

HEALTH AND SAFETY POLICY PROCESS FOR SMALL AND JUNIOR MINES FROM 1994 TO 2001

Lehogwe Horatius Leburu

A research report submitted to the Faculty of Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management (in the field of Public and Development Management).

September 2004

ABSTRACT

This research report uses a qualitative approach to study the relatively unresearched field of occupational health and safety policy-making processes for small and junior mines (SJM). The purpose of this research was to study the efficacy of the Mine Health and Safety (MHS) policy process for the small and junior mining (SJM) sector from 1994 to 2001 and add to the research capacity in this field. Research mainly found that inadequate policy communication and lack of participation by the weak SJM policy coalitions had primarily led to policy disintegration. One of the main recommendations of the research report is that an effective national SJM association should be established. Further, fundamental research is urgently recommended to study which philosophy between Risk Management and the Precautionary Principle should underpin the appropriate health and safety policy alternative for SJM.

DECLARATION

I declare that this report is my own, unaided work. It is submitted in partial fulfilment of the requirements for the degree of Master of Management (in the field of Public and Development Management) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.

Lehogwe Horatius Leburu

27 September, 2004

DEDICATION

To my parents, my wife Loraine, son Tumelo Jr and daughter Kgalalelo.
The former taught me tenacity and courage whereas the latter sacrificed
with me, patiently.

ACKNOWLEDGEMENTS

I am grateful to my supervisor, Prof. Gavin Cawthra, who supported me and guided me with the research report. I acknowledge the mentorship of both Dr Mike Gouws and Mr Dick Kruger of the Chamber of Mines. I am also thankful for the support I received from other Chamber officials and from my interviewees. Last, but not least, I praise my saviour, the Lord Jesus Christ, for all the things He has brought me through.

CONTENTS

LIST OF ABBREVIATIONS:	v
-------------------------------	----------

CHAPTER ONE: INTRODUCTION AND BACKGROUND:	1
--	----------

1.1	Introduction:	2
1.2	Small and Medium Enterprises (SME) Context of Small-Scale Mines:	3
1.3	Definition of Small and Junior Mines:	4
1.4	Representations of the Mine Health and Safety Problem:	7
1.4.1	Representations of the Causes of the Mine Health and Safety Problem:	7
1.5	International Experience of Mine Health and Safety for Small and Junior Mines:	9
1.6	Reformulated Mine Health and Safety Policy Problem:	10
1.7	Principle of Tripartite Health and Safety Committees:	11
1.7.1	Mine Health Safety Council (MHSC):	11
1.8	Approaches to Mine Health and Safety and Improvements:	13
1.8.1	MHS Policy Choices - Risk Management and Precautionary Principle:	14
1.8.2	Small and Junior Mines Associations:	15
1.9	Structure of Research Report:	17

CHAPTER TWO: LITERATURE SURVEY:	19
--	-----------

2.1	Introduction:	20
2.2	Policy-Making Processes:	20
2.3	Stages in the Policy Process:	21
2.3.1	Initiation:	22
2.3.2	Agenda-setting:	22
2.3.3	Processing the Issue and Considering the Options:	22
2.3.4	Making the Choice:	24

2.3.5	Publication:	24
2.3.6	Allocation of Resources and Implementation:	25
2.3.7	Impact Evaluation and Feedback:	26
2.3.8	Information and Management of Policy Process:	27
2.4	Elite/Mass Model:	28
2.5	Institutional Model:	28
2.6	Group Model:	29
2.7	Network and Communities Models and Policy Coalitions:	30

CHAPTER THREE: RESEARCH QUESTIONS AND METHODOLOGY: 31

3.1	Research Purpose:	32
3.2	Research Question:	32
3.2.1	Research Sub-Questions:	33
3.3	Research Strategy and Methodology:	35
3.3.1	Advantages and Disadvantages of Semi-Structured Interviews:	36
3.3.2	Probes:	38
3.3.3	Interpretation:	38
3.4	Limitations of the Research Report:	39

CHAPTER FOUR: RESEARCH FINDINGS AND ANALYSIS: 41

4.1	Introduction:	42
4.2	Policy Initiation:	42
4.3	Agenda Setting:	43
4.3.1	Some Primary Policy Objectives:	44
4.4	Processing the Issue and Considering the Options:	45
4.4.1	Participation of the Small and Junior Mines Policy Network:	45
4.4.2	Sources of Policy Alternatives:	46
4.5	Making the Choice:	49

4.6	Publication:	51
4.7	Allocation of Resources, Implementation and Adjudication:	52
4.7.1	Characteristics for Policy Implementation:	53
4.7.2	Conditions for Successful Implementation:	55
4.7.3	Policy Coalitions, Groups and Networks:	56
4.8	Information Management, Impact Evaluation and Feedback:	58
4.8.1	Communication Monitoring and Feedback:	58
4.8.2	Impact Evaluation:	60
4.9	Summary of the Findings and Analysis:	61

CHAPTER FIVE: CONCLUSIONS AND

RECOMMENDATION:	63
------------------------	----

5.1	Summary of Key Mine Health and Safety	
	Policy Process Issues:	64
5.2	Recommendations for Policy Improvement:	65
5.2.1	National SJM Association:	66
5.2.2	Communication Plan:	67
5.3	Further Research Work:	68

REFERENCES:	69
--------------------	----

APPENDICES

76

Appendix 1. List of Organisations and Persons who Submitted Written Representations to the 1994 Leon Commission of Inquiry into Health and Safety on Mines:.....	77
Appendix 2. Excerpt of the Chamber of Mines Guide to Assessments Baseline, Issue-Based and Continuous Risk Assessments:.....	78
Appendix 3. Research Questionnaire:.....	82
Appendix 4. List of Interviewees:.....	91
Appendix 5. National Steering Committee (NSC) of Service Providers to the Small Scale Mining Sector:.....	93

TABLES

Table 1 – NSBA Criteria for Classification of Small and Junior Mines:.....	6
Table 2 – MEPC Criteria for Classification of Small and Junior Mines:.....	6
Table 3 – ILO List of Major Reasons for Mine Accidents:.....	10
Table 4 – Interviewees’ Responses about Original Policy Objectives and MHS Policy Development:.....	45
Table 5 – Responses to Question 1.2.1 about the Participation of SJM Policy Network:.....	45
Table 6 – Responses to Question 1.5.1 Regarding Satisfaction about MHS Policy:.....	53
Table 7 – Responses to Question 1.1.7 about Interviewees’ Satisfaction with Policy Communication:.....	59

LIST OF ABBREVIATIONS AND ACRONYMS

AIDS - Acquired Immune Deficiency Syndrome
ASPASA - Aggregates and Sand Producers Association of South Africa
Chamber - Chamber of Mines = Chamber of Mines of South Africa
CBO - Community Based Organisation
COSATU - Congress of South African Trade Unions
CSIR - Council for Scientific and Industrial Research
DME - Department of Minerals and Energy of South Africa
DTI - Department of Trade and Industry
ILO - International Labour Organisation
MEPC - Minerals and Energy Policy Centre
MHS - Mine Health and Safety
MHSA - Mine Health and Safety Act (Act no. 29 of 1996)
MHSC - Mine Health and Safety Council
MHSI - MHS Inspectorate of the DME = the Inspectorate
MPRDA - Mineral and Petroleum Resources Development Act
MQA - Mining Qualifications Authority
NEDLAC - National Economic Development and Labour Council
NGO - Non-Governmental Organisation
NSBA - National Small Business Act (Act no. 102 of 1996)
NSC - National Steering Committee of the DME
NUM - National Union of Mineworkers
OH&S - Occupational Health and Safety
P&DM - School of Public and Development Management, University of the Witwatersrand
PPE - Personal Protective Equipment
RSA - Republic of South Africa
SADC - Southern African Development Community
SAMDA - South African Mineral Development Association
SETA - Sector Education and Training Authority
SJM - Small and Junior Mines = Small-Scale Mines
SME - Small and Medium Enterprises
SIMRAC - Safety in Mines Research Advisory Committee
UASA - United Association of South Africa

Health and Safety Policy Process for Small and Junior Mines from 1994 to 2001

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Introduction

In 1991 the mining industry labour unions, and in particular the South African National Union of Mineworkers (NUM), expressed serious concerns about the perceived deterioration at the standards of mine health and safety (MHS). NUM called for a judicial inquiry into the matter. In 1992 the Chamber of Mines agreed to formulate proposals for a commission of inquiry after lengthy debates with labour unions. Consequently, in May 1994, the State President instituted a commission of inquiry to make recommendations on the necessary improvements to MHS and thereby officially placed MHS problems on the public agenda (Leon, 1994; Dunn, 1994:16). This commission was chaired by Justice Ramon Leon (Leon, 1994).

It is important to note that the pre-1994 RSA government lacked political legitimacy in the opinion of most citizens. In contrast, the proposed policy inquiry in 1994 had political legitimacy since its proponent was a black labour union, namely NUM, which is part of the COSATU labour federation that was allied to the African National Congress government. The inquiry and its associated policy process were thus politically feasible.

The 1991 to 1994 period was contextually the most politically dynamic period in the history of democratic South Africa for almost all of public policy making. During this period multi-party negotiations shaped the interim RSA constitution, which became the foundation of most policy processes. The interim Constitution became the RSA Constitution, published in 1996, which enshrined the broad societal goals of the safety of employees (RSA, 1996a: see particularly the Bill of Rights, section 24). The RSA Constitution requires the State to protect and ensure the safety of individuals in the workplace. Therefore, the Leon Commission was a probe targeted at sensitising mine occupational health and safety policy makers about their Constitutional obligation. Moreover, the Mine Health

and Safety Act (MHSA) (Act No. 29 of 1996)(RSA Department of Minerals and Energy (DME), 1996b), which was a direct outcome of the Leon Commission, became a forerunner among a new generation of outcomes-based legislation and statutes. This reinterpretation of MHS according to the Constitution was intended to bring refreshing change to the field of MHS for all mines, including small mines.

1.2 Small and Medium Enterprises (SME) Context of Small-Scale Mines

The intentions of the South African government to redress the socio-economic legacy of apartheid have been widely recorded. The objective of the government for empowerment in the mining industry has not been to create a black elite bourgeois but rather to provide a "broad-based socio-economic" upliftment for all (RSA DME, 2002a). Behind this objective is also the up-front recognition of the shortage of essential skills among the so-called historically disadvantaged persons. These professional skills are in the fields of "management, science, engineering and others" (RSA DME, 2002a). Indeed this particular shortage of skills has impacted negatively on health and safety performance of mines. The Minerals and Energy Policy Centre (MEPC) survey showed an already widespread existence of the small-scale mining fraternity across the country in 1998 (Scott, Rockey and Hudson, 1998:14-15). These small-scale miners and many other would-be entrants to the mining industry were the intended direct beneficiaries of the mining empowerment charter (RSA DME, 2002a). The government policy on mining empowerment, and specifically its focus on mine health and safety for small junior mines, has been the subject of this research.

The Southern African Development Community (SADC) points out in its study conducted during 2000 that many initiatives by government and donor bodies failed to develop and improve the lot of the small-scale

miners (SSM) as promised (SADC, 2000:1a). Nevertheless, SADC (2000:10) positively notes the public role of the SSM sector that:

SSM also supports other down-stream small scale industries such as small smelters, building and agricultural manufacture (lime, gypsum, cement, tiles, bricks), dressing and cutting of ornamental / masonry stones, lapidaries (gemstone, cutting and polishing, ornaments making) and jewellery shops, etc. as well as local equipment manufacture. (SADC, 2000:10)

This research argues that there is South African, SADC and international consensus that the development of safe and healthy small-scale mining activity is in the public interest. As identified above the impact of small-scale mining is "general" to the wider society and not just "sectional" or sectoral to the mining industry (SADC, 2000:10; Dror, 1989:16). The revenues that are contributed by small-scale mines chain of business can to be added to the revenues of the down-stream small-scale industries listed above. These revenues complement the impact, significance and overall contribution of the SSM in the economy. The most important issue is that increased investment in the SSM sector demands a new, well articulated and developed mine health and safety (MHS) policy for this sector, for the benefit of the SME development.

1.3 Definition of Small and Junior Mines

Nationally in South Africa there is confusion about the precise definitions of small-scale mining (SSM) and small and junior mines (SJM). Moreover, internationally at the SADC (2000) and ILO (1999) levels, confusion is manifest in the terms "small-scale mining" (SSM) and "small and junior mines" (SJM) being used interchangeably. In this research report these terms are generically and interchangeably used as having the same meaning since this is justified by the more *bona fide* international

writings. Nevertheless, the distinction between a small mine and a junior mine is thoroughly discussed in this research report.

