

"WHAT IS THE PRICE OF 80 KGS?"

**THE FAILURE OF THE DETECTION OF, AND COMPENSATION FOR,
ASBESTOS-RELATED DISEASE: SOCIAL EXCLUSION IN
SEKHUKHUNELAND**

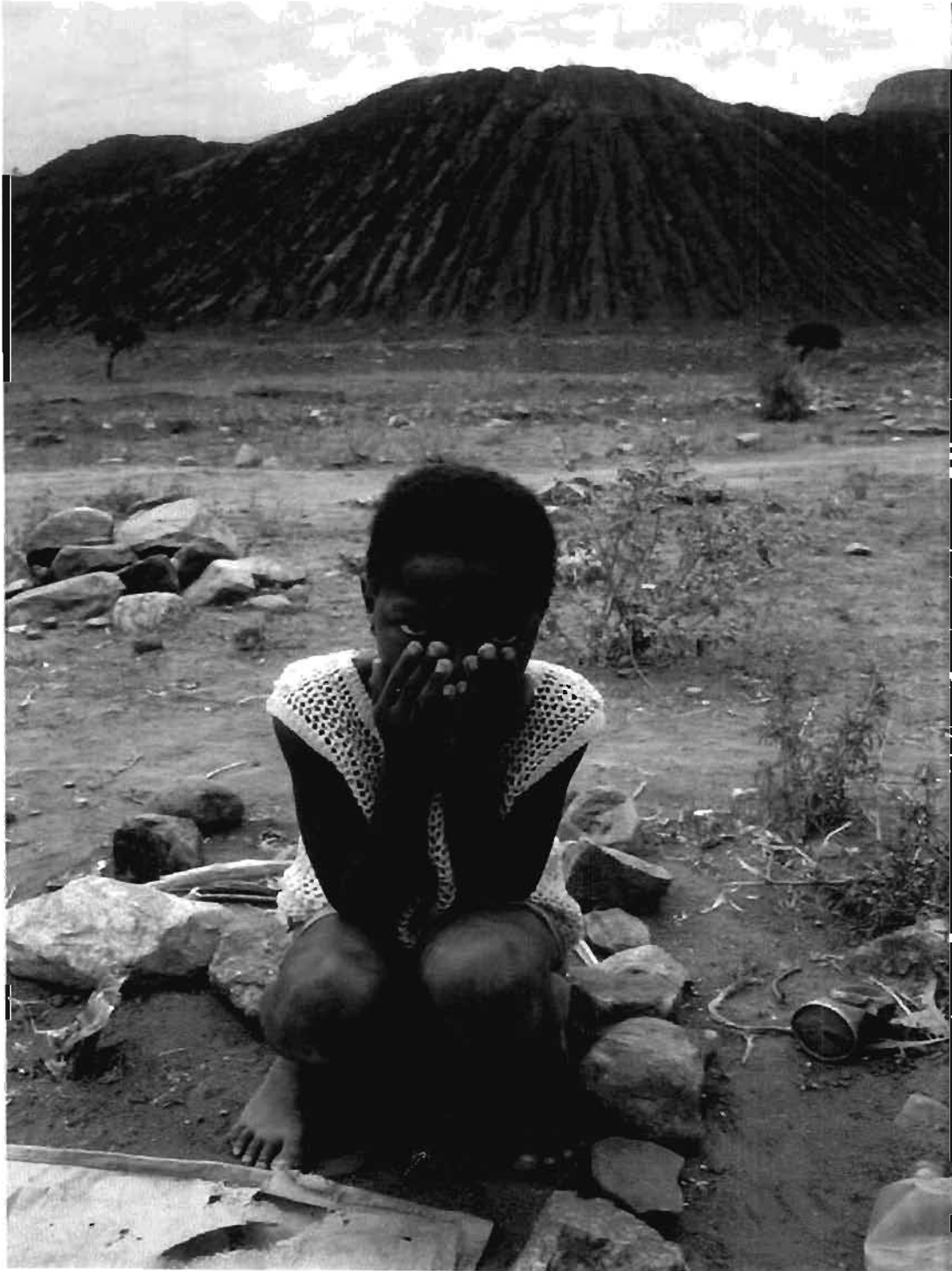


Photo by Paul Weinberg

JAINE ROBERTS

“ WHAT IS THE PRICE OF 80 KG’S?” *

**THE FAILURE OF THE DETECTION OF, AND
COMPENSATION FOR, ASBESTOS-RELATED
DISEASE: SOCIAL EXCLUSION IN
SEKHUKHUNELAND.**

- * The price of 80 kilograms of mielie meal (maize) varies from R157.00 to R170.00. The question, “When you have money, what do you buy?” was asked of all household heads. The reply, without exception, was: “I buy 80 kg’s”. It is these “80 kg’s” that stand between families and starvation. Asbestos was very profitably produced in the hundreds of thousands of tons.

“As an abstract value, common to the core values of our Constitution, dignity informs the content of all the concrete rights and plays a role in the balancing process necessary to bring different rights and values into harmony. It too, however, must find its place in the constitutional order. Nowhere is this more apparent than in the application of the social and economic rights entrenched in the Constitution. These rights are rooted in respect for human dignity, for how can there be dignity in a life lived without access to housing, health care, food, water or in the case of persons unable to support themselves, without appropriate assistance?..... If different and conflicting interests of individuals and groups within our society are to be accommodated, and if full weight is to be given to the transformative purpose of the Constitution, the foundational values of democracy, dignity, equality and freedom must be interpreted consistently with these ends, and if possible, in ways that bring them into harmony with one another. As a consequence of our history, structural impediments remain to the achievement of ‘dignity, equality and freedom’. Millions of people are still without houses, education and jobs, and there can be little dignity in living under such conditions. Dignity, equality and freedom will only be achieved when the socio-economic conditions are transformed to make this possible.”

Judge Arthur Chaskalson, President of the Constitutional Court of South Africa,
The Third Bram Fischer Lecture : *Human Dignity As A Foundational Value
Of Our Constitutional Order*, Johannesburg, 18 May 2000.

“Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing, and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widow-hood, old age, or other lack of livelihood in circumstances beyond his control.”

Universal Declaration of Human Rights, Article 25.

DECLARATION

I declare that this dissertation is my own work and is submitted in partial fulfillment of the degree of Master of Social Science (Development Studies) at the University of Natal, Durban. It has not been submitted before for any degree or examination at any other university.

Signed:

A handwritten signature in black ink, appearing to read 'J.E. Roberts', written over a horizontal dotted line. The signature is slanted upwards to the right.

J.E. Roberts
1 December 2000

TABLE OF CONTENTS

Acknowledgements.....	v
Abbreviations.....	vi
List of Tables.....	vii
Chapter One	
Introduction.....	1
Chapter Two	
Research Questions and Methodology.....	15
Chapter Three	
“History Tells Us.”.....	26
Early Evidence of Disease.....	28
‘Killer Dust’.....	31
‘Polluting’ the Cancer Research.....	38
Chapter Four	
“I Learn’t From This Time That Asbestos Is Dangerous”- Improving the Disease Profile.....	43
Mmafefe.....	45
The Maandagshoek Programme.....	49
Closure of the World’s Last Amosite Mine – Penge.....	52
Chapter Five	
“This Is Not My Natural Body”- Cases of Morbidity and Death.....	58
A Sample of Undiagnosed Illness.....	60
‘The Hospital at Maandagshoek’.....	62
Health Infrastructure.....	63
Chapter Six	
“It was not enough to care for my whole life” - The Compensation Dispensation.....	69
Compensated Cases.....	70
Uncompensated Cases.....	72
Compensation Benefits.....	73
The Need for a Review.....	79
Chapter Seven	
“When there is money I buy 80kg’s” - Social Exclusion in Sekhukhuneland....	82
‘Economic and Social Disaster’.....	84
Selected Case Studies.....	85
Chapter Eight	
Conclusion.....	95
Bibliography.....	106

Acknowledgements

I would like to express my gratitude to the Mellon Foundation for Population Studies who provided funding which contributed to the costs of field research.

Many people extended their support and assistance to this research. I would like to thank:

- Professor Mike Morris, my supervisor.
- All the asbestosis sufferers and their families, who gave so very generously of their time, and dignified spirit.
- Jonas Maepa, my translator and expert navigator.
- Richard Spoor, and
- Laurie Flynn, for their support, encouragement and exemplary commitment to justice.
- Nelson Sesoko, Resource Information Officer at the library of the National Centre for Occupational Health.
- Professor Tony Davies and Dr Marianne Felix at the NCOH.
- Not least I'd like to extend my appreciation to my now six-year-old daughter, Lillian, for her ability to encompass my preoccupation, and her capacity to revel in 12 hour trips "on the road again" to Burgersfort, and much journeying beyond this small town. Despite knowing little more than that I was working on "suspestos", and spending her time playing with the children of each household, and sometimes the rest of the villages, we visited, she declared at the end of one day, "god is just lying around!" A simple statement from a child's observations and perception of extreme socio-economic deprivation.

It is to all those children in Sekhukhuneland, who so warmly welcomed her into their world, and to the late Lekgale Nonyane, that I dedicate this dissertation.

