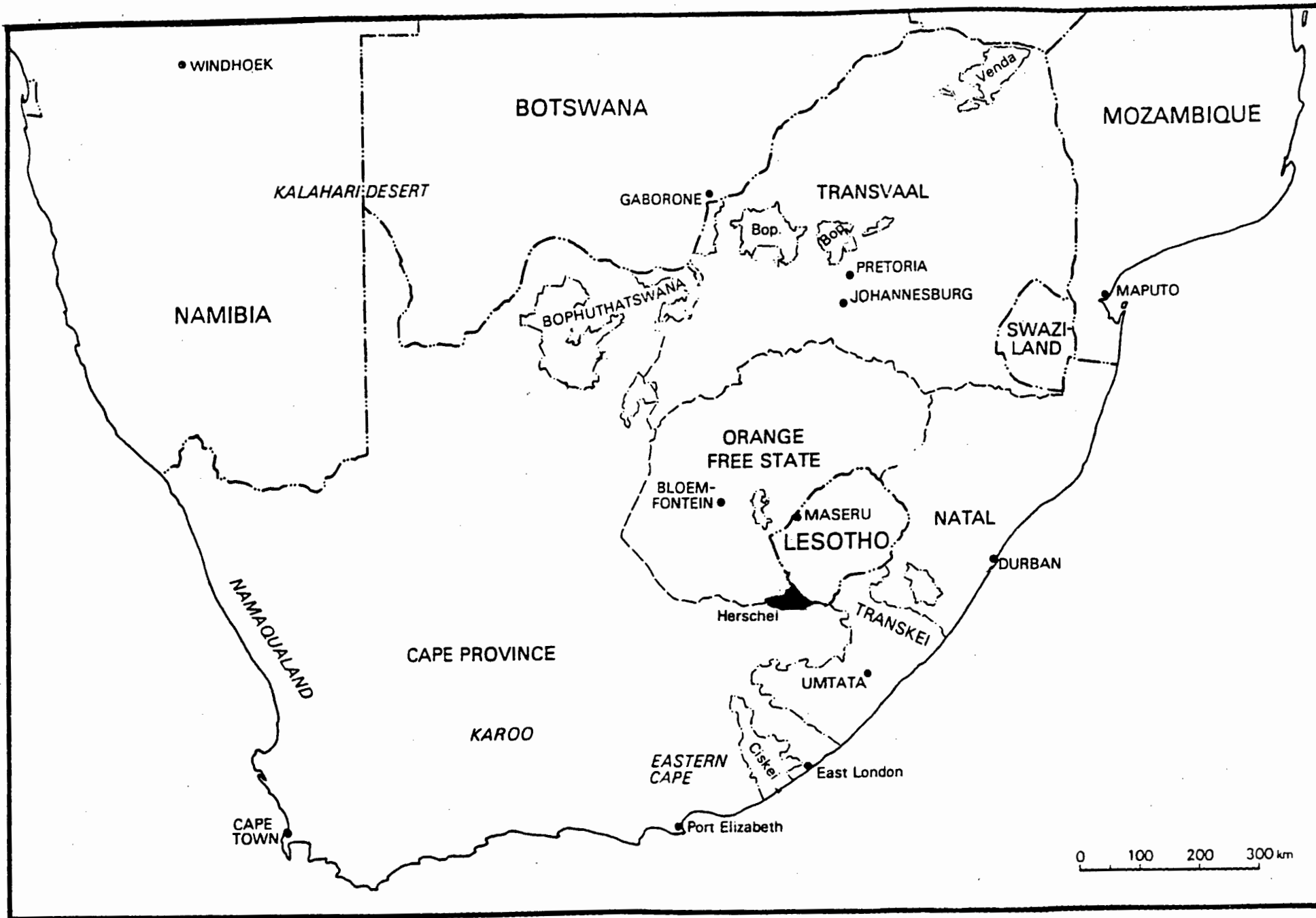
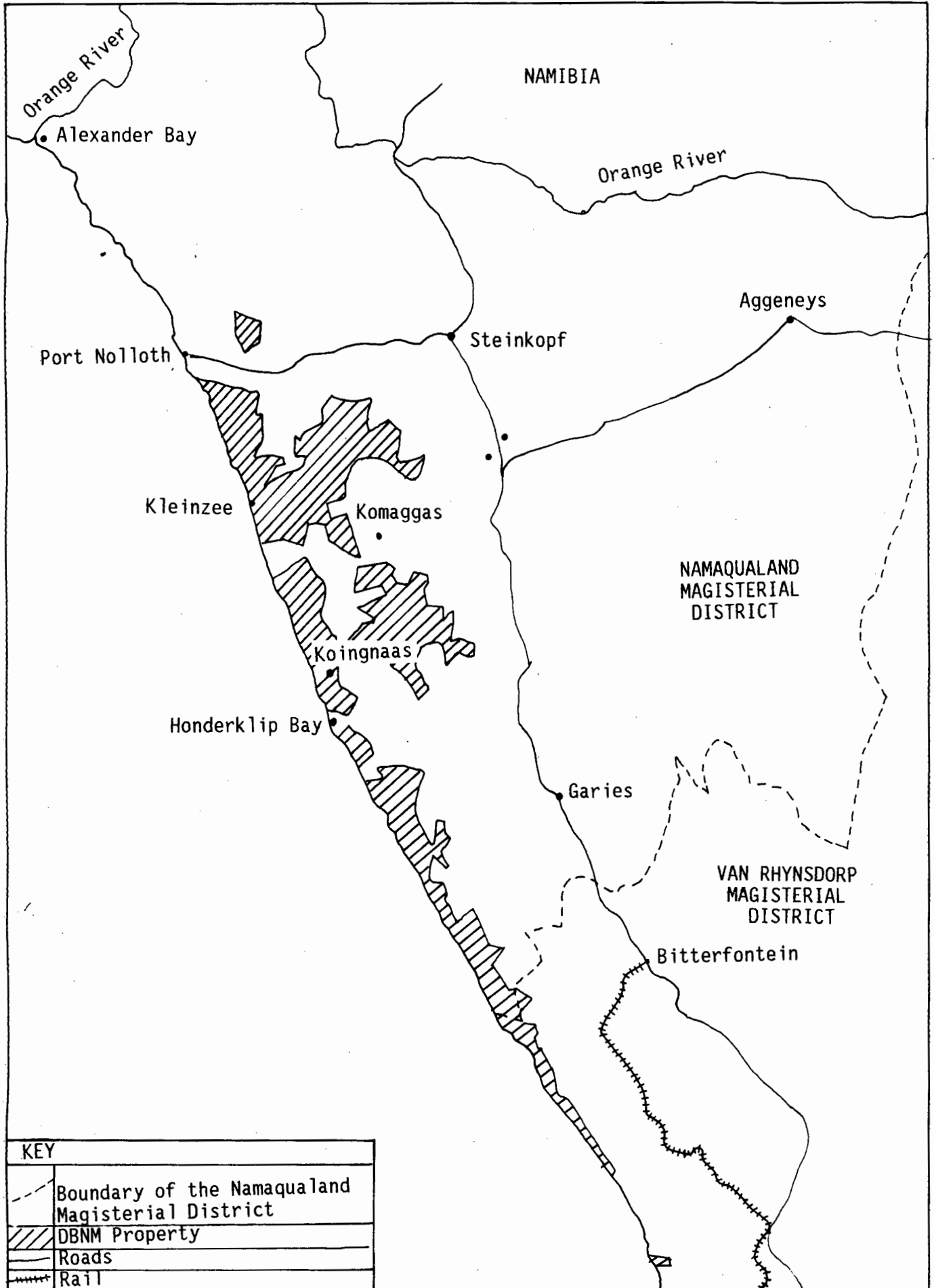


Figure 3. South Africa: showing the location of Namaqualand on the west coast and the Herschel district of Transkei.

Figure 4. The Namaqualand Magisterial District showing the location of the various towns discussed in the text.



De Beers Namaqualand Mines

De Beers Namaqualand Mines properties are located along a narrow 400km stretch of coastline on the arid West Coast of Namaqualand (see Figure 4). The diamond mine properties are largely inaccessible to the general public because of strict security measures. The two mine towns, Kleinzee and Koingnaas are modern, fully serviced towns equipped with electricity, water, sewage and airstrips and tele-communication links. They provide a pleasant and protected quality of life to employees. The larger town of Kleinzee, for example, includes nearly 400 houses and administrative buildings, single quarters, a hostel, a range of sporting and recreational facilities, a shopping centre, schools, banks, post office, garage and modern hospital. DBNM employees reside both in the mine towns and commute daily from surrounding communities.

Namaqualand

The surrounding communities, from where most DBNM employees originate, are a stark contrast to the modern mine towns. Komaggas, where the majority of worker originate, is an isolated coloured town located in the foothills of overgrazed communal land and is accessible only via poor quality dirt roads. The town has no electricity, sewage or running water and has only recently received a police station. The most modern looking buildings are those of the management board, the primary school and the pre-school. The town is a mosaic of different houses ranging from those of brick & zinc-roof construction to the most fundamental of shacks. There are two churches and a clinic in the town. The town is served by eight general dealer stores and there are no recreational facilities. Quality of life in these conditions is hard as poor health facilities, low education levels and lack of upward mobility entrap residents in a culture of poverty syndrome. In addition, communities are embittered and politically divided between supporters of the traditional management boards and the liberal civic community committees.

Other predominantly coloured communities are located at Steinkopf (the next most important source of DBNM workers); Leliefontein; Northern and Southern Richtersveld. Steinkopf is the largest and most developed of the coloured towns; the rest of the Namaqualand communities are in a similar condition to Komaggas.

Namaqualand is a physically harsh and isolated region with a low population density. The centre of activity is Springbok, a modern and picturesque town that houses 35% of the regions population. Most businesses are located here, the buzz of Namaqualand during the tourist season. Springbok was established as a town serving the mining industry, although today it also benefits from being on the major road link between Namibia and South Africa. Other towns in the region include Alexandra Bay (another mine town); Hondeklip Bay and Port Nolloth both centres of the fishing industry; Garies and Kamieskroon serving the agricultural sector; and Bitterfontein, the end of the railway line link to Namaqualand.

Namaqualand is a highly politicized and polarised region. Within the white community, there is a predominantly conservative sentiment, Namaqualand forming part of a number of the proposals for a Afrikaner 'volkstaat'. The white community is distributed roughly equally in urban and rural areas. The predominantly rural-located, coloured community is one that has been embittered by the apartheid legacy and there is much resentment of the history of land disposition. The history of the history of the coloured people of Namaqualand as Fig reports is area is one of extreme poverty and exploitation, of land seizure and violation of ancestral rights, of racial discrimination and forced population removals (Fig 1991). More recently the establishment of a black settlement at Port Nolloth

has borne the wrath and resentment of both coloured and white communities in Namaqualand. Blacks in Namaqualand have been regarded as migrants and are found mainly in the mine hostels.

The Herschel district of Transkei (see Figure 3).

Herschel is a densely populated predominantly black, district located on the southeastern border of Lesotho. Employees originate from villages scattered around the trading centre of Sterkspruit where there is a mine recruitment office. Living conditions in the area are poor and typical of many of the other South African 'homelands' - soil erosion, overgrazing, overpopulated, poor health and social welfare facilities, lack of running water, sewage and electricity. Social problems in the area include unemployment, district poverty and lack of education. The survival of the vast majority of Herschels' population of roughly 350 000 depends on migrant labour remittances; farming activity and local enterprise merely contribute to subsistence.

(b) Namaqualand and mining

Namaqualand is an area approximately the size of the Netherlands. Characteristics like the regions arid climate, remoteness, poor transport and communication links have been cited as probably the most important fundamental causes of Namaqualand's economic under-development and isolation (Dunne 1988).

Economic activity in the region is based largely on mining, agriculture, fishing and tourism (Namaqualand being most famous for its spectacular Spring wildflower displays).

Mining forms the backbone of the economy in Namaqualand. In 1991 diamond mining alone contributed 46% of the total turnover of Namaqualand. Of the total economically active population in Namaqualand, roughly 40% are employed in the mining sector (Central Statistical Service 1991; Dunne 1988).

De Beers Namaqualand Mines (DBNM) are the largest diamond producers in the region: between 1978 and 1985 they contributed between 62 and 87% of all diamonds extracted in the Namaqualand region. Of the 8753 people employed in mining sector, De Beers Namaqualand Mines alone employ 3000 (CSS 1991; De Beers Information).

As Fig (1991) has pointed out, while mining at present provides the bulk of employment in Namaqualand the regions dependency on mining is a dangerous one. When the mines close, as they inevitably must, no alternative employment will become available unless there is better advance planning for sustainable economic activity in the region.

This then, is the context in which the socio-economic impacts of De Beers Namaqualand Mines are located.

CHAPTER 2.

Social Impact Assessment: discussion around the problems encountered during this study

The purpose of this section is to discuss the more theoretical aspects of social impact assessment. This discussion is not intended as a review of the field of social impact assessment. It is rather based on the observations and experiences of the author gained whilst implementing the process and researching the field during the preparation of this report.

2.1. What is Social Impact Assessment?

The field of Social Impact Assessment is a recent development and has been defined as "a process in which intended projects and policies are examined for their possible effects on individuals, groups and communities" (Conland, undated; Connor 1990).

The broader area of impact assessment has developed mainly in the United States of America where it finds its expression in the National Environmental Policy Act (NEPA) of 1970. Social impact assessment developed as a offshoot of environmental (as in biophysical) impact assessment and arose because the social consequences of developments were not being considered (Freudenburg 1986; Bisset 1984). Early environmental impact assessments dealt largely with the environmental consequences of a project whereas the social effects were inadequately addressed.

The primary aim of an impact assessment in its broadest context is to aid decision making by providing objective information on the consequences of an action, plan or project (Fuggle & Rabie 1983; Freudenburg 1986). The purpose of social assessment, Taylor *et al* (1990) elaborates, is to both enable more socially responsible decisions, and in a very direct way to involve people affected by these decisions in this process. This is achieved by identifying both the beneficial and harmful impacts of an action, and equally importantly, by identifying mitigatory measures that will both reduce the harmful impacts and enhance positive aspects of the proposed plan or project (Bisset 1984; Fuggle *et al* 1992).

Impact assessments are not research projects aimed at discovering new knowledge and neither are they encyclopedic compendiums of information (Taylor *et al* 1990). Instead their aim is to assemble and evaluate existing information and to provide sufficient supporting argument to show how technical analyses and social judgements lead to a

conclusion regarding the overall significance of an action or project (Fuggle & Rabie 1983). Connor (1990) suggests that decisions should relate what is:

- a) technologically practical
- b) environmentally appropriate
- c) economically viable
- d) socially acceptable
- e) legally sound
- f) politically feasible

Impact assessments are merely an aid to 'informed' decision making and cannot in themselves ensure that correct decisions are taken. It is the responsibility of the decision maker to weigh up alternative means of achieving an aim and in some instances political rationality will override other concerns (Hollick 1984). Social Impact Assessments should aim to fairly and clearly alert responsible decision makers to factors that could influence their decision (Connor 1990).

The field of Social Impact Assessment has developed mainly in the United States, Canada, New Zealand and Australia where impact assessments have become statutory requirements in the planning process. The South African concept of "Integrated Environmental Management" theoretically incorporates both environmental (as in biophysical) and social considerations in the analysis of impacts but is a voluntary, and not legal requirement, in the planning process (Fuggle *et al* 1992). A preliminary investigation revealed that the major impacts of mine closure would be of a socio-economic nature and because of financial considerations and the expertise within the company in environmental (biophysical) matters, DBNM chose to focus this impact assessment on a consideration of the social and economic impacts of mine closure.

The field of Social Impact Assessment is a very recent development and the amount of literature available on the subject appears to be increasing rapidly. The problems characterising it are typical of a relatively new and largely inductively derived area of study (Connor 1990; Murdock *et al* 1986). It is these problems of both a practical and theoretical nature that will be further discussed in this section. This discussion is not intended as a review of the field of social impact assessment but is rather based on the observations and experiences of the author gained whilst implementing and researching the field of SIA during the preparation of this report.

2.2. Problems experienced by the research team and report writer

There were two main problem areas encountered, those relating to conceptual issues and those of a more practical nature.

2.2.1. Conceptual problems

1) *Defining impacts.*

The concept of impacts has not been adequately defined.

Although it refers to changes resulting from a project that would not have occurred without the project, the qualitative and quantitative dimensions of the concept of impacts remains nebulous (Murdock *et al* 1986).

