

NM2002

**CLOSURE OF DE BEERS NAMAQUALAND MINES IN 2002:  
A SOCIO-ECONOMIC IMPACT ASSESSMENT**

JUNE 1992

by

Judy Beaumont

**Research Report prepared in partial fulfilment of the requirements of the degree of  
Master of Philosophy in Environmental Science.**

University of Cape Town

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

DST 301.3 BEAU

92/14281

# TABLE OF CONTENTS

LIST OF FIGURES .....	vii
LIST OF TABLES .....	ix
ACKNOWLEDGEMENTS .....	xi
<b>EXECUTIVE SUMMARY .....</b>	<b>xiii</b>
1. BACKGROUND TO THE STUDY .....	xiii
2. AFFECTED ENVIRONMENT .....	xiii
3. APPROACH TO THE STUDY .....	xiv
4. MAIN CONCLUSIONS OF THE STUDY .....	xiv
5. MAIN RECOMMENDATIONS OF THE STUDY .....	xv
5.1 Recommendation on a policy for mine closure .....	xv
5.2 Recommendations for addressing employee attitudes towards the process of planning for closure .....	xv
5.3 Recommendations for reducing the number of people that could be affected by unemployment as a result of mine closure .....	xv
5.4 Recommendations for minimising the impact of unemployment .....	xvi
5.5 Recommendations for the mitigation of impacts affecting communities .....	xvii
5.6 Recommendations for further research that is required. ....	xvii
<b>CHAPTER 1</b>	
<b>INTRODUCTION .....</b>	<b>1</b>
1.1 BACKGROUND TO THE STUDY .....	1
1.2 PURPOSE OF THE REPORT .....	2
1.3 SCOPE, LIMITATIONS AND ASSUMPTIONS OF THIS STUDY .....	2
1.3.1 Scope of the study .....	2
1.3.2 Limitations of this study .....	3
1.3.3 Assumptions relevant to the study .....	4
1.4 APPROACH TO THE STUDY .....	4
1.5 STRUCTURE OF THE REPORT .....	5

<b>CHAPTER 2</b>		
<b>THEORETICAL ASPECTS OF IMPACT ASSESSMENTS</b>	.....	7
2.1 INTRODUCTION	.....	7
2.2 PRINCIPLES OF INTEGRATED ENVIRONMENTAL MANAGEMENT	..	7
2.2.1 Principles	.....	7
2.2.2 NM2002 and the IEM principles	.....	8
2.3 IEM PROCEDURE AND THE POSITION OF NM2002 WITHIN THE PROCEDURE	.....	9
2.4 COMPONENTS OF AN IMPACT ASSESSMENT	.....	10
2.4.1 The scoping procedure	.....	10
(a) Theoretical aspects of scoping	.....	10
(b) The scoping process in NM2002 - observations on the approach used.	.....	11
2.4.2 Theoretical aspects of the investigation of impacts and their application to NM2002	.....	13
(a) Assessment and evaluation	.....	13
(b) Consideration of alternatives	.....	14
2.4.3 The report	.....	16
(a) Theoretical considerations in report compilation	....	16
(b) The NM2002 report	.....	16
2.5 SOCIAL IMPACT ASSESSMENT (SIA)	.....	17
2.5.1 Definition of SIA:	.....	17
2.5.2 Purpose of SIA:	.....	18
2.5.3 Procedural aspects of SIA:	.....	18
(a) Theoretical considerations	.....	18
(b) The application of procedural considerations in NM2002	.....	19
2.5.4 The public involvement process:	.....	20
2.5.5 Technical and political models of SIA	.....	21
(a) Theoretical aspects	.....	21
(b) The role of political and technical models in NM2002	..	22
<b>CHAPTER 3</b>		
<b>AFFECTED ENVIRONMENT</b>	.....	25
3.1 INTRODUCTION	.....	25
3.2 POPULATION CHARACTERISTICS OF NAMAQUALAND	.....	25
3.3 ECONOMIC CHARACTERISTICS OF NAMAQUALAND	.....	26
3.3.1 Mining, agriculture, fishing, commerce and tourism.	.....	26
3.3.2 Namaqualand towns	.....	27

3.4	CHARACTERISTICS OF THE COLOURED RURAL AREAS OF NAMAQUALAND .....	27
3.4.1	Historical background .....	27
3.4.2	Characteristics of the Coloured Rural Areas .....	28
	(a) Characteristics of Kommaggas .....	29
	(b) Characteristics of Steinkopf .....	29
3.5	CHARACTERISTICS OF THE DBNM TOWNS, KLEINZEE AND KOINGNAAS. ....	30
3.6	CHARACTERISTICS OF THE HERSCHEL DISTRICT IN THE TRANSKEI .....	30
3.6.1	Infrastructure and facilities: .....	30
3.6.2	Landuse .....	31
<b>CHAPTER 4</b>		
	<b>PROJECT IMPACTS .....</b>	<b>33</b>
4.1	INTRODUCTION .....	33
4.1.1	Chapter contents and structure .....	33
4.1.2	Structure of the assessment .....	33
4.1.3	Sources of data used for different aspects of the assessment: .....	34
4.1.4	Extrapolation of survey data .....	34
4.1.5	Definition of affected groups for the purposes of the study ..	34
4.1.6	Method of using data to establish impacts .....	36
4.1.7	Procedure for analysing impacts .....	37
4.1.8	Method of assessing significance of impacts .....	37
4.2	IMPACTS LIKELY TO BE EXPERIENCED BY DBNM .....	39
4.2.1	Reduced productivity due to decreased morale among employees .....	39
4.2.2	Loss of infrastructure .....	39
4.2.3	Rehabilitation of mined areas .....	40
4.3	IMPACTS ON DBNM EMPLOYEES AND HOUSEHOLDS .....	41
4.3.1	Retrenchment .....	41
	(a) Description of impact .....	41
	(b) Interested and affected parties: .....	43
	(c) Timing of impact: .....	44
	(d) Magnitude of impact: .....	44
	(e) Significance: .....	45
4.3.2	Loss of access to employee benefits and DBNM resources ..	49

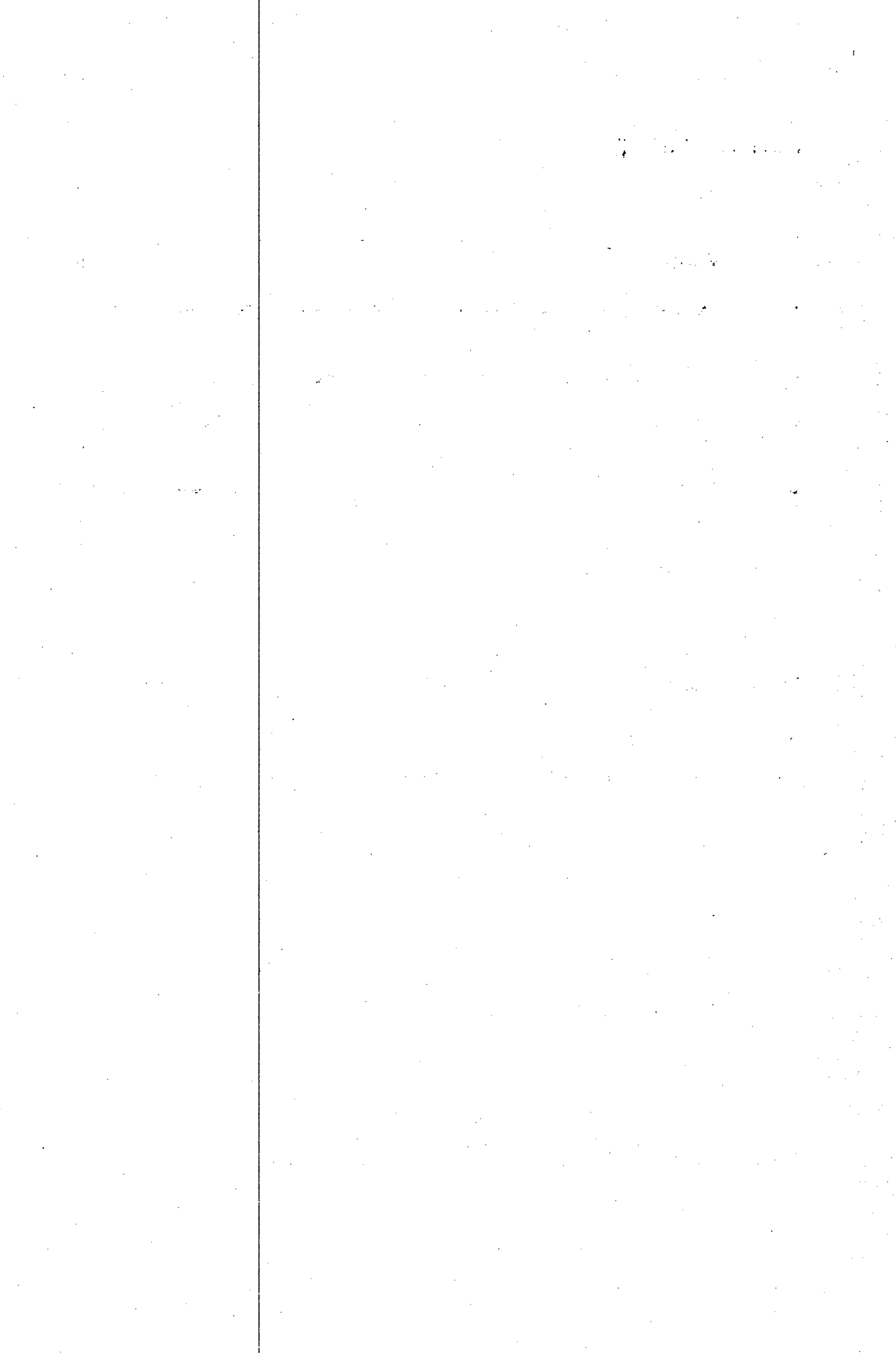
4.4	POSSIBLE IMPACTS ON NAMAQUALAND COMMUNITIES	52
4.4.1	Impact of mine closure on Kommaggas and Steinkopf	52
4.4.2	Possible impact on the natural environment	57
4.4.3	Perceived impacts - as expressed by consulted communities and employees	59
a)	Perception: there will be an increase in unemployment in Namaqualand	59
b)	Perception: there will be a drop in school attendance levels	61
c)	Perception: there would be a lowering of quality of life	63
d)	Perception: there would be a negative impact on the local economy	63
e)	Perception: there would be social decline and an associated increase crime	63
4.4.4	Concerns as expressed by consulted communities and employees	65
a)	Lack of input by DBNM into the region	66
b)	Land ownership issue	67
4.5	IMPACT ON THE COMMUNITIES OF KLEINZEE AND KOINGNAAS	67
4.6	POSSIBLE IMPACT ON SPRINGBOK	68
4.6.1	Economic effect on Springbok	69
4.6.2	Economic effect on different business sectors of Springbok	71
4.7	ECONOMIC IMPACT ON THE NAMAQUALAND REGION	74
4.8	PROBABLE IMPACTS ON THE COMMUNITIES OF THE HERSCHEL DISTRICT	75
4.9	IMPACTS ON REGION A, THE REST OF SOUTH AFRICA AND INTERNATIONALLY	76
<b>CHAPTER 5</b>		
	<b>RECOMMENDATIONS FOR MITIGATION</b>	<b>85</b>
5.1	INTRODUCTION	85
5.1.1	Rationale for mitigation	86
5.1.2	The extent of DBNM's responsibility to affected communities	87
5.1.3	Draft policy on mine closure	88

5.2	RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY DBNM .....	90
5.2.1	Mitigation of decreased morale; insecurity; rumour .....	90
	(a) Timing of closure: .....	90
	(b) Communication between management and workers ..	91
5.2.2	Mitigation for the loss of infrastructure .....	92
	(a) The future potential of Kleinzee and Koingnaas .....	92
	(b) Suggestions by DBNM employees and local communities for the future use of Kleinzee and Koingnaas .....	93
5.3	RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY RETRENCHED EMPLOYEES .....	94
5.3.1	Legal requirements regarding the mitigation of retrenchment ..	94
5.3.2	Mitigation of Retrenchment .....	96
	(a) Extend the life of the mines by reducing productivity ..	96
	(b) Establish a policy of non-replacement .....	97
	(c) Attempt to find alternative employment for DBNM employees .....	97
5.3.3	Mitigation of the conditions that may increase the magnitude of the impact of retrenchment. ....	98
	(a) Mitigating lack of skills and education .....	98
	(b) Mitigating the problem of employees being retrenched between the ages of 46 and 54 years .....	99
	(c) Mitigation of a lack of financial resources to soften the effect of unemployment .....	99
5.3.4	Mitigation of employee concerns .....	101
	(a) The reality of and reason for mine closure .....	102
	(b) Nature and timing of mine closure .....	102
	(c) Nature of retrenchments and retrenchment package ..	103
5.4	RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY AFFECTED NAMAQUALAND COMMUNITIES ..	105
	(a) Role of DBNM .....	106
	(b) Suggestions by communities for the mitigation of impacts .....	106
5.5	SUMMARY OF THE RECOMMENDATIONS MADE BY LUND (EEU, 1992): MITIGATION OF IMPACTS IN THE HERSCHEL DISTRICT ..	107
5.5.1	Mitigation of effects on employees .....	107
5.5.2	Mitigation of effects on younger dependants .....	108
5.5.3	Mitigation of effects at community level .....	108
5.6	OPTIMISING THE BENEFITS OF NM2002 .....	108

<b>CHAPTER 6</b>	
<b>CONCLUSIONS AND RECOMMENDATIONS</b>	109
6.1 INTRODUCTION	109
6.2 KEY ISSUES THAT MAY AFFECT THE PROCESS OF PLANNING FOR MINE CLOSURE	109
6.2.1 Mine closure policy	110
(a) Conclusion	110
(b) Recommendation	110
6.2.2 Employee concerns	110
(a) Conclusion	110
(b) Recommendation	111
6.2.3 Attitudes and perceptions that may influence the success of mitigation	111
(a) Conclusion	111
(b) Recommendation	111
6.2.4 Timing of mine closure	112
(a) Conclusion	112
(b) Recommendation	112
6.3 THE IMPACT OF RETRENCHMENT ON DBNM EMPLOYEES: CONCLUSIONS AND RECOMMENDATIONS	112
6.3.1 Conclusions: Impacts of retrenchment on DBNM employees	113
6.3.2 Recommendations: Mitigation of the impacts of retrenchment on DBNM employees	113
(a) DBNM should attempt to reduce the number of employees to be retrenched	113
(b) DBNM should attempt to minimise the impact of unemployment on employees	114
6.4 THE IMPACT OF MINE CLOSURE ON COMMUNITIES: CONCLUSIONS AND RECOMMENDATIONS	115
(a) Conclusions: Impact of retrenchment on Namaqualand communities	115
(b) Recommendations: Mitigation of the impacts of retrenchment on the Namaqualand communities	116
6.5 IMPACTS OF MINOR SIGNIFICANCE: CONCLUSIONS AND RECOMMENDATIONS	117
6.6 IMPACTS REQUIRING FURTHER INVESTIGATION	117
6.7 OPTIMISING THE BENEFITS OF NM2002	119
<b>BIBLIOGRAPHY</b>	117
<b>APPENDIX 1</b>	

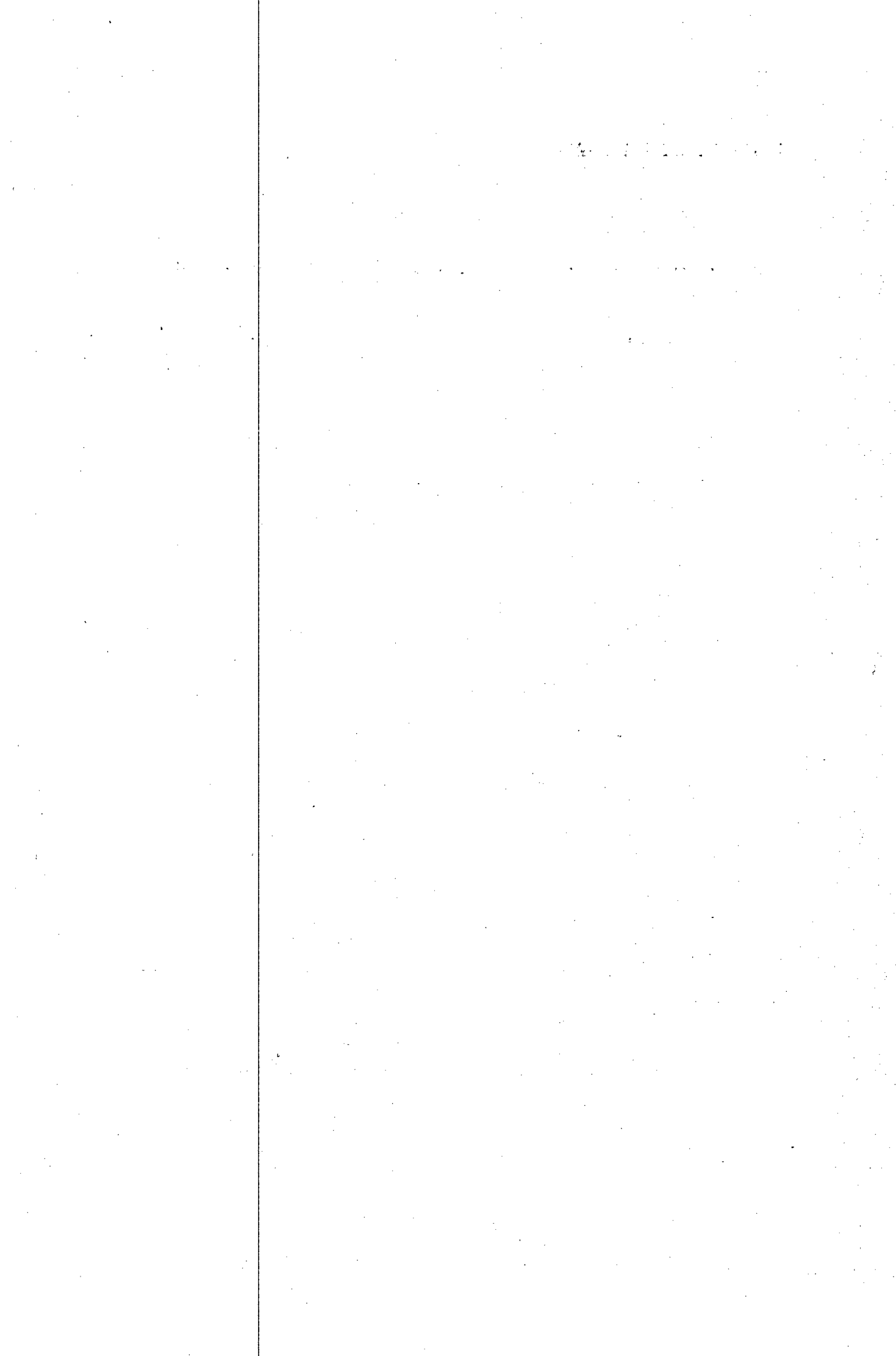
## LIST OF FIGURES

Figure 1	Map of the Namaqualand Magisterial District .....	xxiv
Figure 2	The Procedure for Integrated Environmental Management .....	9
Figure 3	A representation of the concept of sustainable development (Yap, 1989). .....	86



## LIST OF TABLES

Table 2.1 Comparison of technical and political approaches in SIA .....	22
Table 4.1 Percentages and numbers for the Namaqualand, Mine and Transkei Groups. ....	35
Table 4.2 Variables that influence the significance of the impact of retrenchment .....	45
Table 4.3 Variables that influence ability to find alternative employment .....	45
Table 4.4 Summary of the impact of retrenchment on the Namaqualand, Transkei and Mine Groups. ....	46
Table 4.5 Summary of the effect of mine closure on Kommaggas and Steinkopf .....	54
Table 4.6 The increase in unemployment due to DBNM closure .....	60
Table 4.7 Direct and indirect business links between economic sectors of Namaqualand and DBNM. ....	72
Table 4.8 Summary of impacts, showing interested and affected parties, description of impact, significance and comment on significance rating. ....	78
Table 5.1 Mitigation of impacts likely to be experienced by DBNM employees and households .....	104

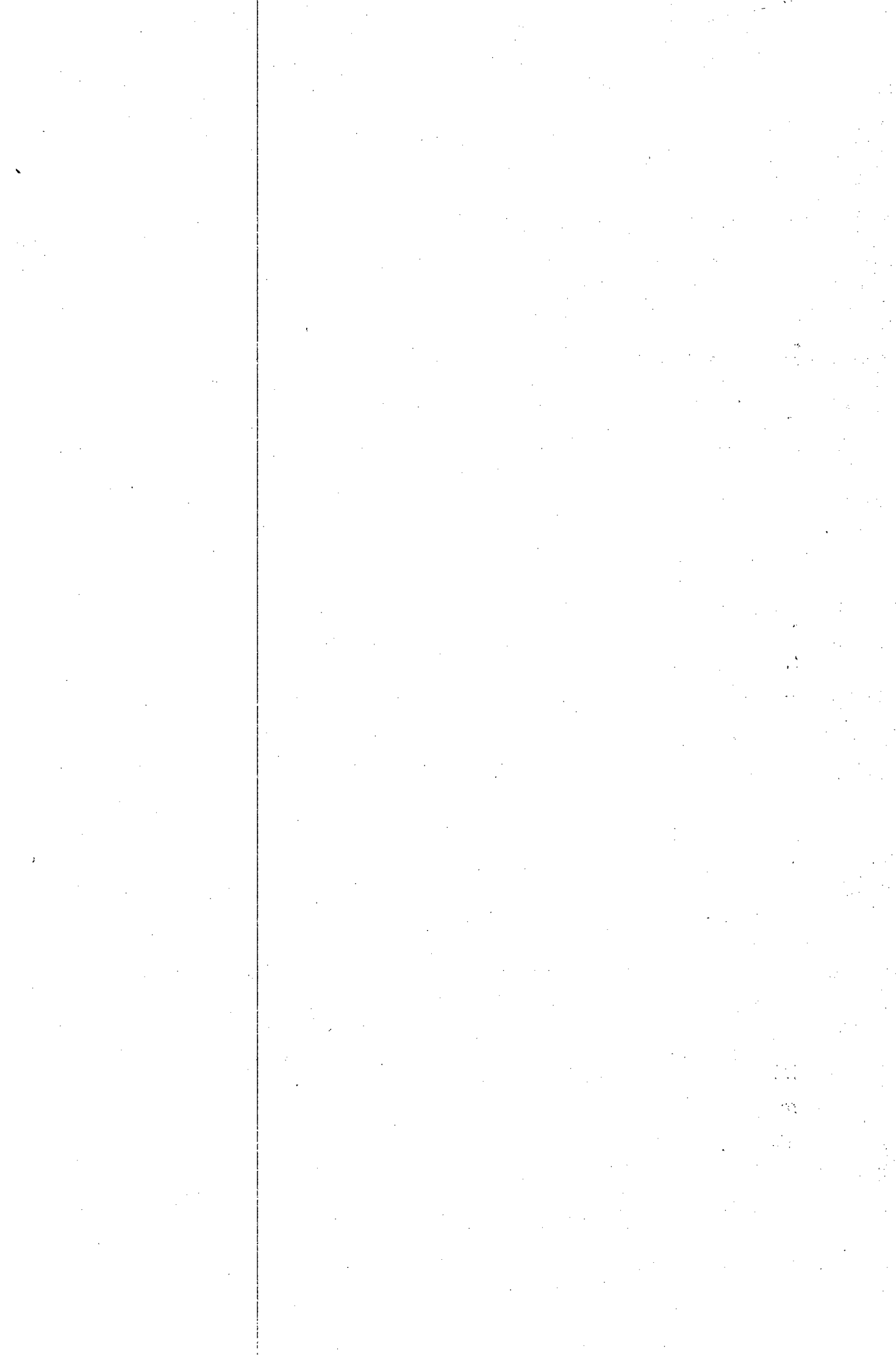


## ACKNOWLEDGEMENTS

I would like to record my sincere appreciation to the following people and institutions:

- Dr John Raimondo for his valuable input in directing and managing the project
- Richard Hill for co-ordinating and integrating the academic requirements of the masters course with the demands of working on a project for the Environmental Evaluation Unit
- Janet Barker for her guidance and supervision
- the Human Sciences Research Council (HSRC) and the South African Breweries for their generous financial support
- Crista Claassen for acting as liaison between De Beers Namaqualand Mines and the Environmental Evaluation Unit
- staff of De Beers Namaqualand Mines for their involvement in the study
- community organisations of Kommaggas and Steinkopf for participating in the study
- Shirley Butcher for her assistance on data analysis
- family and friends for their unceasing support and encouragement

The financial assistance of the Centre for Science Development towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the Centre for Science Development.



## **EXECUTIVE SUMMARY**

### **1. BACKGROUND TO THE STUDY**

In December 1991, De Beers Namaqualand Mines (DBNM) commissioned the Environmental Evaluation Unit (EEU) of the University of Cape Town to undertake a socio-economic impact assessment of the future closure of their diamond mines in Namaqualand. As the end of the life of the mines is approached it will be necessary to plan for a reduction in productivity and ultimately for mine closure.

It is estimated that the financially viable diamond reserves will be depleted by approximately 2002. The purpose of this report is to identify and assess the impacts of mine closure and make recommendations for the mitigation of these effects. The study has taken place during the initial stages of planning for mine closure. Conclusions and recommendations could thus be utilised by DBNM to inform the planning process.

### **2. AFFECTED ENVIRONMENT**

Namaqualand is a sparsely populated semi-desert area in the north-west corner of South Africa. The region's economy has been based on mining since the discovery of copper in 1852 and diamonds in 1926. From 1972 to 1984 the contribution of the mining sector to Namaqualand's gross geographic product ranged from 72,6% to 88,1%. The largest proportion of this comes from diamond mining.

DBNM is one of the major diamond mining operations, contributing 77% of the region's diamonds in 1985. The mines are situated on the west coast, approximately 200 kilometers south of the mouth of the Orange River. The majority of the required workers are drawn from the surrounding local communities. A small proportion come from the Transkei and Ciskei. Skilled workers come from a variety of areas and have

mostly settled in the DBNM towns of Kleinzee and Koingnaas for the duration of their period of employment.

### **3. APPROACH TO THE STUDY**

In keeping with the principles of Integrated Environmental Management, public participation was an integral part of the assessment. Parties, identified as being either interested or affected, were notified of the project. They were asked to state their concerns about closure and suggest means of alleviating the likely impacts. Further input by affected parties was obtained by means of interviews with DBNM employees and meetings with representatives of two local communities.

Information on the potential social effects of closure was gathered during a survey of a sample of employees. A survey of businesses in the Namaqualand region provided the data that formed the basis of calculations on the likely economic effects of DBNM closure. The data gathering phase culminated in the compilation of the Baseline Information Report (EEU, 1992).

During the second phase of the project, impacts were identified, extracted from the Baseline Information Report and assessed according to established criteria. The assessment was based on a mine closure date of 2002, by which time all employees will either retire, be retrenched or be transferred. The impacts associated with alternative dates of closure were not investigated. Recommendations for mitigation of the effects of closure were based on the results of the assessment.