Lekgale Nonyane

1951-2000

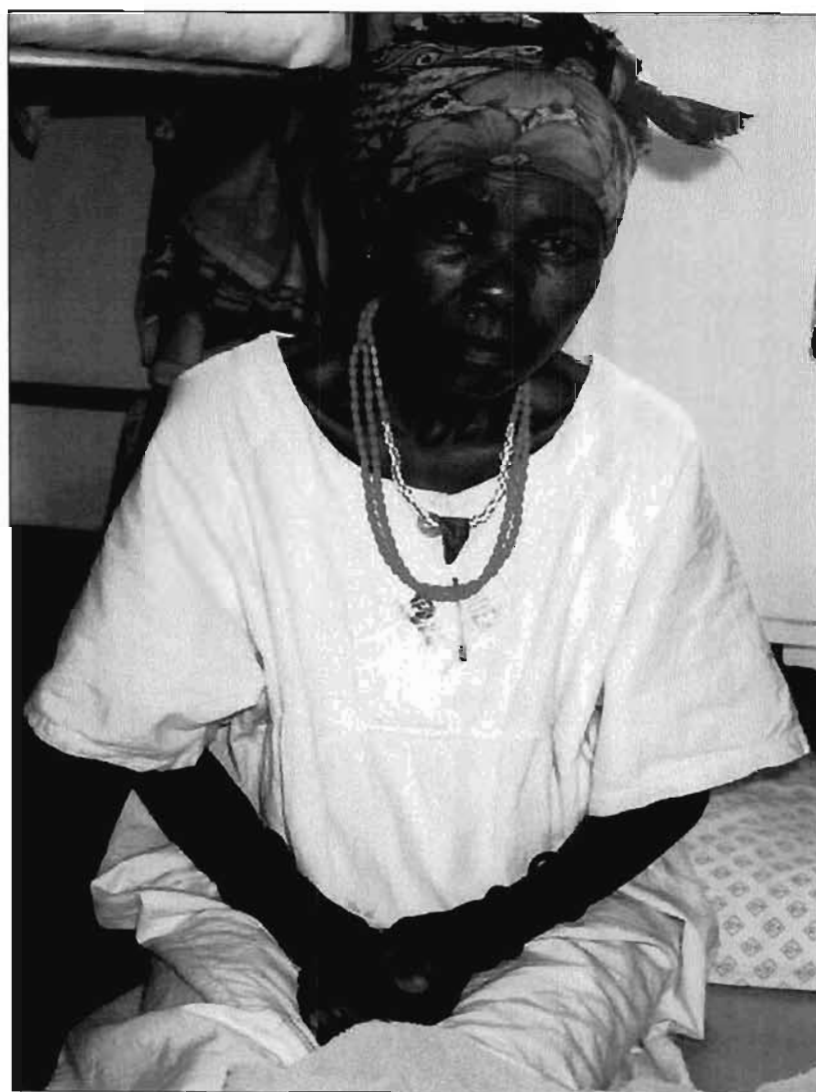


photo : Jaine Roberts

Abbreviations

A.I.	Asbestos Interstitial
A.P	Asbestosis Pleural
ARD	Asbestos-related Disease
BAMCWU	Black Allied Mining and Construction Workers' Union
CCOD	Compensation commissioner for Occupational Disease
COIDA	Compensation For Occupational Injuries and Diseases Act
CSIR	Council for Scientific and Industrial Research
DBSA	Development Bank of Southern Africa
DoH	Department of Health
GEFCO	Griqualand Finance and Exploration Company Limited
GME	Government Mining Engineer
IHRG	Industrial Health Research Group
ILO	International Labour Organisation
MBOD	Medical Bureau for Occupational Disease
MRC	Medical Research Council
NCOH	National Centre for Occupational Health
ODMWA	Occupational Diseases in Mines and Works Act
OHS	Occupational Health and Safety
PN	Pneumoconiosis
RDM	Rand Daily Mail
SAAPAC	South African Asbestos Producers Advisory Committee
SAIMR	South African Institute for Medical Research
SORDSA	Surveillance of Work-related and Occupational Respiratory Disease in South Africa
TEBA	The Employment Bureau of Africa
TNC	Transnational Corporation
TRC	Truth and Reconciliation Commission

List of Tables

1. Histologically Diagnosed Mesothelioma, 1993 – 1995.....	7
2. Incidence of Important Symptoms, 1930.....	30
3. Distribution of Incidence of Early and Advanced Physical Signs of Pulmonary Fibrosis, 1930.....	30
4. Airborne Concentration of Asbestos in Transvaal Amosite Mines, 1940 – 1977...	33
5. The United Kingdom Asbestos Regulations, 1969 – 1984.....	34
6. Post-mortem Findings in Penge Miners, 1959 – 1969.....	44
7. Chest Radiographs As Reported by three Readers, Mmafefe, 1988.....	48
8. Age Distribution of Penge Workers, 1992.....	55
9. Duration of Exposure in Penge Workers, 1992.....	55
10. Prevalence of Parenchymal Disease In Penge Workers, 1992.....	56
11. Diagnosis of 22 ex-Penge Mineworkers in Sekhukhuneland, 2000.....	59
12. Symptoms of 22 ex-Penge Mineworkers in Sekhukhuneland, 2000.....	59
13. Heath Personnel in the Public Sector - Northern Province and South Africa, 1994 and 1998.....	63
14. Onset of Respiratory Disease, Certification and Compensation Outcomes in ex-Mineworkers in Sekhukhuneland, 2000.....	70
15. Unresolved Compensation Claims in ex-Mineworkers In Sekhukhuneland, 2000.....	72

CHAPTER ONE.

INTRODUCTION.

Much of industry in the United States has long operated on the assumption that it could endanger the lives of its employees with relative impunity – and without embarrassing publicity and possibly damaging repercussions– so long as it did not overtly threaten the health and safety of the community at large. Underlying this assumption is the further assumption that workers are not so much a part of the community as part of the equipment and machinery of production. As such, upon being proved defective, they become expendable. They can be replaced or transferred, or, if worst comes to worst, given workmen's compensation (which in most states is minimal) and retired. At that point they cease to be anyone's responsibility. Like the eight hundred and ninety-five men who worked in the Tyler plant over the years, they are out of sight and out of mind. In a sense, therefore, like much of the factory itself, they are buried.

(Paul Brodeur. Expendable Americans. 1974: 71)

Hidden in the hills of Sekhukhuneland¹, Northern Province, are thousands of sick people who once worked in the asbestos mines. The beauty of the mountains, on first approach, belies the terrible incidence of asbestos-related disease that afflicts the inhabitants. The mines were the source, the beginning, of the long chain of asbestos production and use. The 'production' of asbestos-related disease, and the social consequences of the patterns of disease, is not nearly as well documented as is the industrial development of the uses of asbestos², and it is documented least of all amongst the men, women and children who worked to extract the mineral from below the earth's surface, and the communities who lived, and still live, in the mining areas. The exploitation of asbestos has caused an occupational and environmental public health disaster which has yet to be properly documented in South Africa.

¹ Delius (1996: 6) describes Sekhukhuneland as "the area lying between the Olifants River in the north and the Steelpoort River in the south-east which formed the core area of the Pedi Kingdom from 1830 to 1879. It should not be confused with the very much smaller district of Sekhukhuneland which was demarcated after the conquest of the kingdom". Sekhukhuneland is "roughly the area lying in the triangle between Pietersburg, Groblersdal and Burghersfort". (Delius, 1990: 3)

² One of the original uses of asbestos was in the seals of the pistons of steam engines. Its use rapidly spread to every area of industry: it is indestructible by heat, by machine pounding and by acid. It also has remarkable insulation properties. By the Second World War it was to be found everywhere within the military-industrial complex. It was also extensively used in the building and insulation of ordinary homes.

The risks of exposure to this lethal fibre have long been recorded by medical scientists, both in South Africa and internationally, in a cumulative literature of seventy years. The task of quantifying the extent of asbestos-related disease amongst those who mined the mineral, and thus had the first and most intense contact with it, remains. For these people there has been little chance of being diagnosed, and even less chance of being properly treated or adequately compensated. The failure of the detection of asbestos-related disease, and the patterns of concealment that accompanied this failure, has been most acute in rural areas. The mineworkers, the first in the long trail of disease, have been the last to be diagnosed. It is time to put the 'last', the neglected, forgotten and 'buried', first³.

The Pittsburgh Corning Corporations' Tyler plant in Texas received its supply of amosite asbestos from Penge mine in Sekhukhuneland. Penge was owned by Egnep (Pty) Limited, a wholly owned subsidiary of the Cape Asbestos Company which was registered in England. A 1971 inspection by the United States National Institute for Occupational Safety and Health discovered that 49.7% (445) of the Tyler plant workers had developed 'asbestosis'⁴. The Tyler plant was closed down in 1974. The Cape Asbestos Company continued mining operations at Penge until 1979, when it disinvested and sold the mine to the Griqualand Finance and Exploration Company (GEFCO). Mining continued at Penge until 1992.⁵ There were many

³ For an extensive exposition of putting the rural first see Chambers (1983) *Rural Development: Putting the Last First*, Longman.