Murdock concludes that as the field has not yet produced a single major work devoted to the examination of this conceptual issues indicates that the area is in its conceptual infancy.

The delineation of different types of socioeconomic impacts remains ambiguous. For example what factors constitute "quality of life" - psychological impacts, husband-wife relationship, community status, income? What exactly is a social impact? What is an economic impact?

This issue is also discussed in the Impacts section of the report.

2) *Delimiting the extent of affected parties and the affected region.*

SIA refers to assessing (as in meaning or summarising) a broad range of impacts (or effects, or consequences) that are likely to be experienced by an equally broad range of social groups as a result of some course of action (Freudenburg 1986). Who are the interested and affected parties and where is the boundary determining who is affected by mine closure? As the closure of DBNM will influence South African Gross Domestic Product are not all citizens affected parties? This problem was solved by the client specifying that the impacts of mine closure should be investigated only within the regional context of Namaqualand.

3) *Predicting impacts.*

The uncertainties associated with futuristic predictions must be recognised (Fuggle *et al* 1992).

4) *Significance of an impact.*

There is virtually no guidance as at what level an impact is significant and exactly what an impact is likely to entail for an area. Much of what is produced as a result of socio-economic impact analysis is likely to be met with a minimum degree of enthusiasm by decision makers who want to know the pragmatic relevance of various effects (Murdock *et al* 1986).

5) *The lack of alternatives.*

Closure of a facility is different from a proposal for the development of a facility because in closure there is no alternative course of action. Either the company proceeds with its plans for rationalisation, or it continues to work a totally uneconomic mine as a social service (Aris 1963). DBNM is not a welfare organisation and can therefore not choose to operate as a social service; it must eventually close. Development proposals on the other hand have alternatives which are assessed to determine the best option.

2.2.2. Practical problems

1) *Choosing methodologies to determine impacts.*

The inherent difficulties of predicting social impacts, means that there is no easy way of carrying out social impact assessments (Bisset 1984).

2) *Methods and approach subject to approval of the client.*

For political reasons it was not possible to have open meetings in Springbok and therefore it can be claimed that not all parties had fair and equal input to the study. Despite this criticism the study probably does identify the major issues to be addressed in mine closure.

3) *Lack of literature on mine closure.*

Mine closures are actions that have occurred in the past and it would therefore seem sensible to study the consequences of mine closure in order to learn from previous experience.

Very little literature on mine closure was available to the study team. Of that available, which dealt with mine closures in both Australia and Canada, these closures occurred in very different contexts and had little in common with the Namaqualand problem.

4) *Obvious impacts.*

The consequences of mine closure would seem to be fairly predictable, if not obvious, to any person familiar with Namaqualand. Even if there are good reasons for undertaking the study, do the potential negative consequences of the study not outweigh the positive aspects - at least for the company?

5) *Benefits for the initiator of the social impact assessment.*

South Africa, unlike some other countries, do not have any statutory requirements for DBNM to undertake an impact assessment of mine closure and still further, DBNM are not liable for the consequences of mine closure in a market-orientated economy. Decisions concerning the operation and closure of a mine are almost entirely at the discretion of management. In this context, an impact assessment can have both positive and negative implications for the company. It is important that not only the potentially affected parties benefit from the process, but that the initiating organisation also benefit from it.

Recent South African news reports deal with the closure of a number of both coal and gold mines. Most commonly the report reads to the effect "today mine workers were informed that the mine would as of tomorrow be closing because it had run out of economically viable reserves". In a sense this would be the best way to close a mine; if people are aware of mine closure in advance, it is possible that the mine will experience a number of problems:

- morale and productivity problems,
- productive employees may resign in favour of more secure employment elsewhere,
- suppliers may raise the costs of products and services because there will be no fear of competition from other sources.

The value of this impact assessment to the client is not only the report detailing the impacts and recommendations of this study but:

- The open process of communication - the mine hears exactly what the communities are feeling and what their employees are saying
- By initiating this study De Beers have shown a sense of responsibility towards the affected communities
- Depending on the continuation of the process, this study could mark the start of exercise in public relations and a promotion of their corporate image - an example of a socially and environmentally responsible organisation

6) *Economic assessment based largely on figures from 1985.*

The economic aspects of the study were based largely on figures dated 1985. This problem was unavoidable because 1991 figures were not available. The input-output analysis is therefore outdated and, with the benefit of hindsight, the results obtained from this exercise did not justify the use of this method.

2.3. Problems faced by DBNM

1) *The political dimensions of social impact assessment.*

Social assessment is an exercise in disclosure of information that can be threatening to vested interests (Taylor *et al* 1990). SIA can empower the communities. In the absence of legislation the company (as decision makers) are left to exercise their own judgement about effects of mine closure and to choose if and how they will address these impacts. Information gathered in the study can be used against the company in the political arena, to force them to implement certain types of mitigation, which until now has been at the sole discretion of the company.

There has been increasing thought given to the political dimensions of Social Impact Assessment; and in SIA there is divergence between what have been described as the "technical" and "political" approaches (Taylor *et al* 1990). In some views SIA is synonymous with applied social science, while in others, SIA becomes almost synonymous with the political process (Carley & Bustelo 1984). It is exactly these political implications of the process that have been concerning DBNM during the study.

The risks which the company has run in commissioning this project are:

- employees could use it as a forum to air their grievances
- morale and productivity could decrease as a result of employees feeling that the company is closing and concerning themselves with the problem of finding alternative employment
- loss of skilled personnel to other more secure positions
- an issue for the political arena to argue over
- a forum for communities to express their grievances about the company
- drop in market shares as investor confidence in the process is expressed

2) *Bias and social impact assessment.*

SIA aims to inform decision making. As such the information provided to the decision maker should be objective and unbiased. But how objective can SIA be? This depends on the analyst and the process. How can scientific and political considerations best co-exist? SIA must continue to deal with the fundamental and enduring question of how best to incorporate scientific input in what will remain largely political decisions (Freudenburg 1986).

The analyst works within a system that contains its own biases although these may not be consciously recognised (Freudenburg 1986).

2.4. Problems identified and addressed in the literature

1) *Lack of a theoretical base.*

The field of social impact assessment lacks a sound theoretical base and fails to adequately incorporate existing theoretical frameworks in its analyses. The lack of such theoretical framework limits its utility for decision making and policy formulation. A theoretically informed body of evidence is necessary to provide the basis for predicting the likely set of occurrences that may result from a project (Murdock *et al* 1986).

Two areas in particular where conceptual frameworks need to be improved are:

- 1) Guiding concepts for the selection of variables for social analysis. SIA's need to include a specific focus on sociological variables, instead of allowing the analysis to be guided by data availability and political pressures or whatever "laundry lists" of potential impacts happen to be available (Freudenburg 1986).
- 2) The analysis of community structure and community change particularly social theory of how communities operate and respond to change.

2) *Cumulative impacts.*

It should be recognised that individual social effects sometimes may be subtle and defy precise interpretation, but cumulatively these effects may be very large. Therefore, the assessment of cumulative effects is an important and necessary process (Taylor *et al* 1990).

2.5. Conclusion

As a result of the problems that were and still are facing Social Impact Assessment, Murdock *et al* (1986) identified three possible future scenarios for the field:

- 1) Dissolution of the area of SIA as an area of academic interest surviving merely as an administrative requirement practised by consultants.
- 2) Continuation of the status quo.
The field progresses slowly as there are no analysts with major interests in the area. SIA remains as a field of limited utility for policy analysis. Decision makers may conclude that the area of SIA is of little relevance to their decision making process. A situation develops where the field is of academic interest only.
- 3) SIA builds on existing base of knowledge, addresses its limitations effectively enough to evolve into a permanent, contributing field in social sciences and is attentive enough to the needs of decision makers to retain recognition as an area with policy relevance and utility.

In response to these scenarios, beginning with the first:

South Africa, unlike some other countries, does not have any statutory requirements for DBNM to undertake an impact assessment of mine closure and still further, DBNM is not liable for the consequences of mine closure in a market-orientated economy. Decisions concerning the operation and closure of a mine are almost entirely at the discretion of management. In this context, an impact assessment can have both positive and negative implications for the company. If Social Impact Assessments are to be implemented in South Africa, particularly in decommissioning exercises, it is important that not only the potentially affected parties benefit from the process, but that the initiating organisation also benefit from it. SIA can therefore otherwise not continue to exist merely as an administrative requirement practised by consultants.

Further development and publication of material in the field of Social Impact Assessment seems to indicate that the field is developing rapidly, building on its existing base of knowledge and is a field that is addressing and informing the needs of decision makers. It remains to be seen to what extent limitations in the area can be overcome.

The conclusion of Connor (1990), conceptually and effectively summarises the status and future of Social Impact Assessment as viewed by this author:

"Currently SIA is an art form: there is however the nucleus of an emerging science and technology. In physical design, art was systematically examined to yield physics which in turn gave rise to engineering. And today, we use all three. Similarly, SIA is now an art and as creative practitioners wrestle with its challenges and examine their successes and failures, the proportion of science and technology will increase. SIA is here to stay."

CHAPTER 3.

THE IMPACTS OF MINE CLOSURE

3.1. Introduction

The purpose of this chapter is to give the reader an understanding of the implications of mine closure.

The benefit of elucidating the implications of mine closure are:

- that key issues can be identified;
- major problems can be anticipated before they occur; and
- this information can be used in planning for the future.

Although the focus of this section will be to elucidate the social and economic implications of mine closure, mine closure also has implications for the natural environment, in particular rehabilitation of disturbed mine dumps. The client however chose to focus this study to assess the social and economic aspects of mine closure.

A detailed description of the expected impacts of mine closure can present a gloomy and pessimistic view of the future. The purpose in identifying impacts is:

- a) to mitigate the negative impacts, and
- b) to enhance and recommend more positive steps which may offset the negative impacts.

One of the functions of an impact assessment is to identify both positive and negative impacts, but it is unfortunate that in the case of mine closure almost all impacts are perceived by the majority of affected parties, to be negative. An example of one of the few positive impacts of mine closure is possibly the end to disturbance of the natural vegetation through mining activities.

In this report the value of listing the impacts of mine closure are dependant on the proposals for mitigation of these impacts. The purpose of describing impacts is not to detail every potential impact of mine closure but rather to highlight important issues to be considered in mine closure. Although every attempt has been made to describe all the possible impacts of mine closure the reader may find that some are missing. The table summarising the impacts of mine closure has been constructed so as to facilitate the inclusion and evaluation of these other outstanding impacts.

3.2. What exactly is an impact?

The concept of an "impact" remains nebulous (Murdock *et al* 1986). *Impact* as defined by the OED is an 'effect' or 'influence'. However in impact assessment terminology *impact* has a more focused meaning. Impacts are changes which occur as a result of some human activity. *Impacts* can only be perceived by humans as, (in the context of impact assessment) *impact* includes a value judgement of the significance of the effect of an action.

There are various types of impacts, impacts which are the direct consequence of an activity are called *primary impacts*. Impacts which arise as a result of a series of interdependencies are called *secondary impacts*. *Induced impacts* arise when an activity introduces new linkages in a system. Impacts can be both positive and negative; that is they can have either a beneficial effect or a harmful effect on a person.

Socio-economic impacts are often perceived to be simple demographic and economic changes. These impacts are however more complex and can become fairly abstract concepts. The delineation of different types of socioeconomic impacts however remains ambiguous (Murdock *et al* 1986).

- 1) Social impacts. Social impacts are changes in social relations which result from external change. Social impacts affect individuals, institutions, communities and larger social systems and include psychological attitudes, health and safety, cultural life, social, economic & political structures and processes (Bisset 1986).
- 2) Economic impacts. Economic impacts are economic and monetary changes affecting business and individuals.

Whilst it is possible to quantify the magnitude of an impact fairly readily, it is often difficult to define the significance of an impact. 'Significance' can be a rather subjective decision and can differ according to the affected party. Significance is affected by value judgements and is therefore a statement of opinion not falsifiable against fact.

Prediction of the socio-economic impacts of a mine closure in ten years time is difficult and will involve some degree of uncertainty (Bisset 1986; Fuggle *et al* 1992). Limitations to the identification of impacts include:

- 1) The accuracy of future predictions.

The uncertainties which are associated with futuristic predictions needs to be recognised. Given the rapid rate of change occurring in South Africa at present, it would be naive to try and detail the precise consequences of mine closure. In ten years time the nature of Namaqualand may be very different from what it is now.

- 2) Categorization and generalisation.

Mine closure will affect different people in different ways. Although it is possible to identify groups which can be expected to be affected in similar ways by mine closure, it is important to recognise that even within these groups individual members will be affected to different degrees depending on their peculiar circumstances (i.e. as individuals attitudes, values and perceptions differ) (Freudenburg 1986). Generalisations are extremely useful but there are exceptions to the norm.

3) The complexity of the socio-economic dimension of the environment.

Figure 5 attempts to illustrate in a conceptual manner the complexity of the socio-economic dimension of the environment. The categorisation of impacts is difficult (Murdock *et al* 1986). As is illustrated in Figure 5 a large number of components influence a single system. Through a series of interlinkages a change in one component can result in changes in a many of the other components. Even fairly small changes in the life of a single person can have repercussions on individuals throughout a community and these are difficult to predict. (The complexity of the socio-economic environment is further complicated when these aspects are included in other dimensions like time and geographical space but the purpose of abstraction is to simplify these complexities).

3.3. How do you identify impacts?

There are no standard techniques for assessing impacts. The inherent difficulties of predicting social impacts means that there is no easy way of carrying out social impact assessments (Bisset 1984).

In this study impacts were identified using a variety of social and economic methods such as interviews, meetings, surveys, and economic models. These are discussed in the Baseline Information Report.

An important aspect of the process of identifying impacts was the rigorous "cross-checking" of results. Using different methods it was possible to establish the validity of conclusions. For example, it was possible to establish that the land issue was an important issue because it was emphasised in the employee survey, the community meetings, letters from interested and affected parties and in the literature. This process is often referred to in the literature as 'triangulation'; both Grady *et al* 1987 and Taylor *et al* 1990 discuss the usefulness of this technique.

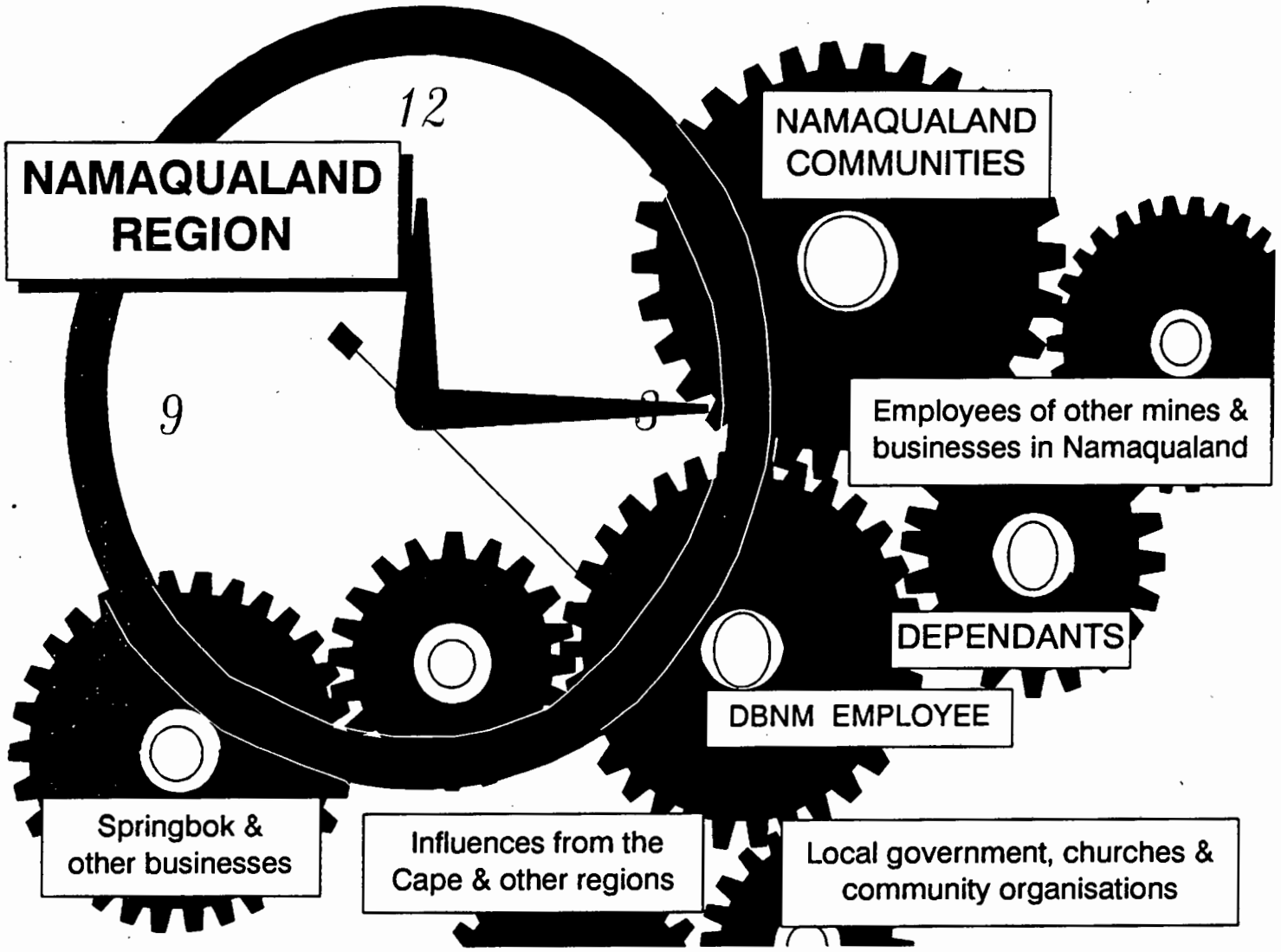
The impacts of mine closure are identified and described in the form of a table. Before reading the table, it is necessary to explain the features of the table. The value of this table lies in its construction. The two most important features are:

- 1) *A summary of information on the various impacts.*
Rather than a long and tedious description of the possible impacts on various groups, the table summarises information regarding the various impacts.
- 2) *Facilitates comparison of the impacts on different groups.*
Listed in this format the table facilitates comparison of the impacts of mine closure between various groups of affected parties.