#### 4. MAIN CONCLUSIONS OF THE STUDY

- Concerns about, and attitudes towards, mine closure were expressed during the employee survey and at community meetings. These perceptions could influence the success of employee involvement in the process of planning for closure, and should be addressed.
- The timing of closure is not finalised and could be an area of conflict between management and employees. While DBNM management may be motivated to ensure that the chosen timing of closure is cost-effective, employees suggest that the life of the mines should be extended. This would ensure employment for as long as possible.
- Retrenchment is likely to affect in the region of 2500 employees. This could result in a minimum increase of 5% in the unemployment rate.
- The impact of retrenchment is likely to be of major significance to employees of the Namaqualand and Transkei Groups. These employees are vulnerable to the effects of unemployment because of:
  - a lack of financial resources to soften the effect of unemployment
  - lack of skills and education to facilitate the process of finding alternative employment.
- The impact of retrenchment is likely to be of moderate significance to employees of the mine group. Employees in this group are generally more mobile. They have greater resources for dealing with the effects of retrenchment.

- The effects of reduced business with DBNM and employees will probably be more significant to local communities, than to Springbok or to the Namaqualand region.
- Retrenchments could result in increased dependence on stockfarming and an associated increase in overgrazing and land degradation in Namaqualand.

## **5. MAIN RECOMMENDATIONS OF THE STUDY**

### **5.1 Recommendation on a policy for mine closure**

The draft policy on mine closure and rehabilitation should be finalised in consultation with representative employee bodies.

### **5.2 Recommendations for addressing employee attitudes towards the process of planning for closure**

- The cynicism expressed by employees and leaders of community organisations on the motivation for undertaking the study should be addressed. The issue should be discussed with the trade union and jointly established solutions should be implemented as soon as possible.
- Employee concerns on the reality and reason for closure, the timing of retrenchment, and the nature of the retrenchment package should be addressed immediately. Information centres dealing with questions on mine closure should be established in Kleinzee and Koingnaas. This measure would also address the lack of belief in the reality of mine closure.

### **5.3 Recommendations for reducing the number of people that could be affected by unemployment as a result of mine closure**

- Timing of closure should be a negotiated issue. Prior to negotiation, there should be further investigation into the social costs and benefits of extending

the life of the mines. Results should be made available to all interested parties, and specifically to employees.

- The number of people to be retrenched should be minimised by:
  - instituting a policy of non-replacement
  - reducing the early retirement age to 50 years

Until this policy is implemented, people that are recruited should, where possible, be in the 18 to 25 year age category. This would ensure that after retrenchment, they are not disadvantaged by age when attempting to find new employment.

- DBNM should attempt to find alternative employment for those that may be retrenched. An agreement could be established with other mines whereby vacancies are filled by DBNM employees due for retrenchment.

#### **5.4 Recommendations for minimising the impact of unemployment**

- A retrenchment package of monthly salary for at least 4 months should be negotiated with the trade union. Years of service should be taken into consideration in the calculation of individual packages.
- Effort should be placed in communicating to employees what money will be available at the time of retrenchment. Prior to retrenchment, employees should be advised on the wise use of their financial resources for the period of unemployment.
- The DBNM skills training program should be increased, with the aim of equipping all employees with at least one, and preferably two marketable skills. This may increase employees' chances of finding alternative employment, thereby reducing the time in which unemployment is experienced.

- Sponsorship for skills training should be awarded to one young person from each directly affected household.

#### **5.5 Recommendations for the mitigation of impacts affecting communities**

- Namaqualand communities should be encouraged to investigate the magnitude of, and seek solutions to, perceived impacts. These include declining attendance of school pupils and a decrease in the provision of services by local authorities.
- DBNM should play a role in the facilitation of planning, as well as assist in the financing of community-based solutions to the impacts of mine closure. Development agencies and non-governmental organisations concerned with improving the quality of life in the Namaqualand communities should be involved.

#### **5.6 Recommendations for further research that is required.**

Further research should be undertaken:

- to investigate the social costs and benefits of extending the life of the mines;
- to establish the significance of the loss of employee benefits;
- to investigate the potential of privatising Kleinzee and Koingnaas;
- on the likely timing of the economic impact of closure on Springbok;
- to establish the significance of the economic impacts of closure on the Namaqualand region.

**Summary of impacts, showing interested and affected parties, description of impact, significance and comment on significance rating.**

Interested and affected parties	Description of impact	Significance and comment
DBNM	<b>Reduced productivity</b> due to decreased morale and insecurity among employees	Minor:  Impact could be minimised by an effective communication strategy.
DBNM	<b>Loss of infrastructure</b> of two towns, Kleinzee and Koingnaas.	Unknown, but probably minor:  Provision likely to have been made for the loss.  Privatisation of the towns may be possible.
DBNM  Future generations	<b>Cost of rehabilitating</b> mined areas.  Inheritance of rehabilitated land	Unknown.  Major Benefit: an indefinite number of people could benefit in the long term.
DBNM employees and households of the Namaqualand group	<b>Impact of retrenchment on the Namaqualand Group</b>  •retrenched: 1570  •total affected: 4400  •no savings: 615  •primary educ.: 583  •aged 46 to 54 yrs: 226	Major:  The total number of people that will be affected is high.  The number affected by extreme conditions (eg. lack of savings and education) is high relative to the numbers affected in the Transkei and Mine Groups.
DBNM employees and households of the Transkei Group	<b>Impact of retrenchment on the Transkei Group</b>  •retrenched: 207  •total affected: 1400  •no savings: 186  •primary/no educ.: 430  •aged 46 to 54 yrs: 212	Major: Fewer people will be involved (in comparison with the Namaqualand Group).  Significance is still considered to be major because the majority are affected by extreme conditions (no savings, minimal education, advanced age).

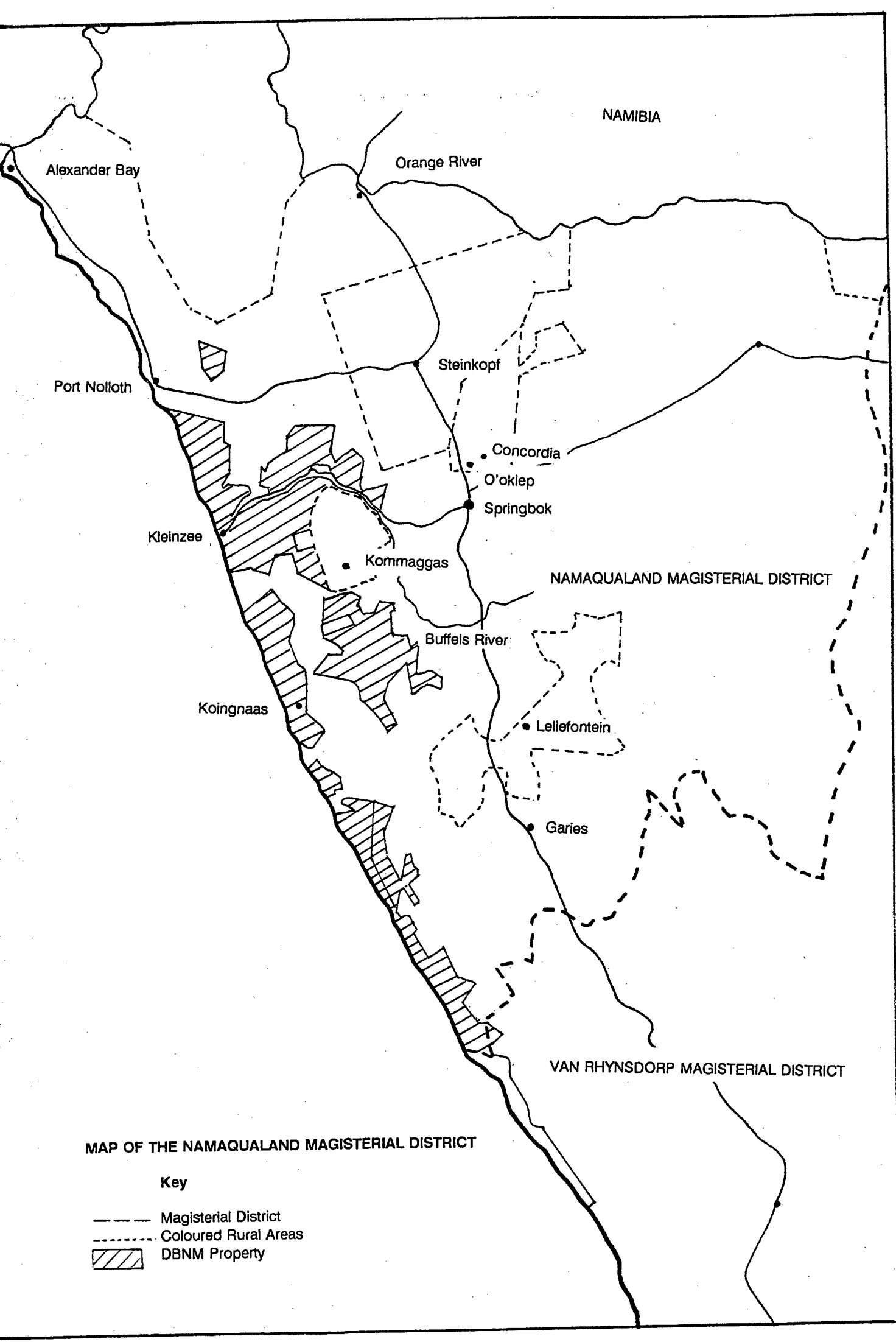
<p>DBNM employees and house-holds of the Mine Group</p>	<p><b>Impact of retrenchment on the Mine Group:</b></p> <ul style="list-style-type: none"> <li>•retrenched: 760</li> <li>•total affected: 1400</li> <li>•no savings: 40</li> <li>•primary educ.: none</li> <li>•aged 46 - 54 yrs.: 64</li> </ul>	<p>Moderate:</p> <p>This group displays substantially greater mobility than either of the previous groups.</p> <p>All employees have a high school education and few have no savings. A minimal number may be affected by advanced age.</p>
<p>DBNM employees and house-holds</p>	<p><b>Loss of access to employee benefits and DBNM resources.</b></p>	<p>Unknown: Items referring to the loss of specific benefits should be included in future employee surveys.</p>
<p>Kommaggas business and community</p>	<p><b>Economic impact on Kommaggas.</b></p> <p>Loss of 36% of turnover (R0,93 million)</p>	<p>Moderate, but could be major:</p> <p>Major: small businesses may not have the capital to outlive the financial crisis; if this is the case, the loss to Kommaggas could be longterm.</p> <p>Moderate: there are indications that businesses could recover</p> <p>Possible benefit: closure of Kleinzee supermarket may increase business in Kommaggas.</p>
<p>Steinkopf business and community</p>	<p><b>Economic impact on Steinkopf.</b></p> <p>Loss of 40% of turnover (R2,82 million)</p>	<p>Moderate.</p> <p>Impact less severe than on Kommaggas, due to increased economic resilience.</p> <p>Indications that businesses could recover.</p> <p>Additional retrenchment could be avoided if businesses prepare for loss.</p>
<p>Namaqualand communities and future generations</p>	<p><b>Increase in land degradation as a result of increased dependence on subsistence.</b></p>	<p>Unknown and difficult to quantify.</p>

<p>Namaqualand communities</p>	<p><b>Perceived impact: potential increase in unemployment.</b></p> <p>The researcher estimated that unemployment could increase from 35% to 40%.</p> <p>Approximately 89% and 40% of households in Kommaggas and Steinkopf respectively are likely to be directly affected by retrenchment.</p>	<p>Major.</p> <p>Entire Namaqualand community could be affected</p> <p>No prospect of large-scale employment opportunities at other Namaqualand mines</p> <p>Secondary impacts include apathy, despondency, poverty</p> <p>People may be forced into migrant labour</p>
<p>Namaqualand communities and schools</p>	<p><b>Perceived impact: decrease in school attendance and resulting increase in illiteracy.</b></p> <p>Pupil numbers may drop because:</p> <ul style="list-style-type: none"> <li>- families leave the area</li> <li>- parents unable to pay school fees</li> </ul>	<p>Unknown.</p> <p>Information required:</p> <p>Likelihood of families migrating from Kommaggas and Steinkopf</p> <p>Number of children likely to leave school</p>
<p>Namaqualand communities</p>	<p><b>Perceived impact: decrease in quality of life.</b> This could result from a reduction in services offered by local authorities if residents were unable to pay their accounts.</p>	<p>Unknown.</p> <p>Monthly payments for water, electricity and health services were not investigated.</p>
<p>Namaqualand communities and future generations</p>	<p><b>Perceived impact: social decline and increase in crime rates.</b> This could be the result of:</p> <ul style="list-style-type: none"> <li>•breakdown in family structure due to an increase in migrant labour</li> <li>•loss of leadership potential as a result of increased migrant labour; this could affect formal and informal community organisation.</li> </ul>	<p>Unknown but could be major.</p> <p>There is a documented association between poverty and crime.</p> <p>Social decline is a long term process that is difficult to reverse. The safety of people could be affected.</p>
<p>DBNM employees and communities</p>	<p><b>Concerns</b> were expressed about the following:</p> <ul style="list-style-type: none"> <li>•reality of and reason for mine closure</li> <li>•nature and timing of mine closure</li> <li>•nature of retrenchment and the retrenchment package.</li> </ul> <p>These concerns could result in increased employee insecurity.</p>	<p>The significance was not rated. Emphasis is placed on recommendations for mitigating these concerns are made.</p>

<p>DBNM employees and Namaqualand communities</p>	<p><b>Concern about the lack of input by DBNM into the region</b></p>	<p>The significance was not rated but the concern was found to be valid.</p> <p>DBNM expenditure on community work represents 0.15% of community investment by De Beers and Anglo American. DBNM contributes 10% of South African annual diamond production. This implies that the concern is valid.</p>
<p>Residents of Kommaggas and Steinkopf</p>	<p><b>Concern that land owned by DBNM belongs to inhabitants of Kommaggas and Steinkopf.</b></p>	<p>Significance not rated.</p> <p>Local people have made various land claims in the past decade but none have been investigated.</p>
<p>Springbok business community and consumers</p>	<p><b>Loss of business from DBNM and employees may affect the economy of Springbok.</b></p> <ul style="list-style-type: none"> <li>•There may be a decrease in turnover of between 8 &amp; 15%</li> <li>•An additional 165 people may have to be retrenched, as a result of economic decline in Springbok</li> </ul>	<p>Minor:</p> <p>The percentage decline in turnover is small in comparison with that of Kommaggas and Steinkopf.</p> <p>Diversity in economy therefore greater resilience.</p> <p>51% of turnover leaves the region. This implies reduced loss to Springbok.</p> <p>It may be possible to mitigate the loss and minimise additional retrenchment by changing business focus.</p>

Springbok business community and consumers	<p><b>There may be differential economic decline in the various economic sectors of Springbok.</b></p> <ul style="list-style-type: none"> <li>•Mining sector may lose 27,5% in turnover as a result of direct loss of business with DBNM</li> <li>•Household sector may lose 27,5% in turnover, the greatest percentage of which would be due to loss indirectly from employees</li> </ul>	<ul style="list-style-type: none"> <li>•Minor: The impact is rated as minor because almost 70% of the turnover of the mining sector leaves the Namaqualand region. The financial impact on business in Namaqualand could be less than half of what has been estimated.</li> <li>Minor: The household sector has the potential of recovering from the impact when employment levels increase.</li> </ul>
Namaqualand Regional Services Council	<b>The Namaqualand Regional Services council may lose 29% of the fees paid by businesses in the region.</b>	Unknown: Information is required from the RSC on the total amount of money that is available and required for expenditure.
Namaqualand region: businesses and communities	There may be a <b>loss of expenditure in Namaqualand by central government</b> due to a decrease in income tax paid by DBNM and employees	Minor: Income tax paid to this body decreased substantially in 1990 as a result of company restructuring. In this context, further loss will not be significant.
Namaqualand region: businesses and communities	There may be a <b>loss of 10% of total turnover</b> of the Namaqualand region	Minor: On a regional scale this impact is minor.
Region A: Loss to business community and consumers	<b>Loss of demand for inputs from all sectors in region A</b> is estimated to be R14,47 million.	Unknown: In order to place this into context, an approximate turnover figure for Region A is required.
South Africa, excluding Region A - business community	<b>Loss of demand for inputs from all sectors in South Africa</b> (excluding Region A) of R90 million	Unknown: Figures are required for the estimation of percentage loss
Inter-national business community	<b>Loss of demand for inputs from businesses overseas</b> is in the region of R10,455.	Minor:





NAMIBIA

Orange River

Alexander Bay

Port Nolloth

Steinkopf

Concordia

O'okiep

Springbok

Kleinzee

Kommaggas

NAMAQUALAND MAGISTERIAL DISTRICT

Buffels River

Koingnaas

Leliefontein

Garies

VAN RHYNSDORP MAGISTERIAL DISTRICT

### MAP OF THE NAMAQUALAND MAGISTERIAL DISTRICT

#### Key

- Magisterial District
- - - Coloured Rural Areas
- ▨ DBNM Property

1.5

2.7

3.1

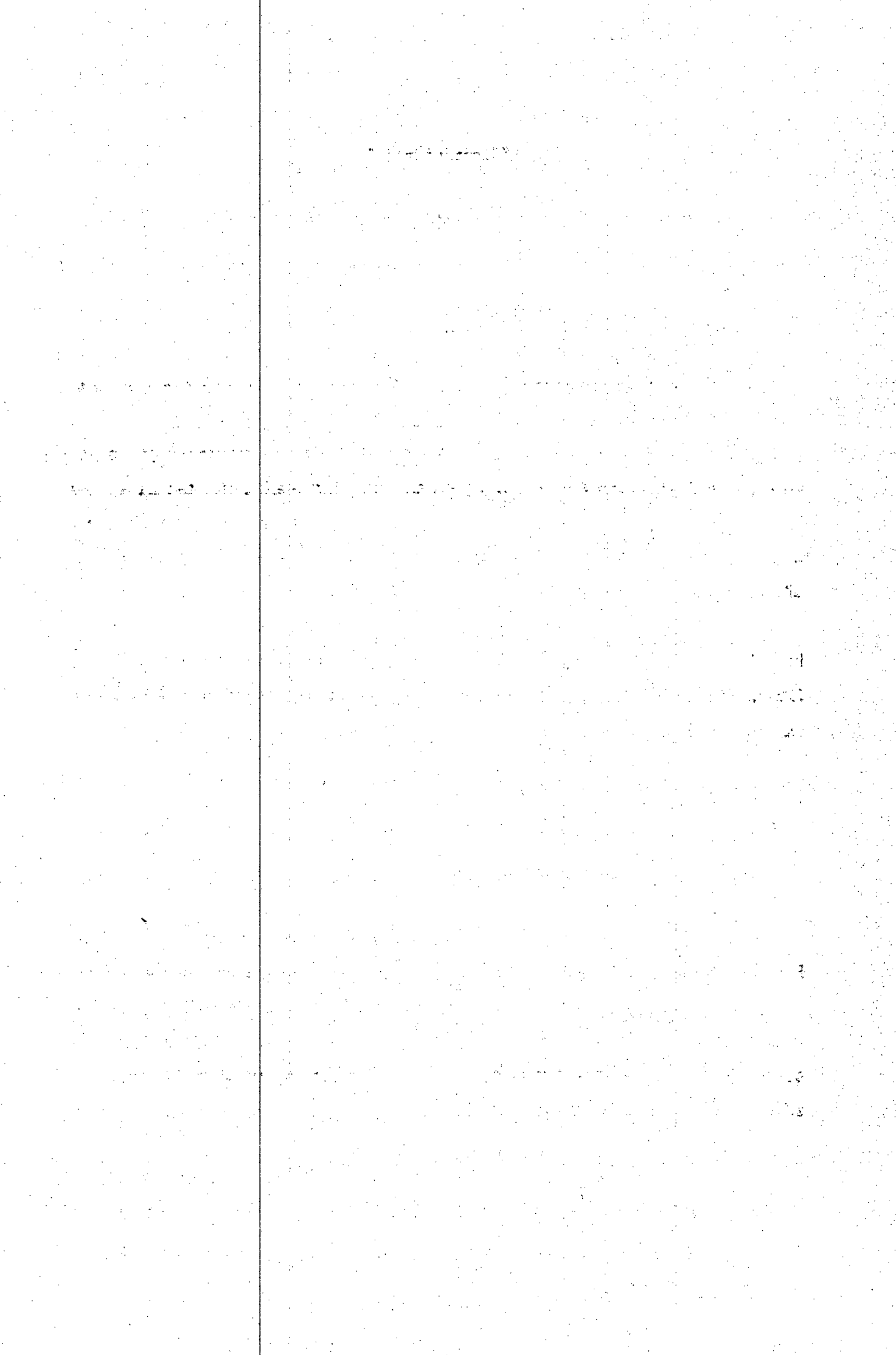
4.1

5.1

# **Chapter One**

## **INTRODUCTION**

1.1	BACKGROUND TO THE STUDY .....	1
1.2	PURPOSE OF THE REPORT .....	2
1.3	SCOPE, LIMITATIONS AND ASSUMPTIONS OF THIS STUDY .....	2
	1.3.1 Scope of the study .....	2
	1.3.2 Limitations of this study .....	3
	1.3.3 Assumptions relevant to the study .....	4
1.4	APPROACH TO THE STUDY .....	4
1.5	STRUCTURE OF THE REPORT .....	5



# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND TO THE STUDY

De Beers Consolidated Mines have been mining diamonds at their Namaqualand Mines (DBNM) since the 1930's. [It is estimated that their financially viable diamond reserves will be depleted by approximately 2002. This date could vary slightly either way, depending on current and future prospecting and market dictates as well as technological advances in diamond recovery techniques. As the end of the life of the mines is approached it will be necessary to plan for a reduction in productivity and ultimately for mine closure.]

In 1990 the Environmental Evaluation Unit (EEU) was appointed by De Beers Consolidated Mines to provide input on the formulation of policies and plans which would guide:

- the decommissioning of mines
- the rehabilitation of mined areas

Work on the policy initiated the question of the likely impact of the closure of De Beers Namaqualand Mines (DBNM). DBNM therefore commissioned the EEU to undertake a study which would assess the impacts of mine closure and look at viable business alternatives and landuse options for the future. The scope of this study was subsequently narrowed by DBNM to focus on the assessment of the socio-economic effects of mine closure and recommendations for mitigation.

Masters students of the Department of Environmental and Geographical Science of the University of Cape Town undertook the study as part of the academic requirement

of their course. For the students, the six month project was an exercise in the application of science to real life issues in environmental planning, impact assessment and management (Hill, 1992). A list of members of the study team is available in Appendix A.

## **1.2 PURPOSE OF THE REPORT**

The report has two primary functions. It serves to communicate the findings of the study to the client. It is also an academic work, demonstrating analytical rigour and comprehension of the material in the course of Master of Philosophy in Environmental Science.

The specific purpose of this report is to:

- identify and assess the impacts of DBNM closure in accordance with established criteria
- make recommendations for mitigation of the effects of closure
- demonstrate an adequate grasp of principles, methods and techniques for analysing, evaluating and presenting information appropriate to the project in question.

## **1.3 SCOPE, LIMITATIONS AND ASSUMPTIONS OF THIS STUDY**

### **1.3.1 Scope of the study**

The study has taken place during the initial stages of planning for closure. It is anticipated that conclusions and recommendations that arise may be incorporated into the planning process.

The assessment addresses the social and economic impacts of mine closure. DBNM currently employs 3000 people, the majority of whom would probably be retrenched when closure takes place. Impacts can thus be expected to arise from the unemployment that results from retrenchment. Recommendations for mitigation are focussed on the following:

- means of reducing the number of people to be retrenched
- means of assisting those that are retrenched to find alternative employment
- means of ameliorating the effect of unemployment

Emphasis has been placed on the impacts likely to be experienced by, as well as mitigation measures for, DBNM employees, their households and the Namaqualand communities of Kommaggas and Steinkopf. Impacts on the communities of the Transkei district of Herschel, the home of DBNM migrant workers, have been outlined briefly.

Interested and affected parties were approached for their perceptions, concerns and suggestions regarding mine closure. These have been incorporated into the report.

### **1.3.2 Limitations of this study**

- This is an initial study on the impact of mine closure. The assessment of impacts on employees and their households is based on a mine closure date of 2002. When more specific plans for the timing of closure become available, further surveys on the impact of closure should be undertaken.
- Impacts have not been assessed for alternative dates or methods of closure. Further information is required from DBNM to delimit the options.
- Alternative landuse and business options for DBNM in the Namaqualand region are not addressed. DBNM requested that the study be restricted to the impacts of closure. Suggestions made by interested and affected parties have been listed but feasibility has not been investigated.

- Development options for the Namaqualand region have not been addressed. These should be addressed in later studies investigating business options for DBNM in Namaqualand.
- A program for the rehabilitation of mined areas has not been addressed. DBNM are working on this aspect.

### **1.3.3 Assumptions relevant to the study**

The following assumptions have influenced the approach to this study.

- It was assumed that the study was initiated as part of DBNM policy to minimise the disruption that may be caused by mine closure to existing social systems
- It was assumed that interested and affected parties would be able to comment on the draft document

## **1.4 APPROACH TO THE STUDY**

The study consisted of two distinct phases. Firstly, students of the Environmental Science masters class worked as a team to collect the necessary baseline information.

This phase included:

- letters sent to interested and affected parties
- interviews with DBNM management
- interviews with a representative sample of DBNM employees
- interviews with a representative sample of businesses of Springbok, Kommaggas and Steinkopf

- community meetings in Kommaggas and Steinkopf
- a literature review.

The information that was gathered was collated and presented in the Baseline Information Report (EEU,1992).

During the second phase, impacts were identified and extracted from the Baseline Information Report. Assessment of impacts took place according to established criteria. Recommendations for mitigation of the effects of closure were based on the results of the assessment. The second phase of the study is documented in the current report. While the Baseline Information Report is supplementary, necessary background information has been extracted to enable the current report to be read alone.

## **1.5 STRUCTURE OF THE REPORT**

The report consists of the following sections:

- In chapter 2 the theoretical aspects of Integrated Environmental Management and social impact assessment are covered. The application of the concepts to the assessment of mine closure is discussed.
- In chapter 3 the social and economic characteristics of the affected environment are discussed briefly. The description includes information on the local environment of DBNM, the Coloured Rural Areas of Namaqualand and the Transkei District of Herschel.
- In chapter 4 the impacts of mine closure are described and assessed in accordance with established criteria. The impacts are categorised in terms of the different groups of interested and affected parties. These include

DBNM, employees of DBNM, their households and local communities. Impacts on a regional scale are outlined but not detailed.

- In chapter 5, recommendations for the mitigation of impacts are made.
- Chapter 6 draws together the major conclusions and recommendations.