A term "'mine', when used as a verb, means any operation or activity for the purpose of winning any mineral, in or under the earth, in or under water and which was formed by, or subjected to, a geological process, and includes sand, stone, rock, gravel, clay, soil and any mineral occurring in residue stock piles or residue deposits" (RSA DME, 2002b:Definitions). Further, the Mineral and Petroleum Resources Development (MPRDA) Act 28 of 2002 (RSA DME, 2002b:section 23(1)(f)) made "the ability to comply with the provisions of the Mine Health and Safety Act (Act 29 of 1996)" a condition for receiving a mining right.

The RSA National Small Business Act (NSBA) (Act no. 102 of 1996) definition of small and medium or junior mines is essentially consistent with the assertions of the 1998 authoritative survey which was commissioned by the MEPC (Scott, *et. al.*, 1998:3). However, at the time of writing this research report there were no universally and internationally accepted definitions of SJM. Also at this time, both the DME unit on small-scale mines and the Mining Qualifications Authority (MQA), a mining Sector Education and Training Authority (SETA), had not yet decided which definition to adopt and why. Indeed, as the South African government finalises and implements its present flux like policy, inevitably a standardised concept of SJM will emerge and be used across the industry.

The NSBA (RSA Department of Trade and Industry (DTI), 1996c:section 1) describes a *small* mine as having fewer than 50 employees, owning capital assets to the value of less than R4.5 million, and turning an annual revenue of less than R7.5 million. The MEPC adds a further criterion of output tons or ore produced per year to the NSBA list of criteria. According to both the MEPC survey and NSBA, a *junior* mine

would satisfy the criteria by having fewer than 200 employees, assets valued at less than the value of R18 million, output of less than 150 000 tons per annum and an annual revenue of less than R30 million. Tables 1 and 2 below offer a complete picture of the measurement used by the NSBA and the MEPC to decide whether or not an operation in question is a small mine or a junior mine (Scott *et. al.*, 1998:2-3).

Table 1 – NSBA Criteria for Classification of Small and Junior Mines

	Size or Class			
Category	Micro	Very Small	Small	Medium or Junior
No. of Employees	<5	<20	<50	<200
Capital Assets	<R100 000	<R1.8 Mill.	<R4.5 Mill.	<R18 Mill.
Annual Revenue	<R150 000	<R3 Mill.	<R7.5 Mill.	<R30 Mill.

Source: The National Small Business Act 102 of 1996 (section 1).

Table 2 – MEPC Criteria for Classification of Small and Junior Mines

	Size or Class				
Category	Micro	Very Small	Small	Junior	Medium to Large
No. of Employees	<5	<20	<50	<200	<1500
Capital Assets	<R100 000	<R1.8 Mill.	<R4.5 Mill.	<R18 Mill.	<R60 Mill.
Output (tons/annum)	<2000	<10 000	<60 000	<150 000	<1 Mill.
Annual Revenue	<R150 000	<R3 Mill.	<R7.5 Mill.	<R30 Mill.	<R100 Mill.

Source: Scott *et. al.* (1998:3) at the MEPC.

A more complete view of SJM would add, the level of mechanisation - automated processes - of a mine to the list of employee complement, capital assets, output tons per year and annual revenue presented above. A highly mechanised operation can utilise fewer human resources but attain a high production output.

Scott *et. al.*, (1998:66) suggest, and both the ILO report (1999:5) and SADC report (SADC, 2000:8) concur, that the size of the South African

Small Mines sector has a labour complement of between 10 000 and 12 000 persons. In lieu of the categories presented in Tables 1 and 2 above, these labour figures do incorporate both the small and junior mines as discussed above.

1.4 Representations of the Mine Health and Safety Problem

NUM first called for the “establishment of the commission on safety and health in 1991” (Leon, 1994:11). In fact, the Leon Commission report indicates that by 1992 the Chamber had agreed, after lengthy debates with labour unions, to formulate proposals for the establishment of a commission.

The problem of poor safety and health performance by small and large mines has been ongoing, widespread and complex. There were 37 organisations and persons that made written representations to the Leon Commission about the MHS problem (Leon, 1994:174). These organisations ranged from labour unions, employers, employer associations, professional associations, para-statal, individuals and others. (See Appendix 1 for the complete list.)

1.4.1 Representations of the Causes of the Mine Health and Safety Problem

During the Leon Commission hearings in 1994, NUM and the Chamber of Mines made the major representations on the causes of the MHS problem. In addition the DME made key representations since, as a government agency, it is the primary custodian of the MHS policy.

National Union of Mineworkers (NUM) - NUM represented 60% of all mineworkers in 1994 (Leon, 1994:11). In 2002 the total labour complement in the mining industry was estimated at 410 000. NUM membership was 250 000 employees. More than 95% of NUM members were drawn from employees of the large mines. In contrast, employees of the small and

junior mines were unique and their labour issues have been relatively complex. In particular, the employees of small mines were often newly unionised, had a low level of education and training, and had little working experience. They also had either insignificant or no previous involvement with organised labour or other lobbying movements. Thus the notion of small and junior mines was seen as a new concept by labour movements.

NUM presented the lack of sufficient policy, legislation and employer commitment as primary causes of the health and safety problem. The principal position of NUM was that there was a dire need for “better standards on health and safety for the workforce in the mining industry” (Leon, 1994:11). NUM graphically illustrated the problem during the hearings of the Leon Commission by testifying that:

- “Since gold was discovered in the Transvaal in 1886, almost 70,000 mine workers had been killed and over 1 million injured;
- Average annual fatality rates showed that there had only been a marginal improvement in safety standards over the previous 50 years. In 1993, 578 miners died in accidents (more than one death per thousand miners), there were at least 8,000 accidents and 7,800 reportable injuries; and
- statistics showed that South African mines were many times more dangerous than those in other countries. For example, the fatality rate in South Africa's coal mines in 1992 was 0.64 per 1,000 workers compared to 0.43 in NSW, 0.36 in the US, and 0.08 in the UK”. (Green Left Weekly, 2002)

Chamber of Mines - The Chamber presented the lack of adequate training as the primary cause of the health and safety problem. The Chamber, as the mine owners' association, represented large mines with 80% of all South African mining productive output. Yet many small and junior mines were not members of the Chamber (Leon, 1994:9). Chamber representation of the problem followed a descriptive pattern, which noted past economic division of labour. The Chamber viewed poor standards of health and safety as a result of the oscillating migratory labour system in

South Africa (Leon, 1994:9). This distinct Chamber presentation was important from the point of view of safety, health and the environment, *vis. a vis.* the need for training on exposure to hazards and risks (Leon, 1994:9).

In its presentation, the **Department Minerals and Energy** (DME) conceded before the Leon Commission that compared to Britain, South Africa had fewer inspectors. "Britain had 89 inspectors per 100,000 workers while RSA had just 20 per 100,000. In comparison with their foreign counterparts, South African inspectors were poorly qualified (Green Left Weekly, 2002). Therefore, organisationally, the Mine Health and Safety Inspectorate (MHSI) was lacking, quantitatively, in terms of number of inspectors and in terms of competencies.

1.5 International Experience of Mine Health and Safety for Small and Junior Mines

The International Labour Organisation (ILO) (1999:15) derived the following table as a summary of the "major reasons for accidents" in the SJM sector world-wide including South Africa:

Table 3: ILO List of Major Reasons for Mine Accidents

Major Reasons for Accidents	
Management / Operation	Equipment / Work Environment
● Lack of awareness of safety	● Rock falls; cave-ins; subsidence
● Violation of regulations	● Misuse of explosives
● Negligence	● Lack of ventilation
● Lack of inspection	● Unprotected equipment
● Ignorance and lack of training	● Poor access / exit
● *Poor management / supervision	● Obsolete equipment
● Anarchic exploitation of resources	● Lack of maintenance
● Over-exertion	● *Improper use of equipment
● *Substance abuse	● *Lack of, or failure to use PPE
● Lack of regulations	● *Poor working conditions and work practices

PPE = Personal Protective Equipment

Source - International Labour Organisation (1999:15).

Some of the factors in the table, for example those which are highlighted with an asterisk *, are not necessarily unique to the mining industry. It is clear that consuming alcoholic drinks at work in the nursing, education or other professional fields is also likely to be an offence. In addition, failure to utilise PPE such as protective gloves in the fields of nursing and medicine, where necessary, is a serious transgression of health and safety good practice. The analysis could continue in a similar vein. However, it is a primary argument of this research that a problem such as "poor management / supervision" in Table 3, should be taken into consideration in designing a policy. To counteract this problem, training should be a fundamental part of management planning and design. Similarly, some of the occupationally unsafe elements could be eliminated during planning and design.

1.6 Reformulated Mine Health and Safety Policy Problem

Dunn (1994:145) points out the need for policy analysis to move on from the “problem situations”, which have been represented by different stakeholders, onto the “substantive problem”. In the case of the mine health and safety problem, that substantive problem was described by the Leon Commission report in a broad measure of agreement, which emerged and was distilled into the following points:

- “There was some need for legislative intervention and restructuring;
- A tripartite (labour, state and employers) body should be set up to review relations on an ongoing basis;
- There should be employee participation at all levels of policy formulation and enforcement in the fields of safety and health;
- There was agreement in principle regarding the right of a worker to refuse to work in unsafe conditions; and
- It was agreed that great importance [value] must be attached to research and development regarding safety and health matters” (Leon, 1994:10-11).

It is significant that in the reformulation of the policy problem some hierarchical analysis clearly stipulated an agreed focus on “plausible causes” of the problem (Dunn, 1994:162). This is illustrated in the last item in the above list, which recommends the use of systematic research for evaluation of presumed problems. This objective tool of scientific research was intended to assist in the adequate structuring and redefinition of the MHS public policy problem. The envisaged technical aspects of the problem included the depth of mining, rock failure, flammable gas explosions, environmental issues, nuclear radiation, dust and noise (Leon, 1994:22-28 & 127-128). Research would thus bring a multiple-perspective analysis through systematic consideration of technical perspectives and causal issues (Dunn, 1994:176).

1.7 Principle of Tripartite Health and Safety Committees

The Leon Commission report (1994:85) states that earlier insinuations of the principle of tripartite mine Occupational Health and Safety (OH&S) forums were formalised in the Minerals Act (RSA DME, 1991:section 26), which prescribed the establishment of a Mine Safety Committee (MSC). An official from the State chaired this committee, which comprised three representatives from each of the State, labour and employer stakeholders.

1.7.1 Mine Health Safety Council (MHSC)

In 1994 there was a tripartite stakeholders' consensus that a new MHSC should be established under a new Act in the place of the MSC (Leon, 1994:85). The envisaged MHSC would have a stronger mandate to advise the Minister and the Chief Inspector of Mines on:

- “any matter of policy concerning the development, implementation and enforcement of health and safety standards;
- any matter concerning the promotion of health and safety of employees; and
- consideration of any report prepared by a sub-committee” (Leon, 1994:85).

These statutory sub-committees were recommended in order to complement the MHSC and comprise the Mining Regulation Advisory Committee (MRAC) and the Safety in Mines Research Advisory Committee (SIMRAC) (Leon, 1994:86). Thus, MRAC represented a major policy milestone, since for the first time in the 100-year-old history of South African mining, a statutory forum would be set up:

- “as the heart of mining industry consultative process where regulatory framework would be formulated, monitored and reviewed; and
- where interested parties could discuss improvements in current dismal safety records.” (Leon, 1994:86)

Therefore, with these purposes in mind, the importance of MRAC as a vehicle for equitable MHS policy participation in the post-1994 era was emphasised.

Coupled with the above recommendations, the Leon Commission (1994:86) recommended several key strategic measures including:

- vital provision of a new Act that required the establishment of a mine based tripartite MHS committee, and employee portfolios that served as Mine Health and Safety (MHS) representation. This bottom-up accountability was a complete departure from the previous top-down policy-making structure;
- the requirement for mining companies to advance the national initiative in adult basic education and training (ABET), with a view to long-term benefits for improved health and safety.

As the cornerstone of mining OH&S, the proposed Act and its regulations were to form a critical path in a process, which coherently conformed to the fundamental principles of modern occupational health practice. It was recommended that the process should:

- identify the full spectrum of inherent hazards and risks at each mine;
- establish representative measurements of workplace conditions, quality control and sampling strategy relevant to each identified hazard and risk; and
- treat and control the identified hazards and risks. (Leon, 1994:54)

MRAC was responsible for planning the entire policy project and strategies to address the problem. The envisaged MRAC think tank was a forum where stakeholders would set preliminary and long-term objectives and co-ordinate policy operations under a new Act. It is certain that, institutionally, MRAC was mandated as the locus of control and the crucible for overall MHS policy, and technical and programme

management. In lieu of the above Leon Commission recommendations, the Mine Health and Safety Act (MHSA), (Act No. 29 of 1996) was legislated (RSA DME, 1996b).