⁴ Asbestosis is recognized as a clinical, radiological and pathological condition. The recognized clinical evidence of asbestosis is dyspnoea, reduced pulmonary function, rales and finger clubbing. Asbestos-related disease (ARD) includes: asbestosis, lung cancer, mesothelioma, cancers of the larynx and gastro-intestinal tract, pleural plaques and asbestos corns. (IHRG) The case against asbestos was concluded by the health sciences a long time ago. Castleman (1996: 39) writes, "asbestosis was by 1935 widely recognized as a mortal threat affecting a large fraction of those who had regularly worked with the material". The IHRG (1992) describes "two presentations of lung disease due to exposure to asbestos dust. The first is parenchymal disease affecting the lung tissue (or parenchyma); the second involves the lining of the lungs and presents as thickening of the lining or as plaques in the lining. A third presentation is cancer."

Asbestos-related diseases are severe and progressive, and result from the accumulation of asbestos fibres in the lungs, and in other parts of the body. Cessation of exposure to the fibres does not mean that the inexorable progress of the disease ceases. All asbestos-related diseases are irreversible and untreatable. An acute danger lies in any other infection or disease that places additional strain on the lungs or heart. Tweedale (2000: 11) writes that "the body's defences are largely ineffective with the finest asbestos fibres and once inhaled they can penetrate deep into the most sensitive areas of the lungs – the respiratory bronchioles, alveolar ducts, and alveoli – where they can trigger pathological reactions. This is not the worst. While the body attempts to sequester asbestos, the fibres can continue to divide in the lungs and also migrate through tissue. Thus asbestos fibres can penetrate into the lymph system, the bloodstream and, more ominously, can also work their way through to the sensitive lining of the lungs (the pleurae) or the membrane surrounding the abdomen (peritoneum). The thin, needle-like fibres of crocidolite seem to be especially dangerous in this respect. Such insidious effects of inhaling asbestos can place an individual at risk from several diseases – all unpleasant, all highly painful, and, even now, all virtually impossible to treat". Asbestos is classified by the International Agency for Research on Cancer as a Class 1 carcinogen.

⁵ The last South African asbestos mine closed in 1997.

other mines in the asbestos fields of this part of the country, and it is estimated that 4% of the population of Northern Province live in these areas. (Mzilweni *et al*, 1999)

Evidence of mining activities in the form of mining settlements, shafts and large tailing dumps mark the landscape of Sekhukhuneland. Evidence of the high prevalence of asbestos-related disease in these areas has only recently started to be documented; this evidence is slowly revealing that there is a grossly under-diagnosed 'backlog' of disease. South Africa has been described as being "a global epicentre of asbestos-related diseases". (White, 1997: 21)

Thousands of workers, their families and large local populations have been exposed to disease causing agents and conditions in Sekhukhuneland. The general epidemiological⁶ impact of asbestos exposure has been seriously underestimated, and "the shortfalls in epidemiological knowledge mean that the full gravity of these asbestos epidemics in the Northern Province and Mpumalanga can not be comprehended". (Felix, 1997:28) In other words, there is reason to believe that there is a high degree of under-reporting and that the actual prevalence of asbestos-related disease has been largely hidden from view with the recorded cases⁷ from the Medical

⁶ Davies (1992) writes that epidemiology is not simply the study of the distribution and determinants of health related conditions, but the process of understanding the reasons for the particular distributions and determinants of health related conditions. Epidemiology thus encompasses social and economic factors along with the medical origins of disease. The *Shorter Oxford Dictionary* describes an epidemic as: prevalent among a people or community at a special time, and produced by some special causes not generally present in the affected locality

⁷ The Medical Bureau For Occupational Disease (MBOD) figures for the number of certified cases of asbestos-related disease 1996 - 2000 can be seen in the following table:

DETAILS OF ASBESTOSIS CERTIFICATIONS: 1996 - 2000

	1996/1997		1997/1998		1998/1999		1999/2000		
	1 st	2 nd	1 st	2 nd	1 st	2 nd	1 st	2 nd	
ASB PLEURAL	1264	23	1906	138	1274	112	965	72	
ASB INTER	475	56	653	85	315	81	290	19	
PLEURAL/INTER	55	62	1025	95	690	111			
MESOTHELIOMA		30		17		29		27	
CARCINOMA		11		11		12		13	
TOTAL	~	1764	182	3584	346	2279	346	1255	131

Source: MBOD, 1999/2000 (1st - 1st Degree, 2nd - 2nd Degree, ASB - Asbestosis, INTER- Interstitial)

For the 21 year period of 1977 - 1998, 10 520 cases were compensated for asbestos-related disease. (Kisting, 1999) It is thus interesting to note that a total of 9 917 cases of asbestos-related disease were certified by the MBOD between 1996 - 2000. Certification by the MBOD does not mean that all 9 917 were compensated. Kisting records 3 926 compensated between 1997-1998 (these compensated cases probably include certifications from previous years), and remarks that while this increase in reporting and compensation is "commendable", we still do not have "an accurate indication of the disease burden". (Kisting, 1999) It proved exceedingly difficult to obtain compensation statistics from the Compensation Commissioner For Occupational Disease (CCOD) as these are not computerized. Data that was given over proved impossible to work with and the number of compensated cases of asbestosis for specific periods could not be extracted.

Bureau For Occupational Disease (MBOD), compensation statistics and national registers, representing a fraction of the real number of cases.