The construction of the table is such that:

- Affected parties have been identified.
Within the mine there are essentially three groups of employees. These groups correspond roughly to a breakdown of employees in terms of ethnicity: black, coloured and white. These groups will be affected in fundamentally different ways and are therefore listed in three separate columns. The paragraph following this list elaborates.

Figure 5. A conceptual illustration of the complexity and interlinkages of the socio-economic environment. Each gear represents a component in the structure of society. Any movement in only one cog will cause movement in the others. The clock represents the historical development of Namaqualand; all changes in society influence the history of Namaqualand.



- Impacts are discussed at four different scales.
These four scales - employees, dependants, communities and region - are printed on different colour paper. The group most directly affected by mine closure are employees, followed by dependants of the employee. Employees come from different communities which are both directly and indirectly affected by mine closure; likewise a region is also affected.
- Impacts of mine closure are listed down the left-hand column. A comments column next to it allows explanation of the impact. It is important to note that impact categories are not mutually exclusive; 'quality of life' for instance is a function of many different kinds of factors which each have a separate category. Although there is a fairly comprehensive list of impacts, there may be impacts that have not been considered. It is conceptually easy for the reader to insert the impact and to evaluate its significance within this framework.
- Both social and economic impacts can be considered within this table structure. Social impacts will affect mainly the employee, his/her dependants and the community and are therefore discussed largely in these categories. Most economic impacts are however described under the category 'region'.
- Impacts are described and evaluated within this framework. Firstly factual type information regarding the impact is discussed. This is followed by an evaluation of the significance of an impact on a group and is rated as either "High, Moderate or Low". This evaluation is substantiated by further written explanation. Where the reader disagrees with an evaluation of an impact it is therefore easily possible to re-evaluate its significance. A discussion of the criteria used to evaluate impacts follows six paragraphs below.

The division of the table into 3 columns the Mine group, the Namaqualand group and the Transkei group is necessary because mine closure will be affect these groups in fundamentally different ways. Because of past policies the 'Mine group' as defined in the Baseline Information Report are predominantly white, the 'Namaqualand group' predominantly coloured, and the 'Transkei group' predominantly black. Although apartheid policy has officially been scrapped the legacies of the ideology remain entrenched in the structure of our society. These groups live in different home environments, have different lifestyles and histories and different access to resources. This report in no way seeks to continue the system but the reality of the situation is that these groups will be affected in very different ways and it is therefore necessary to make this distinction.

From the survey of DBNM employees it has been possible to draw up a description of the "average" employee in each of the three groups (from Baseline Information Report). These descriptions are conceptually useful provided the reader bears in mind that in reality each of the groups is diverse and it is therefore difficult to generalise.

- **Namaqualand employee:** Unmarried, 22 year old male who earns R1250 per month. His education level is Std 7 and he is in Patterson Band B3. He does not own his own house yet, but lives in Steinkopf where he was born. He goes home every weekend, but spends the weeks in Kleinzee where he works. His household consists of 5 members, of which 4 are not earning an income. He does not know the amount of the other income.
- **Mine Group employee:** This is a married man of 33 years of age, who earns over R4000 per month and is located in Patterson Band C2. He was born in Cape Town, studied further than Std 10 and now lives and works

permanently in Kleinzee. His wife also works for DBNM and earns over R3000 per month. As he lives in mine accommodation, he does not own a house. His household consists of himself, his wife and two dependants.

- **Transkei Group employee:** Married man of 48 years of age, who is located in Patterson Band B1 and earns R1250. His educational level is Std 2. He was born in Sterkspruit where his family still lives. Every six months he returns home for two months leave. When not on leave he lives in Kleinzee hostel accommodation and works in Kleinzee. His household is bigger than the other groups with 10 people in it, of which 8 are dependants.

3.4. Criteria for assessing and evaluating impacts

The table allows for the comparative evaluation of the significance of impacts of mine closure. An evaluation of the significance of each impact has been made and these have been rated as either HIGH, MODERATE or LOW. The magnitude of the impact has been described and where possible, quantified. The evaluation of impacts is largely a subjective decision.

Although it is difficult to define precise criteria for evaluating and rating an impact these criteria are where possible made explicit. The general criteria used for selecting and evaluating impacts were:

- the magnitude of the impact;
- duration of the impact: the long, short and medium term consequences of an action;
- perceptions and beliefs of affected parties about an impact;
- the importance of an effect as emphasised by interested and affected parties;
- the importance of an effect as identified and supported in the literature;
- professional opinion based on experience and understanding of the problem;
- a judgement of impact within the context of other factors characterising and influencing a group;
- a subjective comparison of impacts within and between the affected groups.

3.5. Summary of major impacts of mine closure on the various affected groups

3.5.1. Summary of the Impacts of Mine Closure on the Employees

The two groups of employees most significantly impacted by mine closure are the Namaqualand (predominantly coloured) and Transkei (black) groups. The closure of DBNM mine will affect employees in two main ways:

- 1) Through the loss of employment, and
- 2) Through the loss of benefits

Loss of employment:

In the Namaqualand group loss of employment is significant due to the large number of people (approx. 1800) likely to be retrenched. Low levels of education, inability to speak English and training specific to the mining industry, together with lack of alternative employment opportunities and high levels of unemployment in the region make it difficult for this group to find work.

Table 1. Impacts of Mine Closure on DBNM Employees

Impacts on the EMPLOYEE	Comments	Mine Group (predominantly white)	Namaqualand Group (predominantly coloured)	Transkei Group (predominantly black)
Retrenchment/loss of work	This is the major concern of all employees about mine closure. According to the General Manager, mine policy is to transfer employees in higher job gradings within the company (Patterson bands C2 and above). Normal employee turnover rate is 10% per year.	535 affected employees LOW significance Because of high job grading most will be eligible for transfer to other mines (56% of survey are C2 and above).	1865 affected employees HIGH significance Most employees are in lower job gradings. Only 2% of survey are C2 and above and most will therefore be retrenched.	700 affected employees <i>(because of migrant labour only 500 are at the mine at any one time).</i> HIGH significance All employees are in the lower job gradings and almost (100%) all will therefore be retrenched.
Unemployment	"A complex array of factors influence whether individuals and families react to unemployment in positive or negative ways" (Ridley & Wilhelm 1988). Factors likely to influence chances of re-employment are: education and training, age, sex and ethnic group. The state of the economy in 10 years time will influence job availability.	Worst affected employees are trainees, apprentices and older employees (people now about 40 years). The age of this group ranges from 18-60yrs but the average is 31-35yrs. LOW significance Generally high level of skills, education and greater mobility make it easier for this group to find work.	The largest group of employees are young people: 35% age between 18-25yrs. Ages range from 18-60yrs. Few people can speak English. HIGH significance Low levels of education, and training specific to mining industry together with low mobility, make it difficult to find alternate work.	Employees are all fairly old: 39% are 36-46yrs; 31% are 46-50yrs and 30% are over 50yrs. Generally this group has very low education and skills. HIGH significance Because of the age of this group they will probably not be able to find other employment. At the time of mine closure 60% of employees will be 56yrs and older.
Loss of salary and/or a lower income level	Mines are known to pay above standard wages. Employees can therefore expect a lower salary outside of the mining industry. This will affect general quality of life and access to resources.	59% of employees earn over R3000 per month. MODERATE significance Employees may have to adapt to lower salaries.	71% of employees earn between R1000 -R2000 per month. HIGH significance Loss of income and limited opportunity for alternative employment seriously affect quality of life.	69% of employees earn between R1000 -R2000 per month. HIGH significance Loss of cash income seriously affects quality of life of dependants.
Loss of medical care and social welfare benefits	Mine has a modern well-equipped and staffed hospital which serves employees and their direct dependents. Most employees are members of the medical benefit scheme which entitles them to free treatment at the mine hospital or 60% subsidisation of medical costs outside of the mine. For a small additional fee dependants can be included in the scheme. These benefits stop with retrenchment.	LOW significance Employees will have access to doctors and medical facilities.	HIGH significance Namaqualand has a shortage of medical care facilities and welfare organisations. Hospitals are located in Springbok and Port Nolloth and people must travel long distances to visit these. Clinics have limited expertise and are short staffed. There are already heavy demands on the existing facilities.	HIGH significance Migrant workers are not eligible for medical aid but receive free treatment at the company hospital. Visiting wives are sometimes also treated at the company hospital. Sterkspruit has a severe shortage of medical and social welfare facilities and these are ill-equipped, understaffed and in great demand.
Loss of recreational amenities and sporting facilities; access to entertainment	DBNM provides a wide range of subsidised sporting facilities and recreational amenities. Employees will lose these when the mine closes. Sporting facilities include: angling, bowls, cricket, football, golf, horse riding, rugby, sailing, squash, swimming, tennis. Recreational facilities include: darts, snooker, badminton, ladies bars, pubs, restaurant, and a number of clubs e.g. photography and dramatics.	MODERATE significance Many employees use these facilities. With closure of the mine these are ended although employees will generally be able to access other facilities. These however may be more expensive or not of the same quality.	HIGH significance Many sporting facilities and recreational amenities are not available in the Namaqualand communities or are of a very low quality.	HIGH significance There are virtually no sporting and recreational facilities in the Sterkspruit region.

Impacts on the EMPLOYEE	Comments	Mine Group (predominantly white)	Namaqualand Group (predominantly coloured)	Transkei Group (predominantly black)
Loss of pension benefits	Basic pension package offers pension from the age of 60yrs. It is not known what the situation will be w.r.t. pension at mine closure. As pension is an important feature of old age security concern about it will have a high impact on all employees.	Terms negotiated at time of mine closure.	Terms negotiated at time of mine closure. However there is concern about pension at closure.	Terms negotiated at time of mine closure. There is concern that employees will not receive pension.
Access to housing	Shelter is an important aspect of an individuals security and this may therefore be a major concern of employees expecting to be retrenched in mine closure. The mine provides employees with: - subsidised mess for hostels and single quarters residents - free single and married accommodation. Employees not eligible for company housing are eligible for a building loan of R10 000 (at 3-4% interest).	HIGH significance 28% of employees own houses outside of the mine. Lack of housing will become a major concern of employees. Access to housing is fairly good because of access to housing loans and financing.	HIGH significance 36% of employees own houses outside of the mine. Access to alternative housing will be difficult because of housing shortages in the coloured communities. Employees do not have access to housing loans and financing due to lack of security and property rights.	LOW significance All employees own houses. However these will differ in construction and may be of better or worse quality than hostel accommodation provided by the mine.
General decline in 'quality of life' and access to resources.	Unemployment, lower salaries, and fewer facilities will result in a lower quality of life. DBNM are regarded as good employers and provide well for their employees.	MODERATE significance Employees will lose the close community life. Mine towns provide a good quality of life. Life is secure and provision of sport and recreational facilities is good.	HIGH significance Mine closure will affect access to resources and will significantly affect all aspect of quality of life. (Mobility, housing, education, recreation, sport, and church.) Amenities include shopping facilities, medical care and training.	HIGH significance General quality of life in the homelands is very poor. They are over-populated and environmentally stressed. Disease and malnutrition are rife. This contrasts sharply with the fairly protected living conditions provided by the mines.
Loss of skills training and basic education	Mine has a training centre which runs various courses related to mining industry: admin, management, etc. These courses are offered in all languages. The mine also offers apprenticeship training. Adult education classes are also held.	LOW significance Employees generally have good levels of education. Loss of apprenticeship opportunities will be significant in some cases.	HIGH significance The mine offers apprenticeship training and management courses. It is an important source of skills acquisition in the region although some employees feel that better training could be provided.	HIGH significance Mine offers training courses which employees would not get elsewhere. Also basic literacy and language training.
Debt and access to credit (e.g. bank loans)	The degree to which employees are in debit is an important consideration in mine closure. "Not only is it important to have manageable debt levels at the onset of unemployment but it is equally important that additional debt not be incurred resulting in the need to pay it back with an uncertain future income" (Ridley & Wilhelm 1988). If employees cannot make repayments on accounts & insurance policies they are likely to lose valuable assets and benefits. The more savings & investments an employee has made the less mine closure will affect him in the short term.	LOW - HIGH significance Difficult to generalise in this group. Employees have made different levels of investments and savings. Expenses are also very variable and different levels of debt are evident. Employees who have monthly instalments on housing bonds may be significantly affected.	MODERATE - HIGH significance Most employees have some form of insurance policy. If payments are stopped before policy maturity the employee will lose a substantial part of their investment. Many employees have accounts with furniture and clothing stores in Springbok. Default on payments will lead to forfeiture of the goods. Employees are depend on monthly income generally and do not have substantial savings & investments.	LOW - MODERATE significance Some employees have insurance policies. They do not have substantial savings & investments and depend on monthly income.