1.8 Approaches to Mine Health and Safety and Improvements

The MHSA introduced a new era of occupational health and safety which has definitely not yet been fully understood and applied by the small-scale mines in particular (Scott *et. al.*, 1998:25). As recommended during the Leon Commission, the Act and other related policy documents:

- entrench tripartite partnership of State, labour and employers in all policy development exercises (RSA DME, 1996b:section 25);
- require a philosophical approach based on the principles of hazard identification and risk assessment (RSA DME, 1996b:section 11);
- produce outcomes-based regulations and guidelines that describe what should be attained and not how it ought;
- to be established (MHSC Process Document, 2000a; MHSC Aide Mémoire, 2000b). Thus the onus of responsibility was placed upon each mine owner to describe precisely how to manage occupational health and safety;
- entrench the right of employees to refuse to do dangerous work. (RSA DME, 1996b:section 23(1))

An important feature of the MHSA is that the owner of the mine, who is considered a legal entity, is held primarily responsible for occupational health and safety over and above the activities of employees at a mine (RSA DME, 1996b:section 1(1)).

There are misconceptions and confusion among small-scale miners on the notions of risk and injuries (Scott *et. al.*, 1998:49). Risk means “the likelihood that occupational injury or harm to persons will occur” (RSA DME, 1996b:section 11). Scott *et. al.* (1998:50) mention the inconsistent reporting and lack of disclosure of occupational fatalities by the SJM.

Indeed this inconsistent reporting is a crude international blemish of the activities of small-scale mines (ILO, 1999:13).

1.8.1 MHS Policy Choices - Risk Management and Precautionary Principle

It is significant that in 1994 the tripartite parties reviewing the MHSA developed and adopted an approach that prioritised risks, calling them ‘significant risks’. This prioritisation of dealing with risks was developed on the basis of scientific models of baseline, issue-based and continuous risk assessments. (See Appendix 2.) The regulations and/or guidelines for a mandatory code of practice have been written in outcomes-based terminology in order to address significant risks.

The significant risk notion is certainly based on a similar understanding to the Pareto Principle. The Pareto Principle can be interpreted to mean that efforts to address a certain 20% of the risks would impact and improve 80% of health and safety performance on mines (Paretolaw Company, 2003). In relation to significant risks there is a cascading premise in the MHSA which states that:

- all hazards must be identified and all risks must be assessed and be recorded;
- significant risks must be treated; and
- the employer must design the safe systems of work to [1] eliminate, [2] control and [3] minimise risks.(RSA DME, 1996b, section 11.5)

The United Kingdom’s Health and Safety Commission (UK HSC) has developed “Risk Assessment and Safety Case” regulations for all industries, including mines, which entail similar principles to the MHSA risk management (UK HSC, 2003). Thus MHSA risk management is considered to be on a par with practices of internationally respected bodies like the UK HSC. Nevertheless the basic limitation of MHSA risk

management is that government and mines do not appear to be ready to implement outcomes based legislation.

In contrast, the Precautionary Principle simply requires the policy output and regulations to prescribe as fully as possible what and how to attain the intended measures "even if some cause and effect relationships are not fully established scientifically" (San Diego Earth Times, 1998). In terms of the Precautionary Principle, implementers of policy are primarily required to err on the side of caution. This means that they have produced too many rather than too few regulations. The basic limitation of the Precautionary principle is that there may be more than one prescribed route to attain MHS improvement. The Precautionary Principle may lead to the exclusion of technological advancements, which may offer another valid improvements to safety and health. In practice comprehensive and lengthy checklists can be generated and still not reveal and address the root-cause of the problem.

1.8.2 Small and Junior Mines Associations

Scott *et. al.* (1998) argue that regional and commodity based SJM associations existed across the land. Examples of geographically based associations were the Namaqualand association, Kimberley Diamond Diggers and Mafikeng Diamond Diggers (Scott *et. al.*, 1998:14 & 98). Examples of commodity-based associations were the Aggregates and Sand Producers Association of South Africa (ASPASA), the Institute of Quarrying of South Africa (IQSA), the Association of Clay - Brick Manufacturers of South Africa, and the South African Mining Development Association (SAMDA).

Some associations, such as ASPASA, were formed. ASPASA was established in 1989 and claimed to represent approximately 80% of all legal businesses in the aggregates, cement, sand and related commodities field. ASPASA had 110 member companies and quarries in

all the nine provinces. Its members employed a labour complement of roughly 6,500 permanent and non-permanent employees and it thus did make presentation before the Leon Commission of inquiry into Safety and Health in 1994 (Leon, 1994:174; see Appendix 1). However, some associations were relatively smaller and did not draw members from across the nine provinces of the Republic. An example was the emerging SAMDA, which was trying to set up office and begin recruiting and was headed by persons with a high profile and connections like Ms B Radebe of Mmakau Mining. Nevertheless, even where associations existed there were loose primitive structures for communication among local miners.

Clearly, in the original policy objectives, the Leon Commission (1994:85) envisaged direct participation of bodies such as the SJM sector in policy processes under the tripartite Mine Health and Safety Council.

To summarise, this chapter covered the following salient issues:

- In May 1994 the State President instituted a commission of inquiry to make recommendations on the necessary improvements on MHS for small, junior and large mines. Justice Ramon N Leon chaired the commission.
- The broad societal goals of the safety of employees were enshrined in the RSA Constitution (1996a:Bill of Rights, section 24) requiring the State to develop policy on the protection and safety of individuals in the workplace.
- In South Africa there is confusion about the definitions of small and junior mines (SJM). Nevertheless, the distinction between small and junior mines was discussed in this chapter. The examples of definitions of SJM are provided in terms of the National Small Business Act (Act

102 of 1996) and the 1998 Minerals and Energy Policy Centre authoritative survey research work (Scott, *et. al.*, 1998:3).

- This chapter also outlined the discussion surrounding the positive public role of the SJM sector nationally, regionally at the SADC level, and at the broader international level (SADC, 2000:10).

1.9 Structure of Research Report

The entire research report is structured such that an in-depth introduction provides a multifaceted background to the research in question. In Chapter 1, the small and junior mines sector is described together with the key safety issues and principles. In Chapter 2, a pertinent literature survey is presented. The dynamic issues of policy process models are borne in mind, especially how these conceptual debates contribute to the research.

In Chapter 3, the research problem and questions are expounded together with the appropriate methodology. Then the research findings are cohesively written, building on the policy process incline of the questions. In Chapter 4, the analysis undertaken in the research is presented, utilising the concepts that have been developed from current theoretical debates. Ultimately, in Chapter 5, the conclusion is presented, followed by recommendations. A summary follows each of the content chapters for easier synopsis of the report.

CHAPTER 2

LITERATURE SURVEY

2.1 Introduction

This chapter discusses a literature survey on policy-making processes. The interplay between different stages in the policy process, and between these stages and the various aspects of the central research question are debated. In particular, the efficacy of the mine health and safety (MHS) policy process for small and junior mines between 1994 and 2001 is evaluated. The literature survey reflects a body of knowledge that is relevant and substantial, but is still growing. Nevertheless there is no well-developed indigenous MHS policy process literature in South Africa.

2.2 Policy-Making Processes

The work of the following authors is extensively reviewed to conceptualise the MHS policy-making processes regarding small and junior mines: Brynard (2000); De Coning and Cloete (2000); Dror (1989); Dunn (1994); Dye (2002); Fox, Schwella, and Wissink (1991); Grindle and Thomas (1991); Hanekom (1987); Hogwood and Gunn (1984); Kaul (1997), and Roux (2000). These authors advance policy process models and theories, which offer useful differing emphases. De Coning and Cloete (2000:30) assert, as well as citing Dror (1983), that models are simplifications, which usefully facilitate in the understanding, explanation, description, research and planning of policy initiatives.

It is important to note the general criticism of models, that they are by nature simplistic and thus encompass misconceptions. The sequential nature of models can also be criticised since “policy is often initiated at different stages” in the policy process and it sometimes “by-passes many activities” (Fox, Schwella, and Wissink, 1991:31-32). Fox *et. al.* (1991), among other authors, argue that a policy may be “in one or more states simultaneously, or may move back and forth between stages, rather than progress through the stages in a sequential manner” (Fox *et. al.* 1991:31;

and Anderson, 1994:35). On balance, Hogwood and Gunn (1984:5) argue that sequencing is useful in providing anticipation of the assumptions of each stage in advance. Dunn (1994:15-16) complements this view by asserting that these "assumptions, judgements and actions" affect policy performances in the next stages.

2.3 Stages in the Policy Process

Fox, Schwella, and Wissink (1991) discuss a key indigenous development in the models for analysing functional policy phases, namely, Wissink's stage model. This stage model divides the policy process into descriptive stages, which draw a parallel with the real dynamics that result in policy outputs (Fox *et. al.* 1991:32-34). The Wissink model goes further to outline dynamic stages that are commonly present but not stated, namely: initiation, agenda-setting, processing the issue, considering the options, making the choice, publication, allocation of resources, implementation, adjudication, impact evaluation and feedback (Fox *et. al.* 1991:32-34). These stages are the actual activities and dynamics, which produce policy outputs.

2.3.1 Initiation

Fox *et. al.* (1991:33) argue that the policy initiation takes place when a problem gains an awareness status through "civic, political or stakeholder action". De Coning's generic model adds that a mandate is established and the policy process is legitimated through consultation during this initiation phase (De Coning and Cloete, 2000:48). Kaul (1997) argues that during this phase a certain preliminary effort is made to critically appraise the potential public problem. It is purposely intended that, eventually, the policy outcome should have a significant future impact.

The elements of MHS **policy initiation** and **agenda setting** for all mines, including small and junior mines, are clearly discussed in detail in 1.1, and in much of Chapter 1.

2.3.2 Agenda-setting

Fox *et. al.* (1991:33) consider that the agenda-setting stage places the issue such the MHS problem on the public policy agenda and determines its priority. This stage is comparable to the policy process design phase of the generic model whereby the policy objective is set and the policy process project is planned (De Coning and Cloete, 2000:48).

2.3.3 Processing the Issue and Considering the Options

Fox *et. al.* (1991:33) assert that in the two stages of processing the issue and considering the options, major stakeholders and major alternatives for solving the issue should be identified. These two stages bridge two important phases of the generic model, namely: policy analysis and formulation. In these two phases, De Coning and Cloete (2000:48) claim that there is a need to filter the issue, analyse the options and prepare the policy proposals. In addition to the assertions about the two stages, Kaul (1997:13) emphasises that specific skills are required to meticulously craft the proposed options.

Van Dyk (1999:16) alludes to the fact that the “solutions to policy problems involve trade-offs between what is financially and politically feasible, and what is best”. Roux (2000:129-132) asserts that policy analysis and formulation involve a rigorous systematic search of all possible and potential options, including various methods and techniques such as cost-benefit and cost-effectiveness analysis. Cost-benefit analysis is defined as a “measurement of both the costs and benefits in monetary terms” (Roux, 2000:144-145). In contrast, cost-effectiveness analysis is defined as a comparison of the “costs of alternative options with the other outputs of the programmes, measured in physical, social or other non-

market-related terms” (Roux, 2000:144-145). Dunn (1994:196-197) and Roux (2000:119-121) suggest the following potential sources of policy options, among others:

- Established experts and authorities in the field;
- Persons with anecdotal knowledge about the field, but who may not be regarded as experts;
- International experience from other countries;
- The analogy between varied types of policy problems; and
- Continued scientific research and the generated body of knowledge.

Makola (1996) suggests that policy research is limited in that it is only assigned “to solve those problems that are perceived by the interests that define them as such”. In addition policy coalitions and issue networks form around certain policy initiatives and dominate the related research (Makola, 1996; Van Dyk, 1999). Van Dyk (1999:18) further argues that the “well-resourced groups and interests have commissioned good policy research” and made “use of policy knowledge” as “they [have] begun to dominate sophisticated policy processes” and replace concerns of the “poorest and dis-empowered with their own” concerns. (Policy coalitions, clients and implementation are discussed in 2.2.6 below.)

Policy analysis may be hindered by the following factors – government budgetary and resources limitations, politically expedient options, inefficient organisational structures, insufficient information, fear of changing from long established government policies, subjectivity in the heterogeneous South African policy environment and insufficient satisfaction of diverse needs (Hanekom, 1992 and Roux, 2000:122-124)

2.3.4 Making the Choice

In this stage, Fox *et. al.* (1991:33) propose the selection of a feasible alternative or a combination of alternatives. (De Coning and Cloete, 2000:48) explain that consultation, debriefing, negotiation and mandating processes occur in this decision-making phase. Brynard (2000) argues that creativity, experience and discernment are required by decision-makers to correctly distinguish and make the correct choice. Brynard (2000:158) further asserts that decision makers need to exercise an appropriate blending of the logical facts and intuition in the context of the following complex human factors:

- usually a decision maker will not have all the information needed for his / her decision;
- the available information will naturally have been bounded by the environment from which it was gathered; and
- a decision maker will normally not gather the information directly, but will rely on information provided by subordinates. That information will have been filtered through the subordinate's perception.