12

12

12

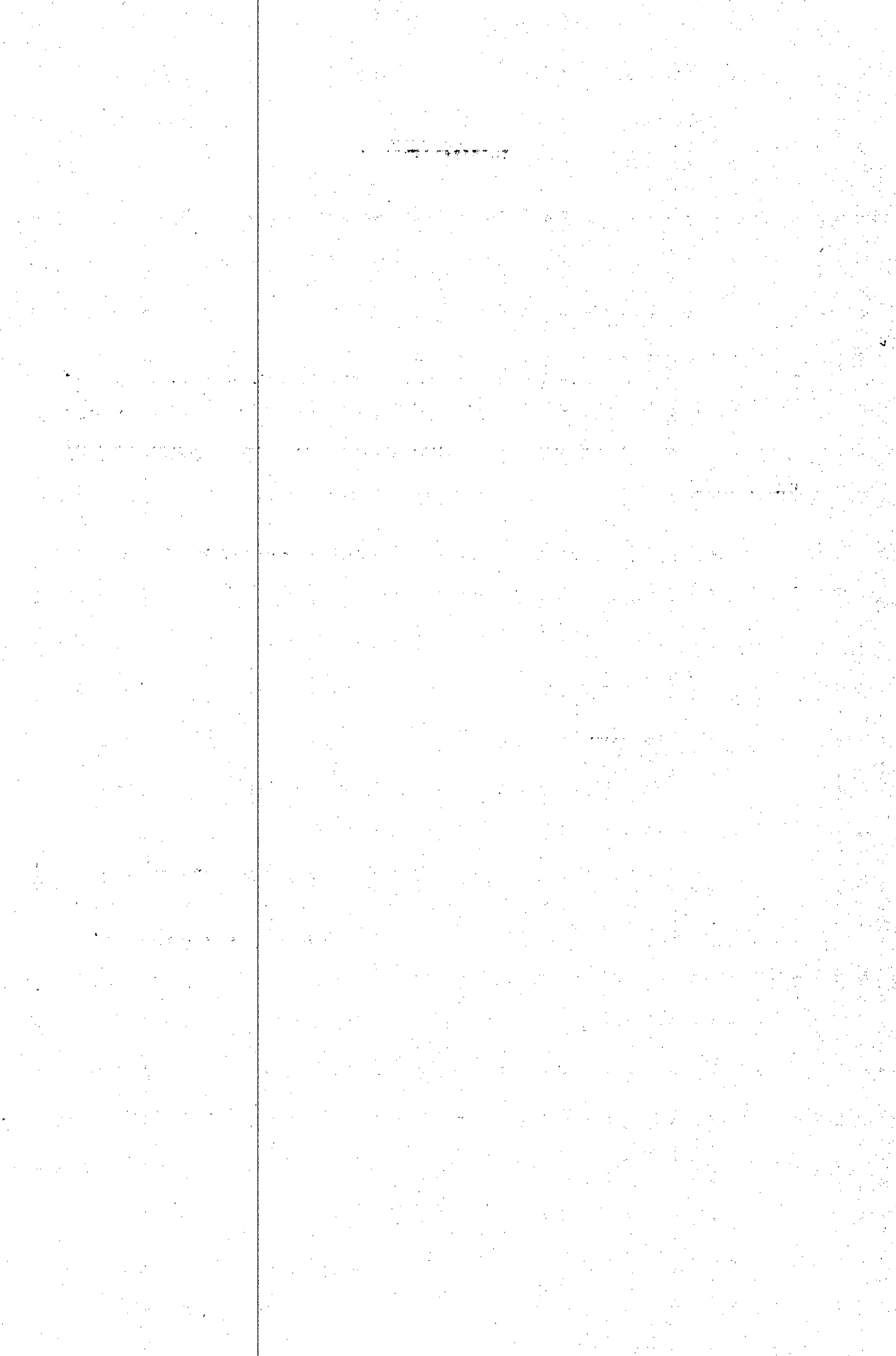
12

12

## **Chapter Two**

# **THEORETICAL ASPECTS OF IMPACT ASSESSMENTS**

2.1	INTRODUCTION .....	7
2.2	PRINCIPLES OF INTEGRATED ENVIRONMENTAL MANAGEMENT ...	7
	2.2.1 Principles .....	7
	2.2.2 NM2002 and the IEM principles .....	8
2.3	IEM PROCEDURE AND THE POSITION OF NM2002 WITHIN THE PROCEDURE .....	9
2.4	COMPONENTS OF AN IMPACT ASSESSMENT .....	10
	2.4.1 The scoping procedure .....	10
	2.4.2 Theoretical aspects of the investigation of impacts and their application to NM2002 .....	13
	2.4.3 The report .....	16
2.5	SOCIAL IMPACT ASSESSMENT (SIA) .....	17
	2.5.1 Definition of SIA: .....	17
	2.5.2 Purpose of SIA: .....	18
	2.5.3 Procedural aspects of SIA: .....	18
	2.5.4 The public involvement process: .....	20
	2.5.5 Technical and political models of SIA .....	21



## **CHAPTER 2**

# **THEORETICAL ASPECTS OF IMPACT ASSESSMENTS**

### **2.1 INTRODUCTION**

This assessment of the impacts of mine closure fits broadly into the process of Integrated Environmental Management (IEM). More specifically, it can be categorised as a social impact assessment (SIA). A consideration of economic impacts has been incorporated.

In this chapter, principles pertaining to the IEM process, as well as theoretical aspects of social impact assessment are outlined. In each subsection, the application of the theory to NM2002 is commented on.

### **2.2 PRINCIPLES OF INTEGRATED ENVIRONMENTAL MANAGEMENT**

#### **2.2.1 Principles**

Integrated Environmental Management is designed to ensure that the environmental consequences of development proposals, plans and policies are understood and adequately considered (Fuggle et al, 1992). There are a number of basic principles that underpin IEM. These include the need for:

- informed decision-making
- accountability both for information on which decisions are taken and for the decisions

- a broad meaning given to the term environment (ie. one that includes physical, biological, social, economic, cultural, historical and political components)
- an open, participatory approach in the planning of proposals
- consultation with interested and affected parties
- due consideration of alternative options
- an attempt to mitigate negative impacts, and enhance positive impacts, of proposals
- an attempt to ensure that the 'social costs' of proposals (those borne by society) are outweighed by the 'social benefits'
- compliance with these principles during all stages of the planning, implementation and decommissioning of proposals
- the opportunity of public and specialist input in the decision-making process

### **2.2.2 NM2002 and the IEM principles**

De Beers has no legal obligation to undertake the impact assessment, but has chosen to do so out of a sense of social responsibility. By commissioning an assessment on the impacts of closure DBNM is subscribing to the principles of IEM. The company has thus implicitly undertaken, amongst others, to:

- give a broad meaning to the term environment
- consult with interested and affected parties

- give due consideration to alternatives
- attempt to mitigate negative and enhance positive impacts

A more socially acceptable and accountable plan for mine closure is an expected benefit of this choice. This would be the result of informed decision-making, having undertaken an open and participatory approach in the planning stage.

### 2.3 IEM PROCEDURE AND THE POSITION OF NM2002 WITHIN THE PROCEDURE

The IEM procedure is outlined in figure 2.1 below. Stage 1 involves the planning and assessment of the proposal. In stage 2 a decision is taken by the authorities on the acceptability of the proposal. Stage 3 involves the implementation of the proposal.

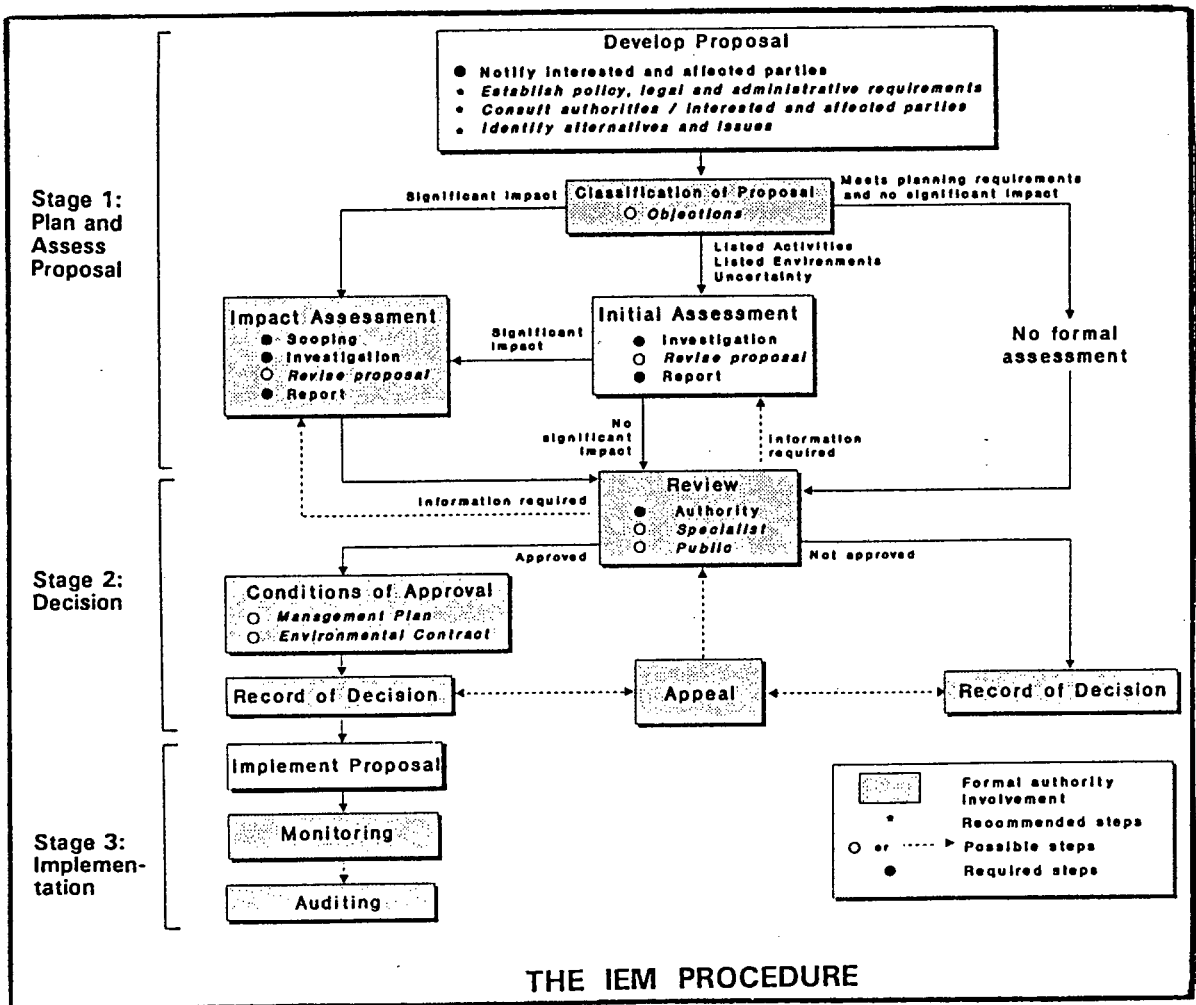


Figure 2 The Procedure for Integrated Environmental Management.

NM2002 forms a part of stage 1, the proposal development stage. The conclusions and recommendations from this assessment could be used to inform the process of further planning for mine closure.

## **2.4 COMPONENTS OF AN IMPACT ASSESSMENT**

There are three components of an impact assessment (Fuggle et al, 1992):

- **Scoping** determines the extent of and approach to the investigation. The alternatives and issues that should be investigated are determined in consultation with interested and affected parties and with relevant authorities.
- The **investigation** is guided by the scoping decisions and is intended to provide the decision-maker with enough information on the positive and negative aspects of the proposal and feasible alternatives.
- The **report** conveys the results of the investigation to the decision-maker and to interested and affected parties.

### **2.4.1 The scoping procedure**

#### **(a) Theoretical aspects of scoping**

Scoping is defined as an on-going, open and iterative procedure for determining the extent of and approach to an impact assessment (Fuggle et al, 1992). The process includes the following tasks:

- involvement of relevant authorities, and interested and affected parties
- identification and selection of alternatives
- identification of significant issues to be examined

- determination of the terms of reference for the impact assessment (ibid).

The main aims of scoping are:

- to provide an opportunity for the proponent and interested and affected parties to exchange information and concerns regarding the proposal, before the assessment is undertaken
- to focus the study on relevant issues and reasonable alternatives
- to facilitate an efficient assessment process (ibid).

Background information on the proposal (including need for the project, proposed actions, timing, method of operation etc.) is required to assist interested and affected parties to comment from an informed position during the scoping process.

**(b) The scoping process in NM2002 - observations on the approach used.**

Scoping took place by means of:

- letters sent to all relevant authorities and interested and affected parties; these parties were identified in consultation with a specialist who is experienced in research in the Namaqualand region
- meetings held with DBNM management and with representatives of employee organisations
- an employee survey
- meetings with community organisations.

The results of the above are documented in the Baseline Information Report (EEU, 1992). The effectiveness of the scoping process was influenced by the following:

- i Time available for both scoping and data gathering (3 months) required that both processes be undertaken simultaneously during the first fieldtrip. For example, the employee survey included:
  - aspects aimed at gathering socio-economic data
  - questions aimed at offering employees an opportunity for raising issues of concern.

In addition, meetings with community organisations undertaken specifically for the purpose of scoping, took place a month after the data-gathering field trip. Information could thus only be used to focus the assessment in retrospect.

The result of the above was that the scoping process was not used to focus the data-gathering process. This meant that in some cases, issues that were raised were not investigated; in others, irrelevant information was collected. Better planning could have resulted in the first fieldtrip being dedicated to scoping only. A later trip could have been focused on data-gathering.

- ii The proponent played a major role in the scoping process by considerably narrowing the terms of reference on the first day of fieldwork. The approach to the assessment had to be significantly altered before the survey was undertaken the following day. This could have been avoided by ensuring that the proponent was satisfied with the approach before the data-gathering trip was planned.
- iii Background information on mine closure was not provided by DBNM for interested and affected parties. The result was that employees and communities could not comment from an informed position. Rather than being an exchange of information, the process was one sided. Affected

parties felt vulnerable, cynical about DBNM's motivation for the study and unwilling to co-operate.

Being an initial study, DBNM was not in the position to provide any details on closure plans. However, an undetailed document outlining the reason for closure, company policy with respect to closure and issues expected to be addressed in the planning process, could have minimised the one-sidedness of the process.

#### **2.4.2 Theoretical aspects of the investigation of impacts and their application to NM2002**

##### **(a) Assessment and evaluation**

The following definitions are based on Stauth's unpublished PhD thesis (cited in Hill, 1991):

- Assessment is the process of collecting, organising, analysing, interpreting and communicating data that is relevant to some decision.
- Evaluation is the process of weighing information...the act of making value judgements or ascribing subjective values to data in order to reach a decision.

In this study, the assessment is based on the analysis and interpretation of data that included a combination of:

- issues that were raised by interested and affected parties as being relevant to the study
- quantitative data collected to deduce the magnitude of the social and economic impacts of closure and retrenchment.

The results form the basis for the formulation of recommendations for mitigation. The salient points from both the assessment and mitigation sections are drawn together in a conclusion.

An evaluation was not undertaken. Alternative courses of action were not assessed and it was thus not necessary to weight impacts for the purpose of decision making. Furthermore, priorities for mitigation were determined in accordance with the significance of the impacts, again requiring no weighting of impacts.

#### **(b) Consideration of alternatives**

According to Hill (1991), the emphasis in environmental evaluation reports in developing countries should be to identify options and inform the choice among alternatives.

The following are examples of the different levels at which alternatives could be applicable (Hill and Fuggle, 1990):

- alternative uses of resources
- alternative means to achieve specific objectives, eg. energy conservation versus a new power station
- alternative solutions for a specific objective, eg. alternative corridors for a freeway
- alternative design options
- management alternatives for the implementation of a project

Regarding the closure of DBNM, alternatives could refer to use of resources, methods of closure or management options. The diamonds could be exploited at maximum

rate of production or reduced rate of production (use of resources). Options for mine closure, assuming maximum rate of production, include the following variations:

- en masse retrenchment due to simultaneous closure of all complexes (Buffels Inland, Koingnaas and Buffels Marine);
- gradual retrenchment as production is reduced at all complexes simultaneously;
- gradual retrenchment, as production is reduced from the three complexes in a phased manner (EEU, 1992).

Specific timing associated with these possibilities is unknown.

The researcher has chosen not to assess the impacts in the context of the above project alternatives but to focus the assessment on a sudden (as opposed to gradual) closure in the year 2002. This decision was based on the following considerations.

- Unlimited options for the number of people that would be affected by retrenchment at different times are associated with the variety of time frames for closure.
- As a result of the above, the researcher felt that further input is required from DBNM to delimit the alternatives for closure. It is possible that further research would be needed to establish both the social and economic costs and benefits of extending or reducing the life of the mines.
- This is the first assessment of the potential effects of DBNM closure. The focus should thus be on impacts associated with closure in general, rather than on a variety of impacts associated with unspecified project actions.

### **2.4.3 The report**

#### **(a) Theoretical considerations in report compilation**

The purpose of the assessment report is to communicate the results of the finding to the decision-maker. Information should thus be organised to:

- explicitly show the impacts on different groups in the community
- emphasise the information that is useful to the decision-maker; background information should thus be reduced
- show the relationship between impacts and decision-factors
- show how the outcome changes with different assumptions
- ensure focus on linkages rather than on description
- make the trade-offs between environmental, social and economic factors explicit

#### **(b) The NM2002 report**

The status of the NM2002 report with respect to the above mentioned guidelines is considered.

- Impacts on different groups are explicitly shown. Both impacts and mitigation have been organised in accordance with different groups that may be affected.
- Background information has not been reduced because the report is an academic requirement for the degree of MPhil. It is thus fulfilling the dual role

of being an impact assessment report for a client as well as an academic report.

- Assumptions have been made explicit throughout the report.
- Social and economic impacts have been integrated to ensure that the linkages are recognised.
- The linkages, as opposed to the trade-offs, between environmental, social, and economic factors have been considered. The explicit communication of trade-offs is particularly relevant where alternative courses of action are possible.

## **2.5 SOCIAL IMPACT ASSESSMENT (SIA)**

### **2.5.1 Definition of SIA:**

Burdge (1990) writes that SIA has no single, universally accepted definition. However, content and subject matter consist of distinguishable components that consistently appear within the SIA process. To support this, the following variety of definitions were found in the literature. Freudenburg (1986) sees SIA as a part of the field of social science and a component of the policy-making process. Bowles (cited in Craig, 1990) defines SIA as the "application of social science methodology to assist in social planning". Other definitions suggest that SIA is a localised study of social change.

These are all components of the SIA process that are encompassed within a general definition that is put forward by Burdge (1990). He states that SIA is a systematic effort to identify, assess, evaluate and mitigate the social impacts of proposed projects and policy changes on individuals and social groups.

### **2.5.2 Purpose of SIA:**

In keeping with the above definition, the following may be included as part and parcel of the purpose of the SIA process: (Burdge, 1990; Craig, 1990)

- It is an attempt to predict the future effect of policies and projects on the physical and psychological health, wellbeing, lifestyles, institutions and traditions of affected people.
- The database of decision-makers is extended to include all likely social costs.
- The knowledge of affected communities on the broader implications of the proposed policy or project is increased.
- It is an attempt to balance social, economic and ecological interests.

### **2.5.3 Procedural aspects of SIA:**

#### **(a) Theoretical considerations**

Khan (1990) writes that procedure is critical to the success of any environmental impact assessment, particularly those incorporating social impacts. She has identified the following procedures as being important.

- Social impacts should be identified early in the decision making process so that the information derived can influence decisions.
- Relevant factors that might negatively predispose a community towards the project should be identified early.
- Relevant historico-political factors which have contributed to prevailing socio-political realities should be identified.

- All interest groups should be identified in order to ensure fully representative involvement.
- Provision must be made for public consultation, participation and involvement in decision-making; included here is the need for an avenue through which individuals and communities are able to express their needs and aspirations.

**(b) The application of procedural considerations in NM2002**

- This impact assessment has been commissioned almost a decade before mine closure is scheduled to take place. Ample time is available for the incorporation of the findings of the study into both the process of planning for closure and into further investigation that may be required.
- Factors that negatively predisposed affected parties to the impact assessment, and that may influence further planning for closure, came to light during community meetings at Kommaggas and Steinkopf. Community organisations expressed cynicism with respect to DBNM's motivation for undertaking the study. People stated that the company had in the past shown little interest in contributing to the development of the region and expressed doubt that this would change in the future. Recommendations for mitigating these perceptions are suggested in section 6.2.5.
- During the public participation process, a factor of historical and political importance contributing to the Namaqualanders' perception of reality, was highlighted. The question of land ownership is a controversial one in the region. For many Namaqualanders the current land reality is the result of steady encroachment and dispossession by white farmers and mining companies. De Beers' ownership of land for farming and mining forms part of the controversy. Further details on the land issue can be found in section 4.4.4(b).

There is a second issue of political importance that may affect plans for the mitigation of impacts. Community division in Namaqualand is extensive, with support partitioned between the local authorities and community organisations. Information on this issue can be found in section 3.4.2.

- Extensive efforts were made by the research team to identify all interest groups. Assistance was elicited from the community organisations, local authorities and from a specialist.
- Opportunities for public participation in this study were outlined in section 2.4.1. The extent of public involvement in the future depends on DBNM.

#### **2.5.4 The public involvement process:**

Public involvement in decision making is a key aspect of both the broader process of integrated environmental management and the more specific process of SIA. It has the potential to benefit both the project proponent and the community in several ways (Burdge, 1990).

- It functions as a means of educating the impacted community about the potential implications, both positive and negative, of a proposed action or alternatives.
- It is a means for affected communities to provide input to a proposed project before a final decision is taken.
- It may act as a catalyst for community self-evaluation.
- Alternatives that had not previously been considered may be suggested.
- It can assist with the identification of problems that may be associated with proposed actions.

- Through public involvement, the needs and values of the impacted population will be incorporated into the decision-making process.
- Costs that may be external to the project, and would otherwise have been overlooked, may be highlighted.
- It can act as a means of increasing the proponent's credibility.

## **2.5.5 Technical and political models of SIA**

### **(a) Theoretical aspects**

Craig, (1990) writes that there are technical and political aspects to many environmental decisions. She suggests that because technical and political decisions involve different decision-making tasks, the distinction should be clear. Hill and Fuggle (1988) write that both approaches are necessary at different stages of the IEM process. During the scoping process, the role of social values is of greater importance than the role of the scientific method. The situation is reversed during the impact prediction phase when impacts are quantified.

The following table has been adapted from Craig (1990) and indicates differences in approach:

**Table 2.1 Comparison of technical and political approaches in SIA**

Technical Approach	Political Approach
<ul style="list-style-type: none"> <li>• Emphasis on product not process</li> <li>• Decision-making process is portrayed as being objective; choice improved through provision of comprehensive, accurate, factual information;</li> <li>• emphasis on scientific method and quantification of impacts</li> <li>• Experts have predominant role in decision-making; citizens are consumers; scientific evidence is seen as objective and determinative</li> </ul>	<ul style="list-style-type: none"> <li>• Emphasis on community development and decision-making process.</li> <li>• Decision-making process portrayed as value laden and political; choice improved through citizen participation.</li> <li>• emphasis on articulation of needs and values</li> <li>• Scientific evidence and experts have some value but ultimate determinant of policy is seen as value choice</li> </ul>

**(b) The role of political and technical models in NM2002**

The study can be classified as fitting somewhere between the technical and political models of SIA. Where-as in the past, decision-making on an exercise such as that of mine closure would have been entirely in the realm of the DBNM experts, the situation currently is changing. The legalisation and recognition of trade unions in South Africa has initiated some information sharing on the part of employers. In addition, world trends towards accountability to people at grassroots level are encouraging a shift towards the political model.

Both quantitative and qualitative approaches have been used in the study. Public participation was an integral part of the study, as was consultation of DBNM experts. Use of the scientific approach is evident in the quantification of social and economic

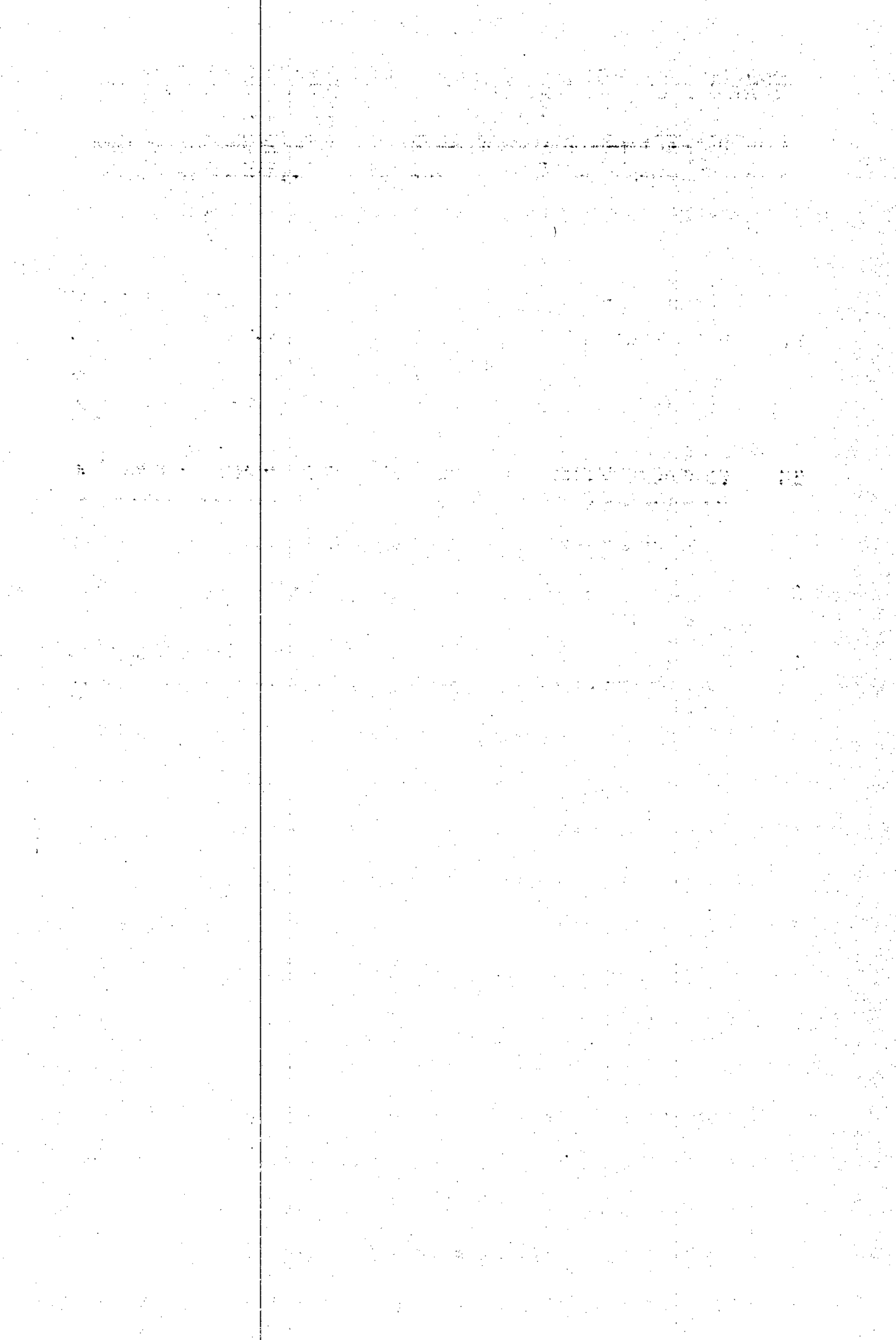
impacts as well as in the emphasis placed on the mitigation of employee concerns.