Impacts on the EMPLOYEE	Comments	Mine Group (predominantly white)	Namaqualand Group (predominantly coloured)	Transkei Group (predominantly black)
<p>Adjustment to changes in community and family life.</p> <p>Psychological impacts -insecurity and uncertainty - moral and productivity - depression</p>	<p>Resources are the major factors which influence an employees ability to cope with the loss of a job and unemployment.</p> <p>Mine closure: - can affect and change the role relationship between husband and wife - result in changes in social status (employed to unemployed) - a potential outcome of unemployment is depression and difficulty in maintaining a positive self-image. (Ridley & Wilhelm 1988).</p> <p>Potential mine closure can cause employees to worry. Uncertainty and insecurity may result in lower productivity and morale within the company. The more informed an employee is the less uncertain they will feel.</p>	<p>LOW - MODERATE significance</p> <p>Employees are generally well informed and have access to information regarding mine closure and how it may affect them.</p>	<p>HIGH significance</p> <p>Employees generally not as well informed. Their dependency on the mine will cause great concern amongst the group.</p> <p>Employees may have to become migrant workers. This may lead to disruption of family life.</p>	<p>HIGH significance</p> <p>Employees not well informed. Uncertainty about the mines intentions aggravates the situation. Fear that the mines want to phase out blacks in favour of locals. Rumours that retired employees are not receiving pension causes concern.</p>

Table 2. Impacts of Mine Closure on Dependants of Employees

Impacts on DEPENDANTS	Comments	Mine (predominantly white)	Namaqualand (predominantly coloured)	Transkei (predominantly black)
Impact on married employees and single employees with direct dependants	Mine closure for married employees is more difficult than for mobile, single employees. The number of dependants for which each employ is responsible is a measure of the impact of mine closure.	82% of employees married 4 direct dependants	46% of employees married 4,5,6 direct dependants	100% of employees married 6 & 10 direct dependants (ranges from 3-16)
Loss of family income - breadwinners - other sources of income	Loss of income will affect all aspects of life. If the employee is the major breadwinner in the family, the impact of this lost income will be more significant than if there are other sources of income. Other sources of income will lessen the impact of mine closure. It is important to assess where this income is originating from because if it is in a mine-related sector this source of income may also be affected.	MODERATE significance In 38% of cases the employee is the sole breadwinner (59% of employees earn over R3000 per month) 88% of secondary contributors are mine employees. 50% of these contribute over R3000/month.	HIGH significance In 41% of cases the employee is the sole breadwinner (71% of employees earn between R1000 -R2000 per month) 34% of secondary contributors are mine employees. Contribution is unknown or below R300/month.	HIGH significance 42% of employees send home over R700/month In 77% of cases the employee is the sole breadwinner (69% of employees earn between R1000 -R2000 per month) None of secondary contributors are mine employees. Contribution is unknown or below R300/month.
Children affected by mine closure	Children are directly dependant on their parents. Loss of the parents job will result in decline in the ability of parents to provide for the needs of the children i.e. education, clothes, food, etc.	MODERATE significance Most children in this group are of a young age 75% in the age group 0-10yrs. Mine closure is not expected to detrimentally affect their education.	HIGH significance Children are dependant on parents for their education. Loss of income will force affect ability to pay school fees and some parents may have to withdraw children from school. Ages of employees children were evenly distributed over all age groups.	HIGH significance Childrens education is dependant on a secure income otherwise children are forced to leave school early in search of work. 40% of children were aged 0-10yrs and could therefore still be dependant on parents at the time of mine closure.
Care of the elderly	Elderly parents of employees may be in entirely or in part dependant on their children. Loss of income will therefore affect care of the elderly.	LOW significance Elderly folk have normally provided for themselves. Employees may however contribute in different ways to their welfare.	HIGH significance Elderly are often dependant on the support of their children to subsidise their cash income e.g. state pension.	HIGH significance Elderly are a part of the family and are dependant on the support of their children. Care of the elderly may decrease as parents attempt to optimise distribution of income between providing for the family, providing for the children and the elderly.
Loss of medical care and social welfare services	For a small additional fee dependants can be included in the mines medical benefit scheme. These benefits stop with retrenchment.	LOW significance Dependants will have access to other medical facilities and services.	HIGH significance Because of general lack of medical facilities in the communities access to mine medical services is important. Many dependants are part of the medical benefit scheme.	LOW significance Dependants do not have access to mine medical facilities and are not eligible for the benefit scheme.
Access to recreational amenities and sporting facilities	Spouses and children of employees have access to mine sporting and recreational facilities. In addition to those mentioned before, facilities available to children include playgrounds, skateboarding and rollerskating rinks.	LOW - MODERATE significance These facilities will be available at most places.	LOW significance Family does not have direct access to recreation and sport facilities.	LOW significance Dependants do not have access to facilities

Impacts on DEPENDANTS	Comments	Mine (predominantly white)	Namaqualand (predominantly coloured)	Transkei (predominantly black)
Decline in education and educational opportunities	On the mine there are nursery schools, primary and secondary schools. Schools are open to employees who stay in the mine towns. Schools are subsidised. The mine pays boarding fees for high school pupils but does not pay for school fees. Mine also has bursary schemes for higher education.	<p>MODERATE significance</p> <p>Employees children attend local mine run primary and secondary schools. DBNM provides bursaries to successful scholars.</p>	<p>HIGH significance</p> <p>Employees children attend local mine run primary and secondary schools. DBNM provides bursaries to successful scholars. Parents unable to afford high costs of education which include school fees, books, clothing and transport.</p>	<p>LOW significance</p> <p>DBNM provides bursaries to successful scholars. Parents unable to afford high costs of education which include school fees, books, clothing and transport.</p>
Decrease in mobility due to cost of transport	Loss of income may affect mobility of the family because transport costs are high. Vehicles need lots of maintenance.	<p>LOW significance</p> <p>Employees have their own transport.</p>	<p>HIGH significance</p> <p>High cost of taxis and public transport limits excursions to major towns for shopping, medical care and education.</p>	<p>HIGH significance</p> <p>Cost of taxis and public transport limits mobility of family. Transport is important for purchases, medical care and education.</p>
General household purchases; food, clothing, furniture, etc.	Loss of income will affect ability to purchase these goods.	<p>LOW significance</p>	<p>HIGH significance</p> <p>High costs of groceries in the community stores and cost of transport to major trading centres pushes costs up.</p>	<p>HIGH significance</p> <p>Affected due to loss of cash income.</p>
Impact on women		<p>LOW significance</p> <p>Mine closure is not expected to result in significant pressures on women.</p>	<p>HIGH significance</p> <p>Women feel that the mine closure will affect their ability to provide for their families well-being.</p>	<p>MODERATE - HIGH significance</p> <p>Women will have to adjust to the return of the husband and lack of a cash income will affect her ability to provide for the family.</p>
Impact of relocation or migrant labour on family life	Loss of employment will require adjustments to changes in community and family life. There are psychological impacts like insecurity and uncertainty that will affect the family unit.	<p>LOW - MODERATE significance</p> <p>Families will have to relocate to new communities and adjust to a new and possibly less protected environment. This will involve adjustments to new schools and the establishment of new social relations.</p>	<p>HIGH significance</p> <p>As employees are forced to look further a field for work, pressures on the family structure are intensified. Migrant workers will see their families less frequently. Where families relocate to new communities, adaptation to new living environments will be more demanding than in the case of white families as coloureds are historically tied into communities in which they are born.</p>	<p>LOW significance</p> <p>Families are accustomed to migrant labour system.</p>

Table 3. Impacts of Mine Closure on Communities

Impacts on the COMMUNITY	Comments	Mine (predominantly white)	Namaqualand (predominantly coloured)	Transkei (predominantly black)
Affected communities	The affected communities are, in most cases, likely to be places from where employees originate. (Towns in which businesses which deal with DBNM are located, will also be affected; these are dealt with in the next section).	Cities and towns all over South Africa. Employees come from all over southern Africa and further afield.	Predominantly Namaqualand towns and villages. A few employees come from the greater Cape region. The most affected communities are those of Komaggas, Steinkopf, Buffelsrivier, etc.	Most of employees are from the Herschel district, Transkei.
Unemployment	Existing levels of unemployment and alternative opportunities for employment will determine the impact on communities. DBNM employs 3000 of the 8753 people employed in the mining sector and is the biggest employer in the region.	LOW significance As employees come from all over, they are likely to disperse all over South Africa and will have little effect on unemployment in any specific area.	HIGH significance Employees originate from areas where there current levels of unemployment are high. The high number of retrenchments will have a very significant impact on the affected communities.	MODERATE significance Although 700 retrenchments is a large number, by comparison to levels of unemployment in the homelands it is small. Nearly 60% of these employees will be close to retirement age.
Migration from communities	Opportunities for employment will affect migration from communities.	LOW significance Mine towns will close and people will have to disperse.	HIGH significance Because of the high levels of unemployment and lack of work opportunities people will be forced to migrate from Namaqualand in search of work.	LOW significance Employees are accustomed to migrant labour and this will therefore not affect the community.
Impact on cultural identity		LOW significance This group represents a small and diverse range of cultures. Mine closure will not have an impact on group identity.	HIGH significance Namaqualanders have a strong cultural and community orientated culture. The loss of large numbers of people will have a significant impact on the cultural identity of both employees and their communities. There will be an exodus of young people and skilled labour.	LOW significance Communities have already been influenced by Apartheid policies and the migrant labour system.
Social dysfunction: increase in social pathology (e.g. crime, poverty, etc.)		LOW significance Most people will find alternative employment and readjust to new environments.	HIGH significance High levels of unemployment and lack of opportunity, will lead to social decline. As people become entrapped in the circle of poverty they will become more desperate. Levels of disillusionment and crime will rise.	LOW significance People are already impoverished and social conditions are low. There will be no significant decrease in these conditions, only a reinforcement of the process of community decline.
Decrease in medical care and social welfare		LOW significance Not significant.	HIGH significance Because of the large number of people retrenched and existing pressure on medical services and social welfare.	LOW significance There will be increased pressure on community health and welfare facilities with the return of mine employees.
Decrease in recreational amenities and sporting facilities	DBNM hosts various sporting functions. It is not known to what extent loss of mine personnel and sporting facilities will influence sport in the region.	LOW significance (??) It is not known to what extent loss of mine personnel and sporting facilities will influence sport in the region.	MODERATE significance (??) Any decrease in sporting facilities and opportunities to play different teams will influence communities.	LOW significance Mine closure does not affect this aspect in Herschel.

Impacts on the COMMUNITY	Comments	Mine (predominantly white)	Namaqualand (predominantly coloured)	Transkei (predominantly black)
Decrease in skills training	DBNM is a source of skills training in the Namaqualand region.	MODERATE significance Trainees and artisans serve their apprentices on the mines.	HIGH significance The mines are an important source of apprenticeship training in the Namaqualand communities.	LOW significance As from 1977 the mine no longer recruited black migrant labour
Impact on education	Children of employees attend schools on the mines and in the surrounding communities of Namaqualand. Migration of families will result in lower numbers of scholars which affects the number of subjects and teachers a school can offer. Loss of income will affect ability to pay school fees and associated costs. DBNM has in the past helped with the construction of playfields in the region and made various donations to education.	LOW - MODERATE significance Children withdrawn from high school in Springbok. Although pupil numbers are low at present, future education policies will influence what effect this will have on the school.	HIGH significance Particular concern has been expressed by schools located in Steinkopf where many childrens parents work for DBNM. Mine closure will affect payment of school fees, pupil numbers, teacher numbers and subjects offered.	MODERATE - HIGH significance It is not generally known how mine closure will affect schools in the region. Loss of income will affect the payment of school fees. It is not known where children of employees attend school in the Herschel and surrounding districts.
Impact on churches	Migration from the area affects church membership numbers. Social decline will also affect churches.	LOW significance Interdenominational mine church will close.	HIGH significance Employees are members of churches throughout the region.	NOT KNOWN
Impact on small local businesses - local economy		LOW - MODERATE significance Employees purchase household goods at the company supermarket. Luxury items are bought both in Springbok and Cape Town.	HIGH significance Small businesses are dependent on DBNM as clientele, especially in Komaggas and Steinkopf.	LOW significance Large number of people in the area is unlikely to affect any particular business significantly.
Provision of services by local authority and maintenance of town infrastructure.	Mine pays establishment and service levies to the region services council (RSC). These fees are used to administer the area and provide services and roads. Loss of this income will therefore affect functioning of the RSC.	HIGH significance Not many employees live in the region and therefore this does not affect provision of local services.	HIGH significance Employees pay for provision of services in the community. A lack of income may affect the payment of these fees and therefore affect provision of services in general. Steinkopf Management Board in particular is concerned about this.	LOW significance Small number of people will not significantly change conditions in the area.
Impact on housing		LOW significance	HIGH significance There is a shortage of housing in the region.	LOW
Adjustment to changes in community and family life		LOW significance Mine employees are not an integral component of communities outside of the mine towns.	HIGH significance Increase in unemployment and migration from Namaqualand will affect community structure.	LOW significance District is already accustomed to the migrant labour system.

Table 4. Impacts of Mine Closure on The Namaqualand Region

Impacts on the NAMAQUALAND REGION	Comments	Mine (predominantly white)	Namaqualand (predominantly coloured)	Transkei (predominantly black)
Migration from region	Loss of people resources.	<p>MODERATE significance</p> <p>Loss of sports people. Loss of high school children. Loss of skilled people. Loss of big spenders.</p>	<p>HIGH significance</p> <p>Loss of cultural identity. Loss of community leaders. Loss of school children. Loss of church attenders. Loss of skilled people. Degeneration of cultural identity of the region may have implications for tourism in the region.</p>	<p>LOW significance</p> <p>Always have been regarded as migrants in the area therefore no impact.</p>
Loss of a significant employer - unemployment	DBNM employs ± 3000 workers which constitutes 14% of total economically active population in Namaqualand.	<p>HIGH significance</p> <p>DBNM is a significant employer of white Namaqualand people. Forms an important percentage of work opportunities in the area.</p>	<p>HIGH significance</p> <p>DBNM employs a large number of coloured people. The company serves as a first time employer and as a source of training to school leavers. The next generation of school leavers lose this opportunity.</p>	<p>LOW significance</p> <p>DBNM stopped recruiting black migrant labour in 1977 therefore it does not affect this group.</p>
Loss of a significant component of the regional economy	<p>Large 'basic' activity provides the base for 'non-basic' activity. National groups are likely to be less dependent than local suppliers. DBNM has links with a large number of businesses in Namaqualand. R106,16 million emanates from transactions with DBNM and its employees. Excluding other mines, this represents 17% of the turnover of Namaqualand.</p>	<p>HIGH significance</p> <p>Loss of business will affect many mainly white owned companies. . Businesses most affected are in the sectors related to mining.</p>	<p>HIGH significance</p> <p>Although DBNM does not do business with coloured communities direct, they are indirectly dependant on DBNM employees as clients.</p>	<p>LOW significance</p> <p>Because of the large number of people in Herschel, the loss of income may not be significantly felt. Employees do not spend in N'land but may affect companies that transport employees home to Transkei.</p>
Impact on suppliers - closures - unemployment - aggravated situation	Extent of business ties with DBNM is sector related. Sectors most affected are: machinery, services, iron/steel, electricity & water, rubber, and furniture.	<p>HIGH significance</p> <p>93% of businesses in Springbok and 74% of businesses in the rest of Namaqualand have businesses ties with DBNM and/or DBNM employees. In Springbok R75,3 million transactions arises from business with DBNM and its employees (15.7% of turnover) 42% of this from mining-related industries. Other sectors affected are: - general suppliers - transport industry - construction sector - household companies</p> <p>In the rest of Namaqualand R30,86 million arises from business with DBNM and employees (22% of turnover)</p>	<p>HIGH significance</p> <p>100% of businesses in Komaggas and Steinkopf have businesses ties with DBNM employees, although none have direct business ties with DBNM.</p> <p>Value of transactions between DBNM employees and business are: in Komaggas - R0,93 million (36% of turnover) Steinkopf - R2,84 million (40% of turnover)</p>	<p>LOW significance</p> <p>No business connections in Transkei.</p>

Impacts on the NAMAQUALAND REGION	Comments	Mine (predominantly white)	Namaqualand (predominantly coloured)	Transkei (predominantly black)
How business will respond to mine closure	Retrenchments will be sector related. Excluding the mines, 4.7% workers in Namaqualand would be retrenched following mine closure (253 of 5352)	<p>In Springbok, to counteract the effect of mine closure:</p> <ul style="list-style-type: none"> - 53% of businesses would take some form of action - 3% would close - 22% would retrench workers (165 out of 3257 workers retrenched) <p>Of businesses in the rest of Namaqualand:</p> <ul style="list-style-type: none"> - 31% would take action - 5% would close - 16% would retrench workers (88 of 2095 workers retrenched) 	<p>To counteract the effects of mine closure, businesses in:</p> <p>Komaggas:</p> <ul style="list-style-type: none"> - 60% would take action - none would close - 12.5% would retrench staff (2 workers retrenched) <p>Steinkopf:</p> <ul style="list-style-type: none"> - 38% would take action - 20% would close - 30% would retrench staff (15 workers retrenched) 	
Impact on local authority funding and functioning (provision of services by local authorities)		<p>Moderate significance</p> <p>Loss of payments to RSC which use these for provision of services.</p>	<p>HIGH significance</p> <p>Large number of employees dependent on DBNM - failure to pay bills will affect provision of services.</p>	<p>LOW significance</p> <p>Small number of people - no significant changes in supply of services.</p>
Impact on regional infrastructure eg. roads	Through lack of maintenance will fall into disrepair. Weaker regional infrastructure.	<p>MODERATE significance</p> <p>Road to Kleinzee and Hondeklip Bay may become degraded. No more water to Kleinzee - cost of piping water to Nababeep increases. Electricity to mine area stops. Hondeklip Bay significantly impacted as dependant on mine for provision of a number of services.</p>	<p>HIGH significance</p> <p>Roads to coloured villages fall into disrepair. Less chance of getting electricity and telephone services. If employees cannot afford to pay local service fees for water, rubbish removal and welfare these services will be affected.</p>	<p>LOW significance</p> <p>Small number of people - no significant changes in supply of services.</p>
Loss of sponsor - education, sport, recreation, etc.	Donations to schools, churches and community organisations. Although DBNM used to contribute significantly to these areas it is not known what the situation is recently.	<p>UNKNOWN significance</p> <p>DBNM hosts sporting functions and provides educational bursaries.</p>	<p>UNKNOWN significance</p> <p>DBNM hosts sporting functions and provides educational bursaries.</p>	<p>LOW significance</p> <p>DBNM does not sponsor in Herschel directly.</p>
Environmental implications of attracting new development		<p>LOW significance</p> <p>In attempts to attract industry, disregard may be had of the environmental consequences of development. End of disturbance to veld is a positive environmental action. Rehabilitation has positive impact on veld - if dumps are left unrehabilitated these may erode further and result in environmental damage.</p>	<p>HIGH significance</p> <p>Increase in number of people trying to secure a livelihood by returning to farming. Already veld is overgrazed. Many employees own stock - and are likely to try farming following retrenchment.</p>	<p>LOW significance</p> <p>Veld in degraded condition. Employees have owned stock for a while - no significant increase in stock numbers.</p>
New opportunities along the coast		<p>HIGH significance</p> <p>Potential use of coastline for recreation and holiday resorts.</p>	<p>LOW significance</p> <p>Improved access to coastline.</p>	<p>LOW significance</p> <p>Employees return to Herschel therefore no effect.</p>

The large number of Transkei employees (approx. 700), very low education levels and mature age of this group will make it highly unlikely that they will secure alternative employment following mine closure.