Time constraints pose another challenge that can result in incomplete information forming the basis of decision making.

Brynard (2000:158) also contends that as a result of political power a decision maker may “satisfy a need instead of taking the best decision”. That does not mean that no quantitative techniques will be used, but that “political power will still be dominant” (Brynard, 2000:158). The main argumentation of the above-mentioned authors is that better decision making will lead to more efficient policy since decision making is the focal point of the policy process.

2.3.5 Publication

Fox *et. al.* (1991:33) write of a stage of publicising the results of the decision-making process (De Coning and Cloete, 2000:48). In the generic

model the policy dialogue is similar to the publication stage of the Wissink stage model. Publication importantly encompasses the formulation of a dedicated communication strategy. Kaul (1997:15) confirms this and adds that there is a need to communicate to the public and gauge its attitude about the proposed policy alternate.

Kaul (1997:15) also raises questions about the difficulties related to publication, policy advocacy and policy dialogue. Along this line of reasoning, Kaul defines policy advocacy as the utilisation of analysis in making an argument for a specific policy. Kaul questions the role of an analyst as a political decision maker and a political decision maker as an analyst, since these persons may play these roles to the detriment of the value of objectivity.

2.3.6 Allocation of Resources and Implementation

According to Fox *et. al.* (1991:33), the allocation of resources stage involves budgeting and selection of resources for implementation. The implementation stage involves the designing and initiation of an implementation programme. In the phase of the generic model, which is similar to the above stages, De Coning and Cloete (2000:48) augment the discussion by adding the planning and prioritisation of programmes and projects.

Brynard (2000:178-186) lists the critical explanatory variables or 5-C protocol that characterise policy implementation, namely: content, context, commitment, clients and coalitions. Key aspects of these characteristics that apply to the research topic are:

- *Content* – regulatory policies stipulate the rule of conduct and performance, and carry sanctions for failure to comply;
- *Context* – efficient working relations among stakeholders are a consequence of: good understanding of each other, persuading others,

accommodations, threats, gestures of respect, and related transactions;

- *Commitment* – top-down and bottom-up commitment is necessary; Where appropriate, commitment to international regulatory bodies such as the International Labour Organisation (ILO) and the International Standards Organisation (ISO) may be important;
- *Clients and Coalitions* – Elmore (1979, cited in Brynard, 2000:185) states that one of the “most robust findings of implementation research” is that implementation is critically affected by the formation of local coalitions of individual clients who are affected by policy. The notion of clients and coalitions is further expounded by the discussion in 2.7 below on network and communities models and policy coalitions.

In his contribution, Kaul (1997:15-17) lists some of the following “conditions for successful policy implementation”:

- Policy and its legislation ought to include clear and consistent objectives together with some provision for solving conflicts.
- The policy should accurately identify principal factors leading to policy outcomes and incentives.
- Policy implementation ought to be “structured to maximise” the likelihood of compliance.
- The policy should enjoy ongoing support from constituency groups. One advantage of this point is that it assists in the “democratisation and good governance” of the policy process.

Fox *et. al.* (1991:33) claim that the adjudication stage consists of policy enforcement through administrative and legal actions. Similar conditions to those discussed immediately above, regarding policy implementation, apply to enforcement.

2.3.7 Impact Evaluation and Feedback

Fox *et. al.* (1991:33) state that these stages involve monitoring policy results, determining the value of policy intervention and reporting to the decision makers about policy impact. De Coning and Cloete (2000:48) specify that criteria and indicators should be developed for reporting, and follow-up should be made. Kaul (1997:18) demands that impact evaluation should be differentiated from routine “monitoring which is the checking of progress” against a policy process plan. Monitoring is seen as contributing important information regarding policy process. In contrast, impact evaluation has a long-term view, and it “requires a critical and detached” examination of the policy “objectives” and how they have been met (Kaul, 1997:18).

For the sake of completeness, Wissink’s stage model discusses the policy information and policy environment (Fox *et. al.*, 1991:33). Indeed this study endorses the view of the Wissink model that communication and transmission of information ought to cover all the policy stages, that have been discussed (De Coning and Cloete, 2000:47).

2.3.8 Information and Management of Policy Process

Fox *et. al.* (1991:33) indicate that both policy information generation and conversion reciprocally interact with all the above-discussed stages of the stage model. Fox *et. al.* (1991:33) show that information generation is not in itself a stage of the policy process. For example, information on health and safety performances, accidents and fatality rates among SJM and information dissemination to the SJM sector are essential to the formulation of objective policies. Grindle and Thomas (1991:45-46) argue that the shortage and unreliability of information about a sector can lead to subjective policies that have political power as a “central determinant”. Dror (1989:56) concurs that the “absence” of this vital information input undermines the “quality of some stages of policy making”. This practical centralisation of policy making enhances the role of the elite in decision

making. The centralisation of policy making is also exacerbated when the targeted SJM policy recipients are geographically "scattered and remote from government" itself (Grindle and Thomas, 1991:50).

2.4 Elite/Mass Model

The elite/mass model presupposes that a small group makes policy decisions for a largely passive, apathetic and ill-informed public (De Coning and Cloete, 2000:33; Dye, 2002:23-25). Dye (2002) also argues that the policy decisions are communicated and transfer downward to the masses, and are implemented by the bureaucracy. Dye (2002:23-25) lists these key points of the elite model:

- the only a small number of persons allocate normative values for society;
- the few who govern are not representative of the masses who are governed;
- the elite are subject to minimal direct influence from the indifferent masses;
- elitism does not in itself imply that public policy will be hostile to the masses but that the responsibility for policy rests entirely on the shoulders of the elite, not the masses.

2.5 Institutional Model

It is particularly important to note that government institutions are important role players in policy making. Dye (2002:12-13) argues that the government can and does legitimately enforce its policies through the power of monopolistic coercion.

The notion of the institutional model is based on the assumption that "public policy is the product of public institutions" (De Coning and Cloete, 2000:36). This assumption is a classical and traditional interpretation that

is based on the premise that the structure of a government bureau has a bearing on policy outcome (De Coning and Cloete, 2000:37). De Coning and Cloete (2000) further point out the influence of linkages between government units on policy results. A classical model like the institutional model complements models like the interest groups, elite/mass and systems models, which have different significant behavioural elements (De Coning and Cloete, 2000:37).

2.6 Group Model

The group model takes the premise that “interest groups pressure”, lobby and interact with policy-makers on preferences and self-interest (De Coning and Cloete, 2000:35). Dye (2002:21) pertinently reasons that variations in the influence of any interest groups have an expected effect on the course of public policy: that is, policy “will move in the direction of groups gaining influence and away from the desires of groups losing influence”. This school of thought cites examples of influence of groups through numbers, wealth, organisational strength, leadership, access to decision makers and internal cohesion (Dye, 2002:21). As is applied in Chapter Four – Research Findings and Analysis, these and other examples of influence have definitely marked the cause of policy development for small and junior mines, including policy development in the specialist area of health and safety.

Analysis of stakeholder groups reveals the need for policy advocacy to be considered as an explicit mode of stakeholder participation, in addition to policy analysis and policy process. Policy advocacy practically prescribes “what policies government ought to pursue” and “requires the skills of rhetoric, persuasion, organisation and activism” (Dye, 2002:6). The linkage between policy advocacy and interest group leadership is particularly strong in the South African policy context. In such an environment, group leaders must necessarily be able to attract membership and contributions, dramatise and communicate their cause,

and effectively compete for money and other resources in the public arena (Dye, 2002:27).

2.7 Network and Communities Models and Policy Coalitions

De Coning and Cloete (2000:41) argue that policy networks operate internally within government; externally, policy networks can also be ad hoc and informal. It is most relevant that these authors cite as an example the formalised policy decision-making network between labour, government and business, namely the National Employment, Development and Labour Council (RSA NEDLAC, (Act No. 35 of 1994)). In fact the Mine Health and Safety (MHS) policy process functions in an analogous manner to the NEDLAC statutory tripartite body. The network model has elements of the group, social interactions and systems models, and it presents a “more accurate perspective of contemporary” South African policy-making processes (De Coning and Cloete, 2000:41).

In **summary**, the literature survey covered stages in the policy process. It was found that policy process needs to be contextualised against the background of social challenges and systems dynamics. These dynamics are non-linear stages that ought to be optimally integrated in practice.

Social dynamics lead to formation of different interests with various quantities of resources, power, skills and influence. Then influence is deployed to benefit the dominant interests at the expense of the poorer concerns.

CHAPTER 3

RESEARCH QUESTIONS AND METHODOLOGY

3.1 Research Purpose

The purpose of this study is to research the efficacy of the Mine Health and Safety (MHS) policy process for the small and junior mining (SJM) sector from 1994 to 2001. It is hoped that this research will contribute to the course of policy development and research capacity building in this important area. It is also hoped that an indirect benefit will be derived in that a useful perspective will be added to the current national strategic objective of the Department of Labour; namely: to amalgamate all the sectoral occupational health and safety policies and units. Another use of this research will be that it will add to other research on key aspects of strengths and weaknesses of and lessons learnt from the MHS policy process. The MHS policy process for both the large mines and the SJM sector has been united in the outcomes-based legislation of the Mine Health and Safety Act (MHSA) (Act No. 29 of 1996). The outcomes based risk management approach, which has been adopted for the MHS policy process, needs to be conclusively proven to be appropriate for the SJM sector. Risk management is discussed in 1.8.1 above. Policy makers need to prove that this approach is appropriate to the SJM sector and that it will not lead to inherent policy process complications.

3.2 Research Question

The main research question is whether from 1994 to 2001 the MHS policy process regarding the SJM sector was efficacious in terms of following an appropriate process. The notion of efficacy as the key criterion for evaluating the process, involves systematic analysis of the overall effectiveness of the policy process in terms of policy process participation, policy problem definition, policy process communication, policy formulation, and proposed implementation plans. It also involves measuring these policy phases against original objectives. (Refer to Research Questionnaire, Appendix 3.) Before substantive research was

carried out on the policy process, the following preliminary questions were introduced to establish a basis for interviewees to understand the sub-questions on the policy process:

- What is the definition of the terms “small-scale mining” in terms of number of employees, quantity productive output and/or market capitalisation?
- What is the definition of the term “junior mining”?
- How large is the SJM sector in terms of number of employees, quantity productive output and/or market capitalisation?
- How many organised and formal SMJ associations exist?
- What are the dimensions of the SJM associations in terms of number of employees, quantity productive output and/or market capitalisation?
- How many of the SJM associations are nationally recognised?
- Was the MHS policy review process communicated satisfactorily with the SJM?

3.2.1 Research Sub-Questions

Participation of Small and Junior Mines and Independent Research Bodies in the Process:

- Was there participation of the small and junior mines in the initiation of MHS policy process in 1994, and beyond?
- If there are examples of participation, what are they?
- What efforts were made to seek participation of the CBOs and NGOs and institutions of higher education?

Mine Health and Safety Policy Problem Definition and Policy Formulation

- Was the policy process proactive rather than reactive?
- How were problem areas identified and defined?
- Was technical research used to identify the MHS policy problems for SJM?
- Was social research used to identify the MHS policy problems for SJM?
- Was the policy process adequately designed?
- Were the commodity, sectoral and regional dimensions of the MHS policy problems for SJM understood by policy makers?
- Did policy formulation adequately consider the effects of the behavioural dimension upon the SJM MHS policy review process?
- Were the likely effects of leadership, cultures, normative values and beliefs on MHS policy sufficiently conceptualised against the multi-ethnic societal background of South Africa?
- Does the belief exist among miners that women employees bring bad luck and a greater likelihood of occupational accidents and fatalities?
- Were there any deviations from the original objectives of the MHS policy for SJM?
- Were the recommended policy options “once off” or continuous and did the options include proposed implementation plans for the SJM sector?

Implementation Implications

- Is there satisfaction with the application to SJM of the general policy, which is also applicable to large mines?
- What examples of the solutions which the interviewees suggest?
- Are there enough MHS Inspectors for the SJM?
- Are the MHS Inspectors for the SJM adequately trained?
- Have there been monitoring and evaluation plans for policy performance?

Appendix 3 provides the complete research questionnaire developed from the above question and sub-questions and used during the interviews. During the end of each interview the interviewee was asked for questionnaire aids, that is, any useful additional written material related to the MHS policy process for SJM that could add value to this particular research report.