In the context of the political approach, the process is a long way from completion. Further planning for closure, incorporating the conclusions and recommendations of this study, requires ongoing participation with affected parties. The final decision, as to whether the technical or political approach dominates the planning process, rests with DBNM.

This researcher observed that the shift away from the expert model, as evidenced in the commission by DBNM for an impact assessment, was an uncomfortable one for the proponent. It prompted the following responses:

- the requirement of complete confidentiality of information
- concern by DBNM management that the report would have a worker bias
- the requirement by DBNM for the option to edit the draft document before interested and affected parties read it.

Despite these requirements, DBNM can be commended for being the initiator, in South Africa, of the assessment of the local and regional impacts of closure of a large concern. If a precedent is set, the consequences of the initiative will extend far beyond the borders of Namaqualand.



## **Chapter Three**

# **AFFECTED ENVIRONMENT**

3.1	INTRODUCTION .....	25
3.2	POPULATION CHARACTERISTICS OF NAMAQUALAND .....	25
3.3	ECONOMIC CHARACTERISTICS OF NAMAQUALAND .....	26
	3.3.1 Mining, agriculture, fishing, commerce and tourism. ....	26
	3.3.2 Namaqualand towns .....	27
3.4	CHARACTERISTICS OF THE COLOURED RURAL AREAS OF NAMAQUALAND .....	27
	3.4.1 Historical background .....	27
	3.4.2 Characteristics of the Coloured Rural Areas .....	28
3.5	CHARACTERISTICS OF THE DBNM TOWNS, KLEINZEE AND KOINGNAAS. ....	30
3.6	CHARACTERISTICS OF THE HERSCHEL DISTRICT IN THE TRANSKEI	30
	3.6.1 Infrastructure and facilities: .....	30
	3.6.2 Landuse .....	31

SECRET

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

## **CHAPTER 3**

### **AFFECTED ENVIRONMENT**

#### **3.1 INTRODUCTION**

Namaqualand is a sparsely populated semi-desert area in the north-west corner of South Africa. De Beers Namaqualand Mines, one of the major diamond mining operations in the area, are situated on the west coast, about 200 kilometers south of the mouth of the Orange River. The mines currently employ in the region of 3000 workers, the majority of whom are drawn from the surrounding local communities, particularly Kommaggas and Steinkopf. A small proportion come from the Transkei and Ciskei. Skilled workers come from a variety of areas and have mostly settled in the DBNM towns of Kleinzee and Koingnaas for the duration of their period of employment.

In this chapter there is a brief outline of the characteristics of Namaqualand including relevant points on the Coloured Rural Areas of the region. Facilities available at Kommaggas and Steinkopf as well as at Kleinzee and Koingnaas are described. Characteristics of the district of Herschel in the Transkei, the home of the majority of DBNM's Transkei workers, are presented.

#### **3.2 POPULATION CHARACTERISTICS OF NAMAQUALAND**

The preliminary results from the 1991 Census indicate that there are 60 084 people living in Namaqualand. Namaqualand is occupied mainly by the group classified as coloured (82%). The black population is small, representing only 4% of the population, while whites make up the final 14%.

According to the 1985 Census, Namaqualand's population is predominantly rural (59%), with 41% living in urban areas.

Low levels of education are characteristic of the region with 57% not having reached standard 6 (Dunne, 1986).

### **3.3 ECONOMIC CHARACTERISTICS OF NAMAQUALAND**

#### **3.3.1 Mining, agriculture, fishing, commerce and tourism.**

**Mining:** The region's economy has been based on mining since the discovery of copper in 1852 and diamonds in 1926. Despite metal price fluctuations and a declining contribution by this sector to gross geographic product (from 85% to 67% between 1978 and 1983), mining has remained the dominant activity. Diamond mining dominates, of which the contribution by DBNM is the greatest (77% in 1985). As a result of the community's dependence on mining, unemployment and impoverishment take place in periods of decline (Dunne, 1986).

**Agriculture** does not offer a substantial source of income or generate employment opportunities. Farmers are faced with the problems associated with limited water, scarce grazing and veld deterioration due to overgrazing. Crop production is undertaken on a small scale, in most cases irrigated by water from the Orange River.

**The fishing industry** is centred around Port Nolloth and Hondeklip Bay. In the late 1960's the industry collapsed, with employment decreasing drastically (Dunne, 1986). Measures have been introduced to facilitate the build up of the fish stocks but have proved unsuccessful. It therefore seems unlikely that the industry offers much hope as an employment generator in the region.

**Commercial activity** is restricted to urban areas. This sector, which includes catering and accommodation services, accounted for 9% of the gross geographic product of

the region in 1984 (EEU, 1992). Other than businesses in Springbok, and perhaps O'okiep, NababEEP and Port Nolloth which may offer some employment opportunities, businesses are generally small and family-owned (Dunne, 1986).

Tourism currently offers limited employment opportunities but has the potential of generating some income for the region. The majority of tourists visit the area to see the spring flowers. The recently created Richtersveld National Park may attract more tourists in the future when camping facilities and hiking trails have been developed.

### **3.3.2 Namaqualand towns**

The towns of Springbok and Kleinsee are the most economically active, accounting for 28,3% and 32,5% respectively of the total turnover of Namaqualand. The presence of major mining companies influences the turnovers of Kleinsee (DBNM), NababEEP (O'okiep Copper Mine), Aggeneys (Black Mountain) and Alexander Bay (Alexkor). Port Nolloth's turnover is dominated by the fishing and marine diamond mining enterprises.

## **3.4 CHARACTERISTICS OF THE COLOURED RURAL AREAS OF NAMAQUALAND**

### **3.4.1 Historical background**

The formation of the coloured rural areas dates back to late the eighteenth century. At this time white cattle farmers, known as trekboere, were encroaching on Namaqualand, moving northwards and occupying land through conquest. Indigenous Nama herders were driven into more arid areas. An additional threat came from the encroachment by mining companies wanting to exploit Namaqualand's mineral resources.

Towards the mid-nineteenth century, the indigenous people sought the protection of missionaries, who gave assistance in obtaining title to some land located around the

missions. Title took the form of 'tickets of occupation' issued by the Cape Colony. The land was transformed into small reserves which permitted the communal grazing of livestock. The indigenous people had no rights to mine the land. The demand by the mining companies to be allowed to appropriate land within the reserves was acceded to on the basis of 'compensation' being paid to the missionaries for use of land and water (Dunne, 1986).

Legal recognition of the reserves took place in 1909 and was reinforced in 1963 with the proclamation of Act 24, the Rural Coloured Areas Act. The Department of Local Government, Housing and Agriculture of the House of Representatives administers the CRAs under the Rural Coloured Areas Law, 1979, which amended Act 24 of 1963 (Dunne, 1986).

### **3.4.2 Characteristics of the Coloured Rural Areas**

Kommaggas and Steinkopf are two of the 6 Coloured Rural Areas (CRAs, also referred to as reserves) which comprise 34% of the total population (Emmett, 1987; Borchers et al, 1990). The Namqualand reserves have a variety of development problems. They are characterised by poor infrastructure, high rates of unemployment, low standards of living, general poverty and limited development potential (Emmett, 1987; Dunne, 1986).

Stock farming, originally the economic base of these communities, has declined with the increase of population and the deterioration of farming resources. People have consequently had to seek alternative sources of income and have come to depend on the wage labour offered by large mining concerns. Employment opportunities are severely limited for reserve inhabitants. Studies done in 1987 indicate unemployment rates of over 30% of the potentially economically active population. Of those employed, over 60% work outside the reserves (Rademeyer and Van Wyk, cited in Borchers et al, 1990).

Within the reserves, Management Boards are responsible for the administration of the reserves. There appears to be a high level of dissatisfaction with the Boards (Borchers et al, 1990; Emmett, 1987). A large proportion of board members are farmers and pensioners, criticised as having minimal education and being conservative. Artisans and labourers, constituting most of the economically active population, are poorly represented. Civic councils have been elected as an alternative to Management Boards and community support is generally divided between these two bodies (Borchers et al, 1990).

**(a) Characteristics of Kommaggas**

Kommaggas is situated 45 kilometers south west of Kleinzee. It has a population of 2650 people, made up by approximately 450 households (Borchers et al, 1990).

The town is accessed via one gravel road from Springbok, through Buffelsrivier and via a second gravel road from Kleinzee (with permission from De Beers). There is no electricity and members of the Water Committee only recently managed to secure access to water on a regular basis (Water Committee member, pers. comm.). There is a state aided primary school, a creche, a clinic and a police station. Shopping facilities include 3 or 4 small general dealers.

**(b) Characteristics of Steinkopf**

Steinkopf is situated 60 kilometers north of Springbok, crossed by both the Windhoek to Cape Town N7 and the road to Port Nolloth. The town is more than double the size of Kommaggas, estimated to have a total population of 5280 in 1990 (Borchers et al).

Steinkopf has electricity and a regular supply of water. There is 1 high school as well as 2 primary schools, a creche and a community clinic. Shopping facilities include approximately 8 general dealers, a butchery, 2 clothing shops, 2 garages, a post office and a bank.

### **3.5 CHARACTERISTICS OF THE DBNM TOWNS, KLEINZEE AND KOINGNAAS.**

Kleinzee and Koingnaas have houses and single quarters for 3300 and 864 people respectively. The towns are equipped with modern shopping centres, a total of two primary schools and 3 nursery schools, a hospital and excellent sports facilities. Electricity is supplied by Eskom and water comes from boreholes in the Buffels River bed and from the Orange River pipeline.

### **3.6 CHARACTERISTICS OF THE HERSCHEL DISTRICT IN THE TRANSKEI**

Information for this section comes from the specialist report by Lund (Appendix C, EEU 1992). Herschel adjoins the southern borders of Lesotho and the Orange Free State. The district consists of 69 villages, each with an estimated population of between 300 and 800 households. While the Development Band of South Africa estimates the population to be 117 000, Lund suggests it could be as high as 350000.

Herschel has been under the jurisdiction of the homeland government since Transkei took independence in 1976. The municipal and trading centre of the district is Sterkspruit. A Chamber of Mines recruitment office is situated in the town and has historically drawn workers from across Herschel.

#### **3.6.1 Infrastructure and facilities:**

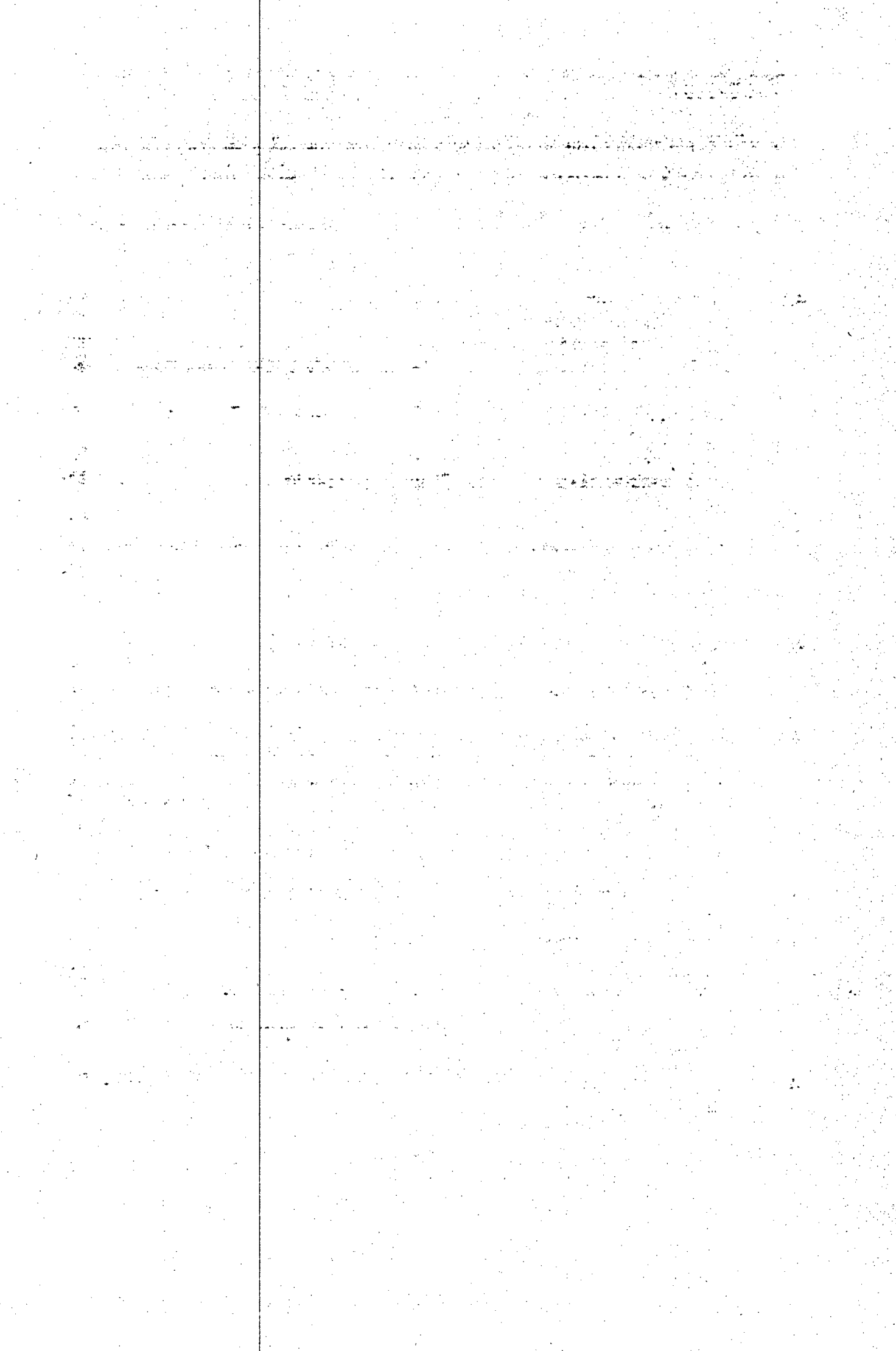
Water supply to Herschel is unreliable and the district is vulnerable to drought. While there is no electricity, other than to Sterkspruit, it is anticipated that some of the villages may be connected to the national grid in 1992. Village supplies of wood are depleted.

With respect to health and educational facilities, the following exist:

- two district hospitals run by the Transkei Dept of Health; village clinics have been built with a combination of community and government services
- one teachers training college, 1 technical high school, 8 high schools, 110 primary schools and many village schools.

### **3.6.2 Landuse**

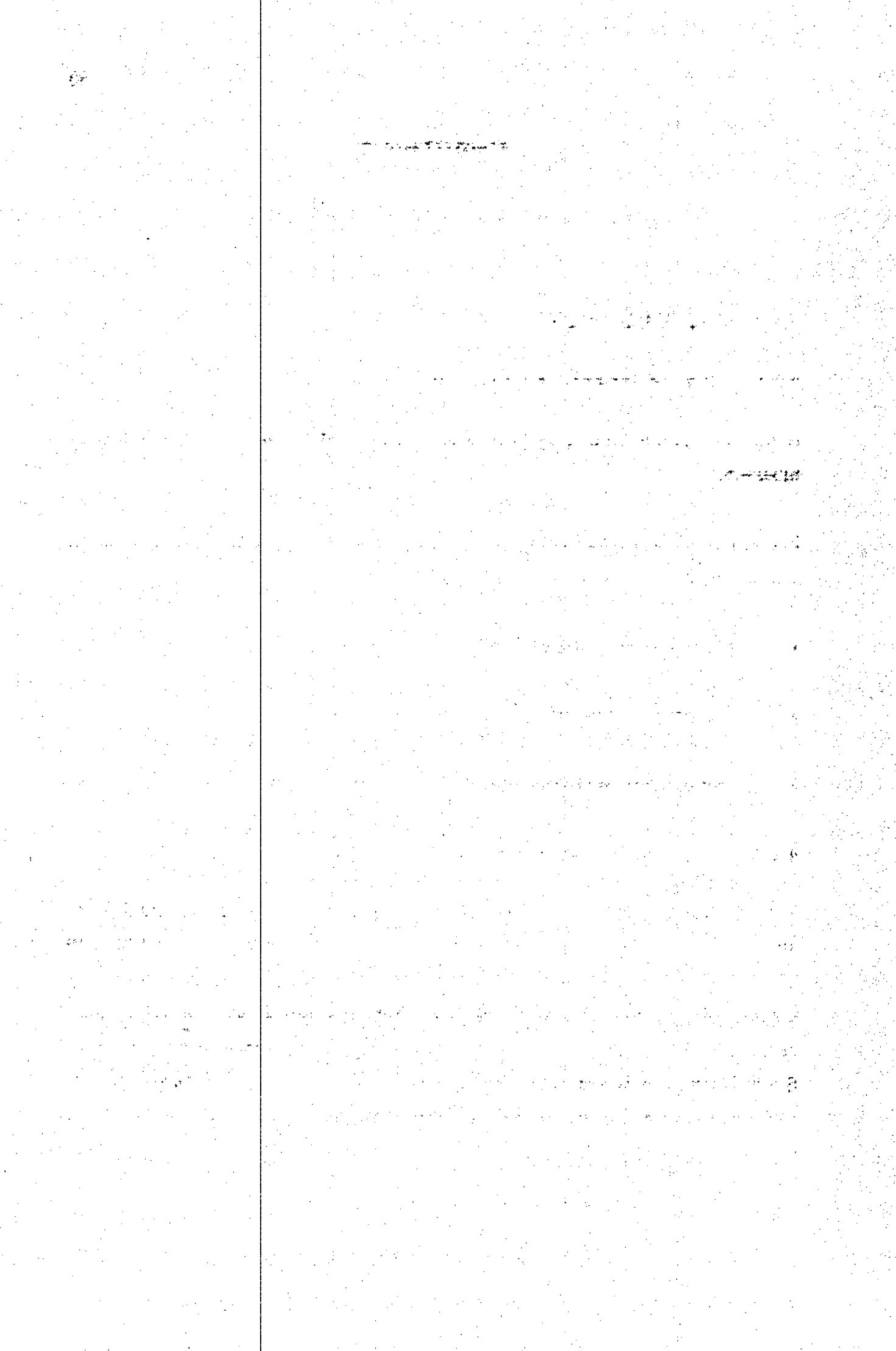
Grazing lands are used under village commonage arrangements and livestock such as cattle, goats, sheep and poultry are kept. Agriculture includes the cultivation of maize, wheat, peas, beans and sorghum. Quality and quantity of product is low and almost entirely consumed by the household. Natural vegetation has been severely reduced and the environment is susceptible to erosion.



# Chapter Four

## PROJECT IMPACTS

4.1	INTRODUCTION .....	33
4.1.1	Chapter contents and structure .....	33
4.1.2	Structure of the assessment .....	33
4.1.3	Sources of data used for different aspects of the assessment: .	34
4.1.4	Extrapolation of survey data .....	34
4.1.5	Definition of affected groups for the purposes of the study ....	34
4.1.6	Method of using data to establish impacts .....	36
4.1.7	Procedure for analysing impacts .....	37
4.1.8	Method of assessing significance of impacts .....	37
4.2	IMPACTS LIKELY TO BE EXPERIENCED BY DBNM .....	39
4.2.1	Reduced productivity due to decreased morale among employees	39
4.2.2	Loss of infrastructure .....	39
4.2.3	Rehabilitation of mined areas .....	40
4.3	IMPACTS ON DBNM EMPLOYEES AND HOUSEHOLDS .....	41
4.3.1	Retrenchment .....	41
4.3.2	Loss of access to employee benefits and DBNM resources ....	49
4.4	POSSIBLE IMPACTS ON NAMAQUALAND COMMUNITIES .....	52
4.4.1	Impact of mine closure on Kommaggas and Steinkopf .....	52
4.4.2	Possible impact on the natural environment .....	57
4.4.3	Perceived impacts - as expressed by consulted communities and employees .....	59
4.4.4	Concerns as expressed by consulted communities and employees	65
4.5	IMPACT ON THE COMMUNITIES OF KLEINZEE AND KOINGNAAS ..	67
4.6	POSSIBLE IMPACT ON SPRINGBOK .....	68
4.6.1	Economic effect on Springbok .....	69
4.6.2	Economic effect on different business sectors of Springbok ...	71
4.7	ECONOMIC IMPACT ON THE NAMAQUALAND REGION .....	74
4.8	PROBABLE IMPACTS ON THE COMMUNITIES OF THE HERSCHEL DISTRICT .....	75
4.9	IMPACTS ON REGION A, THE REST OF SOUTH AFRICA AND INTERNATIONALLY .....	76



## **CHAPTER 4**

### **PROJECT IMPACTS**

#### **4.1 INTRODUCTION**

##### **4.1.1 Chapter contents and structure**

A summary of the impacts of mine closure is available at the end of the chapter in table 4.8.

In this chapter, the effects of mine closure on the social and economic environments are described and analysed. Prior to this, clarification is required on the following:

- the structure of the assessment
- sources of data used for assessment
- the procedure of assessment

##### **4.1.2 Structure of the assessment**

The impacts of mine closure have been categorised in accordance with the different scales at which they may have an effect. The chapter thus starts with a consideration of impacts likely to be experienced by DBNM, followed by those experienced by employees and their immediate households. This is followed consecutively by impacts at the scale of local communities, Springbok, the Namaqualand region and finally, South Africa. The categories are not however mutually exclusive and the assessment of a particular impact, and related secondary impacts, may be expanded to other levels.

#### **4.1.3 Sources of data used for different aspects of the assessment:**

Impacts on employees are based on data gathered during a survey of a representative sample of DBNM employees. The questionnaire consisted of a section aimed at collecting demographic information as well as a section focused on employees' opinions and perceptions. Perceived impacts on communities are based on information gathered during meetings with leaders of community organisations in Kommaggas and Steinkopf. Economic impacts on Steinkopf, Kommaggas, Springbok and the Namaqualand region as a whole are based on data from a survey of businesses in the region. The survey was designed to obtain information on the estimated value of the economic impact of mine closure. National and international economic impacts are based on a technique called input-output analysis, described in the Baseline Information Report.

#### **4.1.4 Extrapolation of survey data**

Extrapolation of data gathered during the economic survey is discussed in detail in the Baseline Information Report (EEU, 1992) and will not be detailed here.

Data from the employee survey may be extrapolated from the sample of DBNM employees (size 143) to the DBNM population (size 2950) at an 8% precision level with 95% confidence.

#### **4.1.5 Definition of affected groups for the purposes of the study**

Results from the employee questionnaire were analysed for the whole sample and for three groups, Transkei, Mine and Namaqualand.

The estimated percentages and numbers for each group are given in table 4.1.

**Table 4.1 Percentages and numbers for the Namaqualand, Mine and Transkei Groups.**

Group	Percentage	Number and standard error
Namaqualand Group	55%	1622 (+-64)
Mine Group	27%	796 (+-31)
Transkei Group	18%	532 (+-21)
Total	100%	2950

The "Mine Group", for the purpose of this study, has been defined as consisting of those people who have permanent accommodation in Kleinzee or Koingnaas. This may be either a mine house or single quarters accommodation. Those who return home for the weekend or who have immediate family living elsewhere are excluded. The majority of people (other than those from Transkei or Ciskei) most likely to leave Namaqualand when the mine closes, in order to find work and live elsewhere, probably fall within this group.

The "Transkei Group" consists of workers recruited from the Transkei or the Ciskei, whose families live in those areas. These employees generally return home every six months for a two month stretch and have their contracts renewed when they return to the mine.

The "Namaqualand Group" consists of people who live in the region but either do not qualify for company housing or do not choose to accept it. Although most of this group live in the mine towns of Kleinzee and Koingnaas during the week, they return to their homes at least every second weekend.

There is a reason for stratification in this way. The South African history of racially discriminatory legislation has left a legacy of disadvantage to specific groups of people. In most cases, the pattern of disadvantage is associated with a geographical location. In an analysis of an unstratified sample, differing access to resources cannot be drawn out and measures of mitigation cannot be prioritised. One of the principles

upon which the recommendations for mitigation have been founded, is that of equity. Thus, those that are in the most disadvantaged situation, with respect to their socio-economic situation, should be prioritised for measures of assistance and mitigation.

#### **4.1.6 Method of using data to establish impacts**

The socio-economic profile of employees, as shown by the survey, has been used in two ways. Firstly, it indicates what the employee profile will consist of at the time of mine closure. This applies to employees other than migrant workers from Transkei or Ciskei. Variables such as age are not projected to closure date in 10 years time, but are taken to be an indication of employee ages at the time of closure. This assumes that DBNM will maintain a constant rate of employment and that posts will not be frozen. It further assumes that:

- the majority of new employees will be in the 18 - 25 age category
- the majority of employees leaving the company are retiring

Regarding the former assumption, it is recommended in section 5.3.2(b) that, where possible, this should become part of the employment policy. The latter assumption, while not entirely accurate, is unlikely to seriously jeopardise the value of the analysis. Employee turnover is estimated at 10% per annum (C. Claassen, pers. comm.), 3% of which can be attributed to retirement. The remaining 7% of employee turnover would alter the employee profile.

Another survey should be undertaken, once the decision has been taken not to replace employees that leave the company. In this second survey the socio-economic profile of employees should be projected to the time of closure.

Secondly, with respect to migrant workers from the Transkei and Ciskei, the socio-economic profile was projected to the year 2002. Calculations of age thus take into consideration the fact that employees who are 45 years now will be 55 years in 2002.

This method was used because recruitment of employees from these areas ceased in 1978 with the result that these employees are not being replaced.

#### **4.1.7 Procedure for analysing impacts**

There is a standard procedure for the consideration of each impact. The following headings are utilized consistently:

- **Description of impact:**  
This is an unquantified statement of the expected impact
- **Timing of impact:**  
An indication is given of when the impact is likely to be experienced
- **Interested and affected parties:**  
Parties for whom the impact has direct relevance are highlighted.
- **Magnitude:**  
Where possible, quantitative data is given on the magnitude of the effects of the impact
- **Impact significance:**  
An assessment of the significance of the impact is given, using the list of established criteria, described later in this introduction.
- **Mitigation:** A summary of the actions necessary to prevent or reduce the negative effects of closure. Where appropriate, suggestions for enhancing positive benefits of closure are made.

#### **4.1.8 Method of assessing significance of impacts**

According to the Council for the Environment (1989), judgements as to what constitutes a significant impact requires the consideration of both context and

intensity. Context has both a spatial dimension and a time dimension. Significance on a local level as opposed to the national level, or in the long term as opposed to the short term should be considered. Intensity refers to the severity of the impact, as judged by a knowledge-able authority or by the people affected by the impacts. Considerations of intensity would include, among others, the degree to which:

- the proposed action affects public health and safety
- the possible effects on the human environment are highly uncertain
- the action is irreversible
- the action may establish a precedent
- social costs have been absorbed as private costs.