The mine (predominantly white) group contains a diverse range of people. It is difficult to generalise; some employees will be significantly affected by mine closure whilst others will be more resistant to the impacts of mine closure. However, within the mine (white) group of employees, many are eligible for transfer or relocation within the De Beers group. High level of skills and education make it easier for the group in general to secure alternative employment.

Loss of benefits:

Access to resources greatly improves the ability of people to weather the impacts of mine closure until alternative employment is secured.

In mine closure, the white group of employees are the most resistant to the shorter term impacts of mine closure. Employees are more able to access facilities for medical care, recreation and credit. Mine closure could result in a moderate decline in the quality of life of these employees. They are better adapted to deal with the psychological impacts of mine closure.

Loss of benefits is a significant impact of mine closure for coloured employees. The lack of medical, recreational and educational facilities in the Namaqualand region is a great loss to employees. Lack of access to credit facilities, shortages of housing and loss of income together with the psychological impacts of mine closure will lead to a significant reduction in quality of life of these employees.

Loss of the above benefits will also significantly affect quality of life of Transkei employees. Conditions in the Herschel are a stark contrast to those at the mine.

3.5.2. Impacts on Employees' Dependants

The most significantly affected group is dependants of the Transkei group. All of these employees are married and support a large number of direct dependants. In almost 80% of cases the DBNM employee is the sole breadwinner. 42% of employees remit over R700 per month to dependants. Both children and elderly parents are part of the family. Dependence on this income is very high. This money buys food, pays for education, medical care, and transport. Dependants do not benefit from any other of the DBNM's facilities.

Dependants of the Namaqualand group will also be significantly impacted by mine closure. Approximately half of these employees are married. Employees (both married and single) support on average between 4 and 6 dependants. Dependants also benefit from DBNM through medical care and company support of education. Mine closure will seriously affect 'quality of life' of dependants who rely on income for food, education, medical care and transport. Mine closure may result in pressure on family cohesion as the family will either have to relocate in search of work or the breadwinner will become a migrant labourer.

The dependants who are least affected by mine closure are those of the mine group. Although 80% of employees are married, in many cases both parties work and secure good incomes. The family size is small and has a high degree of mobility and access to facilities. Mine closure may result in changes to quality of life but this group is most able to cope with mine closure.

3.5.3. Impacts of Mine Closure on Communities

Communities impacted: The communities most significantly affected by mine closure are those in Namaqualand from which most of the coloured employees originate: Komaggas, Steinkopf and other coloured communities. Because of impacts of mine closure on businesses, towns throughout Namaqualand will in some way be affected by mine closure.

(a) Impacts of mine closure on white communities

Aspects that may be moderately affected by mine closure are:

- 1) schools, as children of mine employees leave schools in the region;
- 2) loss of training facility as artisans and trainees serve apprenticeships with DBNM;
- 3) local economy as employees no longer purchase luxury goods in the region.

Communities with ties to white employees are unlikely to be significantly affected because white employees generally tend to be more independent and do not have strong economic links with any particular community. This group of employees represents a small and diverse range of cultures from a wide range of backgrounds. When the mine closes this group is highly mobile and will probably disperse to a variety of different areas. This group tends to exist as a mining community independent of the broader Namaqualand region.

(b) Impacts of mine closure on black communities

Aspects that may be moderately affected by mine closure are:

- 1) loss of cash income may affect schools and education in the district;
- 2) increased pressure on community health and welfare facilities.

The impact of 700 black employees on 350 000 people is judged to be a fairly diffuse impact and will not significantly alter either social or economic conditions in the Herschel district. Mine closure will only serve to reinforce the process of general community decline that characterises the desperate situation in the District. Communities are accustomed to the social problems associated with the migrant labour system. As recruitment from the district area ended in 1977 mine closure does not affect opportunities.

(c) Impacts of mine closure on coloured communities

Aspects that may be significantly affected by mine closure are:

Unemployment in communities: The most significant impact of mine closure will be on unemployment levels in coloured communities in Namaqualand where already the unemployment rate is high. Unemployment may lead to social dysfunction with increases in poverty, depression and crime.

Migration from communities: The impact of mine closure will affect migration from coloured communities where opportunities for alternative employment are scarce. This in turn will affect cultural identity and community structure and functioning due to the loss of skilled people and potential community leaders. Migration and social dysfunction will influence the churches in the communities.

Education: Mine closure will influence parents ability to pay education costs and together with migration from communities will also affect the numbers of school children and lead to a decline in the level of education. The mines are also a source of apprenticeship training.

Medical care and social welfare: Mine closure will significantly increase the demands on the already pressurised services.

Housing and provision of services: Increased unemployment and return of employees to communities may further aggravate housing shortages and loss of income, the ability to pay for services and maintenance of infrastructure.

Local economy: Unemployment will affect spending in the community local economy.

3.5.4. Impacts on the Namaqualand Region

(a) Migration

The closure of DBNM is likely to result in significant migration from the Namaqualand region.

The loss of coloured people is likely to be the most significant as this will result in impacts on the cultural identity of the group. People likely to leave will be those skilled and of leadership potential. Migration will also have ramifications on schools through the loss of pupils.

Migration of black and white employees will not significantly affect the region as these people are isolated on the mines and have not integrated in the fabric of Namaqualand society.

(b) Source of employment

DBNM is a significant source of employment in the region as it employs 14% of the total economically active population of 22 000 people.

DBNM is an important source of employment for both white and coloured communities in Namaqualand. It serves as a centre for skills training and as a place of employment for first time work seekers from the coloured communities as evidenced by the large number of young employees.

(c) Impact on the regional economy

The closure of DBNM is likely to have a significant effect on the regional economy. Excluding other mines the R106,16 million resulting from transactions with DBNM and its employees represents 17% of the turnover of Namaqualand (Baseline Information Report pg.137).

In the coloured communities of Komaggas and Steinkopf 100% of businesses have ties with DBNM employees, although not directly with the company. It is estimated that these transactions represent 36% of the turnover of Komaggas and 40% of the turnover of Steinkopf. Only a small percentage expected to have to lay off workers as a result of mine closure, but did expect to have to take some form of action. In Steinkopf as many as 20% of businesses expected to close following mine closure whereas in Komaggas none expected to close.

In Springbok and the rest of Namaqualand where it is probably true that most businesses are owned by whites, roughly 75% of businesses in Namaqualand (excluding Springbok) deal with DBNM and its employees (in Springbok this was recorded as high as 93%).

Transactions between DBNM and its employees represent 22% of turnover in Namaqualand excluding Springbok. In Springbok these transactions represent 16% of the turnover of the town. 22% of businesses in Springbok expected to retrench staff, whereas in the rest of Namaqualand only 16% expected to retrench staff. Over half of businesses in Springbok reckoned that they would need to take some form of action following mine closure, whereas 31% of businesses in the rest of Namaqualand expected to take some form of action. Less than 5% of businesses expected to close.

(d) Impact on the provision of services

The impact of mine closure on the provision of services to towns and communities, as well as the maintenance of infrastructure is expected to be fairly significant.

Loss of revenue will affect authorities ability to supply and maintain services but this impact was difficult to assess. This impact has however been recorded in other mine closures (Brown 1984). The inability of unemployed persons to pay service levies will affect coloured communities significantly emphasised the Steinkopf Management Board. The Regional Services Council receives 30% of all fees paid to it from DBNM (Baseline Information Report pg.26).

3.6. Issues and concerns surrounding mine closure

In the process of investigating the impacts of mine closure, a number of issues were raised by both employees and interested and affected parties. The important issues are described and the implications they have for this study discussed.

The major issues raised during interviews with employees and meetings in the communities focused on:

- 1) uncertainty about the reality and nature of mine closure;
- 2) lack of financial input into Namaqualand by DBNM;
- 3) the land ownership issue.

DBNM should be aware of these issues as they are sensitive points and well-meaning initiatives from the company to mitigate the impacts of mine closure may be jeopardised as a result of these issues.

These issues will be discussed in the following section. The company may choose to address some of these issues but others may not be possible to solve. Issues brought up by employees are important to address merely because of morale, productivity and internal communication. Community issues are more difficult as these tend to be politically inclined and therefore difficult for the company to address.

3.6.1. Uncertainty about the reality and nature of mine closure

Both within the mine employees and amongst the surrounding communities there is a reluctance to believe that the mine will close in ten years time. Forty-eight percent of employees interviewed did not believe that the mine would close.

This is a most serious issue because people fail to heed advance warnings and therefore do not plan in advance for the eventuality of mine closure. In addition, serious thought to possible ways in which the effects of mine closure can be minimised is not given.

If mine closure is a most likely reality than it is important that people are aware of it. Numerous reasons exist as to why it is not believed that the mine will close in ten years time. These include:

- "Heard it before" - in the past people have been warned that the mine would close. It did not happen and therefore they don't believe that it will happen this time.
- Fear of nationalisation. Some believe that mine closure is a smokescreen to cover up De Beers attempt to leave South Africa for fear of nationalisation of the company. The formation of De Beers Century AG is regarded as proof of this allegation. It was stated that the company's current rapid rate of production was an attempt to extract as many diamonds as possible before a new government came into power. These were also cited as the real reasons for DBNM insisting on maximum production now, rather than decreasing production and trying to prolong the life of the mine in the interests of the economy of the region as a whole.
- Scare tactics. Some feel that the mine closure rumour is merely an attempt to make people realise the importance and value of the mine in the area. In this way people will appreciate the mine more and work hard without giving problems.
- Extent of the land. It is felt that because the land is so vast that it is not possible that all the diamonds can be mined out.

It is recommended that DBNM communicate the message about mine closure more effectively. For this purpose it would probably be necessary to put together a communication package that without creating undue panic amongst employees and the surrounding communities explains:

- the reasons for mine closure;
- factors influencing the life of a mine like the concept of finite resources and economic viability;
- the ramifications of mine closure;
- what is being done to address these;
- what people themselves can do to address the problem of mine closure.

For different groups different types of communication will be needed. It would therefore be necessary to use techniques to inform and educate:

- employees and the affected coloured communities;
- people in Springbok and associated businesses in other towns;
- local and regional authorities.

Effective communication and supply of information to affected parties would form an important step in the mitigation of the consequences of mine closure.

3.6.2. Lack of financial input into Namaqualand by DBNM

Concern was expressed by both employees and surrounding communities that DBNM would leave Namaqualand without ploughing any benefits back into the region generally, and into the communities in particular. It was felt that while De Beers supported aid programmes elsewhere in the world, they neglected the communities in whose midst they operated.

It was stated that little of the profits of diamond mining had been spent on development in the Namaqualand region. Besides the building and establishment of a spinning and weaving organisation in Komaggas, DBNM had not provided the community with any material benefits, yet the company had extracted substantial profits from the area. It was said the people who had helped dig the profits out of the ground lived in third world conditions while DBNM used the profits for first world development elsewhere.

In addition there is suspicion in the communities about the reason for this impact assessment study. DBNM's motivation in commissioning the study was questioned. The sentiment was why should the company care about us now when for so many years they have not. Questions were asked about the nature of the impact study and whether the community would receive copies of the final report. Many people wanted to know where the final report would go - to De Beer's head office or not. It was asked what guarantee the communities had that DBNM would take their comments and questions seriously.

These community feelings do not facilitate co-operation between DBNM and the people who will be most affected by mine closure. For optimum mitigation of the impacts of mine closure it is important that both the company and the communities work together or at least can communicate in order to establish the most effective forms of mitigation. The importance of "planning with" rather than "being planned upon" has been identified as a critical component in the success of development projects (the term "grassroots" involvement is often used in this context).

To overcome the entrenched perception of DBNM in the communities it will be important that:

- DBNM communicate/consult with the communities
- People can see evidence of social investment

3.6.3. The land ownership issue

Of all the issues raised this is the most serious and most difficult to address. It is an issue that is at the heart of the political debate and it will therefore not be resolved in discussions between the company and the communities.

Both the company and the communities are adamant that the land belongs to them.

In Steinkopf, the meeting was unanimous in its conviction that DBNM possessed land which belonged by rights to the community of Steinkopf. It was stated that all land between the Buffels River and the Orange River belonged to Steinkopf and although they had no written proof to back their claim, their oral history had always stated it to be thus. They were adamant that the land should be returned to the community after mine closure.

In Komaggas, both the management board and the civic organisations were emphatic that the land belonged to the community. It was stated that most of DBNM's land belonged to the people of Komaggas and that it should be returned to them after mine closure. Queries were raised as to the manner in which DBNM had acquired the land. The chairman of the management board said he was not concerned about the prospect of DBNM closing the mine, but that he was concerned about what would happen to ownership of the land once the mine closed. The manner in which DBNM had obtained the land was questioned and it was stated that the land belonged to Komaggas. It was suggested that some members of the community would be able to make a living out of the land once it was returned to them.

It is recommended to both DBNM and affected communities that this should be an issue where the parties agree to differ. If the impacts of mine closure are to be mitigated, it is important that any negotiations between the company and affected communities are not 'stalemated' because of this issue. This type of problem is one that is best addressed in court.

CHAPTER 4.

MITIGATION OF THE IMPACTS OF MINE CLOSURE

4.1. Introduction

The purpose of this section is to suggest options for the mitigation of the negative impacts of mine closure.

Mitigating the impacts of mine closure is a complex undertaking. The closure of a mine the size of DBNM will have implications for large numbers of people in the Namaqualand region, the Herschel district of Transkei and elsewhere in South Africa. The impacts will, to varying degrees - mainly negative - influence the nature and quality of life of affected parties. Every community in Namaqualand will in some way be influenced by mine closure, either directly or indirectly. It is therefore desirable that the consequences of mine closure are addressed so as to minimise the negative impacts.

This section on the mitigation of the impacts of mine closure will not attempt to assess and recommend specific projects to be undertaken to mitigate the impacts of mine closure. Instead it will concentrate on developing a process whereby the impacts of mine closure can be addressed. Most of the proposals will be aimed at the region of Namaqualand. As this report is destined for the client, the proposed mitigation will emphasise actions the company can take to mitigate the impacts of mine closure.

DBNM operates within a rather unique context where dependence on the mines is high. The development of the Namaqualand region has been shaped by mining. The historic development of the peoples of Namaqualand has been governed by a dependency on mining, and influenced by Apartheid legislation and the lack of planning. DBNM has played a paternalistic role in the communities dependant on it and it is partly because of this that both employees and affected communities have difficulty in comprehending a Namaqualand without DBNM. The majority of affected parties do not believe that the mine will close in ten years time.

The consideration of mitigation raises a number of associated questions:

- what can the company do to mitigate the impacts of mine closure? what is it required to do?
- what are the responsibilities of the authorities?
- what are the responsibilities of other parties affected by mine closure?
- what can be done to mitigate the impacts of mine closure in Namaqualand - what are the limitations and opportunities of the area?

During the study suggestions for the mitigation of the impacts of mine closure were collected from employees, community workshops and correspondence with interested and affected parties. These suggestions will be discussed in detail later. Many of these proposals for the mitigation of impacts assume that the consequences of mine closure

are the responsibility of the company. This, as will be discussed later, is an unfair assumption and it is therefore necessary to define the role and responsibility of the company in mine closure.

Namaqualand is a harsh world and there are many physical constraints to development in the region. These constraints are overlooked by people living in the area and a number of the suggestions for alternative development do not take into account these constraints. In order to prevent unrealistic expectations from mitigation of mine closure by DBNM, it is necessary to elaborate on the role and responsibility of the company and the physical constraints to development in Namaqualand.