Professor David Rees, Director of the National Centre for Occupational Health (NCOH), writes that “many occupational health practitioners would accept the contention that South Africa is experiencing an epidemic of occupational lung disease. We would be hard-pressed, however, to prove the case using the usual data-sources of compensation statistics, national disease registers and surveillance programmes. This is because our routinely collected data are characterized by gross under-reporting and difficulties in extracting formatted information from its curators.” (2000:10) The available information “underestimates disease burdens markedly”. (Rees, 2000: 10)

The neglect of occupational disease in health and safety in the mining industry, and the lack of appropriate research strategies, has resulted in the fact that “ little reliable data exist on the prevalence or incidence of such diseases in the period 1911 – 1996”. (Lewis and Jeebhay, 1996: 434) In the last 50 years only two, and these are recent, studies have been done on the health of miners once they leave the mines and return to the rural labour-sending areas. Both these studies showed a considerable burden of disease and revealed a high prevalence rate of previously undiagnosed and/or uncompensated pneumoconiosis⁸ in two labour-sending areas.

The first study was that of Steen *et al* (1997) in Thamaga village, Botswana. A house-to-house survey was conducted to identify ex-miners and from this a sample was drawn. Additionally, ex-miners with a long work history or chest problems were invited to participate. The high prevalence rate of previously undiagnosed lung disease indicated high previous exposures to dust along with inadequate radiographic surveillance, or a failure to act on the results of such surveillance. The existence of substantial under-recognition due to a lack of access to

⁸ A generic term for diseases of the lung caused by dust. Pneumoconiosis is the most frequently reported occupational lung disease in South Africa. Between 1997 and 1999, 2 265 cases were reported to SORDSA (Surveillance of Work-related and Occupational Respiratory Disease in South Africa – a register at the NCOH in partnership with the South African Pulmonology Society, the South African Society of Occupational Medicine and the South African Society of Occupational Health Nurses. It is supported by the WHO/SA Technical Cooperation Programme.) There were also 283 cases of Pneumoconiosis+TB and 227 cases of Pneumoconiosis+COPD; a total of 2 775 cases of pneumoconiosis. The next highest category of respiratory disease was Occupational asthma with latency at 249 cases. The SWORD surveillance system in the United Kingdom found occupational asthma to be the most frequently diagnosed occupational lung disease at 27%; pneumoconiosis was third at only 7% of cases. Mining and quarrying accounted for 62.1% of the South African cases, and the asbestos industry for 5%. (SORDSA News, Vol.4 No. 1, January – June 2000)

surveillance was concluded. The study revealed that 30% of the ex-miners had pneumoconiosis, and that the incidence rate was 310 per 1000 .

The second study was that of Trapido *et al* (1998) in Libode, Eastern Cape. In this prevalence survey The Employment Bureau of Africa (TEBA) recruitment records from 1969 to 1980 were used to generate a random sample. These men were traced for medical examination. Additionally, members of the community who had worked in high dust jobs for at least ten years were invited to come forward as volunteers. Interviews were done with hospitals to assess the level of compliance with the Occupational Diseases in Mines and Works Act (ODMWA) and to assess awareness of the provisions of the Act on the part of health workers. The study was an attempt to quantify the extent of under-reporting, the prevalence of incident cases, the coverage by the ODMWA and the burden to households, the community and the state, of pneumoconiosis.

A prevalence of 22 – 37% was discovered. A statistically significant association between between length of service and pneumoconiosis was found. Information as to eligibility for compensation yielded that 24% were eligible. Of these 62% had had no compensation and 35% had been compensated but their disease had progressed making them entitled to additional compensation. Only 3% had been compensated adequately in terms of the Act.

The findings were extrapolated to show that 240 per 1000 had compensable pneumoconiosis. Further extrapolation, taking the total population of miners that had passed through the mines and were still alive, estimated 480 000 cases of pneumoconiosis. It was acknowledged that such extrapolation would not need to be done in an industrialized country where better data is available. The data drawn from the annual reports of the Medical Bureau For Occupational Disease (MBOD) between 1973 and 1997 revealed that only 37 598 men had been certified as having compensable pneumoconiosis. This reveals a massive discrepancy between the reported and estimated number of cases. It indicates that more than 440 000 cases have been 'missed', and that medical monitoring and surveillance has failed.

There is clearly a serious failure on the part of the official recording systems, and these data sources seriously underestimate the actual prevalence of occupationally acquired lung disease as a huge number of cases have gone unrecorded. This high level of unidentified illness points to the realities, and the social and economic consequences, of "social control policies that

methodically transferred the health costs of industrial production to the rural African populations".⁹ (Packard: 1989: 315)

It can be seen that accurate quantification of the extent of unpaid mining occupational disease compensation is made very difficult by the absence of basic occupational health databases. Accurate denominator data is dependent on substantial further research. These two pioneering studies, however, indicate the high cost of disease in the South African gold mining industry. If the prevalence of occupational lung disease in the Libode district is found in other labour-sending areas then the implications of the backlog of compensable disease, and the failure to identify and compensate, is considerable. In the 1980s the MBOD recorded a rate of 5.2 per 1000 miners. The Libode study revealed a rate of 240 per 1000, while the Thamaga study revealed a rate of 310 per 1000.

It is thus evident that the mining companies are only paying for a small portion of the disease burden; the MBOD records only a fraction of the actual number of cases, and thus only a fraction of the costs are borne by mining companies through the present compensation system. There has clearly been a failure to identify pneumoconiosis while these miners were in employment, and a clear failure of the MBOD and the Department of Health to identify cases subsequent to employment. It is evident that questions of health have been poorly dealt with by mine management and the health services.