3.3 Research Strategy and Methodology

The field of the MHS policy process for the SJM is a new and unique specialist area for policy makers. The anecdotal evidence indicates that research in this area is relatively small but that it is growing, both locally and internationally. Policy experts in this area are very few. Hence, it was decided to use the persons listed on Appendix 4 as a sample because of the authority of the key positions they hold in government, the private sector, labour movements, the government-funded skills development entity and in non-governmental organisation. In fact, the former Deputy Director General, Mr Dick Bakker, stated during the interviews that the total population of policy experts in this area was below 20 persons in the whole of South Africa. It was precisely that apparent concentration of

capacity within a few individuals, and their amenability to offer in-depth and focused information in the area of MHS policy process for the small and junior mines, that underpinned the selection of the focused interview technique for data collection. The focused interview technique easily reveals any conceptual distortions and lack of insight by respondents (Phillips, 1971). The focused interview is also easy to use, which makes it a highly effective technique for a qualitative investigation of the policy process. (More advantages of the focused interview technique and disadvantages are discussed in 3.3.1 below.) Hence, the research strategy adopted by this study was to collect data by conducting focused interviews and analysing the data qualitatively and quantitatively.

The main question and subsequent sub-questions are posed in 3.2 above. The interview responses were used as a tool to test the cause and effect relationships with the main question. A good balance was sought between the number of open-ended and fixed-alternative questions in the interview questionnaire. The questions were complemented with 'why' questions to probe the underlying reasons for the responses.

The researcher conducted semi-structured interviews. The intention was to complement the major questions with enough flexibility to allow the respondents to be stimulated to develop, in response to major questions, some ideas about the “phenomena under investigation” (Phillips, 1971). After careful consideration, notes of the interviews were naturally taken down by hand and mechanical recording was not used. The internal order and consistency of the questions received attention.

3.3.1 Advantages and Disadvantages of Semi-Structured Interviews

The key advantage of a semi-structured interview is that the interviewer has the ability to control the interview and allow flexibility for unanticipated responses (Bailey, 1987:191). However, clerical errors, bias and social desirability effect, potentially limit the quality of data gathered in interviews

(Bailey, 1987:208). Bailey and other authors list the following other advantages and disadvantages of interviews in general (Bailey, 1987:174-176; Rummel and Ballaine, 1963:104-105):

- **Advantages** - observation of non-verbal behaviour, gauging of attitudes, perception of spontaneity of respondents, encouragement of creation of judgements, completeness of responses, space for use of a more detailed and complex questionnaire such as in Appendix 3.
- **Disadvantages** - travelling costs, consumption of time and energy, inconvenience such as fatigue, less anonymity, lack of accessibility to respondents and a relatively small sample. The emotional set of respondents may play a part, and there can be possible colouring and distortion of the facts which respondents disclose.

It is important to note that all interviewees were experts in their fields and were employed at director level or equivalent in their organisations. The interviewees enjoyed the privacy that goes along with seniority of position. That “privacy encourages confidential statements and uninterrupted quiet so that the informant ‘s interest can be maintained until all desired information has been obtained” (Rummel and Ballaine, 1963:97). As it was indicated in 3.3 above, the interviewees were drawn from all the interest parties in the field, namely: business, labour, government, Sector Education and Training Authority (SETA) and non-governmental organisations.

Brief introductory paragraphs about the research were included in the request for interview appointments. The paragraphs clearly stated the background, intention and purpose of the requested interviews, thus granting interviewees prior "opportunity to consult records" (Bailey, 1987:174). Interviewees were also asked to offer any additional material to the interviewer. Thus, the semi-structured interview appropriately offered the MHS policy experts an opportunity to provide their perspectives, but at

the same time, keep the interview anchored in the policy process theoretical concepts developed in Chapter 2.

3.3.2 Probes

The probing nature of focused interviews was explored. Neutral probes, which Bailey (1987:188) recommends, were fully borne in mind and used during the interviews; that is: repeating the question, repeating the answer, pause, then asking a neutral question or making a comment like “[what] do you mean [by] that?”. Indeed a pause is a powerful technique, which allowed the interviewees to finish their responses without the interviewer stepping into the vacuum to provide lead answers. Interview sessions were on average 70 minutes long.

3.3.3 Interpretation

Chapter 4 discusses the research findings and analysis in a manner that allows symbiotic development of research findings, together with analysis, “perception and explanation” (Bulmer, 1982, cited in Jones, 1988:62). Analysis of the information is attempted in a manner that is accurate and adequate, objective, logical, pertinent and leads towards an explanation (Lofland, 1971:59; Rummel and Ballaine, 1963:246). Further, Jones (1988:62) argues that, in analysis, consideration should be given to whether data “reflects genuine inconsistency, or apparent consistency that is in fact reconciled by underlying beliefs, a change in thinking” during the course of the interview or a “greater honesty in another part of the interview”. Moreover, it is purposely intended that this qualitative research should be able to distinguish the structural features of the policy process and “efficiently forge connections and glean underlying” aspects of the policy process (Bryman, 1992:142). Along with the above considerations, Jones (1988:62) mentions the difficulties which should be borne in mind during analysis, for example, data legitimization by respondents and a possible “misreading significance and over-probing in a certain direction by the interviewer”. Lofland (1971:128-129) cautions that a balance should be

sought between the extremes of “descriptive excess” on the one hand and “analytic excess” on the other hand.

True (1989:317) argues that the linkert type questions are questions that use the same number of positive and negative choices, and thus, they help to avoid bias. The linkert type questions were used in the research questionnaire because of their ability to yield “useful and good nominal data” (True, 1989:317). It is considered that a statement that is “accepted among the favourables or among the unfavourables most of the time” will be “useful as a selection tool” (True, 1989:317).

3.4 Limitations of the Research Report

There were certainly many important complexities related to the quest for an effective MHS policy process for SJM. This research was limited to the key policy process phases of problem definition, participation, process design, policy formulation, policy adjudication, monitoring and evaluation, normative values and communication. More research on the topic is recommended.

Evaluation research is by nature a generally contested field. It is acknowledged that the elements of author bias and problems of access to sensitive data have a limiting effect on the credibility and integrity of some of the research outcomes. For example, in the current study it was not possible to access the minutes of certain meetings between labour, employers and the State, which recorded negotiations, compromises and other crucial deals. Another limitation in term of bias is that other stakeholders may view the author with suspicion since he has been employed by one stakeholder, the large mining employers’ caucus in the form of the Chamber of Mines. Author bias towards certain ideological persuasions and inherent misconceptions can also have a significant

limiting effect on the research design, method, questionnaire, interpretation, analysis and conclusion.

Another limitation is that the number of interviewees is rather small because of scarce resources for research report fieldwork, and the general shortage of suitable expertise in the specialised study area of MHS for SJM. Thus quantitative statistical conclusions were not greatly valuable to the overall research exercise.

CHAPTER 4

RESEARCH FINDINGS AND ANALYSIS

4.1 Introduction

A list of all the respondents is presented in Appendix 4. The respondents were interviewed in their professional capacity. As discussed in 3.3 above most of the respondents were employed in their organisations at the level of deputy director or above. The findings are analysed against the theoretical concepts that were developed in Chapter 2.

4.2 Policy Initiation

As was discussed in detail in Chapter 1, the initiation of the MHS policy in 1994 resulted from calls by a politically legitimate labour stakeholder, namely, the National Union of Mineworkers (NUM). NUM, as a significant affiliate of the COSATU labour federation, enjoys an alliance with the ruling African National Congress government. Thus the legitimate MHS policy process was likely to be politically sustainable (Moore, 1995).

The Leon Commission initially defined the mine health and safety (MHS) problem. The definitions and critical appraisal of both the MHS problem and the small and junior mines (SJM) have been difficult for government and other stakeholders. There has been a lot of confusion and contest regarding the precise definition of small and junior mines. Thus, the interviewees provided no evidence of any unambiguous effort to develop the linkages between the broader MHS policy problem and the SJM. However, there was complete agreement among all the interviewees that all the recommendations of the Leon Commission (1994) and the subsequent policy process as well as the Mine Health and Safety Act (MHSA)(Act 29 of 1996) were directly applicable to SJM. The Leon Commission was not only focused on small-scale mines, *per se*. Yet, the Leon Commission did not recognise a difference between the different mines but encompassed all small, junior and large mines alike.

4.3 Agenda Setting

The interviewees had a general understanding that, initially in 1994, the Leon Commission had set the generic original policy objectives that covered the MHS needs of both the large and small mines. It was discussed in Chapter 1 that in 1994 the State President heeded the NUM and other stakeholders' calls and placed the MHS problem on the public agenda by establishing the Leon Commission of inquiry into safety and health on mines.

At the outset the Leon Commission recommended to the State President that a tripartite State, labour and employers Mining Regulation Advisory Committee (MRAC) should urgently convene and draft a new Act to embody the legislative MHS policy framework (Leon, 1994:54). MRAC was responsible for planning the entire policy project and strategies. The MRAC think tank was a forum where stakeholders would set the co-ordination plans for developing the policy. It was certain that, institutionally, MRAC was mandated as the locus of control and as a crucible for overall MHS policy, and for technical and programme management.

The Leon Commission also recommended to the State President that the new Act should:

- identify the full spectrum of inherent hazards and risks at each mine;
- establish representative measurements of workplace conditions, quality control and sampling strategy relevant to each identified hazard and risk;
- treat and control the identified hazards and risks; and
- develop a coherent process conforming to the fundamental principles of modern occupational health practice (Leon, 1994:54).

The SJM interviewees, namely Mr Pienaar of ASPASA and Ms Hoggins of Corobrik, said that they had been excluded from the policy process design and planning, which was carried out by government in consultation with

large mines. There was agreement among all the interviewees that they had not been aware of an expressed technical design of the policy process that took cognisance of the different stages of policy development for SJM. One reason for this lack of involvement of the SJM was a communication breakdown between the SJM and the ensuing process carried out by MRAC. Some of the SJMs such as ASPASA participated at the hearings of the Leon Commission. (See Appendix 3.) All the interviewees expressed a view that the policy process had been reactive. Hence, the sheer exclusion of the SJM from the policy process design and related communication breakdown was unwelcome to them.

4.3.1 Some Primary Policy Objectives

In 1994 the Leon Commission (1994:157) recommended that the State should develop a database on accidents. Despite that, by 2001 the Department of Minerals and Energy (DME) still had not developed the database on accidents in the SJM sector. Eighty percent of interviewees said the government did not develop a database on MHS performance, disseminate information or communicate effectively with small-scale mines. In fact, the DME had developed a statistical database on large mines, but not on the SJM. In the defence of the Department a DME respondent, Mr Landman, mentioned that the small-scale mines did not appropriately report accidents and injuries and, therefore, no database existed.

Table 4 below outlines some of the primary original policy objectives that were set out during the Leon Commission of inquiry into safety and health on mines, and the responses of the interviewees regarding the related MHS policy development during the period 1994 to 2001. As can be seen in the table, the respondents felt that there had been deviations from the primary original objectives of the MHS policy for SJM. However, the legislation of the Mine Health and Safety Act (Act 29 of 1996) was seen as a welcome positive development.

**Table 4 – Interviewees’ Responses about Original Policy Objectives and
MHS Policy Development**

Leon Commission Recommendation and MHS Policy Objective for SJM:	Reference: Leon Commission Report	Interviewees’ Response on Delivery of Policy Objective by the MHS Inspectorate: 1994 to 2001
Develop database, and address ICT related matters	1994:157	80% interviewees - no database and ineffective communication
Implement technical, scientific and mining research to assist policy development	1994:10-11	All respondents - minimal generic research was done
Develop expertise of MHS Inspectorate regarding quarries	1994:162	All respondents - no relevant capacity within the MHS Inspectorate
Legislate the new Act requiring [establishment of mine tripartite MHS committees, and employees who served as MHS representatives] bottom-up accountability	1994:86	All respondents - Mine Health and Safety Act (Act 29 of 1996) is applicable to SJM. Positive development

ICT means Information, Communication and Technology

4.4 Processing the Issue and considering the Options

This section discusses the policy analysis and the formulation of policy options within the context of participation of the SJM policy network sources of policy alternatives. Participation and communication have emerged in this research as key elements of effectiveness of policy process.