For the purpose of this project the definitions of major, medium and minor significance are as follows.

An impact of:

- minor significance implies that the impacts are temporary and reversible; as long as mitigation measures are applied the impact will not be serious.
- moderate significance implies that the impacts are likely to have a greater effect and could be of medium term or long term duration; the importance of mitigation increases.
- major significance implies that the impacts are very important and may be irreversible. Resources required for mitigation would be substantial. There are likely to be significant secondary impacts.

## **4.2 IMPACTS LIKELY TO BE EXPERIENCED BY DBNM**

### **4.2.1 Reduced productivity due to decreased morale among employees**

**Description of impact:** The prospect of mine closure may cause reduced productivity among employees as a result of a decrease in morale and an increase in insecurity.

**Interested and affected party:** DBNM may be affected.

**Timing:** The impact may only take place a year or two before closure, when the distant prospect of retrenchment has become a reality to DBNM employees.

**Magnitude:** It is not possible to quantify this impact.

**Significance:** Despite the lack of quantification the impact is considered to be of minor significance. It could be minimised by an effective communication strategy, including items such as who will be affected, when they will be affected and how they will be compensated. Mitigation measures are discussed in section 5.2.1.

### **4.2.2 Loss of infrastructure**

**Description of impact:** Mine closure may result in a loss to DBNM of existing infrastructure in Kleinzee and Koingnaas.

**Interested and affected party:** DBNM could be affected.

**Timing:** Unless the towns are privatised by the time of closure, DBNM would have to write off the infrastructure.

**Magnitude:** Existing infrastructure includes, among others, 500 houses, 2 small shopping centres, 2 primary schools and 3 nursery schools, extensive sporting

facilities, a hospital, a sewage works and extensive mining equipment. In essence, mine closure could result in the loss of the infrastructure of two small towns.

**Significance:** The value of the existing infrastructure has not been calculated and the percentage loss to DBNM is thus unknown. Despite this, the impact is considered to be of minor significance for two reasons. Firstly, the company would probably have made financial provision for the loss, since closure would have been an inevitability from the time that DBNM started mining. Secondly, the possibility of privatisation of the towns exists. This avenue is considered in section 5.2.2.

#### 4.2.3 Rehabilitation of mined areas

**Description of impact:** The Minerals Act 50 of 1991 requires that rehabilitation will "be carried out by the holder of the mining authorisation" in accordance with "an approved rehabilitation program". DBNM will thus be responsible for the rehabilitation of the mined areas.

**Interested and affected parties:** DBNM will be affected in that the company will be both financially and physically responsible for the rehabilitation of mined areas. Interested parties include future Namaqualand generations who will inherit both the rehabilitated land and a choice of future landuses.

**Timing of impact:** While a rehabilitation program has yet to be clarified, the process of rehabilitation is underway (EEU, 1992).

**Magnitude of impact:** Neither the cost of rehabilitation to DBNM nor the resulting additional value of the land were quantified. The magnitude of the positive impact to future generations is unquantifiable.

**Significance:** It is not possible to rate the significance to DBNM of the cost of rehabilitation. In money terms the cost may be large, but in the context of moral

responsibility to leave the land in the natural condition that it was first obtained, this cost is reduced.

The significance of the positive impact on future generations (of inheriting rehabilitated land) is rated as major. The duration of this impact is infinite as are the number of people that in future centuries may be able to make use of the land.

### **4.3 IMPACTS ON DBNM EMPLOYEES AND HOUSEHOLDS**

#### **4.3.1 Retrenchment**

##### **(a) Description of impact**

Mine closure will result in the retrenchment of a large number of DBNM employees. In most cases, job loss means an involuntary change in status from being employed to a lower status of being unemployed (Ridley and Wilhelm (1988)). The result is usually a reduction in income available to meet individual and family needs. This change in employment and income status immediately appears to have the potential of most directly affecting economic functioning due to changes in the way basic economic needs are met (Ridley and Wilhelm (1988)). There may be a decline in the ability to pay for monthly expenditures such as the monthly food bill, education of children, hospital and health care, life insurance, local taxes, hire purchase.

##### **(i) Variables influencing the significance of the impact of retrenchment**

According to Ridley and Wilhelm, the adaptation to a stressful event such as retrenchment should be viewed as a process that occurs over time. The adaptation process and the outcome of adaptation are mediated by:

- the conditions and resources that exist at the time the stressor occurs;
- the conditions and resources that continue to be available throughout the process of adaptation.

In this context, it is suggested that the effect of loss of regular income can be examined through a consideration of the following:

- the socio-economic status of the employee and respective household prior to retrenchment; variables such as number of dependants, number of wage-earners in the household and status of assets (eg. accumulated personal savings) will be considered;
- factors affecting ability to find alternative employment; variables such as age, education, confidence in finding alternative employment and the economic climate may have some influence;
- financial resources that may be available after retrenchment, and prior to employees finding alternative employment; this aspect will be addressed in recommendations for mitigation.

(ii) **Assumptions made regarding the variables influencing the impact of retrenchment**

For the purpose of analysis, the writer made certain assumptions with respect to each of the variables. These assumptions are outlined briefly:

- average number of dependants: it is assumed that the greater the number of dependants, the greater the financial responsibility of the employee and thus, the more significant the impact of retrenchment is likely to be
- percentage of employees that are sole wage-earners for their respective households: assumption - the impact of retrenchment is likely to be more significant where employees are sole wage-earners
- status of financial assets: employees that are unable to accumulate personal savings for use during the period of unemployment are more vulnerable than those that have that capacity. For the purpose of analysis in this case, the

researcher has selected employees in the A Patterson Band as being most vulnerable to retrenchment. This is based on the following:

- nett income (ie. salary after deductions of 25 - 30%) for employees in this band may be between R500 and R850
- the average household subsistence level for blacks and coloureds in urban areas was reported to be R700 in 1990; employees earning the above-mentioned income would be able to pay for basic needs only.

- age: it is assumed that employees over the age of 45 years at the time of mine closure would be disadvantaged in their search for alternative employment.
- education: it is assumed that employees with no education as well as those with minimal education (primary school only) would be disadvantaged in their search for alternative employment.
- confidence: it is assumed that a negative attitude towards the possibility of finding alternative employment ( as indicated in the employee survey) may affect employees' motivation, and hence success, in finding work.

The magnitude of loss of income, as influenced by the above-mentioned variables, will be considered for the Namaqualand, Mine and Transkei groups as defined in the introduction.

**(b) Interested and affected parties:**

Employees and their households would be directly affected. The household includes the employee's direct dependants as well as others that are living in the home on a permanent basis.

**(c) Timing of impact:**

The timing in which the impact of loss of income will be felt is difficult to judge. In 1985, DBNM employees that were retrenched received a package of monthly income for 4 months. Using this as an indication of retrenchment packages in 2002 the effect of loss of income may only be felt once that money has been utilised. Households may, however, attempt to reduce their monthly expenditures before retrenchment takes place. By doing this they may be able to stretch the retrenchment package money over a longer period.

**(d) Magnitude of impact:**

Two aspects will be considered:

- the number of employees that will be retrenched
- the magnitude of the effect of loss of regular income

(Standard error is written in brackets for each calculation.)

**(i) The number of employees to be retrenched**

Retrenchment will affect an estimated 93% of employees (2248  $\pm$ 90) excluding those from Transkei and Ciskei. Of the remaining 7%, only 3% of the employees in the Namaqualand and Mine Groups will be eligible for retirement or early retirement. A further 3 or 4% may be eligible for transfer in accordance with DBNM policy on transfer.

Approximately 39% of the Transkei Group (207  $\pm$ 8) will be retrenched. The remaining 61% (320  $\pm$ 13) of this group will either already have retired or will be eligible for retirement.

(ii) **The magnitude of the effect of loss of regular income**

Tables 4.2 and 4.3 summarise the influence of socio-economic variables on the magnitude of the impact of retrenchment for each group.

**Table 4.2 Variables that influence the significance of the impact of retrenchment**

Variables:	Namaqua-land	Mine	Transkei	Total
Average number of dependants	2,8	1,9	7,3	-
Percentage of house-holds with sole wage-earner	41%	38%	77%	48%
Percentage of 2nd wage-earners employed by DBNM	34%	88%	none	
% in Patt. Band A	38%	5%	35%	31%

**Table 4.3 Variables that influence ability to find alternative employment**

Variables	Namaqua-land	Mine	Transkei	Total
<b>Age:</b> % between 46 and 55 years old	14%	8%	38%	22%
<b>Education:</b> a) none	-	-	27%	5%
b) junior school	32%	-	54%	27%
<b>Lack of confidence:</b> % that believe it will not be easy to find work	72%	54%	89%	70%

(e) **Significance:**

The significance of retrenchment on the different groups of employees is assessed comparatively. Table 4.4 summarises the estimated number in each group influenced by the selected socio-economic variables.

**Table 4.4 Summary of the impact of retrenchment on the Namaqualand, Transkei and Mine Groups.**

Variables	Namaqualand Group	Transkei Group	Mine Group
Number to be retrenched	1570	207	756
Total number affected, including dependants	4400	1400	1400
Number that earn less than the household subsistence level	615	186	40
Number with a primary school education	583	430	none
Number aged between 46 and 54 years	226	212	64

**(i) Namaqualand Group:**

Retrenchment is expected to be of major significance to the Namaqualand Group of employees. Overall, a large number of people will be affected. The total number affected by extreme conditions such as lack of personal savings, lack of education and a disadvantageous age is high, relative to the numbers affected in the Transkei and Mine groups. For these people, the impact on quality of life is likely to be serious. In addition, the effects of retrenchment may be long term in that the chance of finding alternative employment is slim. Employees children may also be affected. These assertions are supported by the estimates given below.

Of the approximately 1620 employees that fall into the Namaqualand group, an estimated 1570 ( $\pm 63$ ) may be retrenched (rather than take early retirement or be transferred). The average number of dependants for this group is given as 2,8 (EEU 1992). It can thus be estimated that in the region of 4300 people may be affected by the consequences of retrenchment.

An estimated 38% of the Namaqualand group were in Patterson Band A (EEU, 1992). These employees earn a nett income of between R500 and R850. It can be estimated

that approximately 615 ( $\pm 25$ ) employees in this group are unlikely to have personal savings to act as a cushion against the effects of unemployment.

More than 50% of the Namaqualand group are estimated to be unable to rely on a second wage-earner in the household. This percentage was reached by considering that 41% of the Namaqualand Group sample were sole wage-earners, and 34% of the remaining employees' households had second wage-earners employed by DBNM.

An estimated 36% had a primary school education only (583  $\pm$  23 employees). From the survey, it was evident that 14% of this group are between the ages of 46 and 55 years, equivalent to approximately 226 ( $\pm 9$ ) employees. A high percentage (72% of sample) felt it would not be easy to find alternative employment.

**(ii) Transkei Group:**

In comparison with the Namaqualand Group, the impact of retrenchment on the Transkei Group is of slightly less significance because fewer people will be involved. However, for most individuals within the group, the impact may be of major significance for the following reasons:

- the average number of dependants is high
- the majority have a low education level
- a high percentage earn an income that is insufficient for the accumulation of savings.

This assessment is supported by the information below.

Of the 532 people in this group, an estimated 207 ( $\pm 8$ ) are likely to be retrenched (as opposed to going on early retirement).

Considering the average number of dependants per employee from the Transkei or Ciskei is 7, the minimum number of people likely to be affected is estimated to be in

the region of 1400. The significance of the high average number of dependants should also be considered in the context of the strain on diminishing resources after retrenchment has taken place.

Financial economic resources prior to retrenchment were suggested as a factor influencing the effect of unemployment. Approximately 35% ( $186 \pm 7$ ) of the sample are in Patterson Band A (EEU, 1992) and can be expected to have no personal savings. The impact of unemployment is compounded by the fact that the majority of this group (77% in the sample,  $408 \pm 16$ ) are both the sole wage-earners and are likely to have difficulty in finding alternative employment.

The education level is low with 81% ( $430 \pm 17$ ) of the sample having an education of lower than standard 5. Approximately 27% of this number had no education at all. In addition, a high percentage of this group (almost 40% ( $212 \pm 8$ )) will be between the ages of 46 and 55 years at the time of closure in 2002. They will thus not qualify for early retirement, and may be considered by future employers to be too old for employment. The difficulty in finding new employment is corroborated by the fact that the vast majority of this group (89% in the sample) are of the opinion that it will not be an easy task.

**(iii) Mine Group:**

The impact of retrenchment on the Mine Group is considered to be of moderate significance.

Of the estimated 796 people in this group, 95% ( $756 \pm 30$ ) will probably be retrenched. If dependants are taken into consideration, a total of approximately 1400 people will be affected by the effects of retrenchment.

Only 5% ( $40 \pm 2$ ) of this group earns a salary of between R500 and R850. This suggests that by far the majority of the Mine Group would be able to accumulate personal savings to see them through the period of unemployment.

Approximately 8% ( $64 \pm 3$ ) are between the ages of 46 and 55 years. Nobody is without a senior school education. For the majority of this group, age and lack of education are thus in most cases, not likely to negatively affect the search for alternative employment. Only half of this group felt it would be difficult to find alternative employment.

In summary, this group displays greater mobility than either the Namaqualand or Transkei Groups. In some cases, retrenchment may even have a positive effect: People may take the opportunity to make a career change, study further or pursue other non-work related activities (Wolff, 1989).

#### **4.3.2 Loss of access to employee benefits and DBNM resources**

**Description of impact:** DBNM employees have access to company facilities and employee benefits. These benefits fall away when employees are retrenched.

**Interested and affected parties:** Retrenched employees and their dependants.

**Timing:** Company benefits are unavailable from the day of retrenchment.

**Magnitude and significance:** The significance of loss of employee benefits is difficult to assess. Items referring to the loss of specific benefits were not included in the survey and should be included in future studies. In some cases significance is rated on available information.

**Medical aid:** Benefit society members (all employees except migrant workers from the Transkei and Ciskei) would lose their entitlement to:

- free dental and medical treatment by a mine dentist/doctor
- free treatment at the mine hospital
- 60% subsidisation of all other medical bills

These benefits apply to the dependants of the above employees, at a monthly cost of approximately R60 per dependant.

Employees from the Transkei or Ciskei would lose their entitlement to free treatment (medical and dental) at the mine hospital for himself and a visiting wife.

With the information available, this impact is considered to be of moderate significance to the three groups. In the case of the Transkei Group, dependants will not be affected because they do not have access to treatment or medical subsidy. For the Namaqualand Group, it is uncertain to what extent employees make provision for medical aid for their dependants. If the majority of employees in this group pay the monthly fee for medical aid for dependants, this impact could well be major as a large number of people will lose access to medical treatment. This information is also unavailable for the Mine Group, but since people in this group are more likely to find alternative employment, the loss is less likely to be long-term.

Pension Fund: Employees that are not retirement age at the time of retrenchment, will not qualify for the company's contribution to their pension fund. They will however qualify for the repayment of their own contributions, in a lump sum, on the date of retrenchment.

With the available information the impact is considered to be of moderate significance. In the event that employees do not re-invest the money, they will no longer be making provision for their future and old age. The impact of greatest significance will be on people that are unlikely to find alternative employment. This impact may be softened by the availability of state pensions, but the value of state pensions in comparison with those of DBNM is unknown. Assessment of comparative loss can thus not be made. It is recommended that employees be advised on wise re-investment of pension monies.

Employees from the Transkei and Ciskei are classified as contract workers, working for 6 months and returning home for 2 months (Claassen, pers. com.). For these

employees, total years of service are reduced, affecting pension money available to retirees as well as to those that are retrenched.

Sporting facilities: All employees would lose access to facilities such as tennis and squash courts, swimming pool, golf course and playing fields. The yearly subscription fee is subsidised and thus minimal (C. Claassen, pers. comm., 1992). The significance of this loss is unknown, but is estimated to be greatest to employees of the Transkei and Namaqualand Groups. The facilities in the home towns of employees in these groups are poor.

Adult education classes, tutoring sessions and skills training: All employees would lose access to these facilities. It is not known to what extent adult education facilities are utilised. It is also not known what percentage of employees, particularly those in the lower Patterson Bands, benefit from skills training.

Building Loan: Employees who do not qualify for family housing at Kleinzee and Koingnaas would lose access to this benefit. A maximum loan of R10 000 at 4% interest rate is available. It is not known to what extent this benefit is utilised.

School subsidies: Families that live at Kleinzee or Koingnaas (employees above Patterson band C4) would lose the following subsidies:

- primary school fees: parents pay a yearly fee of approximately R20 per child
- boarding house fees - fully subsidised
- cost of transport to boarding school - fully subsidised

The monetary value of the loss of this benefit has not been calculated, but is estimated to be substantial. A limited number of families would be affected, (less than 10% of employees). Those that are affected are most likely either to be transferred to other De Beers mines, or to have little difficulty in finding alternative employment. The impact will thus not be intense or of long duration, and is considered to be minimal.

Subsidised shopping facilities: All employees would lose this benefit. Prices at the Kleinzee supermarket are equivalent to prices that are paid in a major centre, such as Cape Town or Johannesburg. Groceries are cheaper at Kleinzee than at Springbok.

Although no quantitative information is available, the loss is estimated to be of greatest significance to the Namaqualand Group. Employees that return home both daily and once or twice a month do their household shopping at Kleinzee. They will lose both the shopping subsidy, the convenience and the variety of goods that are available at Kleinzee. A possible advantage of the closure of the Kleinzee shops is that people will be forced to buy goods in their home towns, eg. Kommaggas and Steinkopf. The result may be enhanced business opportunities in these areas.

The Transkei Group is unable to make the facility available to their households. Employees of the Mine Group, being the most mobile, are likely to have such facilities available at their future homes.

#### **4.4 POSSIBLE IMPACTS ON NAMAQUALAND COMMUNITIES**

In this section, the impacts likely to be experienced by the communities of Kommaggas and Steinkopf will be considered. The impacts are summarised in table 4.5. These communities were focussed on because a high proportion of DBNM employees have their homes here (EEU, 1992).

##### **4.4.1 Impact of mine closure on Kommaggas and Steinkopf**

Impacts that may be experienced by the two communities will be considered in three categories. Firstly, possible impacts due to the decline in the economically active population will be described and quantified. Secondly, impacts raised at the community meetings will be considered. Thirdly, issues of concern, raised by employees during the survey, as well as at the community meetings, will be addressed.

**Description of impact:** It was noted in the outline of the conditions in the Coloured Rural Areas of Namaqualand (section 3.4), that 60% of the economically active population are dependent on work outside of the reserves. Loss of a major employer in the region, such as DBNM, and consequent loss of income-earners to local communities, is thus likely to have an impact that goes beyond that experienced by retrenched employees and their respective households. Decline in purchasing power, for example, is likely to result in a decline in the number of goods purchased from local stores .

**Timing of impact:** Although the decline in the economically-active population will take place as soon as people are retrenched, it may take some time before the full economic effects are felt. Timing is likely to depend on the period for which retrenchment packages are received.

**Interested and affected parties:** Businesses in the communities may be directly affected and may have to take some action in order to maintain economic viability. Community residents may lose access to the choice of goods that are currently being sold locally, with the result that a greater number of goods may have to be purchased in a larger centre such as Springbok.

Magnitude:

**Table 4.5 Summary of the effect of mine closure on Kommaggas and Steinkopf**

Description of components that may be affected	Kommaggas	Steinkopf
Percentage households that would lose a wage-earner	89%	40%
Percentage decline in turnover	36%	40%
Percentage of businesses that would take action in order to remain viable	38%	60%
Percentage of businesses that are currently financially stable or growing	50%	90%

**(i) Kommaggas**

Approximately 89,5% of the house-holds of Kommaggas will lose an income-earner due to retrenchments from DBNM. A further 2 people of the currently employed 24 people in Kommaggas (8,3%) may be retrenched due to the indirect economic effect of decreased expenditure by DBNM employees.

As a result of the DBNM retrenchments, it has been estimated that Kommaggas may experience a maximum decline in annual turnover of approximately 36%, or R0.93 million (EEU, 1992). This would be entirely due to loss of business emanating from DBNM employees.

The economic climate in Kommaggas could be negatively impacted. Half of the businesses in Kommaggas reported that they 'were growing' while the other half reported that they were not. DBNM closure could be responsible for tipping the balance into decline, considering, as noted above, a large proportion of business (36%) emanates from sales to DBNM employees.

38% of businesses indicated that they would have to take some action following DBNM closure. The type of action was however not stipulated, and could include a decrease in size of the outfit or a change in emphasis of product. None of the businesses indicated they would have to close down as a result of mine closure.

**(ii) Steinkopf**

Income earners of approximately 40% of households of Steinkopf will lose employment due to retrenchment from DBNM. A further 18 jobs, 18,3% of those currently employed in Steinkopf, may be lost due to the indirect economic effect of retrenchments. Total job loss may be increased to having an effect on 42% of households.

It was estimated that Steinkopf may experience a maximum decline in annual turnover of approximately 40% (R2,82 million) due to loss of business from DBNM employees.

At the time of the survey, 60% of businesses indicated that their outfit was growing while a further 30% said that business was stable. This gives an indication that businesses in Steinkopf are currently economically viable. 60% of businesses indicated that they would have to take some action in order to readjust to the new situation.

**Significance:** The turnover figures of Kommaggas and Steinkopf were estimated by the Regional Services Council (1992) to be R2,58 million and R7,02 million respectively. This represents 0,4% of the Namaqualand turnover in the case of Kommaggas and 1,1% of the Namaqualand turnover in the case of Steinkopf. Economic decline in the towns is thus unlikely to have a major effect on the region. The significance of the impact should therefore be seen in the local context.

The above-mentioned percentages for possible decline in turnover for Kommaggas and Steinkopf are initial figures only. They indicate the maximum possible financial loss due to closure. These calculations, however, assume that employees will stop all purchases after closure, an unlikely situation. Employee households will to some extent still have to make some purchases in order to stay alive. In addition, a few

retrenched employees will hopefully find alternative employment and maintain their level of purchasing.

#### **i) Kommaggas**

Information gathered by means of the economic survey is contradictory with respect to the significance of the impact on Kommaggas. The impact is, for this reason, considered to be of moderate significance, with the potential of having major significance.

On the one hand, according to Taylor et. al (1990, p187), the nature of small businesses makes them particularly prone to financial crisis. Small businesses generally have a relatively low annual turnover, a small number of staff and a close link between the ownership and management functions. Given these characteristics, decisions made by the manager/owner may be heavily influenced by confidence in the future of the business as well as in the local economy. Small businesses may therefore not attempt to out-live the crisis, an impact of long-term significance. This possibility is supported by the fact that 50% of Kommaggas businesses believe that they are not growing. The loss of further business may indeed be serious to at least half of the shops. Closure of shops would affect the variety of goods available to Kommaggas residents, resulting in the need for increased shopping expeditions to Springbok. From this perspective, the loss may be of major significance.

On the other hand, it appears that although more than one third of this small town's annual turnover could be lost, indications are that businesses could recover. The loss is a result of decreased business from DBNM employees, some of whom may find alternative employment, thereby resuming expenditure. Furthermore, more than 60% of businesses indicated that they would not have to take any action to maintain viability after mine closure. None of the businesses felt they would be forced to close down. From this perspective the impact may be of moderate significance.

While there is a considerable difference in the percentage of households being affected in Kommaggas and Steinkopf (89% and 40% respectively), there is only a

small difference in percentage loss of turnover (36% and 40% respectively). This is possibly an indication that Kommaggas households buy a large proportion of their goods outside of the town, probably at Kleinzee. Closure of this store could positively affect businesses in Kommaggas.

#### ii) Steinkopf

The impact on Steinkopf business has been rated as being moderate for the following reasons:

- The impact on Steinkopf can be expected to be less severe than that on Kommaggas. This assertion is substantiated by the fact that the turnover of Steinkopf is almost 3 times that of Kommaggas, with a greater variety of businesses and, as a result, increased economic resilience.
- Only 10% of business indicated that they were in financial decline (as opposed to 50% in Kommaggas). It is thus possible that the majority of businesses would be able to survive the initial loss of business from DBNM employees.
- The one aspect that may be of major significance is the retrenchment of almost 20% of people employed in Steinkopf. However, this may only be a temporary effect and could be avoided if businesses are able to prepare for the loss of income well in advance.

#### 4.4.2 Possible impact on the natural environment

**Description of impact:** According to Emmett (1987), while the establishment of the mining industry in Namaqualand generated new opportunities of wage employment in the region, it was subject to fluctuations in demand. The result was that people combined stockfarming with wage labour, in order to secure economic survival.

While this strategy has helped people to maintain a level of subsistence, it has also placed a strain on agricultural resources (ibid). Many people who may have made the transition to full wage employment, have maintained a stake in the limited agricultural resources of the community. Also, as many stock-owners rely on other sources of income, they are not forced to abandon unviable farming operations, thus relieving pressure on agricultural resources. The result has been over-stocking, over-grazing and soil erosion (ibid).

With large-scale retrenchments from DBNM, many people may be forced to depend on stock farming until they find alternative employment.

**Interested and affected parties:** Communities and future generations may be affected by a further decline in what is already a degraded natural resource.

**Timing:** The effect of retrenchment and associated accumulation of stock will not be immediately noticeable, since overgrazing is already a part of the landscape of the coloured rural areas.

**Magnitude:** Although only 27% of the Namaqualand Group indicated that they owned stock, others may have to obtain stock to ensure subsistence. Overstocking in Kommaggas and Steinkopf was estimated at 94% and 1043% respectively in 1987 (Archer, 1992). The likely increase in overstocking and associated overgrazing has not been quantified. Further investigation would be required to give an indication of the magnitude of the impact.

**Significance:** It is not possible to assign a significance rating to this impact. There is some uncertainty as to whether or not this impact would take place. The issue was not raised by local communities or DBNM employees, implying that it is not perceived to be of significance. The researcher chose to make the point since the question of the degradation of natural resources in Namaqualand is mentioned frequently in relevant literature.

#### 4.4.3 Perceived impacts - as expressed by consulted communities and employees

The purpose of identifying issues and impacts that are perceived by interested and affected parties to be of importance is to ensure that the scope of the assessment includes all socially relevant issues (Fuggle et al, 1992). In addition, according to Albrecht and Thompson, there is evidence demonstrating the importance of attitudes and perceptions in affecting the response of residents to a proposed project. Changes in attitudes can be an important outcome of the project and may, in turn, affect the local quality of life. The authors also suggest that acknowledgement of the importance of attitudes and perceptions may lead to mitigation programs that are responsive to the needs of local residents.

In each case, the perceived impacts are described, followed by a discussion of their possible magnitude and significance. This informal assessment is based on a combination of the researcher's observations and on information extracted from a literature review.

##### a) **Perception: there will be an increase in unemployment in Namaqualand**

It was predicted that mine closure would increase the already high levels of unemployment, since local communities were largely dependent on DBNM for employment. People were also concerned that employment opportunities for their children would be decreased. Some stated that they had hoped that their children could "follow in my footsteps at DBNM".