A good indication that published statistics of asbestos-related disease are concealing a far greater incidence is revealed by the available figures for mesothelioma.¹⁰ Compensation data show that

⁹ Benjamin & Greef write in the *Report of the Committee of Inquiry into a National Health and Safety Council*: "The inadequate regulation of OHS in South Africa has severe consequences for the economy and the social fabric of our society. While the lack of comprehensive statistics on the extent of occupational accidents and diseases makes it difficult to gauge the full cost of OHS for the economy, conservative estimates based on the available evidence indicate the costs are substantial". (1997: 4) This report also stated that "occupational diseases are extensively under-reported and official statistics give an incomplete picture of their prevalence". (1997: 108)

¹⁰ A rare, fatal tumour of the pleura (lining of the lungs) and/or of the peritoneum (lining of the abdominal cavity), and other parts of the body. It is known to be associated with prior exposure to asbestos; a relationship first described by Wagner in South Africa. (1960) It became a notifiable and scheduled industrial disease on 5 October 1979. It kills extremely rapidly, median survival times range from 2 to 18 months from diagnosis (Reid *et al*, 1990). and very painfully. It can be caused by minimal, or short term, exposure to asbestos. It is described by Tweedale (2000: 121) as "one of the most virulent types of cancer – so much so that physicians rarely attempt a surgical removal or even a biopsy, as the tumour has a tendency to track through the chest wall along the site of the stitches or biopsy wounds". Tweedale (2000: 121) also notes that mesothelioma "does not show a clear dose-response relationship". Selikoff wrote, "The trigger dose may be small, in some cases extraordinarily so". (cited in Tweedale, 2000: 121) It is the disease that gave asbestos dust the name 'killer dust'

an annual average of 66 mesothelioma cases were submitted for compensation between 1994 and 1997. (Rees, 2000) If the compensation data are taken at “face value, they would show that we have a relatively minor mesothelioma problem”. (Rees, 2000:10) Compensation data, however, cannot be taken at “face value” for they represent but a small portion of the actual number of cases.

The National Cancer Registry’s latest available statistics record 380 histologically diagnosed cases of mesothelioma for the period 1993 to 1995. These are shown in the following table.

1. Histologically Diagnosed Mesothelioma for the three year period, 1993 – 1995

	White Male	White Female	Black Male	Black Female	Coloured Male	Coloured Female	Asian Male
1993	67	22	50	18	6	6	3
1994	56	18	13	7	5	2	2
1995	50	20	23	7	3	2	0
Total	173	60	86	32	14	10	5

Source: Histologically Diagnosed Cancer, 1993 – 1995, Summary Statistics: Cancer Epidemiology Unit, National Cancer Registry, SAIMR, 2000

The first remarkable aspect of this data is the declining number of diagnosed mesothelioma cases that have been reported: 172 cases in 1993, 103 in 1994 and 105 in 1995. As Rees (2000: 10) points out, “Declining rates of mesothelioma are inconsistent with our history of asbestos production: the peak in both total asbestos and crocidolite occurred in the mid to late 70s. The usual latent period of 30 to 40 years from first asbestos exposure to mesothelioma manifestation is compatible with a peak in the mesothelioma epidemic after 2005”. The National Cancer registry figures cannot be taken at “face value” and indicate once more that a large number of cases of mesothelioma are going undetected and/or unreported.

The skewed racial composition of the registered cases when compared with the racial profile of South Africa is the second remarkable aspect of this data: 233 of these reported cases were amongst whites and only 147 amongst other races. However, whites made up only 5 % of those employed in the asbestos industry. (Department of Minerals & Energy) If 233 cases are found amongst whites one could, conservatively, expect approximately 4 427 cases amongst black,

coloured and asian workers over the same three year period. Yet only 147 cases have been reported.

If black and coloured workers were exposed to worse dust conditions than whites both occupationally as mine and other workers, and environmentally as residents of areas polluted by the mining industry, it could be expected that the numbers would be even higher than the estimate of 4 427 missing cases. It is reasonable to assume, on the basis of the historical nature of the labour market, that black and coloured workers have been more exposed to asbestos. It is also reasonable to assume that black and coloured residents in the asbestos mining areas have been more environmentally¹¹ exposed. The calculated estimation of missed cases also makes the assumption that the recorded cases amongst whites represent a complete finding, which might very well not be the case.

Zwi *et al's* 1989 study was the first to address the incidence of mesothelioma in South Africa. The number of cases detected over the period 1976 – 1984 in this study was 1347.¹² The number reported to the South African Asbestos Tumour Panel over the same period was only 796. This is a clear reflection that collected data by this organization is incomplete. As Zwi *et al* (1989) note, officially collected data is even less complete than the South African Asbestos Tumour Panel data: from 1979 to 1983 only 408 deaths due to mesothelioma were entered into the death register. Zwi *et al's* 1989 study identified 818 cases for the same period.

However, the 1347 cases identified by Zwi *et al* are likely to be a far from a complete record of cases as “this study relied largely on the recall of cases by diagnosing practitioners and incomplete case ascertainment was inevitable”. (Rees, 2000: 10) All the evidence increasingly

¹¹ Rees *et al* (1999) note that South Africa is in the unique position of having a large proportion of cases of mesothelioma occurring as a result of environmental exposure. Australia was the only other country to mine large amounts of crocidolite, and their mesothelioma surveillance programme reported approximately one case per year caused by environmental exposure due to residence in the asbestos mining region of Wittenoom – less than 1% of the total number of mesothelioma cases recorded. Environmental mesothelioma is not reported to any significant extent by other asbestos mining countries. In the South African context Rees *et al* (1999: 633) state: “It would seem reasonable to provide some form of compensation to all diagnosed cases since the cause is almost certainly industrial activity. The current system of restricting compensation to only those people with a history of occupational exposure should be revised”.

¹² “To estimate incidence, a case register was compiled for 1976-84 by contacting all medical practitioners and institutions likely to have seen cases of mesothelioma in this period; demographic, diagnostic and exposure details were sought. Cases were accepted if they provided evidence of histological diagnosis of mesothelioma.” (Zwi *et al*, 1989: 320)

supports the assertion that many cases of mesothelioma in South Africa are not identified, and go unrecorded.