4.4.1 Participation of the Small and Junior Mines Policy Network

Table 5 – Responses to Question 1.2.1 about the Participation of SJM Policy Network

Code	Response	Make a Tick
1.2.1i)	All SJMs participated	-
1.2.1ii)	most SJMs participated	-
1.2.1iii)	Some SJMs participated	-
1.2.1iv)	Some SJMs did <u>not</u> participate	-
1.2.1v)	Most SJMs did <u>not</u> participate	YES
1.2.1vi)	All SJMs did <u>not</u> participate	YES (X9)
1.2.1vii)	I do <u>not</u> Know	-

In table 5 above, nine out of ten respondents stated that the SJM did not effectively participate in the mine health and safety policy process between 1994 and 2001. The three interest bodies, namely: SJM, related interest groups such as labour, and independent research bodies, constitute a policy network block. There was a general consensus among respondents that participation of the SJM network was minimal. The small and junior miners and SJM labour did not possess the specific skills to prescribe which MHS policy government ought to pursue or to particularly craft proposals for policy options. This observation is in line with the argument of Dye (2002:2) and Kaul (1997:13). Thus, major stakeholders within the SJM network did not actively participate in filtering the presumed policy issues, neither analysing the alternatives nor helping to prepare policy proposals. Indeed, the MHS policy development was not efficient or meaningful for the SJM sector.

4.4.2 Sources of Policy Alternatives

Earlier in the period from 1994 to 2001, the independent technical research bodies such as the Minerals and Energy Policy Centre, Council for Geoscience, Mintek and CSIR-Miningtek, were not engaged by the Inspectorate on policy development for SJM. However, research bodies, experts and authorities became involved with the general policy development of the Minerals and Petroleum Resources Development (MPRD) Bill and later the MPRD Act no 28 of 2002. However, the SJM interviewees expressed a belief that the MHS Inspectorate fundamentally preferred to engage big mines and large labour unions in a manner that was detrimental to the MHS policy development for SJM.

Social research input was generic and had been modelled on situational analyses of the large mines. For example, one respondent claimed that a research project, SIMRAC-Health 712, on the effects of nutrition and housing, or hostel dwelling on workplace performance, was deemed applicable to all mines, although it was based on large mines

(SIMRAC, 2002). It was generally accepted that the research results would be worse among the small-scale mines with often-lower standards of MHS. For example, there would be fewer bathroom facilities, no eating places, no nutrition or water. Thus, some of the effects of the behavioural dimension on MHS policy for the SJM had been considered. Research project SIMRAC-02 09 01 on alcohol abuse in the workplace was also carried out (SIMRAC, 2002). The original policy objective on technical, scientific and mining research is discussed in Table 4, above. Nevertheless technical, scientific and mining research had not been carried out by the MHS system, specifically for and on small-scale mines. In line with argument of Makola (1996) and Van Dyk (1999) analysis showed that policy research had addressed the perceived policy interests of the well resourced big mines which dominated the sophisticated MHS policy milieu at the expense of the poor and dis-empowered SJM.

All the respondents believed that development of the technical knowledge and cognitive skills of SJM was important to safety and health improvement. They considered this development as a necessary outcome of the MHS policy. Indeed, there was considerable muddling through of the preliminary conceptualisation of the new notion of outcomes-based MHS policy for the SJM sector during the period of 1994 to 2001. (Refer to discussion on outcomes-based MHS policy in 1.8.1.) This ineffective, improperly conceptualised, non-strategic policy development has invariably led to ad hoc, haphazard and inefficient legislation and regulation of the SJM sector.

The SJM interviewees observed that many of the commodities, sectoral and regional dimensions of the SJM were not understood or harnessed for the MHS policy development. The South African government is a signatory to the ILO 155 and ILO 176 Conventions on Mine Health and Safety and on MHS Systems, respectively (Chamber of Mines, 2001). It is clear that the government sought to strive towards implementing the best available

policy but did not incorporate the interest of the SJM in the policy process. The interviewees acknowledged that during the MHS policy process between 1994 and 2001 there were few recognised experts or authorities in the field of MHS policy for SJM in South Africa.

Interviewees acknowledged the existence of a negative attitude towards women employees but felt that there was no genuine evidence to suggest any resulting likelihood of occupational accidents and fatalities.

With regards to the question of institutional capacity to manage and deliver on the MHS policy process for SJM, the Leon Commission (1994:162) had specifically recommended the development of MHS Inspectorate expertise regarding quarries. (The primary policy objectives on expertise regarding quarries, MHS Inspectorate, and other objectives are discussed in Table 4, and in 4.3.1 above.) All the respondents stated that the government had not yet developed specific skills within the MHS Inspectorate to manage and monitor policy for quarries and other small-scale mines.

In summary, effective MHS policy analysis and formulation for SJM was constrained by the development of politically expedient options for big mines, inadequate information on SJM, minimal policy expertise among the SJM themselves and among SJM labour, as well as sheer subjectivity of the participants involved.

4.5 Making the Choice

The tripartite stakeholders, NUM, the State and the large mine owners, considered the MHS policy options of precautionary principle and risk management approach. (See 1.8.1 above.) the Precautionary Principle was viewed by stakeholders as laborious, requiring large resources from government and placing an onerous burden on large employers' audits. In the face of this, the risk management option then appealed to all the tripartite parties and was selected because of its satisfying dynamics of the so-called pareto principle. (See 1.8.1 above.) The parties consulted, debriefed and mandated their representative to recommend the selection of the following options:

- **Large mine owners** - In a sophisticated manner risk management allowed mine owners to focus on 20% of the so-called significant risks, therewith hoping to address, impact and improve upon 80% of mine health and safety performance. Thus, risk management seemed to make business sense since its benefits were likely to be greater than the costs.
- **Department of Minerals and Energy** - The MHS Inspectorate hoped that a measure of self-regulation and risk management would reduce the occupational hazards and risks without placing enormous strain on scarce government resources.
- **NUM** - The unions hoped that the technically superior risk management would scientifically address the root causes of MHS.

Anecdotal evidence showed that the Mine Health and Safety (MHS) Inspectorate of the DME historically preferred to engage big mines and large labour unions in the MHS policy process, rather than the small and junior mines, related interest groups, independent research bodies and the public. This seemingly simplified approach pragmatically created an elitist approach to MHS policy development. A small clique composed of the Inspectorate, large mines and big labour unions made policy decisions for

a SJM sector perceived to be largely passive, apathetic and ill-informed. This accords with the elite model as discussed by Dye (2002:23-25).

The theory behind the elite / mass model (see Chapter 2) asserts that policy decisions flow downwards to the masses. This research concurs with this theory in that the decision-making process between the MHS elite and SJM was top heavy. Yet, it is argued in this research that policy decisions did not even reach the SJM because of poor communication, lack of a proper definition of exactly who the recipients were and the fact that SJM were remote and scattered across the country. It is important to mention the limitations of the application of the elite / mass model. The numbers of the SJM labour force do not necessarily constitute masses. However, as pointed out in 1.2 above, most SJM form part of the broader historically disadvantaged groups. These groups currently enjoy government support, which seeks to redress the apartheid legacies.

The MHS Inspectorate as a government institution had a structural effect on policy decision making for small-scale mines. For example, it had a bearing on the non-consultative policy process and thus negatively affected the policy outcome (De Coning and Cloete, 2000:37). The elitist institutional MHS Inspectorate structure was not representative of the SJM who are governed. Anecdotal evidence also suggested that white MHS inspectors appointed under the defunct apartheid system still dominated the Inspectorate and made policy decisions during the period of 1994 to 2001. The Inspectorate was, in effect, practically an institutional dinosaur operating under by the popular guise of the tripartite approach to policy decision making.

As noted in Chapter 2, 2.3.4, policy decisions are not taken by an individual decision maker, but are the result of negotiations between policy stakeholders' networks in a policy community like the statutory tripartite body – the Mine Health and Safety Council (MHSC). MHSC is the

formalised policy decision-making network between labour, government and employers. SJM groups were not effective in that forum and needed to voice their interests in the decision making body of MHSC for efficacious policy process to occur. One interviewee stated that SJM associations were not involved in policy formulation and their member mine managers did not have ownership and buy-in into the system. Therefore, there was a prevailing perception with the SJM interviewees that the current MHSA policy process would not improve performance. That is, the MHSA policy would not reduce accident and injury rates nor stop fatalities.

4.6 Publication

Government interviewees confirmed that there had been no predetermined communication strategy to publicise the outputs of the MHS decision-making process to the intended beneficiaries. Eighty percent of the respondents viewed the general communication of the policy process as unsatisfactory. Hence it appears that the public attitude towards the selected risk management policy alternative had not been expressly gauged. It is unusual that the MHS Inspectorate contemplated MHS policy development without a crucial complementary communication strategy. In fact a typically erratic and reactive pattern was followed. Throughout the 1990s the Inspectorate failed to popularise the MHSA. It was only in 2001 that 100,000 abridged copies of the Act were publicised in seven of the 11 official languages (Chamber of Mines, 2002).

Most SJM mining associations did not have regular communication channels to discuss MHS issues with the Director General of Minerals and Energy or the Deputy Director General for Health and Safety, who was the Chief Inspector of Mines. In particular, ASPASA noted that the MHS inspectors visited the quarries irregularly.

Principal inspectors in different provinces communicated different policy interpretations to small-scale mines regarding a particular issue. A director

of an SJM association attended meetings with principal inspectors and miners in different provinces and discovered this communication breakdown. Respondents viewed communication as the underlying problem between the DME and small-scale mines. Geographically most small-scale mines were remote and difficult to reach. There were also rapid changes in ownership among some of the small-scale mines which aggravated the underlying communication divide. Principal inspectors were responsible for data feedback input into the MHS policy process from provinces to the MHS Inspectorate head office in Pretoria. The apparent policy exclusion in terms of communication breakdown and lack of participation of the SJM policy network was truly a policy process deficiency.

4.7 Allocation of Resources, Implementation and Adjudication

The theoretical concept on allocation of resources, policy implementation and policy adjudication was developed in 2.3.6 above. All respondents suggested that it was the responsibility of the MHS Inspectorate to develop capacity to design, formulate, implement, and adjudicate MHS policy for the SJM. However, one government respondent pointed out that because of inadequate selection of resources and improper budgeting, the MHS Inspectorate could not implement, support and monitor policy for SJM. As can be seen in Table 6 below, generally the interviewees were dissatisfied with the *modus operandi* of the MHS policy implementation.

Table 6 – Responses to Question 1.5.1 Regarding Satisfaction about MHS Policy

Is there satisfaction with the application to SJM of the general MHS policy?		
Code	Response	Make a Tick
1.5.1i)	TOTALLY Satisfactory with Application	-
1.5.1ii)	MAJORITY Satisfactory with Application	-
1.5.1iii)	MODERATE Satisfactory with Application	-
1.5.1iv)	MODERATE <u>dis</u>-Satisfaction with Application	Yes
1.5.1v)	MAJORITY <u>dis</u>-Satisfaction with Application	Yes (X3)
1.5.1vi)	TOTALLY <u>dis</u>-Satisfaction with Application	Yes (X6)
1.5.1vii)	I DO <u>NOT</u> KNOW	

4.7.1 Characteristics of Policy Implementation

The selected policy option was adjudicated through the development of the outcomes-based regulations and/or guidelines for a mandatory code of practice. These regulatory frameworks are discussed in 1.8.1 above. Dye (2002:12-13) argues that the government can and does legitimately enforce its policies through the power of monopolistic coercion. Yet government should not become too suppressive and apply any policy intervention in any manner. The Mine Health and Safety Act (MHSA) charged the Inspectorate with the power punish certain breaches of the law (RSA DME, 1996b:section 55). In fact, where injuries and/or fatalities occurred to employees, the MHSA also authorised the Inspectorate to set up safety-risk fines or sanctions for mines that failed to comply with the MHSA (RSA DME, 1996b:section 44(4)). It was intended that those collected fines or levies would be used for planning and implementation of health and safety research (RSA DME, 1996b:section 44(4)). This research is purposely designed to feed critical information back into the policy process as discussed in 4.4.2 above. The fact that the feedback iterative did not include the SJM sector has been problematic for the policy formulation.

The National Steering Committee (NSC) (as shown in Appendix 5) did not have SJM representatives. One reason was that the current SJM

representative associations were weak, fragmented and regionally based. It was discovered during the interviews that, in the view of the small-scale mines, the MHS Inspectorate had become a top-heavy bureaucratic farce in its policy approach. An unintended "transfer of reality" crisis was precipitated since the NSC facilitated the allocation of resources and policy implementation in Pretoria, which was far removed from the context of remote and scattered small-scale mines or "peripheries" (Chambers, 1997:56). The working relations between the SJM and the MHS Inspectorate were thus inefficient.

The government had shown appreciation of the importance of commitment to international regulatory bodies. The South African government ratified the ILO Safety and Health in Mines Convention (No. 176, 1995) in June 2000 (Chamber of Mines, 2004). This convention establishes a risk based approach, which involves the implementation of reasonable feasible measures to eliminate or minimise risks, while at the same time establishing workers' rights, as well as the right to refuse to do dangerous work. In addition, in February 2002 the government also ratified the ILO Occupational Safety and Health Convention (No. 155, 1981), which clarifies the classification and reporting of accidents (Chamber of Mines, 2004). It is clear that the government sought to strive towards implementing the best available policy. Yet they were relatively ineffective in implementing that best policy at the SJM level.