4.2. The role and responsibilities of the major players in mine closure

Who is responsible for addressing and rectifying the impacts of mine closure? This is a difficult problem and is probably best addressed by defining the roles and responsibilities of the various parties either involved in, or affected by mine closure. These parties include:

- De Beers Namaqualand Mines (as part of the De Beers Consolidated Mines)
- DBNM employees
- Dependents of DBNM employees
- Communities in the surrounding region and those with connections to DBNM employees
- Local government and authority structures
- Businesses connected with DBNM

4.2.1. The role and responsibility of DBNM in mine closure

The major player in mine closure is DBNM. Already both employees and communities are claiming that DBNM is responsible for the consequences of mine closure and that it is the company that should address the issue.

It is therefore important that DBNM defines its role and responsibilities in mine closure. Essentially the responsibilities of the company can be divided into three categories. These are:

- legal obligations
- corporate policy commitments
- moral responsibilities

At the outset it is necessary to explain that there are no South African statutory requirements for DBNM to undertake an impact assessment or to address the consequences of mine closure beyond a few minor details which are elaborated later.

The role and responsibilities that the company assumes in mine closure is at the discretion of management. These decisions will however be subject to shareholders approval and will be influenced by market pressures like investor confidence and consumer sentiment. This investigation of the potential socio-economic impacts of mine closure can be interpreted as a step in social and environmental responsibility and is in itself a bold undertaking by DBNM.

4.2.2. The role and responsibilities of other affected parties

(a) The individual (any individual affected by mine closure)

It should be the responsibility of all affected persons to plan, in their individual capacities, for mine closure. They should attempt to assess how mine closure would affect them and their families and determine what steps can be taken to mitigate the effects of mine closure. Steps that could be considered are: saving money for hard times, settling debts, asking local government representatives to address the problem at higher level, etc.

(b) DBNM employees

It is the responsibility of employees to look after and plan for their own welfare. They should see to it that the company complies with its legal responsibilities towards them and that their legitimate concerns are addressed by both the company and other authorities.

(c) Affected communities

As mine closure will have profound implications for communities especially in Namaqualand, it is their responsibility to see to it that their concerns are addressed. All possible avenues should be used to address their problems. These may include negotiations with the DBNM, talks with local authorities and representation to higher government, seeking 'aid' with development organisations, publicising their cause in the press, etc.

(d) Local and regional government

These have been elected by their constituencies to address problems and implement effective administration of the region. It is their responsibility to see to the welfare and well-being of the communities they serve. It is the responsibility of the local authorities to see to it that the implications of mine closure are addressed and planned for, and that where assistance is needed, they approach higher authority for the necessary assistance.

(e) Affected businesses

It is their responsibility to ensure that the implications of mine closure are planned for and that contracts between DBNM and the business are not unfairly terminated. Where these will lead to retrenchments and other significant effects, local authorities should be notified of intentions that may affect the broader community.

4.3. An elaboration of the factors influencing DBNM's role and responsibilities in mine closure

The three areas to be discussed are:

- 1) Legal Obligations
- 2) Corporate Policy Commitments
- 3) Moral Responsibilities

4.3.1. Legal Obligations

The following section will elaborate on the statutory obligations of DBNM in mine closure. This is not an authoritative account of the legal situation in mine closure but because this is an important factor for consideration and it is recommended that DBNM investigate and elaborate on the legal position of the company in mine closure.

(This section is based on personal communication with NUM head office and Prof.C. Thompson of the Labour Law Unit, UCT).

DBNM should clarify the legal requirements of the company in mine closure. The purpose of this action is:

- to ensure that the company complies with these requirements, and
- that the company is able to communicate these to affected parties, so that they are aware of these, and can distinguish between what the company is legally obliged to do and what it chooses to do beyond these requirements. This should help counteract unrealistic expectations of the company by the affected parties, in efforts to mitigate the impacts of mine closure.

It is recommended that this investigation be conducted in one of two ways:

- by an independent group of legal advisors, or
- by internal legal personnel with knowledge of legislation affecting mining, these findings to be audited and approved by an independent group of legal advisors.

Further, it is recommended that these findings be made available on request for public scrutiny. Having had these findings approved by independent parties support their authenticity in consideration by the public.

The law surrounding mine closure will be influenced by a variety of statutes. The two major Acts governing mine closure are the Minerals Act of 1992 and the Labour Relations Act of 1956. The field of contracts and company law governs business relations between the company and suppliers affected by mine closure.

Section 54 of the Minerals Act covers the cessation of mining operations. It requires that when the company intends to cease operations it must notify the Regional Director in writing at least 14 days in advance of any such intended cessation. In addition it requires that the company provide particulars in connection with the location, nature and extent of such operations. This act covers operation of the mine and aspects of rehabilitation. It does not deal with labour relations in the operation of a mine.

Labour relations are covered by the Labour Relations Act. Employees are protected under unfair labour jurisprudence. As the major impacts of mine closure will result from loss of work this field forms an extremely

important area of investigation into mine closure. Labour relations are however a specialist area in themselves. Expertise to deal with labour problems exist within the mine.

The law in this area is complicated and governed through a series of precedents and unfair labour jurisprudence. Management will have to enter a series of negotiations with employees over the question of mine closure so as not to become guilty of unfair labour practice. This requires that employees are consulted over the consequences of a retrenchment decision. Employees are to be given a reasonable period of notice in order to make provision for their well-being. Where parts of an enterprise are closed, employees must be consulted on the selection criteria for retrenchment. Where the entire enterprise is closed the employer does not have to pay severance pay. If the enterprise is re-opened preference should be given to those workers who were retrenched. The company must also investigate possible transfers and relocation of employees.

The law surrounding mine closure does not require that mines do an impact assessment of the consequences of mine closure. In fact it can be a risky option. Impact assessment may result in moral and productivity problems, employees may resign in favour of more secure employment elsewhere, and suppliers may raise the costs of products and services because there will be no fear of competition from other sources.

The company till now has been hesitant and cautious about this study. In any innovative action there is a degree of risk. Management needs to evaluate the advantages and disadvantages of becoming involved in such an exercise. It is then their task to manage the exercise in such a way as to enhance the pros and reduce the cons. Table 5 lists a few examples of the advantages and disadvantages of such a study for the DBNM.

Table 5. Advantages and disadvantages of the impact assessment study for DBNM.

	ADVANTAGES	DISADVANTAGES
Short-term	<ul style="list-style-type: none"> + morale and productivity issues can be addressed by assuring employees that steps are being taken to see to their future + fewer problems at the time of mine closure 	<ul style="list-style-type: none"> - loss of skilled employees to companies with more secure positions prior to closure - morale and productivity problems as employees worry about their future - forum for employees to air their grievances - forum for communities to air their grievances - potential political issue in Namaqualand - opportunity for suppliers to increase prices because of lack of competition
Long-term	<ul style="list-style-type: none"> + DBNM cannot be branded as capitalist exploiters when they leave the region + positive publicity; DBNM can claim to be socially responsible and a forward thinking organisation 	

4.3.2. Corporate Policy Commitments

DBNM should consider and investigate its policy and social responsibilities with regard to mine closure. The way it chooses to act should be in line with its mission statement and with DBNM's group policy. Although DBNM does not have an overarching policy statement, policy directions are published in the various annual reports and are included as part of the Chairman's Report.

DBNM is committed to a policy of community investment. Statements to this effect are quoted below:

"Although most of our profits originate elsewhere, our roots are in South Africa and our commitment to social investment in the region will continue." (Chairman's Statement 1990)

"...we will continue to concentrate our social investments in South Africa, the area of greatest need."
(Chairman's Statement 1991)

"The company continues to give substantial support outside its mining communities to educational, health, social and cultural projects to improve living conditions and skills amongst the economically depressed sections of the South African population." (Annual Report 1990 and 1991)

"Finally, I wish to pay tribute to our employees.... Their enthusiasm and loyalty are essential to our continued progress and are highly appreciated." (Chairman's Statement 1990)

The company's commitment to community investment is largely directed through the Chairman's Fund. In 1991 the expenditure from this fund was in the region of R62 million. The larger portion of this fund is spent on educational upliftment and through supports of the Urban Foundation, on black housing.

As for Namaqualand all support that could be determined was in the statement: "Rural development work continues in Namaqualand and Maputoland where several initiatives are in operation aimed at stimulating the local economy through small-scale agricultural and manufacturing projects".

It is clear then from these statements that the company is committed to a process of social investment. Whereas recent programs have focused on upliftment in black communities it will become necessary to redirect some of the 'aid' to upliftment and development of coloured communities in Namaqualand. It is therefore recommended that DBNM management draw the attention of the directors of the Chairman's Fund to the plight of people in Namaqualand region. As this is an area which has directly contributed directly to the success of the company it would be appropriate that Namaqualand receive priority consideration in the allocation of 'aid'. This 'aid' could continue to be administered through the Chairman's Fund.

4.3.3. Moral responsibilities

The concept of environmental and social responsibility is one that has been receiving much attention over the last few years. This is an important area for investigation because it is this concept of social responsibility that is of great relevance in the context of mine closure in Namaqualand. In the following discussion this issue is taken further. Before this is discussed it is necessary to consider the operation of DBNM in a market-orientated economy.

The nature of a market economy is such that an employer can take a unilateral decision to close in part or whole, a business. Essentially an unfettered market economy is a free system in which a company can choose to act as it deems fit, subject to a number of constraints which are determined by the operation of the market-system itself. However because of a variety of shortcomings, most market economies are regulated through laws imposed by government.

For the efficient operation of a market it is therefore important that a company has the right to determine its own actions, as DBNM have in this instance determined that in ten years time it will not be viable to continue diamond

mining. Some organisations are formed as non-profit entities and exist to promote a cause or serve as charitable organisations. DBNM, as part of the DBNM group, is however not a charity. It is a company that operates within a market economy and has, like most companies, as its primary purpose to generate profit.

It is important for interested and affected parties to recognise that DBNM is not a welfare organisation. Their are financial limitations that will constrain the amount of mitigation that DBNM can undertake. What the limitations of 'aid' are, will be a strongly debated issue both within the company's management and between the company and affected parties. The company should during negotiations with affected parties explain this point.

Although the DBNM does not have many legal responsibilities towards affected parties it must be seen to act in accordance with its policy and within the 'societal morals' which can be expressed in the market place. Morals can be expressed in the market through:

- Government of the day - changes in legislation and official policies;
- Positive and negative publicity;
- Consumer and investor sentiment and trends in international attitudes regarding corporate environmental and social responsibilities.

These factors should be important considerations of management when assessing the role and responsibilities it assumes in mitigating the impacts of mine closure. The concern of management about the ramifications of this study during the implementation stage, are evidence that the company is already sensitive to these sentiments.

4.4. Alternative courses of action in mitigating the impacts of mine closure

Having established DBNM's legal responsibilities and clarified the role and responsibilities of other affected parties what remains is for DBNM to decide upon a course of action to mitigate the impacts of mine closure. DBNM must consider what the role and responsibility of other organisations in addressing the problem of mine closure. DBNM must recognise the scale of the problem and should consider its limitations in addressing this problem. What can and cannot be expected of the company?

Mitigation of the impacts of mine closure of necessity includes compliance with legal requirements. Further than this it is the task of the company to determine the role and responsibilities it wants to assume in mitigating the impacts of mine closure. The level of this involvement has been determined by factors like publicity, consumer sentiment, investor confidence, government of the day, funding, etc. There will be a number of factors influencing the decision regarding DBNM role and responsibilities in mine closure and these should be considered when determining the company's course of action. Factors likely to influence decision making:

- negative publicity: how will this influence consumer sentiment and affect investor confidence in the group?
- government of the day: what are the political implications of the decision and how will this influence relations with the authorities?
- trends in social and environmental responsibility practised by other organisations
- the strive for innovative and market leading approaches to problem-solving

The reality of the situation is, however, that the responsibilities for addressing the consequences of mine closure are vested in a large number of other parties. If the impacts of mine closure are to be successfully mitigated, it is important that these various parties are aware of mine closure, and that they plan ahead in order to fulfil their respective functions.

The first recommendation is that DBNM clarify its responsibilities in mine closure and consider the role that it wants to assume in the region.

Once these fundamental questions have been addressed, DBNM can formulate plans to mitigate the impacts of mine closure. The aim in mitigation should be to minimise the adverse impacts and maximise any potentially beneficial action within the limitations of company assistance.

The alternative courses of action open to the company range from:

DO MINIMUM	Concentrate on EMPLOYEES well-being	Concentrate on COMMUNITY & REGIONAL development
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These courses of action represent the extremes cases the company could chose to take. Most likely the type of mitigatory action that will be taken will involve a mix of these extremes. This mixture of alternatives is dependent on:

- a) what role the company chooses to follow;
- b) where the company chooses to give assistance;
- c) where the companys' priority responsibilities lie;
- d) which alternative will produce the greatest net mitigatory benefit

The DO MINIMUM alternative

The company fulfils its minimum legal obligations in mine closure and chooses not to recognise the potential consequences of mine closure. The result of negotiations with employees is that the company cannot be prosecuted for unfair labour practice although employees are not satisfied with the settlement agreement. For whatever reasons the company is prepared to risk the chance that the press will highlight the situation and that the company could get negative publicity.

The company concentrates on mitigating the impact of mine closure on its EMPLOYEES and possibly their dependants.

The company recognises that its primary responsibility in mine closure lies in concern for its employees as these are the people on whose work the company has prospered.

"Finally, I wish to pay tribute to our employees....Their enthusiasm and loyalty are essential to our continued progress and are highly appreciated." (Chairman's Statement 1990)

Efforts to mitigate the consequences of mine closure are therefore concentrated on the likely impacts of mine closure on their well-being.

The company chooses to concentrate mitigatory actions on community and regional development.

The company recognises that the impacts of mine closure are far reaching and that in the longterm only substantial development of the community and region will address the problems that plague the Namaqualand area.

In this case it is necessary that the constraints to development in Namaqualand are noted; these are discussed later. Further the company should recognise the role other parties should play in mitigating the impacts of mine closure and where necessary encourage these parties to become involved in planning for the eventuality of mine closure. The company should make quite clear, to both affected parties and authorities, its limitations in addressing the consequences.

The companies primary responsibility in mine closure lie with its employees. However the company can contribute in a meaningful way to minimising the impacts of mine closure on the region. In this regard it is important that the company start the ball rolling and get people to think about the future implications of mine closure. The people of Namaqualand need to address this problem themselves and the importance of grassroots participation is therefore emphasised.

4.5. Mitigation of the impacts of mine closure on employees

Mitigating the effects of mine closure on its employees is an important aspect of mine closure. The primary responsibility of DBNM in mine closure lies with concern for its employees as these are the people on whose work the company has prospered. Employees are protected from unfair labour practice under the Labour Relations Act but concern for employees would appear to be part and parcel of DBNM policy. This is evident in the Chairman's Statement for 1990:

"Finally, I wish to pay tribute to our employees....Their enthusiasm and loyalty are essential to our continued progress and are highly appreciated."

Mitigation of the impacts of mine closure on employees, will not only benefit the employees direct dependants but will indirectly trickle down through to all aspects of community life and will alleviate the impact on the region of Namaqualand as a whole.

It is recommended that efforts to mitigate the impacts of mine closure are concentrated on alleviating the plight of employees rather than stimulating development in the region as a whole.

In terms of labour practice it will be necessary to negotiate mine closure with employees and their nominated representative structures like the National Union of Mineworkers. The details of mine closure and retrenchment negotiations are best addressed at this level and therefore specific recommendations are not possible. It is however recommended that DBNM recognise that the better off their employees are the less severe the consequences of mine closure in the Namaqualand region will be.

Efforts to mitigate the consequences of mine closure will include efforts to:

- 1) investigate transfers and relocations of employees;
- 2) identify possible alternative employment opportunities for employees;
- 3) offer attractive early retirement options that could sustain families in the long-term;
- 4) offer good retrenchment packages that could enable employees to relocate and stand a good chance of finding employment elsewhere;
- 5) run retraining programs, etc.;
- 6) establishes health and welfare programs for employees.

Suggestions made by employees regarding mitigating the impacts of mine closure included:

- Employees should be informed about the plans for mine closure and retrenchment.
- The trade union should be involved in the planning process.
- Long service should be taken into consideration when compensation for retrenchment is calculated.
- The retrenchment process should be carefully managed.
- Wherever possible employees should be transferred to other mines in the De Beers group.
- Employees should prepare themselves financially for mine closure.
- The scepticism regarding mine closure should be addressed.
- Employees should be offered the option of taking early retirement.
- Farming is an alternative to mining and should be developed.