Of the 1347 cases identified by Zwi *et al* (1989) 52% were in whites, 31% in blacks, 16% in coloureds and 1% in Asians. Again, a very skewed racial composition can be seen. The large differences in incidence by population group confirm a large differential in access to health services rather than higher exposure for whites. We know that “in all jobs in which whites are exposed to asbestos black workers generally perform the more unskilled and dustier tasks and thus tend to have higher exposures. The ratio of black and coloured to white miners on the asbestos mines was generally 20:1 in the 1940s and 1950s. In 1977 and 1983 over 90% of the labour force on both crocidolite and other asbestos mines was black and these workers performed 96% of work with a risk of dust exposure. In manufacturing Myers estimated that 78% of exposed people were black”. (Zwi *et al*, 1989: 326)

Zwi *et al* (1989: 328) conclude that their study “reveals mesothelioma incidence rates in South Africa to be amongst the highest for a general population anywhere in the world”; the incidence rate is more than three times that in Canada which could be assumed to have a complete register. It should, however, be concluded that South Africa has the highest rate in the world as “the high rates are likely to under- rather than over- estimate the true numbers, particularly in the black population”. (Zwi *et al*, 1989: 326) Zwi *et al* explain that the reasons for this are mainly the failure to diagnose: “a severely wasted patient with chest pain and a grossly abnormal chest x-ray may be assumed to have tuberculosis and may be treated as such without a firm diagnosis being established”. (1989: 325) There are many limitations on data collection, notably “poorly classified mining industry, hospital and pathological records”; for example, “three hospitals, all of which are situated in or near asbestos producing areas, had irretrievable data”. (Zwi *et al*, 1989: 325) Clearly the detection of mesothelioma is marked by poor ascertainment and diagnosis, and is highly uneven.

Another of the asbestos-related diseases that have been poorly detected is that of lung and other cancers. It has been far easier to obscure the cancer risk, and to fail, when cancer is diagnosed, to correctly determine the real cause. However, it has been noted that case studies in the rest of the world indicate that lung cancer, caused by exposure to asbestos, occurs twice as frequently as

mesothelioma. (Castleman, 1996)¹³ Analysis of data¹⁴ drawn from the Worker's Compensation Board of New South Wales, Australia, and British Columbia, Canada, revealed that "the general epidemiological impact of asbestos exposure, as judged by workers' compensation awards, is currently being seriously underestimated in both of the jurisdictions studied". (Barroetavena *et al*, 1996: 184) It was concluded that "in both, and very probably therefore more generally, there is serious under-reporting of cases of lung cancer in workers who were occupationally exposed to asbestos". (Barroetavena *et al*, 1996: 184)

Although the asbestos related lung cancer rate in South Africa remains undocumented, it has been reported by Mzilweni *et al*¹⁵ (1999) that residents of areas where asbestos was mined in the Northern Province had a 2.8-fold increase in the risk of developing lung cancer and that there is a 3.4-fold increased risk of lung cancer in men working in high dust industry.

The Externalization of 'Costs'

Those cases which have been diagnosed have not all been compensated, and for those who have been compensated the level of recompense is highly questionable. The international trend towards ensuring that industry must pay the full price for its activities has not yet impacted on South Africa. Legislation has allowed industry to pass on, and transfer to the rural areas, the costs of the high levels of occupational disease amongst asbestos mineworkers, as well as environmental contamination and degradation, to the workers, their households, the community and the state. The asbestos industry failed in its responsibilities of a "duty of care" in that there

¹³ The attempt to obscure the cancer risk was being played out in South Africa as late as 1984 when a conference of the Asbestos International Association, representing producers, was held in Johannesburg. Professor E. Beck of the Justis Lieberg University of Giessen said, "so far there is no concrete evidence that asbestos is an initiator of lung tumours, and there is increasing evidence that it acts only as a promoter". Beck additionally maintained that the only danger lay in inhalation and not in ingestion. (Rand Daily Mail, 31/10/1984) Dr Jonny Myers replied that this was "playing with words" as the link between asbestos and cancer was clear. Myers rejected the claim regarding the safety of ingestion saying, "some studies have shown that ingesting asbestos fibres leads to cancer of the organs of the digestive system". (RDM, 31/10/1984) The Black Allied Mining and Construction Workers' Union succinctly condemned the conference: "The funding of this conference by the State and the Griqualand Exploration and Finance Company denotes their complicity in maintaining adverse working and environmental conditions for the people of this country". The union maintained that the organizers, the South African Asbestos Producers Advisory Committee and the State, were "opportunists bent on underplaying the extremely terrible conditions black mineworkers are exposed to". (RDM, 1/11/1984)

¹⁴ This data revealed that over the period 1980 to 1994, 1207 cases of lung cancer were not recognized as occupationally related to asbestos exposure.

¹⁵ A case control study was done between 1993 and 1995 at Ga-Rankuwa, the main referral hospital for cancer patients in Northern Province. It was found that those resident in 'moderately' polluted asbestos areas had a 2.1 fold increase in the risk of developing lung cancer. The increased risk in 'heavily' polluted areas was 2.8 fold. The conclusion of the study was 'significantly elevated risks (approximately three-fold) of developing lung cancer in both sexes' and this 'related to exposure at birth or subsequently'. (Mzilweni *et al*, 1999)

was a marked lack of control of asbestos, and it has abrogated its financial responsibilities to all those workers who acquired occupational diseases. It has not been held accountable for the legacy¹⁶ of asbestos-related disease.

The costs of these occupational diseases have not been borne, or 'internalized', by the mining companies but have been externalized with the "real costs" being borne by individuals, families, society and the state. These diseases are paid for by the workers and the community as a whole. South African mining companies, as well as foreign companies that disinvested from South Africa, suppressed and ignored occupational health data and left thousands of asbestosis victims behind, and many contaminated mines and asbestos dumps. They have, quite simply externalized the costs of disease. The cost to the mineworkers has been their health; the 'real costs' are the physical and economic devastation of workers and their families.

The objective measure of poverty is money or income for it is income that determines access to the goods and services that constitute well-being, and it is a measure that enables easy ascertainment of those who are living below the poverty datum line. Broader measures of poverty, however, consider other constituents of well-being, such as health, and access to health services, as important. (May, Klasen, Budlender, in May, 2000) While the costs of illness are primarily borne by households and communities, further costs are borne by the state health and welfare services.