Examples of policy outcomes were the Regulations and Guidelines for Compilation of Mandatory Codes of Practice. ASPASA noted that the MHS inspectors did not have a co-ordinated approach to the enforcement of the law, although the MHSA (Act No.29 of 1996) requires the government inspectors to enforce the policy outcomes. The interviewees saw an underlying reason for the lack of co-ordination as the insufficient allocation of resources by government. Adequate budgeting and deployment of personnel and other resources to implement policy outcomes had not

been planned for. (The issues around SJM coalitions are discussed in 4.7.3 below.)

4.7.2 Conditions for Successful Implementation

During the research interviews most respondents stated that the regulatory frameworks were not clear or consistent with the needs of the SJM. That is, policy outputs like regulations, which were exclusively modelled on big mines, were being indiscriminately implemented across the board in all mines. There was no provision made for solving the inherent mismatch between policy outputs made for big mines, compared with the needs of the SJM. Indeed, a one-size-fits all and a cut-and-paste policy were inefficiently imposed upon the SJM. From this, genuine complications arose when the unaligned policy outputs or regulatory frameworks began to be implemented at the small and junior mines. This accords with the argument of Kaul (1997:15-17) which was discussed in length in 2.3.6 above.

The risk management approach to mine health and safety was intended to provide incentives to mines by localising the development of solutions for hazards and risks. (See the discussion on the Process Document and Aide Memoire in 1.8 above.) The rationale for localised solutions was that no two mine faces were the same. There was always a variation, which necessitated properly customised regulatory mechanisms. Thus, risk management was intended to address the unique MHS dynamics of each mine. Nevertheless, 70% of the respondents contended that fundamentally the risk management approach outlined in section 11 of the Mine Health and Safety Act (Act 29 of 1996) was not aligned to the less sophisticated SJM conditions. The small and junior mines found policy outcomes such as guidelines onerous, and too costly and over-sophisticated to implement. For example, the development of a central conceptual tool of risk assessment was too costly for small and junior

mines. An excerpt from the Chamber of Mines Guide to Risk Assessments has been attached. (See Appendix 2.)

Government realised the unlikeness of compliance among mines and a general poor return on the invested policy resources. The MHS Inspectorate then made an about turn and decided to implement a remedial regulatory mechanism in the form of Guidance Documents (Chamber of Mines, 2000b). It is likely that this abrupt, ill-thought out guidance will also fail dismally to improve health and safety on SJM. Indeed it can be expected that unforeseen complications will appear and that, the MHS policy will again fall apart. There is no magic wand to substitute for duly rigorous and systematic policy process. Indeed an efficient policy process would attract ongoing support of the SJM, and facilitate the proper democratisation and good governance of the policy process. That proper process accords with the argument of Kaul (1997:15-17) discussed in 2.3.6 above.

4.7.3 Policy Coalitions, Groups and Networks

During the period 1994 and 2001 The South African policy community was often characterised by dynamic leaders who vigorously challenged issues of interest. This research has observed that the variation in the compound influence of SJM interest groups has had an expected effect on the course of the MHS policy. That is, the MHS policy had moved in the direction of influential groups, such as large mines, and away from the desires of SJM groups, who were losing influence. This accords with the group model discussed in Chapter 2 (Dye, 2002).

The SJM coalitions and networks need to take ownership of, and back the quest for the implementation of their own sound health and safety policy. For example, an interest group such as NUM could have a vantage position in effectively representing the perspective of the affected small-scale mines. NUM certainly has large numbers, established wealth,

entrenched organisational strength, strong leadership, access to decision makers in its capacity as a key affiliate member of the powerful COSATU, and has internal cohesion that was built during and after the apartheid era. The argument on well-organised interest groups also accords with the group model (Dye, 2002:21).

However, as the research observed, NUM had not yet understood or penetrated the SJM sector and established itself as a legitimate voice for the employees of small and junior mines. In fact a NUM interviewee admitted during the interviews that NUM did not understand the SJM sub-sector. In contrast, NUM is already rich and powerful and had no considerable incentive to represent the ranks of the SJM who were distant from each other and scattered across the country. Simply put, NUM had been aloof of labour in small-scale mines. As the labour elite, the union was content to do business as usual and to continue to speak for the interests of employees of large mines who had the perceived greater security of "steady jobs, regular pay and access to benefits" (Grindle and Thomas, 1991:65). Thus NUM had become part of a subtle elitist centre, which does not in itself imply that MHS policy would be hostile to the SJM but that the responsibility for policy rests entirely on the shoulders of the elite, not on the SJM. This accords with the elite model (Dye, 2002:24).

All of these above-mentioned issues speak of an elitist MHS Inspectorate (MHSI) subversion of the cherished Constitutional principles of inclusiveness and open policy consultation. The lack of effective organised labour certainly represented a serious interest group gap in the SJM sector. That was also a gap in the lack of labour voice in the general lobbying and policy advocacy of the SJM sector.

A valid analogy existed between, on the one hand, NUM, which represented elite labour from large mines, and, on the other hand, the century old Chamber of Mines think tank, which had represented the elite

employers from large mines since 1889 (Chamber of Mines, 1986). Indeed most of the analyses and nuances applicable to NUM would also be applicable to the Chamber of Mines and its constituency. The point of this analogy is that the SJM urgently needs a balance of two strong interest groups, which would converge nationally to voice both their labour and employers' interests.

In general the respondents considered the application to SJM of the general policy of the policy review process as totally unsatisfactory. All the respondents thought that it was inevitable that implementation would be problematic since many aspects of policy process had been inefficient.

4.8 Information Management, Impact Evaluation and Feedback

Information dissemination, communication and feedback continuously run across all the stages of the policy process as discussed in 2.3.5 and 2.3.8 above and should not only be seen as constituting one stage in the policy process (De Coning and Cloete, 2000:47).

4.8.1 Communication Monitoring and Feedback

In 1994, the Leon Commission (1994:157) recommended that the State should develop a database on mine accidents, focus on training and development to improve the skills of inspectors generally, and improve expertise on quarries in particular. However, government interviewees confirmed that no credible information existed on reportable accident injuries for small-scale mines, including for quarries. There had been no monitoring of the MHS policy process information for the SJM. This shortage of reliable information had undermined the very quality and effectiveness of the policy process (Dror, 1989:56). During the period from 1994 to 2001, the MHS Inspectorate dismally failed to develop a policy information dissemination measure for the SJM sector. This information and communication for policy management are both indispensable. In fact

they are very important for the survival of the policy itself. By comparison, government interviewees, namely Messrs. Barradas and Landman, mentioned that MRAC had a monitoring exercise for the policy implementation project. A limitation of this exercise had been its exclusion of the SJM sector. The interviewees took a broad view of the policy development during the period from 1994 to 2001 and stated their dissatisfaction with the communication aspect.

Table 7 – Responses to Question 1.1.7 about Interviewees’ Satisfaction with Policy Communication

Code	Response	Make a Tick
1.1.7i)	Communication was totally Satisfactory	-
1.1.7ii)	Communication was mostly Satisfactory	-
1.1.7iii)	Communication was moderately Satisfactory	-
1.1.7iv)	Communication was moderately <u>un-</u>Satisfactory	-
1.1.7v)	Communication was mostly <u>un-</u>Satisfactory	-
1.1.7vi)	Communication was totally <u>un-</u>Satisfactory	Yes (X10)
1.1.7vii)	I do <u>not</u> Know	

In addition to the above, Scott *et. al.*, (1998:50) write of the inconsistent reporting and disclosure of occupational fatalities by the SJM themselves. Indeed this is a fundamental international flaw upon the activities of small-scale mines (ILO Report, 1999:13). These issues negatively compound the gap in the management of the MHS policy process, in that there was insufficient publicity and inferior communication in general and particularly for the SJM sector. Instead there should have been an effective communication strategy, which included awareness-raising, sensitising education, and information dissemination (De Coning, Burton, Maphanga, Olbrich, and Churchill, 1999).

4.8.2 Impact Evaluation

A critical and detached long-term view provides an unfortunate scenario of a policy borne of good tripartite intentions, which had degenerated into minor MHS improvement, and cut-and-paste codes of practice. Certainly the facts on impact evaluation from the coalface relate a grim narrative of a missed opportunity to satisfy the foundational policy objectives of developing an occupational health and safety policy for SJM during the time from 1994 to 2001.

In the period from 1994 to 2001 the MHS Inspectorate, to their credit, realised the negative impact of the policy development from 1994 to 2001, and initiated a plan to improve the lot of SJM regarding MHS. There was an irony in that the Inspectorate introduced the ill-considered Guidance Documents even though no tripartite policy process had recommended this option. (Guidance Documents are discussed in 4.7.2 above.) This was a missed opportunity, which would have been a worthy pro-forma for other Small and Medium Enterprises (SME) in different sectors in a country that needs increased policy capacities. This government quick fix proved to be inappropriate for the SJM sector.

Moreover the government interviewees, Messrs Barradas and Landman, ascertained that plans were underway in the MHS Inspectorate to commission a full evaluation investigation into MHS, post the Leon Commission of 1994. It was hoped that that proposed evaluation would discover the inefficiencies of the policy development from 1994 to 2001 and their causes. It was expected that the evaluation would make specific recommendations to remedy the inefficiencies.

The 1999 work of the ILO discovered that SJM should be assisted to recognise that excellent performance in accident prevention and generally improved mine health and safety is worth obtaining and keeping (ILO, 1999:83). More importantly the ILO writes about SJM that "if a mine owner

can be convinced that supporting training to improve occupational safety and health is in his or her best interests, the chances for an effective programme being achieved are enhanced" (ILO, 1999:83). Lastly, in this vein, the ILO makes the crucial proposition that:

[policy making] organisations that are physically close to, sympathetic to and trusted by the small-scale mining community will be able to make the greatest contribution to education and training in health and safety. What is required is the will and resources to undertake a sustained programme that will provide sufficient incentive for those concerned. Attempting to improve health and safety without appealing to the self-interest [of the SJM] is likely to prove fruitless. For they must be fully involved from the start, and have a sense of being full partners. (ILO, 1999:83)

4.9 Summary of the Findings and Analysis

The respondents were interviewed in their professional capacity. The interest groups of small and junior mine associations, independent research bodies and labour constituted a policy network or coalition. There was a consensus among respondents that from the perspective of the SJM network, there was inefficacy in all the policy iteratives such as agenda setting, process design, policy formulation and decision making. The MHS Inspectorate fundamentally preferred to engage big mines and large labour unions in a manner that was detrimental to SJM.

There was no agreed on concise definition of small and junior mines. There were only criteria used to estimate what qualified as small mines and what qualified as junior mines. The distinction between the two types of mines was indeed grey.

The respondents confirmed that employees of SJM were newly unionised, had a low level of education and training, and little working

experience. They were immature in their involvement with organised labour. Labour movements viewed the concept of SJM as new. Hence the lack of organised labour created a gap policy participation by the SJM employees.

The current composition of SJM employer and labour organisations displayed a fragmented, conflicting and murky field. The MHS Inspectorate liaised with relevant research bodies such as MEPC and Mintek but at best communicated haphazardly with the small-scale mines.

A non-systematic enforcement of policy and monitoring by government were noted. Lack of knowledge about small-scale mines technical and policy expertise among government inspectors featured as a key problem.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Key Mine Health and Safety Policy Process Issues

In 1994 the State President instituted a commission of inquiry to make recommendations on mine health and safety (MHS) for small, junior and large mines. This initiated a policy process on societal goals of the health and safety of employees as prescribed in the Constitution (1996:Bill of Rights, section 24), which required the State to protect and ensure workplace safety.

The public role of the small and junior mining (SJM) sector is to support value-chain of “small scale industries such as smelters, building and agricultural manufacture (lime, gypsum, cement, tiles, bricks), dressing and cutting of ornamental / masonry stones, lapidaries (gemstone, cutting and polishing, ornaments making) and jewellery shops, etc. as well as local equipment manufacture” (SADC, 2000:10).

ILO Safety and Health in Mines Convention (No. 176; 1995) and ILO Occupational Safety and Health Convention (No. 155; 1981), which clarify the classification and reporting of accidents had been endorsed by the government (Chamber of Mines, 2002). It was clear that the government strove towards implementing the best available OHS policy. Yet this policy was relatively ineffective in delivering at the SJM level.

The research focused on the key criteria for efficacy of the MHS policy process for SJM during the period from 1994 to 2001. Analysis of the research observations found that overall the policy process was not efficacious in terms of following the appropriate policy participation, policy problem definition, policy process communication, policy analysis and formulation, and proposed implementation plans. The lack of knowledge about small-scale mines technical and policy expertise among government

inspectors, and a similar deficiency of the relative skills among the SJM themselves, facilitated a weak policy development.