**Interested and affected parties:** This issue was raised at the community meetings in Kommaggas and Steinkopf, at the meeting with women's groups in Kommaggas and by employees in the employee survey. The Kommaggas Management Board did not concede that increased unemployment in the region was a concern.

**Magnitude:** In order to gain an indication of the significance of this perceived impact, it is necessary to present some quantitative information, on the scale of unemployment

in Namaqualand. The impact of retrenchments from DBNM will be placed in this context.

Dunne (1986), presented the labour force participation rate (LFPR) for Namaqualand. Of the total population of 66 403, 39 651 (60%) were eligible for work (manpower) and 25 803 (39%) were employed (labour supply). By dividing the labour supply figure by the manpower figure, Dunne arrived at the LFPR of 65%. The actual unemployment rate in Namaqualand, excluding children and the aged, was thus 35%. While these figures are outdated, they suffice for the purpose of giving an indication of the potential increase in the rate of unemployment with DBNM closure.

**Table 4.6 The increase in unemployment due to DBNM closure**

	Census data, 1980, cited in Dunne (1986)	Loss of 1540 DBNM employees (Namaqualand Group)
Manpower	39 651	39 651
Labour supply	25 803	24 263
LFPR 65%	65%	61%
Unemployment rate	35%	39%

The retrenchments resulting from the closure of DBNM must be placed in the above context. The calculation is summarised in table 4.6. The employment figure minus the number of potentially retrenchable DBNM employees (Namaqualand Group) gives a LFPR that could decline from 65% to 61,19% with the event of mine closure. The unemployment rate could thus increase from 35% to 39%. Including the indirect loss of an additional 253 jobs, the unemployment rate could increase further to 40,1%.

**Significance:** The above figures assume that of those that will be retrenched from the Namaqualand Group, no-one will find work immediately. This is probably a fair assumption since it is unlikely that there will be large scale increases in demand for employees at other mines in the region. This assertion is substantiated by the fact that the contribution to GGP by the mining sector has been declining since 1978 and

there are not further large scale plans for development in this sector (EEU, 1992). In addition Dunne (1986) notes that there was a trend of declining remuneration that took place at the same time that the output of the mining sector was increasing. This is likely to indicate a trend of increasing mechanization and an associated decline in labour requirements. Other sectors in Namaqualand have not shown any trend of either increasing output or labour requirements.

Considering this and the possible increase in unemployment from 35% to 40%, it can be asserted that the significance of this impact could be major. A large number of people will be affected, probably for an indefinite period of time. The secondary effect of unemployment may be despondency, apathy and poverty. Retrenched employees will be forced to seek employment outside of Namaqualand, where distances may be too great to return home on weekends. This may have a secondary effect on family life.

**b) Perception: there will be a drop in school attendance levels**

**Description:** It was predicted by the Kommaggas and Steinkopf communities that pupil numbers would drop as families left the area in search of employment. This may result in a decline in the numbers of teachers, possible closure of smaller schools, and an increase in illiteracy (EEU, 1992).

**Interested and affected parties and timing of impact:** Schools in Kommaggas and Steinkopf and teachers working at the schools may be the affected parties in the medium to long term. Decline in the number of pupils is unlikely to take place instantaneously. It may take time for people to decide whether or not they should leave their home towns. In the long term, the remaining community could be affected by a possible decrease in education facilities and ultimately, by a drop in level of literacy.

**Magnitude:** No suitable quantitative data collected. Information that is required to verify this perceived impact includes the following:

- Likelihood that families may migrate out of Kommaggas and Steinkopf
- Number of children likely to be lost to the Kommaggas and Steinkopf schools
- Average percentage of income that goes to school fees.

**Assessment:** Due to a lack data, it is not possible to attach significance to this impact. A few comments on the issue will be made. The impact is likely to be different for the two communities. Considering Kommaggas has only one primary school and one creche, and, as discussed above, a large percentage of Kommaggas house-holds include a DBNM employee, the perceived impact could be valid. Supporting this possibility is the fact that a large percentage of DBNM employees that were interviewed (EEU, 1992) indicated that they would seek alternative employment beyond the borders of Namaqualand. It was however not established whether these employees would take their families with them. Women in Kommaggas indicated that families would not follow their husbands because:

- women would have great difficulty in finding employment elsewhere
- women would not want to leave their home environments.

If this is the case, migration of families out of Kommaggas is unlikely to be the real reason for decline in the number of pupils at school. Inability to pay school fees could be a contributing factor.

In Steinkopf, the situation could be less severe. There are 4 schools, and a smaller proportion of households being affected by retrenchments. The loss of pupils to the schools would thus probably be more diffuse.

**c) Perception: there would be a lowering of quality of life**

**Description:** It was predicted that a lowering of quality of life would be a result of decreased services provided by local authorities (water, electricity, health). These would be reduced or terminated if unemployed residents were unable to pay their accounts (EEU, 1992).

**Interested and affected parties:** Local communities.

**Timing:** The effect on provision of services may not be immediate.

**Magnitude and significance:** Quantitative information on the impact of a decline in services has not been collected. Significance can thus not be rated. This is an issue which the communities themselves should investigate and plan for.

**d) Perception: there would be a negative impact on the local economy**

It was predicted that local small business that had developed as a result of the mine, would be negatively affected by mine closure (EEU, 1992).

This issue was discussed in some detail in section 4.4.1.

**e) Perception: there would be social decline and an associated increase in crime**

It was predicted that unemployment would lead to social decline and an increase in crime. In addition, the increase in migrant labour could result in the breakdown of the family structure.

**Interested and affected parties and timing of impact:** Should this impact take place, the entire community and future generations could be affected in the long term.

**Significance:** Despite a lack of quantitative information to ascertain the potential magnitude of this impact, it is rated to be of major significance. It is a long term process that is difficult to reverse, could affect the safety of many people and may also affect future generations. The association between unemployment, poverty and crime in South Africa has been commented on by Wilson and Ramphele (1989):

One of the most tangible social consequences of poverty is crime... where there is poverty, where work is difficult to find, and where society is in a process of upheaval for whatever reason, people are more likely to rob or assault others, sometimes in order to gain a living or to make ends meet, sometimes out of sheer frustration. Crime is both a product and a cause of profound insecurity and despair in which millions of people find themselves trapped.

Apart from the clear linkage between poverty and crime as documented above, there are 2 further aspects that may contribute to social decline in Kommaggas and Steinkopf:

- breakdown of family structure resulting from an increase in migrant labour
- loss of leadership potential from the community as a result of increased migrant labour

As noted in the section on an increase in unemployment, the likelihood of finding alternative employment opportunities in Namaqualand is minimal. People may be forced to seek work outside the region, where distances are too great to return home for weekends. This may result in a breakdown in family structures and an associated lack of support, guidance and discipline for children.

A second effect of increased migrant labour, is the possible loss of leadership potential from the community. Grady et al (1987) suggest that the degree of integration of employees within their communities and participation in community affairs should be investigated. The loss of these employees could affect both formal and informal community organisation, with a secondary effect on community well-being.

The Namaqualand communities appear to be male dominated, with males taking on the majority of the community leadership roles. The writer observed that in Kommaggas the trade union (National Union of Mineworkers) appeared to be a cohesive force within some sections of the community. Retrenchment and loss of union related people to migrant labour elsewhere could affect community cohesion. In addition, Emmett (1987) writes that a result of migrant labour is that communities become the home of pensioners, children and women.

#### **4.4.4 Concerns as expressed by consulted communities and employees**

In general, concerns raised by employees during the survey and by communities during the meetings were similar. They have thus been integrated for the purpose of discussion. Broadly, the concerns can be categorised as follows:

- areas of uncertainty, specifically related to the nature of mine closure
- attitudes and beliefs regarding DBNM.

Firstly, with respect to the areas of uncertainty, there are three major issues:

- reality of and reason for mine closure
- nature and timing of mine closure
- nature of retrenchment and the retrenchment package

It is assumed that such concerns are likely to stem from a lack of knowledge, and may result in increased insecurity on the part of DBNM employees, their households and local communities. The emphasis is thus on measures to mitigate these concerns. Recommendations are made in section 5.3.4.

With respect to attitudes and beliefs regarding DBNM, the two major issues include:

- the question of land ownership
- the perception of a lack of input by DBNM into the Namaqualand region.

These concerns are discussed briefly in the context of available information and literature.

**a) Lack of input by DBNM into the region**

Concern was expressed that DBNM had contributed minimally towards development in the Namaqualand region (EEU, 1992).

**Discussion:** From an examination of DBNM internal memorandums dealing with expenditures on community development, it was possible to establish that between 1986 and 1989 the company spent between R40 000 and R60 000 per year. The money was spent on various items in the Namaqualand communities. There was no further expenditure in this area for 1990 and 1991. R89000 was spent in Sterkspruit in 1989 (C. Claassen, pers. comm.).

Using 1991 DBNM turnover figures, and assuming an annual expenditure on community work of R100 000 (which is more than it is) it can be calculated that the amount spent represents 0,02% of the total annual turnover of DBNM. Since it is difficult to attach significance to this, further information is required.

According to the 1991 De Beers Consolidated Mines Limited Annual Report, expenditure on community investment totalled R62 million from the Anglo American and De Beers Chairman's Fund for the year. Roughly, DBNM community investment represents 0.15% of the total De Beers and Anglo community investment. To place this into context it is necessary to establish what percentage of the total diamond production of South Africa is accorded to DBNM.

In the absence of monetary values, a figure for the total carats produced in South Africa in 1985 was used (Dept. of Mineral and Energy Affairs, 1986). Of a total of 10 205 936 carats recovered, DBNM contributed approximately 1 000 000 carats, or roughly 10%. From this rough comparison, in the context of community investment by De Beers and Anglo, it appears that expenditure in Namaqualand is minimal.

## **b) Land ownership issue**

The belief was expressed unanimously at the meetings that the land currently owned by DBNM rightly belongs to the inhabitants of the Kommaggas and Steinkopf reserves. People strongly feel that this land should be returned to these communities following mine closure.

**Discussion:** Controversy over land ownership forms a large chapter in the history of Namaqualand. In the last 10 years, struggles over land have centred around the communal ownership of land in the reserves while the government has attempted to implement a policy of privatisation. Also during this period, communities have made various land claims, stating that they were historically dispossessed by mine companies and encroaching farmers (Surplus People Project, 1991).

Land claims have become particularly intense in the last two years, since the government passed new land legislation which may threaten the future of the reserves. The content and basis of these claims by communities has not been investigated further than a few archival and deeds office searches (ibid). One of the objectives of a project proposed by Surplus People Project is to:

"investigate allegations of recent land losses which occurred from 'illegal' sale of Trust land to white farmers as well as to mining companies.

in:

et:

## **4.5 IMPACT ON THE COMMUNITIES OF KLEINZEE AND KOINGNAAS**

The existing social network in Kleinzee and Koingnaas would collapse as retrenched employees leave the towns following mine closure. No data was collected that would specifically indicate the impact on these communities. The following remarks are based on personal observation and informal discussion with residents of Kleinzee and Koingnaas

Residents of these towns would probably lose aspects of the quality of their lives. Such aspects would be associated with:

- the secure and intimate lifestyle that is often a part of living in a small community
- loss of employee benefits such as subsidised housing, schooling and sporting facilities.

People informally spoke of :

- the freedom that they and their children experienced as a result of the absence of crime in the towns
- the presence of a support system, associated with the intimacy of interpersonal relationships in the small DBNM towns
- the absence of social pressure and potential isolation associated with living in a large centre

#### **4.6 POSSIBLE IMPACT ON SPRINGBOK**

The general purpose of economic impact assessment is to measure changes in the level of economic activity resulting from a specific action (Leistriz and Murdock, 1981). In this section, the potential impact on the economy of Springbok will be considered.

The impacts will be examined at 3 levels:

- economic effect on Springbok in general
- economic effect on the different business sectors of Springbok
- the effect on consumers

#### 4.6.1 Economic effect on Springbok

**Description of impact:** Loss of business from DBNM and employees could affect the overall economy of Springbok. In addition, since Springbok has been identified as the primary supplier of goods in Namaqualand (EEU, 1992), any economic impact may have a secondary effect on the region. Three issues will be considered:

- the economic loss to Springbok and ramifications of this loss
- the effect on the business climate, and a change in perception from that of general growth to possible decline
- the effect on business confidence and the possibility of panic because a large percentage of businesses have some connection with DBNM

**Interested and affected parties:** The business community as well as people who use Springbok as a shopping centre could be affected.

**Timing of impact:** It is difficult to anticipate the likely timing of the effect on the Springbok economy.

**Magnitude:**

- According to data collected in the economic survey (EEU, 1992), 15,7% (R75,3 million) of Springbok turnover emanates from business with DBNM and employees. Of this amount, R55,95 million, (11,66%) of Springbok turnover, comes from direct business with DBNM. A further R19,35 million comes from business with DBNM employees.

It should be noted that there is information contradicting the above figures. According to information from DBNM on payments made by the company directly to suppliers, (EEU, 1992) businesses in Springbok receive only

R20,335 million and not R55,95 million as suggested in the survey. This discrepancy could be due to over reporting by businesses or due to exaggeration stemming from faulty sampling. Taking this into consideration, percentage loss to Springbok may be reduced to 8,7%.

As a result of economic decline in Springbok, 165 people (5% of total numbers employed in Springbok) may be retrenched.

- An estimated 60% of businesses reported growth in Springbok. 53% of businesses in Springbok reported that they would have to "take some action", eg. change business focus or strategy. A total of 22% said they would have to retrench workers.
- The majority of businesses in Springbok (93%) said they have some link with DBNM (do some business with DBNM).

**Significance:** The impact of economic loss to Springbok is considered to be of minor significance. The percentage decline in turnover (between 8 and 15%) is relatively small in comparison with that expected in smaller communities. There is greater economic diversification and therefore greater economic resilience than in small towns. In addition, 51% of turnover of Springbok leaves the region, and goes to suppliers in larger centres such as Cape Town and Johannesburg (EEU, 1992). The implication of this is that the actual loss to businesses in Springbok is only half of what it appears to be.

It may be possible to mitigate the loss if there is a concerted effort by businesses to change their business focus. The impact may be medium to long term, but could be reduced to short term if mitigation measures are implemented early. The most serious aspect appears to be the retrenchment of 165 people, which could also be minimised should business focus be altered.

The current general climate of economic growth in the town could be a positive factor in that the momentum could carry the town through the initial impact of closure. In addition, only half of the businesses indicated that they would have to take some action following closure, in order to remain financially viable. The other half would be able to maintain their rate of turnover, and could temporarily be responsible for ensuring that economic disaster in Springbok does not take place.

Possible panic that could be caused in the short term because 93% of businesses have some business link with DBNM or employees, would probably be avoided by the awareness that the NM2002 study has created. This positive impact should be optimised. Intense concern might be caused by over-reaction to media coverage of mine closure or to rumour, before actual effects of closure have been calculated. Careful mitigation measures could be effective.

#### **4.6.2 Economic effect on different business sectors of Springbok**

**Description of impact:** Loss of business from DBNM and from DBNM employees may cause differential economic decline in the various business sectors of Springbok, viz. mining, construction, transport, suppliers, household (includes clothing and furniture). This information is thus useful as a qualitative (as opposed to quantitative) indication of economic impact. Springbok purchasers may experience shortages in specific areas.

**Timing of impact:** The impact of business loss directly from DBNM may be felt sooner than the impact of indirect loss from DBNM employees. This would be the case if DBNM decreases purchases as production is reduced. Employees may reduce spending considerably after retrenchment but are unlikely to stop spending altogether. Some may find alternative employment.

**Magnitude:** The direct and indirect business links between DBNM and economic sectors of Namaqualand are shown in table 4.7. A direct link implies business with DBNM, while an indirect link implies business with employees.

**Table 4.7 Direct and indirect business links between economic sectors of Namaqualand and DBNM.**

Description of business link	Mining	Construction	Transport	Suppliers	Household: (clothing/ furniture)
Sector as % of Springbok	23,9	7,8	21,3	35,5	5,5
% business link with DBNM	27,5	13,8	6,7	5,9	7,8
% business link with employees	0,47	1,61	5,02	3,90	19,71
Total link	27,9	15,4	11,8	9,8	27,52
% leaving region	67,7	49,3	54,9	39,3	38

Certain information from the table will be highlighted:

- i) the sectors with the greatest percentage loss (due to loss of business directly with DBNM, indirectly with DBNM employees and a combination of these) would be as follows:
  - Direct loss: Mining 27,5%;
  - Indirect loss: Household 19,71%
  - Combined loss: Mining 27,9%  
Household 27,52%
- ii) The construction sector may experience a loss of 13,8% of its turnover (the 2nd highest loss) due to loss of business directly with DBNM.

**Significance:** Significance will be discussed in the context of the impact on the relevant sector and on the region.

It is assumed that a loss of business stemming from business links directly with DBNM will be of greater significance than a loss stemming from business with DBNM employees. Business with DBNM employees may decline temporarily but has the

potential of picking up again when some of the retrenched employees find alternative employment.

- Mining sector: With reference to the above assumption, the loss to the mining sector could be of greater significance than the loss to the household sector (27,5% as opposed to 7,8% respectively due to business directly with DBNM). Loss to the mining sector is nonetheless rated as having only minor significance because almost 70% of the mining sector turnover leaves the Namaqualand region. The impact will thus be experienced by the supplier rather than the retailer in Springbok. A secondary impact of a decline in the variety of goods available to mining industries is also considered to be of minor significance. These industries have the capacity to 'import' goods from outside the region.
- Household sector: The impact is rated as having minor significance for the following reasons:
  - in line with the above assumption, the sector has the potential of recovering from the impact when employment levels increase since the greatest loss will be due to reduced business with DBNM employees;
  - the sector constitutes a minimal contribution to the Springbok turnover (5,5%);
  - the impact on consumers (due to a decline in variety of goods available) may have moderate significance. It may be expensive and time consuming to purchase the required goods from larger centres.
- General Suppliers: Further research is required here. The percentage loss due to links both with DBNM and employees is the lowest. However, it is important to note that this sector makes the highest contribution to Springbok turnover and has one of the lowest percentages of money leaving the region. This sector is thus of value to the Springbok economy. In the event that percentage loss due to links with DBNM employees is greater than anticipated, the impact could be of significance.

## 4.7 ECONOMIC IMPACT ON THE NAMAQUALAND REGION

**Description of impact:** Loss of business from DBNM and employees could affect the overall economy of Namaqualand.

**Interested and affected parties:** Communities of Namaqualand

**Timing:** Unknown

**Magnitude:** An indication of the potential economic decline in Namaqualand due to DBNM closure may be deduced from the following measures:

- The regional services council would lose 29% of the total fees paid to them by all businesses in Namaqualand.
- Central Government would lose R91 million in income tax, paid by DBNM and employees. As a result, the Namaqualand region may not benefit from expenditures on items such as infrastructure that may have been made prior to closure.
- According to data extracted from the economics survey (excluding Springbok) (EEU, 1992), 22% of the total turnover of Namaqualand emanates from business with DBNM and DBNM employees. This percentage includes R16,53 million from DBNM directly and a further R14,33 million from DBNM employees. These figures are however questionable in the light of information from DBNM on payments of R22,483 million made in Namaqualand. R22 million of this goes to Port Nolloth for petroleum, which in reality, is paid to the supplier. This leaves R14,33 million emanating from business with DBNM employees (10% of Namaqualand turnover) as the greatest potential loss.

**Significance:** The significance of the loss to the Regional Services Council is unknown. Information is required from this body on the total amount of money that is available and the amount required for annual expenditure.

The loss to the region due to decreased expenditure in the region by central government is also unknown. Income tax paid to this body decreased from R237 million to R72 million from 1989 to 1990 as a result of company restructuring. The impact of this impact should be investigated to establish likely impact of further reduction.

Financial loss to the region due to a decline in economic expenditure by employees is minimal (10% of total turnover). This loss is more likely to have major significance in the local context of small towns such as Kommaggas and Steinkopf, than in a regional context.

#### **4.8 PROBABLE IMPACTS ON THE COMMUNITIES OF THE HERSCHEL DISTRICT**

A report on the socio-economic impact of DBNM closure on the Herschel district of Transkei was prepared by Sue Lund (Appendix C, EEU, 1992). No specific meetings were held nor survey undertaken. The information arises from the author's knowledge of the district. The salient points have been summarised.

The survival of the majority of Herschel's population currently depends on migrant labour remittances and old age pensions. Farming activity and local enterprise gives a small boost to household subsistence. The loss of regular incomes from DBNM employees can thus be expected to "have a profound negative effect on the employees direct dependants and influence a destitute rural community" (EEU, 1992).

Lund states that the impact of DBNM closure will be felt at three levels in Herschel. Firstly, there is direct impact on the employees and their dependants in loss of income to the household for meeting basic daily needs.

Secondly, Lund writes that any loss of -or reduction in- basic income from an older earner usually forces the household's youngsters to abandon schooling in search of employment for household support. As wage work declines, the chances of finding employment drop and the youngsters find themselves in urban poverty, with little education or training and slim possibility of starting a viable small enterprise.

Thirdly, Lund writes that:

"The return of approximately 500 employees to Herschel places added strain on an already over-burdened and impoverished social fabric, particularly in demands on the following aspects of weak infrastructure: medical services, water supply, and wood fuel. These basic needs would have been met for the employees during their terms of employment through DBNM infrastructure."

#### **4.9 IMPACTS ON REGION A, THE REST OF SOUTH AFRICA AND INTERNATIONALLY**

**Description of impact:** Input-output analysis (EEU, 1992) was used to establish the economic impact of DBNM closure on Region A (including Namaqualand), the rest of South Africa (excluding region A) and internationally. Figures are based on estimates for a 1995 closure in 1985 prices. The method is described in the Baseline Information Report. Monetary values indicating the possible magnitude of impact are given. They are however not placed in context and it is thus not possible to give an indication of the significance of the impacts. Information requirements for assessment are highlighted.

**Interested and affected parties:** National and international business communities may be affected. In region A the business communities and consumers may be affected.

**Timing:** Unknown

**Magnitude:**

**i) Region A:**

Closure in 1995 may result in a total loss of demand for inputs from all sectors of R14,47 million. Remaining demand by mining industries in region A, for inputs from region A is R14,022 million (less than 50%).

The services sector stands to lose the greatest percentage of its business when DBNM closes (6,77% or R9,19 million). This sector consists of services such as legal, accounting, bookkeeping, data processing, advertising, engineering and architectural. The loss may be spread among a large number of small businesses, some of which may rely on a sole client such as DBNM (EEU, 1992). Consumers in region A may thus be impacted by a decline in the variety of services, some of which may have to be 'imported' into the region at greater cost.

The machinery sector, which plays a minor role in the region, may lose less than 4% (R0,51) of total turnover. Other sectors such as rubber, furniture and electricity/water/gas may experience a 1 - 2% loss of business.

**ii) Rest of South Africa (excluding region A):**

Total loss of demand for inputs from all sectors may be as high as R90,653 million (1985 prices). Remaining demand for inputs for Region A's diamond mines would be approximately R87,797 million (less than 50%).

The machinery and services sector would be hardest hit, both losing approximately 4% of their business. In monetary terms, the machinery sector may lose R14,7 million, while the services sector may lose as much as R63,7 million. Other sectors with losses between 1 - 2% are: iron/steel, electricity/water/gas, and rubber products.

**iii) Loss to the international business community:**

Total loss of demand for inputs from businesses overseas is in the region of R10,455 million.

**Significance:** The significance of these financial losses is unknown. In general terms, the significance of loss is likely to decrease, as the context in which it is being assessed increases. In a greater scale the losses are being borne in the context of a greater overall turnover, and by a greater number of businesses. Thus the significance of the economic impact of mine closure may be major to region A, moderate in a national context and minimal in an international context. In this instance, it is not possible to assess the significance of regional impact, without consulting the Development Bank of South Africa. This institution may be able to give an approximate turnover figure for region A, and offer an opinion on the significance of the above-mentioned drop.

For region A, the rest of South Africa and internationally, the loss of demand from DBNM constitutes approximately 50% of the total demand for inputs from the region A diamond industry. Considered in isolation, this may be viewed as a major impact. However, the percentage contribution of the region A diamond industry as a whole, to the overall turnovers of Region A, the rest of South Africa and internationally should be further investigated in order to arrive at a percentage loss.

**Table 4.8 Summary of impacts, showing interested and affected parties, description of impact, significance and comment on significance rating.**

Interested and affected parties	Description of impact	Significance and comment
DBNM	<b>Reduced productivity</b> due to decreased morale and insecurity among employees	Minor:  Impact could be minimised by an effective communication strategy.
DBNM	<b>Loss of infrastructure</b> of two towns, Kleinzee and Koingnaas.	Unknown, but probably minor:  Provision likely to have been made for the loss.  Privatisation of the towns may be possible.
DBNM  Future generations	<b>Cost of rehabilitating</b> mined areas.  <b>Inheritance</b> of rehabilitated land	Unknown.  Major Benefit: an indefinite number of people could benefit in the long term.
DBNM employees and households of the Namaqualand group	<b>Impact of retrenchment on the Namaqualand Group</b>  •retrenched: 1570  •total affected: 4400  •no savings: 615  •primary educ.: 583  •aged 46 to 54 yrs: 226	Major:  The total number of people that will be affected is high.  The number affected by extreme conditions (eg. lack of savings and education) is high relative to the numbers affected in the Transkei and Mine Groups.
DBNM employees and households of the Transkei Group	<b>Impact of retrenchment on the Transkei Group</b>  •retrenched: 207  •total affected: 1400  •no savings: 186  •primary/no educ.: 430  •aged 46 to 54 yrs: 212	Major: Fewer people will be involved (in comparison with the Namaqualand Group).  Significance is still considered to be major because the majority are affected by extreme conditions (no savings, minimal education, advanced age).