Suggestions were made regarding the future of the mine towns Kleinzee and Koingnaas. These general suggestions included:

- Sell or lease mine house to employees and anyone else.
- Utilise the towns as a holiday resort.
- Establish other industries.
- Establish a fishing town and harbour
- A base for employees working at nuclear power station
- And other comments such as:
 - exploit the natural gas fields off the coast
 - clothing industry
 - enterprises that will encourage tourism
 - home base for small diamond dealers
 - butchery and meat processing plant

It is recommended that DBNM consider these suggestions and feedback to employees the outcome of managements consideration. Due to the extremely high cost of maintaining and servicing the towns it would seem unlikely that any of these suggestions are practical. These comments show a lack of understanding among employees of what it costs to maintain a town. Nearer to the time of mine closure more specific plans should be developed regarding the future of the mining towns.

Suggestions were also made regarding the use of DBNM farms. Comments included:

- Sell or lease to employees or anyone else interested
- DBNM should continue farming
- Give/return to farms to Namaqualanders

- Allow farmers rights to graze their stock
- Establish a Nature Reserve

The question of land is a political issue which is discussed in the Impacts chapter. It would appear that DBNM retain ownership of the land and will continue to farm. It is recommended that DBNM investigate allowing grazing rights to stockfarmers as this will to a small degree help alleviate the impacts of mine closure.

4.6. MITIGATION OF THE IMPACTS OF MINE CLOSURE ON NAMAQUALAND AND ITS COMMUNITIES

Mitigating the impacts of mine closure on communities and the region of Namaqualand would be in line with company policy which reads:

"...we will continue to concentrate our social investments in South Africa, the area of greatest need."
(Chairman's Statement 1991)

"The company continues to give substantial support outside its mining communities to educational, health, social and cultural projects to improve living conditions and skills amongst the economically depressed sections of the South African population." (Annual Report 1990 and 1991)

The company should recognise that the impacts of mine closure are far reaching and that in the longterm only substantial development of the community and region will address the problems that plague the Namaqualand area. The areas dependence as Fig (1991) explains is a precarious one and amidst expectations that other mines in the area will also close in the near future it is important that the issue of mine closure be addressed in its broader context.

In this case it is necessary that the constraints to development in Namaqualand are noted; these are discussed later. Further the company should recognise the role other parties should play in mitigating the impacts of mine closure and where necessary encourage these parties to become involved in planning for the eventuality of mine closure. The company should make quite clear, to both affected parties and authorities, its limitations in addressing the consequences of mine closure.

The companies primary responsibility in mine closure lie with its employees. However the company can contribute in a meaningful way to minimising the impacts of mine closure on the region. In this regard it is important that the company start the ball rolling and get people to think about the future implications of mine closure. The people of Namaqualand need to address this problem themselves and the importance of grassroots participation is therefore emphasised and encouraged.

4.6.1. Development in Namaqualand

Probably the most fundamental causes of Namaqualand's underdevelopment and isolation are the remoteness of the area, the arid climate, low population densities and poor transport and communication links (Dunne 1988). As Fig (1991) emphasises, when the mines close there will be no alternative employment unless there is better advance planning for sustainable economic activity in the region. Namaqualands' dependency on mining is precarious as in

the future they must at some stage or other, inevitably close. Dunne (1988) provides a good summary of the type of development constraints in Namaqualand:

Development Constraints in Namaqualand

A. Limitations of Nature

1. Physical isolation from major centres.
2. Low and erratic rainfall, periodic drought.
3. Limited water supply (few perennial rivers, brackish water).
4. Desert climate - hot and dry.
5. sandy soil, subject to wind and water erosion.

B. Economic Constraints

1. Limited grazing capacity and virtually no crop potential.
2. Mineral deposits low grade and inaccessible.
3. High transport cost to markets and suppliers.
4. Economic activities highly seasonal and lacking diversification.
5. Local community immobile and poorly skilled.
6. Weak bargaining position of local labour.
7. Low income levels and lack of capital amongst the local households.

C. Socio-cultural Constraints

1. Culture of poverty syndrome: low education status, low income, low aspirational levels, locality bound and reluctant to change.
2. Poor housing, recreational and health service standards.
3. Inadequate educational facilities.
4. Strong community identity.
5. Poverty related social problems: alcoholism, malnutrition, migrant labour, juvenile pregnancies and mental retardation.

D. Political and Institutional Constraints

1. Restrictive land tenure.
2. Racial discrimination.
3. Passive and sectional local authorities.
4. Community disunity.

Past development initiatives in the area have met with varying degrees of success. "Development" is a specialist field which includes widely diverging views as to how development is achieved. At the outset it is therefore recommended that DBNM do not become directly involved in development initiatives in the region. Should DBNM wish to address broader development problems in Namaqualand it is recommended that assistance is best administered through the various development agencies that already operate in the region. These agencies have the expertise and are better equipped to deal with and manage development projects. Appropriate recipient organisations and development schemes can be identified through consultation with employees and/or communities.

In a review of Small Business Development Corporation involvement in development initiatives in Namaqualand, Emmett (1991) reviews development strategies appropriate to the region. His observations merit further discussion in the next few paragraphs.

"In spite of the comprehensiveness of research that has been undertaken (in the Namaqualand region), little consensus has emerged and sharp differences still exist in relation to the most appropriate strategy that should be adopted for the region." Essentially two opposing views of development in Namaqualand can be distinguished:

- 1) The Non-development and basic-needs approach. Large-scale development would involve a waste of scarce funds which could be more profitably invested elsewhere;
- 2) The Development approach. Development in Namaqualand is both possible and necessary.

In its extreme form the first perspective regards Namaqualand as a "bottomless pit" for scarce development resources and opts rather for a non-developmental approach. Given the physical constraints of Namaqualand the 'basic needs' approach favours intervention that would directly address the problems of poverty and cater to the welfare needs of the regions population. Development initiatives should focus on measures to increase the mobility of the population, which would facilitate migration to other economically stronger areas. Initiatives should therefore focus on education and training, and provision of employment, housing and services in areas to which people migrate. (From Emmett 1988)

From the other perspective it is argued that although Namaqualand has limited resources, this is no reason for failing to develop those resources that do exist in the region. It is argued that out-migration does not offer a viable solution as it usually benefits the younger and more skilled people whilst the people who most need the development aid are not helped. Facilitating migration compounds rather than solves the problems of Namaqualand.(From Emmett 1988)

The 'development approach' also has its flaws because large scale development schemes, like an irrigation project, do not necessarily, through 'spread-effects' benefit the region as a whole but can also result in the channelling of benefits to a few. In some instances, for example, it may be cheaper and more productive to pay an unemployed man a monthly income rather than set him up as a farmer.(From Emmett 1988)

Emmett (1988) concludes that the opposing perspectives on development in the region are not however mutually exclusive; they are most useful when used in conjunction with one another. A degree of out-migration from Namaqualand is probably inevitable and a basic needs approach is not incompatible with the creation of employment and the increase of productivity.

The local communities of Namaqualand do not have sufficient resources to achieve any substantial level of development. Dunne (1988) proposes a development strategy which would seem to be sensible for Namaqualand. Dunne also suggests that a potential source of the much needed resources for the development of Namaqualand is greater social reinvestment by larger mining companies (Dunne 1988). It is recommended that such a development strategy receive consideration by DBNM. The development strategy is outlined below.

Elements of a Three-pronged Development Strategy (Dunne 1988)**A. Facilitate Outward Mobility**

1. Improve education (directed at preprimary, primary secondary, technical, adult and community education).
2. Improve labour market access
 - vocational guidance and information
 - information on local and external employment opportunities
 - streamline recruitment facilities.
3. Remove barriers to mobility
 - intensify local and external communication links
 - improve physical access
4. Improve health standards (education potential of children and labour market entrants is increased, culture of poverty syndrome is broken).

B. Improve Quality of Life

1. Remove racial discrimination
 - utilize joint facilities
 - land reform (urban and rural)
 - future of Coloured Rural Areas
2. Expand infrastructure
 - physical (transport and housing)
 - social (health, nutrition, recreation, social care)
 - administrative (Post Office, magistrate, etc.)

C. Utilize Development Potential

1. Agricultural development
 - dryland agriculture
 - irrigation agriculture
 - agricultural co-operatives
 - small farming loans
 - drought survival strategies
2. Mariculture and aquaculture
3. Tourism
 - ecotourism (wildflowers and Richtersveld National Park)
 - coastal development
4. Mining
 - small mine development (extensive mineral deposits)
 - reduce constraints to existing mining industry
5. Industry
 - assess potential of small industry potential
6. Commercial
 - promote local small business
 - improve distribution of essential services
7. Community (Urban and Rural)
 - training/project development/leadership development
 - mobilise and co-ordinate development efforts by all relevant groups (inter-agency co-operation)
 - activate different groups
8. Administrative and Other Services
 - handling of military build up

4.6.2. Suggestions by communities for mitigation of impacts of mine closure

The following section is a discussion of the types of mitigation suggested by local communities.

For effective mitigation of the impacts of mine closure on communities it is necessary that there is:

- 1) an open process of communication between DBNM and communities and
- 2) a need to investigate certain proposals made by the communities and feedback the findings to communities.

The problem with a number of the proposals are that they are unrealistic and do not recognise the constraints to development in Namaqualand. It is therefore suggested that the company actually investigate a number of these proposals in more detail and then thereafter feedback these findings to the communities. In this way people are educated and as the process develops more realistic proposals for the development of Namaqualand and in specific for the mitigation of mine closure will be developed.

Suggestions for the mitigation of the impacts of mine closure were made by Komaggas/ Buffelsrivier community, the Komaggas Management Board, and the Steinkopf community. These suggestions are described and briefly discussed.

(a) Establishment of a fund by DBNM to offset impacts

- **Establishment of a fund from profits:** It was suggested that all profits accrued by DBNM in the next 10 years be put into a fund to be used for development of infrastructure, facilities and services in Namaqualand (transport, energy, water, housing, communications and social upliftment).
- **Establishment of a fund from "overproduction":** It was suggested that profits from production above DBNM's monthly target be used to establish a fund to create job opportunities.

This is a good suggestion and can be used by the company to stimulate morale and productivity on the mine. The suggestion that all profits go into the fund is unrealistic.

(b) Return of land to Rural Coloured Areas

- It was suggested, and agreed on unanimously, that DBNM return the land to the inhabitants of Komaggas and Steinkopf reserves. It was said that the use of this land for agriculture would create employment and income for the communities concerned.

DBNM could investigate allowing rights to graze on the mine property. This is as previously discussed a sensitive political issue and one that may have to be differed upon.

(c) Provision of education facilities

- It was suggested that one way to mitigate against unemployment was through education. It was felt that DBNM should assist the communities by establishing training centres or a technikon in the region and upgrading or providing facilities at the present schools in the area.

Existing education facilities ought to be improved by DBNM and the authorities. It was suggested that facilities be evaluated so that those which are under-utilised or over-utilised could be used more productively. Adult education should be introduced, particularly to provide training in skills, and it was felt that school education should become more practical and geared to the needs of the region.

Education is an area in which DBNM could successfully make important contributions and it is an area in which DBCM and the Chairmans Fund is very active.

(d) Improvement in Stockfarming

- It was suggested that DBNM, with the authorities, establish and fund programmes involving all the communities of the Komaggas and Steinkopf reserves, aimed at improving stockfarming (especially better grazing strategies and better quality breeds).

A good suggestion. An issue that can be discussed is that the agricultural potential of the region is limited and therefore it this sector cannot support many more people.

(e) Irrigation

- It was suggested that DBNM, with the authorities, develop effective irrigation projects to make agriculture more viable.

Irrigation farming along the Orange River should be expanded, particularly in the form of more irrigation canals, financial support, the provision of information on irrigation farming techniques and on marketing. The date palm project at Henkries could be expanded and a plant to process dates would in turn create further employment.

It was suggested that the irrigation schemes for the West Coast area proposed by Ninham Shand be explored.

Large scale irrigation farming is a capital intensive investment and may therefore not be economically viable. This constraint needs to be discussed and people educated about the limits of irrigation. As Emmett (1988) states, it may be more economic to pay a man a living wage than to set him up as a farmer.

(f) Promotion of Tourism

- It was suggested that DBNM privatise the mining towns of Kleinsee and Koingnaas, which could be used as tourist centres, which in turn would create employment.

It was predicted that with the political change in South Africa, tourism would increase as would interest in the development of holiday resorts on the West Coast. Spin-offs from tourism would be employment and income to the region.

Development of the tourist industry is an important and potentially significant sector for development. However there are economic constraints to developing the mine towns as holiday resorts and these are in isolated areas.

(g) Establishment of small industries

- It was suggested that DBNM establish small industries, particularly those associated with tourism (eg. curios, clothing) at Kleinsee and Koingnaas to create employment. Industries which used local raw materials such as wool, goat hides, semi-precious stones, shells etc. should be favoured.

Promotion of small business is an important development opportunity and one in which the SBDC are currently involved. Efforts to support this development should be co-ordinated.

(h) Establishment of factories

- It was suggested that DBNM should "carry their workers" by creating other jobs, eg. the building of clothing or other factories in the area.

Another area that requires the education of people. Factories are not just developed. Namaqualand is far from the important markets. An industry must be economically viable and does not just happen.

(i) Improvement of infrastructure, services and facilities

- It was suggested that all profits accrued by DBNM during the next ten years be ploughed back into the development of Namaqualand, particularly into the development of infrastructure, facilities and services. This should be initiated immediately and should include improvement of transport, energy, water, housing, communications and social upliftment. It was felt that DBNM had a moral obligation to do this.

Social upliftment and provision of services is an area in which DBNM can make meaningful contributions.

(j) Development of a harbour at Kleinzee

- It was suggested that DBNM develop Kleinzee into a harbour to be used both by tourists and the fishing industry. This would create employment.

This requires intensive capital investment. Hondeklipbaai is currently more suited as a harbour and is being investigated.

(k) Expansion by DBNM into other mineral exploitation

- It was suggested that DBNM expand into mining other minerals in Namaqualand and thus continue to provide employment. It was also suggested that diamond mining could continue financially by small groups of individuals.

(l) Suggestions for retrenchments

- It was suggested that retrenchments be a gradual process and that employees be given substantial retrenchment packages. It was also suggested that employees be given housing after the mine closes.

Retrenchments needs to be discussed so as to determine the best way in which the mine can close to minimise the social impacts on both employees and communities.

4.7. Implementing mitigation of mine closure

It is not at this stage of the study it is not possible to make step-by-step recommendations for the process of mine closure. Mine closure is a complex problem and requires the balancing of a number of technical, economic and social considerations.

The expertise to close the mine lies within the company. The task is to tap this expertise to formulate the best plan for mine closure. It is therefore recommended that a workshop on mine closure be held at the company. This process should involve expertise from all departments in the mine. Various working groups could be established to identify important technical, economic, social and environmental factors and to tackle different complex issues. It is recommended that representative employee groups like NUM be involved from the outset. Studies such as this one should inform the process. Open communication and negotiation within the company and with affected parties will influence and guide the best possible way to close the mine.

An important factor in mitigating the impacts of mine closure is the process of open communication between DBNM, employees, and communities. In mitigation of the impacts of mine closure there will be very different outcomes of either being planned upon or being planned with. It is recommend that for the most successful mitigation of the impacts of mine closure that DBNM plan with the affected parties. Open communication means that there is a free-flow of information between the parties.

An important recommendation arising from this study is therefore that these findings are made available to all interested and affected parties. This act will initialise the process and serve to stimulate serious thinking on the issue of mine closure and its implications for all affected persons and organisations. This on its own is a significant step in mitigating the impacts of mine closure.

CHAPTER 5. CONCLUSIONS

This socio-economic impact assessment highlights some of the potential social and economic consequences of mine closure. Having identified these impacts it is necessary to address these potential problems through planning.

The socio-economic impact assessment focused on identifying the impacts of mine closure at various levels. These were

- 1) impacts of mine closure on DBNM employees;
- 2) impacts of mine closure on dependants of DBNM employees;
- 3) impacts on affected communities;
- 4) impacts on the Namaqualand region.

A table summarising the types of impacts on these various groups is printed on coloured pages in the main body of text.