The following conditions for efficacious policy process, policy analysis and formulation, and implementation were found to be lacking:

- accurate identification of the principal policy factors that lead to successful policy outcomes and incentives;
- structuring of policy process iteratives to maximise the likelihood of compliance; and
- ongoing support from SJM constituency groups to assist in the democratisation and good co-operative governance of the policy process.

The way forward is that stakeholders need to conceptualise accurately a new approach to MHS policy process for the SJM. They should abandon the ill-fated one-size-fits-all policy, which was modelled solely for large mines. The small and junior miners themselves must be totally involved from the start, and have a sense of being partners in order for the policy to succeed (ILO, 1999:26). Another ill thought out policy process will also fail dismally to improve health and safety on mines. Indeed to avoid unforeseen complications, the MHS Inspectorate should pursue an inclusive, rigorous and systematic policy process. Proper consultation, communication, policy analysis and formulation in an appropriate policy context should enable delivery of credible MHS policy outcomes for the SJM.

5.2 Recommendations for Policy Improvement

In addition to the above mentioned conditions for efficacious policy process it is recommended that these two structural policy initiatives should be set up: establishment of an inclusive authoritative broad-based National SJM Association, and development of a communication strategy for the government MHS Inspectorate regarding SJM.

5.2.1 National SJM Association

The lack of participation in the policy process by SJM is considered a fundamental impediment for progress towards an efficacious MHS policy. It is strongly argued that the government as a "central determinant" should get involved in the national SJM mining association (Grindle and Thomas, 1991:45). Government needs to create an enabling environment for, and explicitly support the idea of, a unified strong national SJM mining association, which has its own professional core capacity. Ultimately, the Inspectorate will be able to realise the full benefits of engaging the SJM policy network as partners in the consultative actions of the revamped MHS policy process. Examples of the benefits for the MHS policy process will include:

- effective participation by SJM members in the governance structures leading toward efficacious policy development;
- distilled, collated and well considered authoritative views of the SJM sector, leading to better handling for the government;
- self monitoring of activities of the SJM members by their association; and
- improved ability to attract much needed investment to the sector.

In addition, the SADC calls for the establishment of a southern African network of national SJM associations to lobby policy makers at the SADC regional level, of which the South African SJM would be a significant member (SADC, 2000:87).

Influential SJM interest groups need to emerge, led by leaders who possess a critical number of certain key policy advocacy skills. These activist leaders must:

- have the skills of rhetoric, persuasion, and organisation;

- be able to build group influence such as numbers, wealth, organisational strength, leadership and access to decision-makers and internal cohesion. That is, they should be able to attract membership and contributions, as well as dramatise and communicate their cause;
- pressure, lobby and interact with policy-makers on preferences and group-interests; and
- prescribe which policies government ought to pursue. (Dye, 2002)

A policy balance has to be attained between the shortage of technical and mining skills, on the one hand, and the underlying business, economical and informational needs, on the other hand.

The transformation from poorly run, unsafe and unhealthy mines to well run SJM will definitely benefit women miners and other so-called historically disadvantaged groups.

5.2.2 Communication Plan

Another gap in the management of the MHS policy process was found to be insufficient publicity and communication in general, with particular reference to the SJM sector. The inferior management of the communication aspect raised serious questions on quality and the missed opportunities for the whole process.

It is recommended that the MHS Inspectorate should consider the issue of a communication strategic plan that requires value judgement and commitment of resources for:

- information monitoring;
- information collection, development, research, verification, co-ordination and liaison, awareness-raising, sensitising, education and information dissemination;

- information services technology, which serves as a vehicle for information transmission; and
- innovative contemporary instruments like planning and control, supply chain management, operations improvement, failure prevention and a strategy on total quality management. (Chamber of Mines, 2001)

The South African MHS policy making needs to prove beyond question that it has tangibly moved beyond the 1994 to 2001 era of ineffective, "erratic policy and decision making" and that the resulting confusion has been cleared (ILO, 1999:88).

5.3 Further Research Work

The Precautionary Principle serves as a valid and competing philosophy to the risk management approach advanced by the MHS policy review. The scope of this academically stimulating comparison is beyond the scope of this research.

Further, this research was not able to investigate any relationship between, on the one hand, mining occupational health and safety and, on the other hand, the notion of public health, safety and security. An example of an issue that could be further researched is policy management on the safe use of explosives on mines versus the policy on the use of explosives in the wider public policy arena, which falls under the jurisdiction of the Department of Safety and Security.

It is also pertinent to state that this research did not in any manner investigate the impact of HIV/AIDS on the health and safety performance of the SJM sector. These issues require further policy research, such as along the lines of the proposed SIMRAC Study on the Impact of HIV/AIDS on Occupational Health and Safety (Chamber of Mines, 2003).

REFERENCES

Anderson, J. E. (1994) Public Policy-Making: An Introduction. Boston: Houghton Mifflin.

Bailey, K. D. (1987) Methods of Social Research. New York: Free Press.

Bryman, A. (1992) Quantity and Quality in Social Research. London: Routledge.

Brynard, P. (2000) Policy Decision-Making. In Cloete, F. and Wissink, F. (eds.). Improving Public Policy. Pretoria: Van Schaik.

Chamber of Mines of South Africa. (1986) The Chamber of Mines Centennial: A Leadership Profile. Johannesburg: Leadership Publications.

Chamber of Mines of South Africa. (2000a) MRAC Regulatory Review Process Document. Johannesburg: Chamber of Mines of South Africa.

Chamber of Mines of South Africa. (2000b) Use of Guidance Notes. Occupational Health and Safety Policy Committee Circular No. 4/00. Retrieved January, 11, 2003 from <http://www.cominfo.org.za/ohs/mrac.htm>.

Chamber of Mines of South Africa. (2001) Information Services Unit Business Plan. Johannesburg: Chamber of Mines of South Africa.

Chamber of Mines of South Africa. (2002) Occupational Health and Safety Policy Committee Circular. Johannesburg: Chamber of Mines of South Africa.

Chamber of Mines of South Africa. (2003) Health Policy Committee Circular No. 16/03: SIMRAC Study - Impact of HIV/AIDS on Occupational Health and Safety. Johannesburg: Chamber of Mines of South Africa.

Chamber of Mines of South Africa. (2004) Safety Review. Retrieved February, 18, 2004 from <http://www.cominfo.org.za/ohs/ohs.htm>.

Chambers, R. (1997) Whose Reality Counts: Putting the Last First. London: Intermediate Technology Publications.

Crainer, S. (1996) Key Management Ideas: Thinking that changed the Management World. Chapter 7. London: Pitman Publishing.

De Coning, C.B. (1995) Development perspective on Policy Management. Unpublished D. Litt et. D Phil Thesis. Pretoria: University of South Africa.

De Coning, C. B., Burton, S., Maphanga, S., Olbrich, K., and Churchill, C. (1999) Maputo Corridor Tracking System. Published in Association with Maputo Corridor Company, Nelspruit: P&DM, Witwatersrand University.

De Coning, C.B. and Cloete, F. (2000) Theories and Models for Analysing Public Policy. In Cloete, F. and Wissink, F. (eds.). Improving Public Policy. Pretoria: Van Schaik.

Dror, Y. (1989) Public Policy-Making Re-examined. (Transaction Edition). New Jersey: Transaction Publishers.

Dunn, W. N. (1994) Public Policy Analysis: An Introduction. Engelwood Cliffs: Prentice-Hall.

Dye, T. R. (2002) Understanding Public Policy. (10th ed.). New Jersey: Prentice-Hall.

Fox, W., Schwella, E. and Wissink, H. (1991) Public Management. Cape Town: Juta and Company.

Green Left Weekly. (2002) Retrieved October, 12, 2002 from <http://www.greenleft.org.au/back/2001/445/445p23.htm>.

Grindle, M. S. and Thomas, J. W. (1991) Public Choices and Political Change: The Political Economy of Reform in Developing Countries. London: John Hopkins University Press.

Hanekom, S.X. (1987) Public Policy: Framework and Instrument for Action. Johannesburg: McMillan.

Hanekom, S.X. (1992) Public Policy: Framework and Instrument for Action. Halfway House: Southern.

Hogwood, B. W. and Gunn, L. A. (1984) Policy Analysis for the Real World. Oxford: Oxford University Press.

International Labour Organisation (ILO). (1999) Social and Labour Issues in Small-Scale Mines. Geneva: International Labour Office.

Jones, S. (1988) The Analysis of Depth Interviews. In Walker, R. (ed.). Applied Qualitative Research. Aldershot: Gower House.

Kaul, M. (1997) Better Policy Support: Improving Policy Management in the Public Service. London: Commonwealth Secretariat. Pp 3-21.

- Leon, R. N. (1994) Commission of Inquiry into Safety and Health in the Mining Industry. Braamfontein: Department of Minerals and Energy, Gauteng Province.
- Leon, R. N., Hermanus, M. A., and McKenzie, A. J. (1995) Commission of Inquiry into the Vaal Reefs Mining Accident. Braamfontein: Department of Minerals and Energy Gauteng Province.
- Lofland, J. (1971) Analysing Social Settings: A Guide to Qualitative Observation and Analysis. Belmont: Wadsworth.
- Makola, D. (1996) The Place of Policy Analysis in South Africa. *Africanus*, 26(2).
- Mbeki, T. M. (2003) Address of the President, Thabo Mbeki, at the Opening of the 51st National Conference of the African National Congress. Stellenbosch: African National Congress, 16 December.
- Mine Health and Safety Council. (2000a) Process and Guiding Principles for the Review of Regulatory Mechanisms under the Mine Health and Safety Act. Pretoria: Department of Minerals and Energy.
- Mine Health and Safety Council. (2000b) Aide Mémoire for the Compilation of Guidelines for Codes of Practice. Pretoria: Department of Minerals and Energy.
- Moore, M. H. (1995) Creating Public Value. Strategic Management in Government. (Chapter 3) Cambridge: Harvard University Press.
- Paretolaw Company. (2003) Pareto Principle "the 80:20 rule". Retrieved April, 29, 2003 from <http://www.paretolaw.co.uk/principle.html>.

Phillips, B. S. (1971) Social Research: Strategy and Tactics. New York: Macmillan.

Republic of South Africa, Department of Minerals and Energy. (1991) Minerals Act, Act of 1991. Cape Town: Government Printers.

Republic of South Africa. (1994) NEDLAC Act, Act No. 35 of 1994. Retrieved January 23, 2004 from <http://www.nedlac.org.za/>.

Republic of South Africa. (1996a) Constitution of the Republic of South Africa. Retrieved October, 3, 2002 from www.polity.org.za/govdocs/constitution/saconst.html.

Republic of South Africa, Department of Minerals and Energy. (1996b) Mine Health and Safety Act 1996 (Act No. 29 of 1996). Retrieved October, 3, 2002 from <http://www.dme.gov.za/>.

Republic of South Africa, Department of Trade and Industry. (1996c) National Small Business Act. Cape Town: Government Printers. (12 November 1996).

Republic of South Africa, Department of Minerals and Energy. (2002a) Mining Charter. Pretoria: Government Printers.

Republic of South Africa, Department of Minerals and Energy. (2002b) Mineral and Petroleum Resources Development Act No. 28 of 2002. Government Gazette No. 23922. Pretoria: Republic of South Africa.

Roux, N. L. (2000) Policy Design. In Cloete, F. and Wissink, F. (eds.). Improving Public Policy. Pretoria: Van Schaik.

- Rummel, J.F. and Ballaine, W.C. (1963) Research Methodology in Business. New York: Harper and Row.
- Safety in Mines Research Advisory Committee (SIMRAC). (2002) Retrieved December, 14, 2002 from <http://www.simrac.co.za>.
- San Diego Earth Times. (1998) The Precautionary Principle. Retrieved March, 4, 2003 from <http://www.sdearthtimes.com/et0398/et0398s4.html>.
- Scott, R., Rockey, N. and Hudson, R. (1998) The Status of Small-Scale Mining in South Africa. A Preliminary Study. In Hazelton M. (ed.). Johannesburg: Minerals and Energy Policy Centre and The Marketing Shop.
- Southern African Development Community. (2000) Towards an Integrated Strategy for the Development of the Small Scale Mining Sector in the SADC Region: Final Draft Report. Lusaka: SKM Consulting Associates Ltd.
- True, J.A. (1989) Finding Out: Conducting and Evaluating Social Research. Belmont: Wadsworth.
- United Kingdom Health and Safety Commission. (2003) Retrieved February, 11, 2003 from United Kingdom Health and Safety Executive web site <http://www.hse.gov.uk/pubns/indg266.htm>.
- Van Dyk, H. (1999) The Policy Conversation: Connections between Policy Research and Policy-Making. *Development Update*, 2(4), 14-24.

APPENDICES