<p>DBNM employees and house-holds of the Mine Group</p>	<p><b>Impact of retrenchment on the Mine Group:</b></p> <ul style="list-style-type: none"> <li>•retrenched: 760</li> <li>•total affected: 1400</li> <li>•no savings: 40</li> <li>•primary educ.: none</li> <li>•aged 46 - 54 yrs.: 64</li> </ul>	<p>Moderate:</p> <p>This group displays substantially greater mobility than either of the previous groups.</p> <p>All employees have a high school education and few have no savings. A minimal number may be affected by advanced age.</p>
<p>DBNM employees and house-holds</p>	<p><b>Loss of access to employee benefits and DBNM resources.</b></p>	<p>Unknown: Items referring to the loss of specific benefits should be included in future employee surveys.</p>
<p>Kommaggas business and community</p>	<p><b>Economic impact on Kommaggas.</b></p> <p>Loss of 36% of turnover (R0,93 million)</p>	<p>Moderate, but could be major:</p> <p>Major: small businesses may not have the capital to outlive the financial crisis; if this is the case, the loss to Kommaggas could be longterm.</p> <p>Moderate: there are indications that businesses could recover</p> <p>Possible benefit: closure of Kleinzee supermarket may increase business in Kommaggas.</p>
<p>Steinkopf business and community</p>	<p><b>Economic impact on Steinkopf.</b></p> <p>Loss of 40% of turnover (R2,82 million)</p>	<p>Moderate.</p> <p>Impact less severe than on Kommaggas, due to increased economic resilience.</p> <p>Indications that businesses could recover.</p> <p>Additional retrenchment could be avoided if businesses prepare for loss.</p>
<p>Namaqualand communities and future generations</p>	<p><b>Increase in land degradation as a result of increased dependence on subsistence.</b></p>	<p>Unknown and difficult to quantify.</p>

Namaqualand communities	<p><b>Perceived impact: potential increase in unemployment.</b></p> <p>The researcher estimated that unemployment could increase from 35% to 40%.</p> <p>Approximately 89% and 40% of households in Kommaggas and Steinkopf respectively are likely to be directly affected by retrenchment.</p>	<p>Major.</p> <p>Entire Namaqualand community could be affected</p> <p>No prospect of large-scale employment opportunities at other Namaqualand mines</p> <p>Secondary impacts include apathy, despondency, poverty</p> <p>People may be forced into migrant labour</p>
Namaqualand communities and schools	<p><b>Perceived impact: decrease in school attendance</b> and resulting increase in illiteracy.</p> <p>Pupil numbers may drop because:</p> <ul style="list-style-type: none"> <li>- families leave the area</li> <li>- parents unable to pay school fees</li> </ul>	<p>Unknown.</p> <p>Information required:</p> <p>Likelihood of families migrating from Kommaggas and Steinkopf</p> <p>Number of children likely to leave school</p>
Namaqualand communities	<p><b>Perceived impact: decrease in quality of life.</b> This could result from a reduction in services offered by local authorities if residents were unable to pay their accounts.</p>	<p>Unknown.</p> <p>Monthly payments for water, electricity and health services were not investigated.</p>
Namaqualand communities and future generations	<p><b>Perceived impact: social decline and increase in crime rates.</b> This could be the result of:</p> <ul style="list-style-type: none"> <li>•breakdown in family structure due to an increase in migrant labour</li> <li>•loss of leadership potential as a result of increased migrant labour; this could affect formal and informal community organisation.</li> </ul>	<p>Unknown but could be major.</p> <p>There is a documented association between poverty and crime.</p> <p>Social decline is a long term process that is difficult to reverse. The safety of people could be affected.</p>
DBNM employees and communities	<p><b>Concerns</b> were expressed about the following:</p> <ul style="list-style-type: none"> <li>•reality of and reason for mine closure</li> <li>•nature and timing of mine closure</li> <li>•nature of retrenchment and the retrenchment package.</li> </ul> <p>These concerns could result in increased employee insecurity.</p>	<p>The significance was not rated. Emphasis is placed on recommendations for mitigating these concerns are made.</p>

<p>DBNM employees and Namaqualand communities</p>	<p><b>Concern about the lack of input by DBNM into the region</b></p>	<p>The significance was not rated but the concern was found to be valid.</p> <p>DBNM expenditure on community work represents 0.15% of community investment by De Beers and Anglo American. DBNM contributes 10% of South African annual diamond production. This implies that the concern is valid.</p>
<p>Residents of Kommaggas and Steinkopf</p>	<p><b>Concern that land owned by DBNM belongs to inhabitants of Kommaggas and Steinkopf.</b></p>	<p>Significance not rated.</p> <p>Local people have made various land claims in the past decade but none have been investigated.</p>
<p>Springbok business community and consumers</p>	<p><b>Loss of business from DBNM and employees may affect the economy of Springbok.</b></p> <ul style="list-style-type: none"> <li>•There may be a decrease in turnover of between 8 &amp; 15%</li> <li>•An additional 165 people may have to be retrenched, as a result of economic decline in Springbok</li> </ul>	<p>Minor:</p> <p>The percentage decline in turnover is small in comparison with that of Kommaggas and Steinkopf.</p> <p>Diversity in economy therefore greater resilience.</p> <p>51% of turnover leaves the region. This implies reduced loss to Springbok.</p> <p>It may be possible to mitigate the loss and minimise additional retrenchment by changing business focus.</p>
<p>Springbok business community and consumers</p>	<p><b>There may be differential economic decline in the various economic sectors of Springbok.</b></p> <ul style="list-style-type: none"> <li>•Mining sector may lose 27,5% in turnover as a result of direct loss of business with DBNM</li> </ul> <p>Household sector may lose 27,5% in turnover, the greatest percentage of which would be due to loss indirectly from employees</p>	<p>Minor: The impact is rated as minor because almost 70% of the turnover of the mining sector leaves the Namaqualand region. The financial impact on business in Namaqualand could be less than half of what has been estimated.</p> <p>Minor: The household sector has the potential of recovering from the impact when employment levels increase.</p>

Namaqualand Regional Services Council	<b>The Namaqualand Regional Services council may lose 29% of the fees paid by businesses in the region.</b>	Unknown: Information is required from the RSC on the total amount of money that is available and required for expenditure.
Namaqualand region: businesses and communities	There may be a <b>loss of expenditure in Namaqualand by central government</b> due to a decrease in income tax paid by DBNM and employees	Minor: Income tax paid to this body decreased substantially in 1990 as a result of company restructuring. In this context, further loss will not be significant.
Namaqualand region: businesses and communities	There may be a <b>loss of 10% of total turnover</b> of the Namaqualand region	Minor: On a regional scale this impact is minor.
Region A: Loss to business community and consumers	<b>Loss of demand for inputs from all sectors in region A</b> is estimated to be R14,47 million.	Unknown: In order to place this into context, an approximate turnover figure for Region A is required.
South Africa, excluding Region A - business community	<b>Loss of demand for inputs from all sectors in South Africa (excluding Region A)</b> of R90 million	Unknown: Figures are required for the estimation of percentage loss
Inter-national business community	<b>Loss of demand for inputs from businesses overseas</b> is in the region of R10,455.	Minor:

## Chapter Five

# RECOMMENDATIONS FOR MITIGATION

5.1	INTRODUCTION .....	85
	5.1.1 Rationale for mitigation .....	86
	5.1.2 The extent of DBNM's responsibility to affected communities ...	87
	5.1.3 Draft policy on mine closure .....	88
5.2	RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY DBNM .....	90
	5.2.1 Mitigation of decreased morale; insecurity; rumour .....	90
	5.2.2 Mitigation for the loss of infrastructure .....	92
5.3	RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY RETRENCHED EMPLOYEES .....	94
	5.3.1 Legal requirements regarding the mitigation of retrenchment ...	94
	5.3.2 Mitigation of Retrenchment .....	96
	5.3.3 Mitigation of the conditions that may increase the magnitude of the impact of retrenchment. ....	98
	5.3.4 Mitigation of employee concerns .....	101
5.4	RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY AFFECTED NAMAQUALAND COMMUNITIES ...	105
5.5	SUMMARY OF THE RECOMMENDATIONS MADE BY LUND (EEU, 1992): MITIGATION OF IMPACTS IN THE HERSCHEL DISTRICT .....	107
	5.5.1 Mitigation of effects on employees .....	107
	5.5.2 Mitigation of effects on younger dependants .....	108
	5.5.3 Mitigation of effects at community level .....	108
5.6	OPTIMISING THE BENEFITS OF NM2002 .....	108

## CHAPTER 5

# RECOMMENDATIONS FOR MITIGATION

### 5.1 INTRODUCTION

In this chapter, measures that will soften the negative impacts and optimise the positive impacts will be recommended. The chapter starts with a consideration of:

- the rationale for mitigation
- the extent of DBNM's responsibility to affected communities
- the need for a policy on mine closure

In keeping with the categorisation of impacts, mitigation is discussed on different scales and from the perspective of the following interested and affected parties:

- DBNM
- employees of DBNM
- affected local communities (specifically Kommaggas and Steinkopf)

In each case, the impacts for which mitigation is being recommended, are summarised.

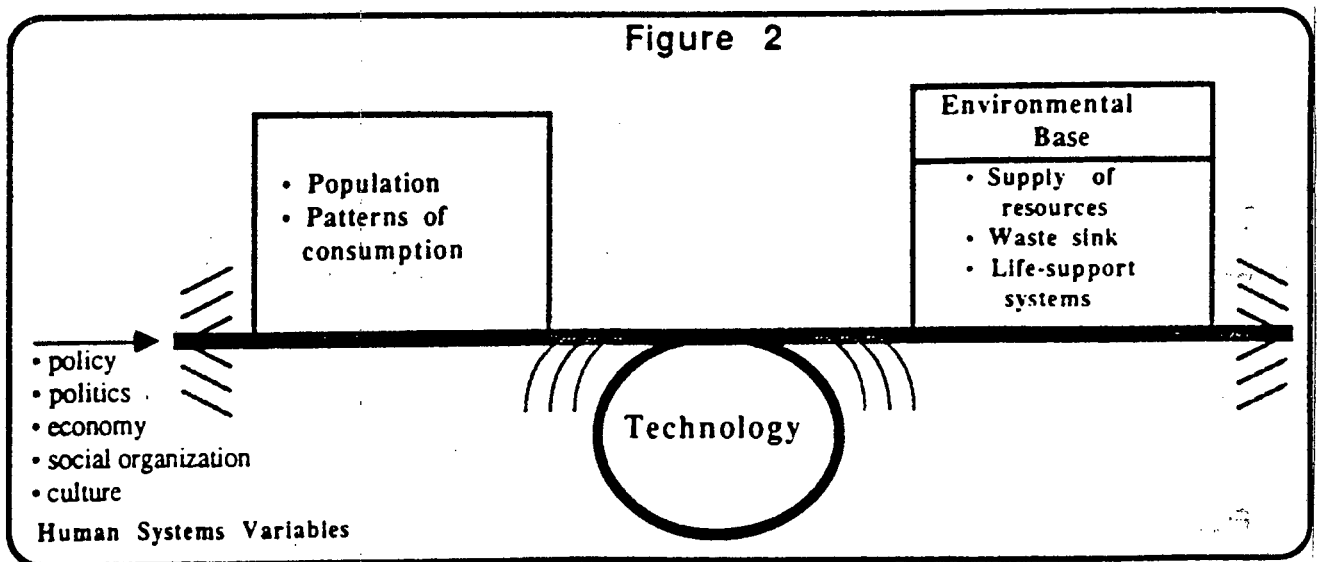
At the end of the chapter there is a brief summary of the recommendations made by Lund (EEU, 1992) for the mitigation of impacts likely to be experienced by people from the Herschel District.

### 5.1.1 Rationale for mitigation

According to Yap (1989):

The challenge of sustainable development may be pictured as achieving a balance between population and patterns of consumption on one side and environmental functions on the other. Technology is a non-rigid spherical pivot and other human system variables are the bar. The more resilient the human system, the more pliant the bar and the greater the flexibility for maintaining the balance.

This concept is depicted in figure 2 below:



**Figure 3** A representation of the concept of sustainable development (Yap, 1989).

In this context, the rationale for developing and implementing measures for the mitigation of the impacts of closure, is to ensure the continued resilience of the human system. Where the exploitation of a non-renewable resource is concerned, in this case diamonds, the balance is vulnerable and destined for disruption with the depletion of the resource. Any development that has taken place as a result of the mining project is likely to lose its foundation.

Despite the problems associated with an economy based on the exploitation of a non-renewable resource, it is unlikely that this form of development will be abandoned in the short term. Jackson et al (1992) suggest that in the long term the objective should be for the economy of both Namaqualand and South Africa to move away from such heavy dependence on a non-renewable resource. In the interim, it is important that mining should be emphasised as a means toward development, and not simply as an end in itself.

The conventional concept of development is currently being challenged. 'Development' can no longer be restricted to meaning an increase in economic activity. Sustainable development involves the total development of society, and depends on an interaction of economic changes with social, cultural and ecological transformations (Barbier, 1989).

The quantitative dimension is associated with an increase in the material means of the poor for physical and social wellbeing. The qualitative dimension is associated with the longterm social, cultural and ecological potential of a society for supporting economic change (ibid).

From this perspective, DBNM has a particular responsibility to communities that have had some link with the company, eg. through employment. Not only is there a need to soften the impacts of closure; the company should also ensure that some long term improvement of quality of life remains with these communities after closure.

### **5.1.2 The extent of DBNM's responsibility to affected communities**

While it may be argued that DBNM is neither a welfare organisation nor an agency for regional development, the weight of this argument is reduced slightly in the broader context of the need for development that is sustainable. Yet the fact remains that DBNM does not have responsibility for development on a regional scale. The writer's

recognition of this is evident in the fact that emphasis for mitigation has been placed in areas where it has a direct impact on DBNM employees, their households and associated communities.

Regarding affected communities, it has been recommended that DBNM play a role in initiating, facilitating, and financing **community efforts** to mitigate the effects of unemployment. This should be done in conjunction with regional development agencies and in the context of existing development strategies. DBNM would thus be playing an indirect (but vital) role in ameliorating the impacts of mine closure on affected communities.

### **5.1.3 Draft policy on mine closure**

In 1991, the Environmental Evaluation Unit was appointed by De Beers Consolidated Mines (DBCM) to provide input on the formulation of policies and plans which would guide:

- the decommissioning of DBCM mines
- the rehabilitation of DBCM mined areas

A document was compiled that incorporated considerations for a draft policy on mine closure (EEU, 1991). Key statements that have relevance to this impact assessment have been extracted from the document.

It is stated that the purpose of the policy was to guide the mine closure process in such a way that:

- the closure is done in a socially responsible manner which aims to assist in the generation of alternative employment opportunities and minimise negative effects on local and regional economies and infrastructure;
- damage to the social and natural environment is minimised.

Certain stated key assumptions have relevance to this study:

- De Beers personnel will play an integral part in forming the policy and in implementing action plans that may result from it;
- The process undertaken in generating and implementing mine closure plans will be open and interactive to ensure that the end results are acceptable to DBCM, its employees and other interested and affected parties.

It should be noted that this document has not been finalised or accepted by DBNM. Recommendations for mitigation have thus not been based on or informed by the principles.

In this initial assessment, there has been interaction with interested and affected parties, the major social and economic effects of closure have been investigated and measures for minimising these effects will be recommended. It is suggested that the results of the assessment could be more effectively utilised within the context of a policy that would further direct and focus the planning process by establishing broad goals. It is thus recommended that the policy be finalised in consultation with representative employee bodies.

## **5.2 RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY DBNM**

Recommendations for mitigation will be made with respect to the following:

- decreased morale and increased insecurity among employees;
- mitigation for the loss of infrastructure and equipment.

### **5.2.1 Mitigation of decreased morale; insecurity; rumour**

Information in this section is based on an article by Stoten (1989) entitled: "Downsizing: a consultant's perspective". The article is written in the context of staff reduction rather than complete closure. The general principles are relevant to mine closure.

#### **(a) Timing of closure:**

The question of how to co-ordinate mine closure and when it should be undertaken is a complex one, that has direct relevance to the impact of retrenchment. The sooner the process of closure gets underway, the sooner people will be retrenched. Stoten (1989) suggests that extensive delays between retrenchment activities can lead to serious productivity and morale problems in areas where retrenchments are yet to take place. It is thus preferable to conduct all retrenchment operations within a limited period of time.

Retrenchment activities should occur simultaneously where the operating sites or divisions are linked in their operations. Where relatively autonomous groups are involved, it can be more effective to conduct retrenchment operations on a unit-by-unit basis.

The implication for DBNM is that gradual retrenchment, extended over a period of 2 or 3 years, may affect productivity and morale. If it is necessary to close the mines

gradually, it is suggested that retrenchments should be restricted to one production unit at a time. Rather than retrenching a few from each unit over a certain period, everyone should be retrenched from one unit, thereby limiting the emotional effect to that unit.

### **(b) Communication between management and workers**

The trade union, employee representatives, the internal newspaper and supervisors should be involved in the communication process.

Bradbury and St Martin (1983) write that in a townsite where winding down is occurring, rumours are an important mechanism for passing information and misinformation. A second study, reported by Wolff (1989) found that in general, employees would have appreciated a concerted effort by management in: "quelling the misinformation and taking a more active role in keeping everyone apprised in a more timely manner."

Stoten (1989) suggests that a communication strategy is required, both internally, (ie. for employees) and externally (ie. media). He puts forward the following principles:

- The message should be clear, consistent, and identical for all levels and all groups.
- All those affected at a particular time should be informed as soon as possible.
- Where an entire group is affected, information should be given to the group as a whole.
- Communication should not only follow the top-down approach; bottom up communication is an indispensable form of feedback.

- A participatory planning approach should be adopted and information should be openly shared; a 'cloak and dagger' approach is likely to introduce distrust.

## 5.2.2 Mitigation for the loss of infrastructure

### (a) The future potential of Kleinzee and Koingnaas

A report by MLH Architects and Planners (1987) recommends information requirements for planning the privatisation of Kleinzee and Koingnaas. Salient points have been extracted.

- The future potential of Kleinzee exists in its outstanding recreation facilities. These facilities could make it attractive to both holiday-makers and the residents of Namaqualand.
- The towns may have potential as places for retirement, particularly for employees who have made no provision for housing on retiring.
- Both Kleinzee and Koingnaas have well-developed services that may be capable of some expansion. Roads are tarred and all houses have electricity and waterborne sewerage. This is advantageous in that provincial authorities may be persuaded to accept the creation of a new municipality where a well found and managed town is involved.

Information required to establish the long-term viability of the towns includes the following:

- an assessment of how many employees are likely to be interested in buying houses in either Kleinzee or Koingnaas;

- a study of the market potential of the towns; this would include information on the demand for housing and facilities in the resort areas and towns of Namaqualand;
- research on the range of prices being paid for plots and buildings in places such as Port Nolloth and Springbok;
- an investigation of the costs of operating Kleinzee and Koingnaas;
- an examination of the service infrastructure, its present condition and capacity to absorb future growth.

**(b) Suggestions by DBNM employees and local communities for the future use of Kleinzee and Koingnaas**

The feasibility of the following suggestions has not been investigated. The suggestions were raised during the employee survey.

- Houses could be sold or leased to DBNM employees and to anybody else that may be interested.
- Kleinzee could be converted into a holiday resort.
- Light industry could be established, including clothing manufacturers, enterprises associated with tourism, butchery and meat processing plant.
- A fishing harbour could be established and Kleinzee could be the home for a community with an economic base in fishing and mariculture.
- The town could offer accommodation to employees of companies specialising in the exploitation of marine diamonds in the area.
- Both Kleinzee and Koingnaas could be used as military bases for the S.A.D.F.

- The towns could offer accommodation for employees working at a toxic waste disposal plant or nuclear power station in the vicinity. In 1991, Eskom commissioned a report on the sensitivity of three sites on the West Coast, for the purpose of the establishment of a nuclear power station. The investigation, undertaken by the Environmental Evaluation Unit, concluded that Skulpfontein, situated 16 kilometers north-west of Koingnaas, is the least sensitive site, on social and ecological grounds.

### **5.3 RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY RETRENCHED EMPLOYEES**

#### **5.3.1 Legal requirements regarding the mitigation of retrenchment**

With the advent of unfair labour practice legislation in South Africa, the phenomenon of retrenchment became a focal point for unfair labour practice litigation. While the Labour Relations Act (Act 28 of 1956) has not laid down any rules or procedures for retrenchments, the Industrial Court has indicated through its judgements what is expected of an employer when faced with the need to retrench workers (Landman et al, 1988).

By laying down a set of procedures, the courts have attempted to ameliorate the problem of retrenchment by trying to ensure that:

- nobody is unnecessarily retrenched
- the wrong people are not chosen for retrenchment
- the blow to those that have been retrenched is cushioned as much as possible.

The procedures for fair retrenchment can be summarised as follows (Landman et al, 1988):

- The employer should consider ways to avoid or minimise retrenchment, such as transfers and the elimination of overtime. The employer could be expected, for example, to cease recruitment, and to let attrition absorb some of the brunt of retrenchment. It may also be possible to train or retrain prospective retrenchees. In most cases, these alternatives should be considered in consultation with the representative body concerned.
- The employer should give sufficient prior warning to a recognised or representative trade union of the pending retrenchment. This is done in order that the representative body of workers can consult with the employer on retrenchment. The notification of impending retrenchment should therefore be accompanied by information such as:
  - the reasons for retrenchment
  - the number of people to be affected
- The employer should consult with the trade union, or any other recognised form of employee representation.
- Employees to be retrenched should be chosen on the basis of selected criteria, agreed with the representative body.
- Employees to be retrenched should be consulted. Where there is a representative body, this principle entails the duty to assist employees who have been retrenched to find other work. This may be done by allowing reasonable time off for the purpose of finding alternative retrenchment.

### 5.3.2 Mitigation of Retrenchment

Recommendations will be made to:

- extend the life of the mine by reducing production;
- minimise the numbers to be retrenched;
- find alternative employment for those that are retrenched;
- ameliorate the conditions that were suggested in chapter 4 as sources of aggravation of the impact of retrenchment; lack of education, age and status of assets will be considered.

A summary is provided in table 5.1.

#### (a) Extend the life of the mines by reducing productivity

The suggestion of extending the life of the mines by reducing current productivity was frequently raised by interested and affected parties. Respondents were unclear on the practicalities involved in the implementation of this suggestion, but were adamant that, for the benefit of Namaqualand, productivity and profits should be compromised to extend the life of DBNM. One respondent said that:

Theoretically, we can make a satisfactory profit if we reduce production slightly. In this way the life of the mine can be lengthened. We could get an extra 15 years if we reduced monthly production from one million carats to 800 000

(EEU, 1992).

The implications to DBNM and employees of reduced productivity and profit are unknown.

It is recommended that:

- timing of closure should be an issue that is negotiated between management and the representative employee bodies;
- prior to negotiation, there should be further investigation into the social costs and benefits of:
  - high productivity and closure within the next 10 years
  - reduced productivity/profits and an associated increase in the life of the mines.

**(b) Establish a policy of non-replacement**

As noted above, one of the principles of fair retrenchment is that the employer should, in consultation with the employee representative bodies, consider ways to avoid or minimise retrenchment. A policy of non-replacement would be one way of doing this.

Once a program for mine closure has been established, it would be necessary to set a date for the implementation of the policy. From that date, any positions that become vacant will not be refilled, ie. no further employment takes place. The sooner this policy is set in place the greater the effect of natural attrition of the workforce and the fewer employees will have to be retrenched.

**(c) Attempt to find alternative employment for DBNM employees**

This could be done by investigating the potential of other mines in the De Beers group, Anglo group as well as mines in Namaqualand to absorb DBNM employees. An agreement could possibly be reached in which mines that require employees will approach DBNM. An agreement with the proposed Anglo American heavy mineral sands mine in the vicinity of Vredendal may be particularly valuable considering the location of the mine just outside of the Namaqualand Magisterial District.

With respect to mines in Namaqualand, a starting date for the implementation of such an agreement would have to be considered carefully. The duration of productivity of such mines may be questionable as they may also be faced with the prospect of declining resources.

In both instances, an agreement would have to be reached on training employees that may be sent to other mines. For example, it may be agreed that DBNM will be financially responsible for the training, but that the actual training process could take place on site at the new mine.

An office could be established at DBNM, dealing exclusively with the placement of DBNM employees at other mines. The process would have to be efficient to maintain interest and commitment from other mines. A notice board outside the office and briefs to employees could be used to communicate the types of jobs available, the required skills and the location of the job. It would then be up to employees to display interest and make enquiries. Job allocation may have to be on a first-come-first-served basis.

### **5.3.3 Mitigation of the conditions that may increase the magnitude of the impact of retrenchment.**

#### **(a) Mitigating lack of skills and education**

DBNM could consider increasing the company's skills training program. This could mitigate the problem that employees with minimal skills and education may have of finding alternative employment. Employees in the lower Patterson Bands, with minimal skills training should be targeted.

In addition, emphasis could be placed on the need for and provision of adult education. This could be done in conjunction with the trade union which would have to play a major role in communicating the need for improved education. Employees, particularly those younger than 30 years, should be encouraged to make use of the

opportunity on the grounds that skills training programs are often based on existing level of education.

Lund, in a specialist report on the impact of mine closure in Sterkspruit (Appendix C, EEU, 1992), recommended that entrepreneurial training sponsorship should be awarded to one young able-bodied adult from each directly affected household. This could apply to all DBNM employees, and not only those from the Transkei and Ciskei.

**(b) Mitigating the problem of employees being retrenched between the ages of 46 and 54 years**

Employees in this age group at the time of retrenchment may find that they are too old to be easily employable and too young to take early retirement. Where possible, people that are employed from now on should be in the 18 - 25 year age category. This would ensure that the number of retrenched employees that could be disadvantaged by age when seeking alternative employment would be minimised.

Employees in the 46 - 54 year age group should be alerted to their situation and encouraged to consider seeking alternative employment before retrenchment takes place. Emphasis should be placed by DBNM on attempting to place these employees in other mines.

**(c) Mitigation of a lack of financial resources to soften the effect of unemployment**

Two issues will be discussed:

- the retrenchment package
- communication from DBNM to employees on what money will be available at the time of retrenchment

The retrenchment package will be negotiated with the trade union. The following requirements are nonetheless suggested. It is recommended that employees should receive 4 months full salary, paid on a monthly basis. Years of service should be taken into consideration in the calculation of the package for individuals, as a sign of gratitude for dedication.

Regarding communication from DBNM to employees on available money, it is recommended that employees be advised on the following:

- an estimate of the retrenchment package and whether it will take years of service into consideration;
- a reminder that employee benefits will cease for those that are retrenched;
- how to calculate the amount of money that will be available from pension contributions;
- the availability of funds from the Unemployment Insurance Fund (45% of salary for a period of 6 months after contribution to the fund for 3 years; contribution for a shorter period implies reduced benefits).

In addition, closer to the time of retrenchment, a brief should be jointly compiled by DBNM and the Trade Union on the importance of:

- investing pension money
- maintaining a manageable debt level at the onset of unemployment
- ensuring that additional debt is not incurred, resulting in the need to pay it back with uncertain future income (Ridley and Wilhelm, 1988).

Employees that are currently living in mine owned accommodation should be alerted to the fact that after mine closure they will have to be prepared to arrange alternative accommodation.

#### **5.3.4 Mitigation of employee concerns**

A number of concerns were raised by employees and affected communities during the employee survey and the community meetings. These include:

- reality of and reason for mine closure
- nature and timing of mine closure
- the nature of retrenchment and retrenchment packages

Burdge (1990) writes that one of the purposes of social impact assessment is to increase the knowledge of affected communities on the broader implication of the project. Recommendations to mitigate the employee concerns have been made in this context.

Essentially, an awareness program could be drawn up in which the mine management maintains good communication with employees through the trade union and other employee representative bodies. Information centres could be established at various points in Kleinzee and Koingnaas to ensure maximum access by all employees. The centres could make information available on all issues relating to retrenchment. An information officer could be appointed for each centre to assist employees with their queries and to obtain additional information that may not have been addressed in the available briefs. Specific examples of information that should be made available in the centres, in the form of written briefs, are addressed below.

**(a) The reality of and reason for mine closure**

These aspects are linked and hinge around an understanding by DBNM employees of why the company anticipates that mine closure will take place in 10 years time. Almost 50% of employees that were interviewed stated that they did not believe that mine closure would actually take place. An impact that may result from this belief is the possibility that employees will not take the implications of mine closure seriously and will thus not plan for a future without DBNM.