In all of the above groupings it was determined that the most significant impacts of mine closure would be on coloured communities in Namaqualand. Mine closure is likely to result in a substantial decrease in the 'quality of life' amongst employees, their dependants and the communities in which they live. Areas that will be negatively impacted are:

- employment: increases in unemployment due to lack of alternative work opportunities;
- health and welfare: loss of company medical benefits, more pressure on existing community services;
- education: affordability, and a possible decline in scholar numbers; also loss of mine as a training centre;
- migration: due to lack of work; affects community structure and possibly cultural identity;
- increased impoverishment and lack of mobility due to the loss of cash income;
- impact on local community economies where DBNM employees form a large part of the clientele (approx 40% of turnover);
- impact on provision of services and maintenance of infrastructure if retrenched employees cannot pay service fees.

In the group of black employees, the major impacts of mine closure will be concentrated on the employee and his direct dependants. Most employees have between 6-10 direct dependants and all are supported by his income. It is the only source of cash income and is used to provide: food, education, transport and medical care. The loss of other benefits does not affect the family. At the time of mine closure most workers will be at or near the age of retirement and company pension policy will therefore largely influence the nature and severity of impact of mine closure. Herschel district of Transkei is typical of conditions in the 'homelands' of South Africa in that the area is: densely populated (estimated 350 000 people), overgrazed, eroded of soil, and there is no electricity, sewage or running water and a lack of basic infrastructure, education and health facilities. In the light of this, the

retrenchment of 700 employees is not likely to change conditions in Herschel, it will only serve to reinforce the process of community decline.

The predominantly white, 'mine group' of employees will be the group most resistant to the impacts of mine closure. Fifty-six percent of this group of employees are above the C2 Patterson grade and at present therefore eligible for transfer within the De Beers group. Although it is difficult to generalise, this group is the most likely to find alternative employment because of the higher level of mobility and education. Mine closure may cause a decline in general 'quality of life' and will affect some employees more severely than others, however, this group is better equipped to deal with the consequences of mine closure.

DBNM business transactions comprise 17% of the turnover of Namaqualand and the company has links with over 75% of businesses in the region. The resultant loss of business with DBNM at the time of mine closure will require many businesses to take some form of action, however less than 5% predict that they will have to close. Had the mine closed today, businesses predict that closure would cause them to retrench approximately 20% of staff. Loss of revenue to the regional services council could lead to difficulties in the provision of services and the maintenance of infrastructure. The closure of DBNM has implications for the entire Namaqualand region.

Outside of specific contracts, DBNM cannot be responsible for impacts of mine closure on businesses dealing with the company. The most responsible action that the company can take is to forewarn these businesses of mine closure allowing them time to plan for the situation. The general loss of business, further retrenchments and closures in Namaqualand resulting as a consequence of DBNM mine closure will further aggravate the direct impacts of mine closure on the communities and region as a whole.

Namaqualand's dependence on mining and a dwindling resource base is a fundamental problem in Namaqualand. The entire development of the Namaqualand region has been shaped by mining. The historic development of the peoples of Namaqualand has also been governed by a dependency on mining.

The problem of DBNM mine closure cannot therefore not be addressed in a isolated context. Other mines in the region are also expected to close in the future. DBNM mine closure is part of the broader regional issue and it should be addressed in this context. Attempts should be made to stimulate planning in the region as sustainable development is required for the future prosperity of the region.

DBNM operates in a context where both local and regional dependence on the mine is high. At the local scale, DBNM has played a paternalistic role in the communities dependant on it and it is partly because of this that both employees and affected communities have difficulty in comprehending a Namaqualand without DBNM.

The majority of affected parties do not believe that the mine will close in ten years time. Despite the fact that DBNM is a company which must operate within a market-orientated economy, employees and affected communities hold DBNM largely responsible for the consequences of mine closure. The reality of the situation is, however, that the responsibilities for addressing the consequences of mine closure are vested in a large number of other parties.

If the impacts of mine closure are to be successfully mitigated, it is important that these various parties are aware of mine closure, and that they plan ahead in order to fulfil their respective functions.

A number of issues regarding DBNM and relationship with employees and surrounding communities hinder effective resolution of these problems and need to be addressed in planning for mine closure. These issues include:

- the fact that the majority of people do not believe the mine will close;
- lack of financial input to Namaqualand by DBNM;
- the land issue; communities claim traditional rights to the land and the company insists that it obtained the title deeds in a legal manner.

There are a number of alternative courses of action that DBNM can adopt in addressing and mitigating the impacts of mine closure. The company is legally obliged to comply with various mine operation requirements in the Minerals Act of 1992 and to act within the realms of fair labour practice governed by the Labour Relations Act of 1956. Provided these stipulations are complied with, the company need do only the minimum. However, this study is evidence that the company is prepared to do more than just the required minimum.

An examination of the De Beers Consolidated Mines Annual Reports reveals that the company is committed to the welfare of its employees and to a process of social investment in South Africa.

For mitigating the impacts of mine closure it is suggested that both factors of employee and community welfare are addressed. Mitigation of the impacts of mine closure should be focused at different scales.

DBNM's primary responsibility of mitigating impacts of mine closure lies with employees. DBNM's responsibility is to see to the well-being of their employees and possibly also their direct dependants. By addressing these issues DBNM is indirectly and effectively addressing the impacts of mine closure on the broader community and the region. By focusing mitigation of the impacts of mine closure on employees DBNM can:

- act fairly and equitably by directing assistance to those employees who most require it irrespective of group (e.g. although the Namaqualand group has been identified as the most severely affected there may be senior coloured individuals who do not require it and there may be poor white employees who do);
- act effectively and efficiently by directing assistance to precise areas where it is required;

For example, in a district of 350 000 people like Herschel employees may not even realise the benefit of DBNM assistance in regional development. Likewise in Namaqualand, Dunne (1988) identifies the facilitation of mobility as an essential component of development in Namaqualand.

For addressing impacts of mine closure at the community and regional level it is necessary to support the process of regional development in both Namaqualand and the Herschel district of Transkei. The process of development is however a complex matter. DBNM should recognise the development constraints of area and it is suggested that DBNM support development initiatives only after careful consideration of these factors. DBNM should not in itself tackle specific projects but should direct 'aid' through appropriate development agencies with a record of successful undertakings in the region. Projects deserving of support should be identified in consultation with employees who would be able to advise the company on appropriateness and probability of success. Development aid can be administered through the existing Chairmans Fund.

An important factor in mitigating the impacts of mine closure is the process of open communication between DBNM, employees, and communities. In mitigation of the impacts of mine closure there will be very different

outcomes of either being planned upon or being planned with. It is recommend that for the most successful mitigation of the impacts of mine closure that DBNM plan with the affected parties.

It is not at this stage possible to make step-by-step recommendations for the process of mine closure of DBNM. It is recommended that a process of facilitated workshops involving expertise from within the company will be useful in determining the best way to close the mine. Studies such as this one should inform the process. Open communication and negotiation with affected parties will influence and guide the best possible way to close the mine.

Changes in government and international trends in social and environmental responsibility are likely to have fairly profound implications for the manner in which an organisation operates. Factors beyond the mere maximisation of profits are going to become important in determining the success of a business. DBNM should be able to gain publicity and recognition in its efforts to address the impacts of mine closure.

CHAPTER 6. RECOMMENDATIONS

The responsibilities for addressing the consequences of mine closure are vested in a large number of other parties. If the impacts of mine closure are to be successfully mitigated, it is important that these various parties are aware of mine closure, and that they plan ahead in order to fulfil their respective responsibilities. Recommendations are therefore addressed to three groups:

- 1) De Beers Namaqualand Mines (DBNM)
- 2) Affected communities in Namaqualand
- 3) Businesses and other parties affected by mine closure.

6.1. Recommendations to De Beers Namaqualand Mines (DBNM)

6.1.1. General

- 1) *Investigate the statutory requirements and legal obligations of the company in mine closure.*

Preliminary investigations reveal that the physical operation of the mine is governed by the Minerals Act of 1992. The area of law that must be clarified is the labour relations requirements.

The purpose of investigating legal obligations of the company in mine closure is so that DBNM, employees and other affected parties are aware of what the company's statutory obligations in mine closure are. Unrealistic expectations of the company's role in mine closure can be therefore be curbed.

It is recommended that this investigation be conducted in one of two ways:

- by an independent group of legal advisors, or
- by internal legal personnel with knowledge of legislation affecting mining, these findings to be audited and approved by an independent group of legal advisors.

Further, it is recommended that these findings be made available on request for public scrutiny.

- 2) *Having defined its legal responsibilities, determine the role that DBNM wants to assume in the region with respect to mine closure, and the communicate the reasons for these decisions.*

An important reason for mitigating the impacts of mine closure is that this would be in line with De Beers company policy commitment to social investment in South Africa (Chairman's Statement 1991 & 1992) and to the welfare of

its employees (Annual Report 1991 & 1992). DBNM should communicate these reasons to interested and affected parties so as to stem speculation on reasons for the company investigating the impacts of mine closure.

- 3) *Consider and list factors that will influence DBNM's decision to undertake and implement mitigatory measures.*

Factors possibly influencing the level of mitigation undertaken by the company are:

- Market performance of the company and sentiment of management;
- Government of the day - changes in legislation and official policies;
- Sensitivity to both positive and negative publicity;
- Consumer and investor sentiment and trends in international attitudes regarding corporate environmental and social responsibilities.

These reasons can be communicated to people to show DBNM's motivation behind the study.

- 4) *Determine the limitations of DBNM assistance in mitigating the impacts of mine closure and consider constraints of the Namaqualand region.*

Management should think through the financial limitations of the company in mitigating the impacts of mine closure. These limitations should be flexible as they will have to be negotiated with employees and other affected parties.

- 5) *Notify authorities of mine closure at an early stage in order to stimulate advance planning for the future of Namaqualand.*

This recommendation stems from the recognition that mine closure occurs in the context of a broader regional problem of Namaqualand's dependence on mining. Other mines in the Namaqualand area are also expecting to close in the future and therefore the impacts of mine closure are compounded. The responsibilities for mitigating the impacts of mine closure lie with a wide range of authorities and organisations and it is important that these become involved in planning for the future. Notifying local and regional authorities could 'start the ball rolling' (examples of authorities to notify include Department of Local Government and the House of Representatives, Department of Mineral and Energy Affairs, Dept. of Regional and Land Affairs, Dept. of Planning and Provincial Affairs, etc.).

- 6) *Initiate a public communications exercise that explains the reasons for mine closure.*

Effective mitigation of the impacts of mine closure, first of all requires that parties recognise the problem. One of the major issues identified during the study was that people do not believe that the mine will close and a number of alternative reasons were suggested as to why DBNM was suggesting future mine closure. Factors influencing the life of a mine should be explained and all the reasons for mine closure should be given. Success in mitigating the impacts of mine closure will be determined by the extent to which people address and prepare for mine closure themselves, not what DBNM does to mitigate the impacts. DBNM should 'listen' and respond to grievances from interested and affected parties to lend credibility to this process.

7) *Concentrate efforts at mitigating the impacts of mine closure on employees.*

The primary responsibility and most effective way of mitigating the impacts of mine closure in both Namaqualand and the Herschel district is to see to the welfare of employees. The well-being of employees and their dependants in these regions will minimise the impact of employees on existing social services and also address the fundamental social problems of impoverishment and lack of mobility. Recommendations regarding employees elaborated on below in section 1b.

8) *Support development in both Namaqualand and Herschel by funding existing and proposed projects and programmes.*

Development initiatives identified by employees as meriting 'aid' from the company should be investigated. Cognisance should be given to the physical constraints of development in Namaqualand. "In some instances it would be better to give a man a living wage than to set him up as a farmer" (Emmett 1988).

9) *Anticipate problems that will result from the announcement of mine closure (e.g. loss of morale and productivity, land claims and unrealistic expectations from the surrounding communities).*

These problems will arise as a direct result of mine closure. Demands and expectations of the company can be addressed by defining roles and responsibilities of the different players in mine closure. The company should investigate incentive schemes to promote and maintain productivity and to minimise the loss of skilled labour from the company.

10) *Investigate the establishment of a fund from excess production.*

The proposal that income derived as a result of meeting and exceeding monthly production targets be put into a fund to help mitigate the impacts of mine closure merits investigation. This proposal could be useful in address morale and productivity problems as it gives incentive for employees to work.

6.1.2. Mitigating impacts of mine closure on employees

1) *Develop a process of ongoing and open communication with employees on the issue of mine closure.*

Having informed employees of possible mine closure it is important that this communication process be encouraged and maintained. It will serve to encourage people to plan and prepare for the future and in so doing mitigate potential impacts of mine closure.

As a first step DBNM is encouraged to make public the results of the impact assessment and in addition to respond to issues raised in the study. Particularly important is to explain the reasons for mine closure and all the factors that influence the life of a mine.

Hereafter DBNM is encouraged to keep employees regularly updated on the issue of mine closure and particularly on efforts to address the problem. Employees should be given a channel whereby queries regarding the issue can be addressed.

- 2) *Investigate transfers and relocation of employees within the De Beers Consolidated group, as well as alternative sources of employment.*

The impacts of mine closure can be minimised by relocating employees and/or helping employees securing alternative sources of employment.

- 3) *Investigate early retirement and retrenchment packages.*

Older, particularly unskilled, employees would find it more difficult to find alternative employment. It is recommended that DBNM consider early retirement as an option for employees. Good pensions could mitigate the potentially devastating impacts of mine closure on families in Herschel and Namaqualand communities.

Retrenchment packages should be negotiated with representative trade unions. A requirement of the labour relations act is that employees are consulted on matters of retrenchment. Favourable retrenchment packages will help to tide employees over periods whilst looking for work. Good retrenchment packages will assist families mobility allowing for migration to areas with more work opportunities. Some degree of migration from Namaqualand is unavoidable.

- 4) *Involve employees in the process of planning for mine closure*

Plans for mine closure should be discussed with representative trade unions. In this way the physical process of mine closure could be planned in a way that would have the least impact on both employees and surrounding communities. The implementation of mine closure and phasing of retrenchments would have to be carefully managed.

- 5) *Negotiate suggestions for the mitigation of the impacts of mine closure.*

Investigate retraining programs that will equip employees with skills of use outside of the mining industry (such as small business management, technical trades, etc). Retraining courses should be investigated with employees as to determine which are the preferred courses to be offered.

Although it is recommended that most efforts to mitigate the impacts of mine closure be addressed at the employee level, it is also possible that employees may suggest that DBNM support certain development projects in the region.

Development projects and initiatives should be assessed to determine whether these are supported by both employees and surrounding communities.

6.1.3. The Future

1) *Reassess the situation*

Reconsider changes in legal and policy obligations and other factors influencing decisions on mitigating the impacts of mine closure.

2) *Monitor any changes in the magnitude and significance of impacts.*

Appoint consultants to reassess any significant changes that will require greater or less mitigation.

3) *Formulate step-by-step procedure for mine closure in consultation with employees.*

This way mine closure can be planned so as to cause the least possible impact, probably through a series of phased retrenchments over a period of time.

6.2. Recommendations to affected Namaqualand communities

1) *Take note of the potential mine closure and clarify uncertainties with DBNM.*

It is important to establish and assess the reasons for mine closure. Communities in Namaqualand are dependant on the mines and should therefore consider the effects of future mine closure. Unsubstantiated rumours may hinder attempts to plan and prepare for mine closure.

2) *Plan for the future; use all channels to address this problem (e.g. representations to authorities, press, etc.)*

The consequences of mine closure are the responsibilities of all affected people and a number of organisations. All avenues should be used to ensure that the communities are prepared for the eventuality of mine closure.

3) *Encourage DBNM to mitigate the impacts of mine closure.*

Communities should approach DBNM for assistance in dealing with the impacts of mine closure. Improvements in social and physical infrastructure, as well as education could help mitigate the impacts of mine closure.

- 4) *Within the communities; recognise the limits of company assistance and consult with DBNM on the issue.*

It should be recognised DBNM does not have legal obligation to address the consequences of mine closure within the affected communities. Negotiations and demands on the company should facilitate rather than jeopardise communication. It is important not to "kill the goose that may lay the golden egg".

- 5) *Recognise the physical constraints to development in the Namaqualand region.*

Communities should recognise that some forms of development are not feasible (for example the establishment of major industries a long way from markets). Efforts should be concentrated on a diverse range of smaller scale projects.

6.3. Recommendations to businesses and other affected parties

- 1) *Take note of potential mine closure and assess the consequences of this action on the individual / business / organisation.*
- 2) *Plan in advance for mine closure.*

Businesses may need to seek alternative markets and restructure the operation of their business. Businesses could ask authorities to promote development in the area by providing improved access and physical infrastructure.

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