The awareness program could include issues such as the fact that diamonds are finite and do not occur on all DBNM land. The reason for mine closure having been considered and not taking place in previous years should be addressed. This may include an explanation of the role of changing metal or diamond prices as well as the role of changing technology. There should also be an indication of why money is currently being spent on new buildings and machinery. Other issues to be addressed include the following:

- the likelihood of a new source of payable diamonds being discovered on DBNM property and the implications of this scenario;
- whether there are other minerals that could be exploited by DBNM;
- the apparently widespread belief that mine closure is due to DBNM's fear of nationalisation;
- the reason for the insistence on maximum production rather than decreasing production to increase the life of the mine.

**(b) Nature and timing of mine closure**

In this case the employee awareness program could include issues such as:

- whether retrenchments will take place gradually or en masse;

- whether retrenchments will take place in 10 years or possibly between 5 and 15 years; state that such issues are in the planning phase and that the trade union will be involved in the planning process;
- re-assure employees that they will be informed about the plans for closure as soon as possible;
- address the issue of increasing the life of mine by reducing productivity;
- address the belief that mine closure is simply a means for DBNM to retrench all migrant labour from the Transkei and Ciskei - a process described as 'namaqualisation' by black employees.

**(c) Nature of retrenchments and retrenchment package**

The following issues should be addressed:

- the basis of the retrenchment package; assurance that the retrenchment package will be negotiated with the union where applicable;
- whether DBNM will create other job opportunities;
- whether employees will be transferred to other De Beers mines;
- whether employees will be placed at other mines;
- whether all employees will be retrenched;
- minimum age at which employees may be able to take early retirement;
- that employees not eligible for retirement will be paid their contribution to the pension fund;

- that pensions will not be affected by closure;
- that employee benefits such as medical aid will fall away for those that are retrenched.

**Table 5.1 Mitigation of impacts likely to be experienced by DBNM employees and households**

SUMMARY OF IMPACT	RECOMMENDATIONS FOR MITIGATION
<p>Retrenchment of DBNM employees.</p>	<p>Ways of minimising the number of employees to be retrenched:</p> <ul style="list-style-type: none"> <li>• Extend the life of the mine; investigate the social costs and benefits of reducing productivity for this purpose.</li> <li>• Establish a policy of non-replacement.</li> <li>• Attempt to find alternative employment for DBNM employees.                             <ul style="list-style-type: none"> <li>- The potential for absorption of DBNM employees by mines in Namaqualand should be investigated.</li> <li>- An agreement could be established whereby mines requiring employees would approach DBNM.</li> </ul> </li> </ul>
<p>The impact of retrenchment could be exacerbated by the socio-economic variables such as:</p> <ul style="list-style-type: none"> <li>• lack of skills and education</li> <li>• age</li> <li>• lack of financial resources</li> </ul>	<p>Minimise the impact of a lack of skills and education:</p> <ul style="list-style-type: none"> <li>- increase DBNM skills training program</li> <li>- emphasise the need to improve education level; increase provision of adult education facilities at DBNM</li> <li>- skills training sponsorship for one young person of each directly affected household.</li> </ul> <p>Mitigate the problem of employees being retrenched at 46 - 54 yrs of age:</p> <ul style="list-style-type: none"> <li>- people employed in the future should be in 18 - 25 year age group</li> <li>- alert employees to their vulnerability and place emphasis on finding work for these employees</li> </ul> <p>Mitigate lack of financial resources to soften the affect of unemployment:</p> <ul style="list-style-type: none"> <li>- explain what money will be available, eg. indication of retrenchment package, pension contributions, UIF.</li> <li>- communicate the need to maintain a manageable debt level after retrenchment</li> </ul> <p>Mitigate employee concerns: establish Information Centres that are aimed at addressing concerns, answering questions and providing information on mine closure.</p>

#### **5.4 RECOMMENDATIONS FOR MITIGATION OF IMPACTS LIKELY TO BE EXPERIENCED BY AFFECTED NAMAQUALAND COMMUNITIES**

The following impacts were raised at community meetings in Kommaggas and Steinkopf:

- possible economic decline in Kommaggas and Steinkopf, due to a decrease in spending by DBNM employees
- increased unemployment
- decline in number of pupils attending school
- decline in quality of life
- social decline and associated increase in crime

All of these impacts are a result of increased unemployment. They could be mitigated either by reducing the number of people to be retrenched or by creating employment opportunities. Recommendations for the former have already been made. Numerous suggestions (by employees and communities) have been made for the latter and were listed at the start of this chapter.

There is a third means of mitigating the impacts on local communities. This would be to assist communities in analysing possible impacts as well as specifying solutions and possible measures of mitigation. The community would take responsibility for the implementation of such solutions. The social impact assessment may, in this way, act as a catalyst for community self evaluation on the effects of mine closure (Burdge, 1990). Communities could thus be empowered to establish ways of dealing with the effects.

**(a) Role of DBNM**

The role of DBNM would be to encourage the initiation of discussions between community organisations, facilitate the smooth running of the discussions and financially assist the community. The value of financial assistance would depend on the amount of money DBNM is prepared to make available and the proportion of DBNM employees in each community.

By way of example, on the question of economic decline and increased unemployment, information from this report could be used as a point of departure. Point out what proportion of the economically active population the specific community will be losing as well as the potential economic loss. Facilitate the discussion and planning on how small employment opportunities could be created. Make available funds/loans for the creation of small business for industry (eg. curios, clothing, rugs) associated with indigenous products, such as wool, goat hides, semi precious stones. Work that is undertaken should be in the context of existing or recommended development strategies and in conjunction with other development agencies, such as the Regional Development Advisory Committee, non-governmental organisations, the Regional Services Council and local authorities.

**(b) Suggestions by communities for the mitigation of impacts**

It was suggested at the Steinkopf and Kommaggas community meetings that:

- a percentage of 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;
- DBNM establish a training centre in the region and upgrade educational facilities;
- DBNM, with the authorities, develop effective irrigation projects to make agriculture more viable;

- DBNM, with authorities, establish and fund programs involving communities of the Kommaggas and Steinkopf reserves, aimed at improving stockfarming;
- DBNM return the land to the inhabitants of the Kommaggas and Steinkopf reserves; it was said that the use of this land for agriculture would create employment and income for the communities concerned.

## **5.5 SUMMARY OF THE RECOMMENDATIONS MADE BY LUND (EEU, 1992): MITIGATION OF IMPACTS IN THE HERSCHEL DISTRICT**

Lund (EEU, 1992) suggests that mitigation measures for the Herschel component of DBNM should be targeted at three levels:

- the employees
- the younger dependants
- aspects of Herschel's social infrastructure

### **5.5.1 Mitigation of effects on employees**

It is recommended that pensions should be awarded to all employees originating in Herschel. The value of the pension should be determined by a calculation combining length of service at point of closure and service remaining before retirement age. Pensions should not be determined solely by age at closure because of the strong likelihood that even the youngest will never find further employment. The method of calculating the above should be negotiated through the trade union.

### **5.5.2 Mitigation of effects on younger dependants**

Entrepreneurial training sponsorship could be awarded to one young adult from each directly dependent household. Selection of the individual should be undertaken within specified criteria by the household. Training options should be directed towards business and artisan skills, and should begin at least five years before the date of mine closure.

### **5.5.3 Mitigation of effects at community level**

Contribution should be made to mitigate the impact on medical services, water supply and wood fuel. The extent and nature of this contribution requires thorough investigation. Financial support to emergent development programs in Herschel which are aimed at improving these aspects of services could be considered.

## **5.6 OPTIMISING THE BENEFITS OF NM2002**

NM2002 has initiated discussion in parts of Namaqualand on the possible implications of the closure of DBNM. This applies particularly to the business community of Springbok as well as community organisations of Kommaggas and Steinkopf. Results of the study should be communicated to interested and affected parties as soon as possible to ensure that the awareness that has been created is not lost. Affected parties should be advised to make use of the information in planning future strategies that take DBNM closure into account.

## Chapter Six

# CONCLUSION

6.1	INTRODUCTION .....	109
6.2	KEY ISSUES THAT MAY AFFECT THE PROCESS OF PLANNING FOR MINE CLOSURE .....	109
	6.2.1 Mine closure policy .....	110
	6.2.2 Employee concerns .....	110
	6.2.3 Attitudes and perceptions that may influence the success of mitigation .....	111
	6.2.4 Timing of mine closure .....	112
6.3	THE IMPACT OF RETRENCHMENT ON DBNM EMPLOYEES: CONCLUSIONS AND RECOMMENDATIONS .....	112
	6.3.1 Conclusions: Impacts of retrenchment on DBNM employees ..	113
	6.3.2 Recommendations: Mitigation of the impacts of retrenchment on DBNM employees .....	113
6.4	THE IMPACT OF MINE CLOSURE ON COMMUNITIES: CONCLUSIONS AND RECOMMENDATIONS .....	115
6.5	IMPACTS OF MINOR SIGNIFICANCE: CONCLUSIONS AND RECOMMENDATIONS .....	117
6.6	IMPACTS REQUIRING FURTHER INVESTIGATION .....	117
6.7	OPTIMISING THE BENEFITS OF NM2002 .....	119

## CHAPTER 6

# CONCLUSIONS AND RECOMMENDATIONS

### 6.1 INTRODUCTION

Conclusions and recommendations are discussed concomitantly. The section starts with a consideration of key issues that may affect the process of planning for mine closure. This is followed by a summary of conclusions and recommendations regarding the following:

- the impact of retrenchments on DBNM employees and their households
- the impact of retrenchments on Namaqualand communities
- impacts of minor significance

Areas in which further research is recommended are listed.

### 6.2 KEY ISSUES THAT MAY AFFECT THE PROCESS OF PLANNING FOR MINE CLOSURE

The following issues may influence the effectiveness of the process of planning for closure as well as the mitigation program:

- the need for a DBNM policy on mine closure
- the need to address current employee concerns
- employee and community attitudes that may hinder both the planning for closure and the program of mitigation unless addressed

- the need to investigate the costs and benefits of reducing productivity in order to extend the life of the mines
- the question of DBNM responsibility to undertake mitigation measures at a community level.

### **6.2.1 Mine closure policy**

#### **(a) Conclusion**

DBNM does not as yet have a policy that will guide the process of planning for mine closure. While an impact assessment ensures that all socially relevant issues are incorporated into the planning process, a policy is required to focus the planning process effectively.

#### **(b) Recommendation**

A draft policy for mine closure and rehabilitation has been drawn up by the Environmental Evaluation Unit. The document has not been finalised or accepted. It is recommended that this policy should be taken to completion in consultation with representative employee bodies.

### **6.2.2 Employee concerns**

#### **(a) Conclusion**

DBNM employees have a variety of concerns regarding mine closure. These include:

- the reality of and reason for closure
- the nature and timing of closure
- the nature of retrenchment and retrenchment package.

Communication and trust between employees and DBNM management could be enhanced by addressing these concerns. In addition, the employees knowledge on the implications of closure would be increased.

**(b) Recommendation**

It is recommended that Information Centres be established at various points in Kleinzee and Koingnaas. The centres should make information available on all issues relating to retrenchment. An information officer should be appointed for each centre to assist employees with their queries and to obtain additional information that may not have been addressed. Examples of the type of information that could be compiled for the centres are presented in section 5.3.3(d).

**6.2.3 Attitudes and perceptions that may influence the success of mitigation**

**(a) Conclusion**

DBNM employees and leaders of community organisations in Kommaggas and Steinkopf expressed cynicism with respect to the company's motivation for undertaking the study. This was based on a perception that DBNM has contributed little to the improvement of the welfare of the communities. The general feeling was that the company is unlikely to make a meaningful contribution to community development now.

This attitude may have a negative effect on the relationship between management and workers. The communication process may be inhibited with the result that the possibility of reaching satisfactory solutions on negotiated issues may be jeopardised.

**(b) Recommendation**

It is recommended that this issue be discussed with the trade union. Jointly established solutions to the problem should be implemented as soon as possible, to ensure that negative attitudes do not hinder the process of planning for closure.

## 6.2.4 Timing of mine closure

### (a) Conclusion

The timing of mine closure could be an area of conflict between management and employees. This aspect is discussed in section 5.3.2(a). DBNM management may be motivated to ensure that the chosen timing of closure is cost-effective. Employees suggest that the life of the mines should be extended. The feasibility of this suggestion has not been tested.

### (b) Recommendation

It is recommended that:

- the timing of closure should be an issue that is negotiated between management and the representative employee body
- prior to negotiation, there should be further investigation into the social costs and benefits of:
  - high productivity and closure within the next 10 years
  - reduced productivity and an associated increase in the life of the mines.

## 6.3 THE IMPACT OF RETRENCHMENT ON DBNM EMPLOYEES: CONCLUSIONS AND RECOMMENDATIONS

**Note:** For the purpose of the study, DBNM employees were categorised into 3 different groups. The "Mine Group" consists of people with permanent accommodation in the mine towns of Kleinsee or Koingnaas. Employees of the "Transkei Group" have been recruited from the Transkei or Ciskei. The "Namaqualand Group" consists of people who live in Namaqualand, and either do not qualify for DBNM company housing or choose not to make use of it.

### 6.3.1 Conclusions: Impacts of retrenchment on DBNM employees

- Mine closure could result in the retrenchment of between 2500 and 2700 DBNM employees. Taking dependants into consideration, the total number directly affected by the employees' change of status to 'unemployed' could be in the region of 7000.
- The impact of retrenchment is likely to be of major significance to employees of the Namaqualand and Transkei Groups. Employees in these groups are generally vulnerable to the effects of unemployment due to:
  - a lack of financial resources to soften the impact of unemployment
  - a lack of skills and education to facilitate the process of finding alternative employment.
- In the Mine Group, the impact of retrenchment is likely to be of moderate significance. Employees in this group are generally more mobile, with greater financial resources for coping with the effects of unemployment as well as a higher level of education.

### 6.3.2 Recommendations: Mitigation of the impacts of retrenchment on DBNM employees

- (a) DBNM should attempt to reduce the number of employees to be retrenched**

Solutions should be planned in consultation with representative employee bodies.

A policy of non-replacement should be implemented as soon as a program for closure has been established. From date of implementation of the policy, any positions that become vacant would not be refilled. This would ensure maximum effect of attrition.

- The age for optional early retirement should be reduced to 50 years for all employees.

- DBNM should attempt to find alternative employment for those that may be retrenched. An agreement could be established with other mines whereby vacancies are filled by DBNM employees due for retrenchment. Mines that should be considered include those of the De Beers and Anglo American groups as well as mines in Namaqualand.

An office should be established at DBNM dealing exclusively with the placement of employees. The process should be efficient to ensure commitment from other mines.

**(b) DBNM should attempt to minimise the impact of unemployment on employees**

- A retrenchment package of monthly salary for at least 4 months should be negotiated with the trade union. Years of service should be taken into consideration in the calculation of individual packages. The choice of payment in lump sum or monthly instalments should be available.
- Emphasis should be placed on communication of what money will be available at the time of retrenchment. This should include information on how to calculate pension and UIF payments. An awareness program should be compiled incorporating items on:
  - the value of investing pension monies
  - the need to maintain a manageable debt level at the onset of unemployment.
- DBNM should increase the skills training program, aiming to equip all employees with at least one, and preferably two, marketable skills. Employees in the lower Patterson Bands should be targeted.
- Emphasis should be placed on the need for and provision of adult education. This could be done in conjunction with the trade union which should play a major role in communicating the need for improved education.

- Sponsorship for skills training should be awarded to one young person from each directly affected household.
- Employees that are taken on by DBNM from now on should be in the 18 - 25 year age bracket. This would ensure that the number of retrenched employees that could be disadvantaged by age when seeking alternative employment would be minimised.

## **6.4 THE IMPACT OF MINE CLOSURE ON COMMUNITIES: CONCLUSIONS AND RECOMMENDATIONS**

### **(a) Conclusions: Impact of retrenchment on Namaqualand communities**

- Retrenchments are estimated to reduce the economically active population of Namaqualand by a minimum of 5%. The potential effect of this impact on communities can be demonstrated by the fact that 89% and 40% of households in Kommaggas and Steinkopf respectively, would lose a wage-earner.
- Retrenchments could result in increased dependence on stockfarming and an associated increase in overgrazing and land degradation.
- Retrenchment and resulting unemployment are perceived by the communities of Kommaggas and Steinkopf to be likely to have the following effects:
  - decreased school attendance levels
  - lowered quality of life
  - social decline and an increase in crime

**(b) Recommendations: Mitigation of the impacts of retrenchment on the Namaqualand communities**

The above impacts could be mitigated if the communities in question take a pro-active approach to investigating solutions. In some instances the only solution is the creation of employment opportunities. DBNM's role would be one of facilitation of the planning stages and assistance in financing the implementation of community based solutions. Development agencies, local authorities and relevant non-governmental organisations should be involved.

Communities to be targeted include Kommaggas and Steinkopf as well as others in which a large proportion of households will be affected by retrenchment.

- Select a suitable candidate (a DBNM employee) to lead the community development program. This person should start by identifying and establishing contact with the relevant community organisations, local authorities and development agencies.
- Utilise the information from this study in discussions with communities on both the likely proportion of the economically active population to be affected and the likely economic loss. Facilitate planning on how employment opportunities could be created.
- Encourage communities to investigate impacts that they perceive to be of significance. For example, regarding decreased attendance at school, the following should be researched:
  - likelihood of families migrating to seek work outside of Namaqualand
  - the number of children likely to leave school.
- If communities are empowered (as outlined above) to pro-actively search for solutions to the problems of unemployment, there may be a chance that they could overpower the cycle of poverty and deprivation. The alternative is to sink into an abyss of apathy, despondency and decline.

## 6.5 IMPACTS OF MINOR SIGNIFICANCE: CONCLUSIONS AND RECOMMENDATIONS

The following impacts were assessed as being of minor significance. The suggested measures of mitigation are likely to be effective.

- **DBNM may experience reduced productivity due to decreased morale among employees. The impact may be aggravated by the effect of rumour.**  
It is recommended that DBNM follow a participatory planning approach, involving the trade union and other employee organisations in drawing up a communication strategy for mine closure. Messages with respect to mine closure should be clear, consistent and identical for all levels and all groups. Employee concerns should be addressed promptly and openly.
- **Loss of business from DBNM and employees may affect the economy of Springbok.**  
The estimated percentage loss to Springbok is minimal and there are indications that the economy of the town would be sufficiently resilient to withstand the loss. It is recommended that businesses be encouraged to analyse and plan for their potential losses.

## 6.6 IMPACTS REQUIRING FURTHER INVESTIGATION

There was insufficient information for the assessment of the impacts described below. Further research is suggested.

- **Retrenched employees would lose access to employee benefits and DBNM facilities**
  - **Medical aid:** The loss could be major to the Namaqualand Group if the majority of these employees pay for medical aid coverage for their children. More detailed information is required here.

- **Building loans:** Information is required on the extent to which this benefit is utilised.
- **Adult education and skills training:** Information is required on the extent to which employees utilise the education facilities, and benefit from the DBNM skills training program.
- **Subsidised shopping facilities:** Information is required on the value of this facility to employees. It is estimated that the loss could be of greatest significance to the Namaqualand Group, many of whom apparently do their monthly shopping at Kleinzee.

- **DBNM may lose the infrastructure of Kleinzee and Koingnâas if the towns are not utilised after mine closure.**

It is recommended that research should be undertaken to investigate the potential for privatising the towns. Required research includes a study on the market potential of the towns as well as information on the costs of operating the towns.

- **There may be a decrease in the turnover of Springbok of between 8 and 15%**  
Further research is required on the likely timing of the economic impact on Springbok

- **The Namaqualand Regional Services Council may lose 29% of the fees paid by businesses in the regions**

Information is required from the Regional Services Council (RSC) on the significance of this impact.

- **There may be a loss of expenditure in Namaqualand by central government due to a decrease in income tax paid by DBNM and employees.**

Income tax paid to the government by DBNM decreased substantially in 1990 due to company restructuring. Information is required on the effect of the earlier reduction, in order to gauge the impact of additional loss of income tax.

There could be a loss of demand of R14 million and R90 million respectively for inputs from all sectors in Region A and the rest of South Africa.

Information is required from the Development Bank of South Africa on the significance of this impact.

## **6.7 OPTIMISING THE BENEFITS OF NM2002**

NM2002 has initiated discussion in parts of Namaqualand on the possible implications of the closure of DBNM. This applies particularly to the business community of Springbok as well as community organisations of Kommaggas and Steinkopf. Results of the study should be communicated to interested and affected parties as soon as possible to ensure that the awareness that has been created is not lost. Affected parties should be advised to make use of the information in planning future strategies that take DBNM closure into account.

## **BIBLIOGRAPHY**



## BIBLIOGRAPHY

- Albrecht, S L and Little, R L, 1988: The Place of Attitudes and Perceptions in Social Impact Assessment. Society and Natural Resources, vol 1 (1), pp 69 - 80.
- Barbier, E B, 1987: The Concept of Sustainable Economic Development. Environmental Conservation, vol 13 (3), pp 101- 110.
- Borchers, M L, Archer, F M, Eberhard A A, 1990: Namaqualand Household Energy Survey. Report INT 151. Energy Research Institute. Cape Town.
- Bradbury, J H and St-Martin I, 1983: Winding Down in a Quebec Mining Town: A Case Study of Schefferville. Canadian Geographer, vol 27 (2), pp 128 - 144.
- Burdge, R J and Robertson, R A, 1990: Social Impact Assessment and the Public Involvement Process. Environmental Impact Assessment Review, vol 10 (1/2), pp 81 - 90.
- Claassen, C, 1992: Communications Department, De Beers Namaqualand Mines. Personal communication.
- Craig, D, 1990: Social Impact Assessment: Politically Oriented Approaches and Applications. Environmental Impact Assessment Review, vol 10 (1/2), pp 37 - 53.
- De Beers Consolidated Mines Limited, 1991: Annual Report.
- Dunne, J M, 1986: Towards a Regional Development Strategy for Namaqualand. Master's Thesis. Department of Economics. University of Cape Town.
- Emmett, A B, 1987: Steinkopf: a study of a community in decline. Report S-164. Human Sciences Research Council. Pretoria.
- Environmental Evaluation Unit, 1991(a): Nuclear Siting Investigation Programme. West Coast: Site Specific Environmental Study. Main Report. Report No. 1/91/64. University of Cape Town.
- Environmental Evaluation Unit, 1992: NM2005 Impact Assessment. Baseline Information Report. Report No. 5/92/87. University of Cape Town.
- Environmental Evaluation Unit, 1991(b): De Beers Consolidated Mines: Mine Closure Impact Assessment. Draft Report. University of Cape Town.
- Environmental Evaluation Unit, 1990: Anglo American Corporation. West Coast Heavy Mineral Sands Project. Report No. 4/90/49. University of Cape Town.

- Fig, D, 1991: Flowers in the desert: community struggles in Namaqualand, in J Kock and E Koch (eds.), Going Green: People, Politics and the Environment in South Africa. Oxford University Press. Cape Town.
- Freudenburg, W R, 1986: Social impact assessment. Annual Reviews of Sociology, vol 12, pp 451 - 478.
- Fuggle, R F et al., 1992: Integrated Environmental Management. Recommended Procedure and Guidelines. Report No. 7/91/70. Environmental Evaluation Unit. University of Cape Town.
- Grady, S; Braid, R; Bradbury, J and Kerley, C, 1987: Socioeconomic Assessment of Plant Closure: Three Case Studies of Large Manufacturing Facilities. Environmental Impact Assessment Review, vol 7, pp 151 - 165.
- Hill, R C and Fuggle, R F, 1990: Draft Report. Improving the Practice of Environmental Impact Assessment: Five case studies to show layout of final report. Report No. 15/90/60. University of Cape Town.
- Hill, R C, 1991: Guidelines for assessment and evaluation. Prepared for Department of Transport study for producing an environmental assessment manual. Unpublished Report. Environmental Evaluation Unit. University of Cape Town.
- Jackson L, Wilkinson P, Short R and Davis G, 1992: Towards Sustainable Development in South Africa. Unpublished discussion paper. Environmental Monitoring Group, Western Cape.
- Khan, F, 1990: Issues to be addressed in Social Impact Assessments. Unpublished paper. Environmental Evaluation Unit. University of Cape Town.
- Landman, A A, Le Roux, P A and Piron, J, 1988: The Industrial Court and Retrenchment: A Review. Labour Law Briefs, vol 1 (6), pp 37 - 44.
- Leistriz, F L and Murdock S H, 1981: The Socioeconomic Impact of Resource Development: Methods for Assessment. Westview Press. Colorado.
- MLH Architects and Planners: Plan of work for Kleinzee, Koingnaas. Report 1. Cape Town.
- Potgieter, J F, 1990: Household Subsistence Levels in Major Urban Centres of the Republic of South Africa. Fact Paper 82. Institute for Planning Research. University of Port Elizabeth.
- Ridley, C A and Wilhelm, M S, 1988: Adaptation to Unemployment: Effects of a Mine Closure on Husbands and Wives. Lifestyles: Family and Economic Issues, vol 9 (2), pp 145 - 159.

Stoten, J, 1989: Downsizing: a consultant's perspective. CIM Bulletin, vol 82 (923), pp 124 - 127.

Surplus People Project, 1991: Investigation of Namaqualand land claims and their impact on land redistribution. Proposal one. Surplus People Project. Cape Town.

Taylor, C N, Bryan, C H and Goodrich, C G, 1990: Social assessment: theory, process and techniques. Report 7. Centre for Resource Management. Lincoln University. New Zealand.

Wilson, F and Ramphela, M, 1989: Uprooting Poverty. The South African Challenge. David Philip. Cape Town.

Wolff, L A, 1989: The potential economic consequences of layoffs to affected employees, CIM Bulletin, vol 82 (924), pp 55 - 57.

Yap, N T, 1989: Sustainable Community Development. An Introductory Guide. The Ontario Environmental Network. Canada.

**APPENDIX I**

## APPENDIX 1

### THE STUDY TEAM

#### Project Manager

Dr John Raimondo: BSc (Chem Eng) (Natal) MSc (Environmental Science) (Cape Town) Doctorate (Univ. Grenoble)

#### Researchers

Judy Beaumont: BA (Hons)(African Studies)(Cape Town)

Melanie Gosling: BA (Cape Town) BA (Hons) (Journalism) (Stellenbosch)

Liane Greeff: B Soc Sc (Cape Town) BA(SS) Hons (Psychology) (UNISA)

Paul Lochner: BSc (Civil Eng) (Cape Town)

Andrew Mackenzie: BSc (Hons) (Zoology) (Natal)

Gregory McCulloch: BSc (Mech Eng) (Cape Town)

Robin Short: BSc (Hons) (Zoology) (Venda)

Rachel Wynberg: BSc (Hons) (Marine Biology) MSc (Zoology) (Cape Town)

#### Consultants

##### Social Impact Assessment consultant for Namaqualand

Fiona Archer: BA (Hons) H.E.D (Stellenbosch)

##### Social Impact Assessment consultant for Herschel District (Sterkspruit), Transkei

Susan Lund: MA (Rural Development Planning) (East Anglia)