¹⁶ "Tragically, South Africa is a global epicentre of asbestos-related diseases. Asbestos was once South Africa's fifth most important mineral export. In the 1970's peak employment reached 20 000 men at dozens of mines in the Northern Cape and Mpumalanga. The industry declined during the 80's as the export demand for asbestos fell in the face of mounting consumer resistance to a potent carcinogen. The asbestos legacy remains. Surveys in the 1970's of active miners showed that asbestos-related diseases were commonplace. Mesothelioma, lung cancer and asbestosis related to mining continued to be reported by the Director, MBOD at similar rates through the 80's and 90's. In 1997 asbestos-related diseases are the commonest single category of diseases being reported to the SORDSA surveillance project for occupational diseases." (White, 1997: 21) Felix writes that "the mining and milling of asbestos in South Africa led to three local epidemics in which tens of thousands of persons suffered premature death from asbestosis, pleural thickening, lung cancer and mesothelioma, following occupational and environmental exposure. Where scientists conducted sound studies, high proportions of the exposed populations surveyed were found to have asbestos related disease". (1997: 149) The high numbers compared to silicosis cases can be seen in the following table:

Type of pneumoconiosis certified in living miners:

	1995/6	1996/7	1997/8
Silicosis	1 314	1 066	1 996
ARPD	458	1 287	2 044
Asbestosis	264	1 148	1 858

Source: Rees, 2000. ARPD: asbestos related pleural disease.
Asbestosis: interstitial disease + interstitial disease with pleural changes.

The implications for public sector medical facilities are profound. It is clear that successful health promotion plans need to locate diseases within the broader social context in which people live, and there is a great need for occupational disease recognition units within the Department of Health (DoH) to identify mineworkers who qualify for ODMWA benefits. Shrinking budgets do not bode well for the establishment of these at a national, provincial and local level. Rees (2000: 10) comments that the data sources that are available show that there is “a significant mismeasure of the extent of the problem: a real concern in an environment of competition for shrinking resources”.

The ‘real costs’ of asbestos-related disease are the long-standing transference of disease and disability to the rural areas. Asbestos-related disease is clearly a major contributing factor to poverty and underdevelopment in rural areas where economically marginal rural families and communities have been severely damaged, in more ways than simply in income reduction, by occupational diseases that disable or are responsible for premature death. Households, the state and society in general subsidise the costs of supporting and caring for these impaired people. This has substantial implications for households, for health and social welfare services, and for the compensation system. The ‘real costs’ are a consequence of the fact that, all too frequently, the only asset of most poor people is their bodies. This is best described by Chambers (1989: 4):

“General and measureable concepts like ‘labour power’, ‘labour availability’ and ‘dependency ratio’ blunt this sharp point, and miss the stark personal reality. The good ethical and humanitarian reasons for providing health services and reducing suffering from sickness sometimes serve to divert attention from the economic aspects of ill-health. These include the plain facts that the poorer people are, the more it matters to be able to work and earn, the more they depend on physical work, and the higher are the personal costs of physical disability..... At a sudden blow, the body, the poor person’s greatest and uninsured asset, is devalued or ruined. From being an asset, at one stroke, it becomes a liability that has to be fed, clothed, housed, and treated. A livelihood is destroyed, and a household made permanently poorer.”

Reconstruction and development is urgently needed for the burden of disease that the labour system has placed on the rural communities from which the mineworkers come and to which they return. Diseases contracted in employment are brought back to rural areas least able to cope with them and, while legislative changes have brought an end to a century of statutory racial

discrimination¹⁷, economic and social oppression remains. Could it be that the “dismantling of apartheid will prove to be more apparent than real”? (Duncan, 1995: 220) In the context of the legacy of asbestos-related disease little has been “dismantled”. What is increasingly revealed is that “like the fundamental racism of apartheid, disability feeds off powerful, pernicious and persistent forms of economic and social structure, and distribution, which have not substantially been transformed, and therefore disability lives on”. (Clear, 1999: 438)

The high levels of exposure, the high levels of under-reporting and the low levels of the application of the ODMWA, all point to an epidemic of occupationally acquired disease that has a severe impact on the lives of mineworkers, their families and their communities. Such externalization of the costs of occupational disease has substantial social, economic and political implications. It also raises fundamentally important questions of social justice.

This study, an investigation of prevalence levels, the question of compensation, and of the impact of occupational lung disease, evolved from a general awareness that asbestos-related disease is a significant public health issue in South Africa. It was also motivated by recent research findings of high levels of unreported and uncompensated pneumoconiosis in the gold mining industry. Discussions with some expert doctors, the reading of some initial papers, media reports, evidence from attorneys and litigation in process, and substantial anecdotal evidence, all pointed to the fact that there have been, and still are, many problems with the detection and compensation systems for asbestos-related disease. It was decided that an examination of the impact of asbestos-related disease would best be served by researching particular issues within a specified geographical area. It was also decided that the lived experience, and testimony, of afflicted individuals, and their families, would add substantially to the available information.

¹⁷ Racial discrimination extended to the surveillance, detection and compensation for occupational diseases. Legislation was “geared, almost exclusively, towards a state provided occupational health service for white miners”. (IHRG, 1993: 1) Racially discriminatory practices for compensation amounts were statute based until 1993. Benjamin and Greef (1997: 162) write that “from 1973 to 1994 mineworkers were compensated by racially discriminatory lump sum payments, with white miners at times receiving compensation as much as 13x higher than that paid to black mineworkers with equivalent diseases.” Files at the Praktiseer magistrates office in 1984 revealed the extent of racial discrimination: they showed that 134 Penge workers had been compensated in the ten month period of 3 August 1983 to 11 June 1984. Single lump sum payments were, except for three, either R1491.00 or R1790.00. Three were for lesser amounts. No pensions were paid. One white miner, compensated at this time received a lump sum payment of R24 000.00, and a monthly pension from GEFCO. (RDM, 19/7/1984) Flynn (1992) reports that, in 1986, white miners were compensated R33 207.00 for lung disease, while black miners received R2 462.00 if their disease was detected while they were still alive, and only R1 641.00 if detected after death; one twentieth for the same disease. The recommendations of the Nieuwenhuizen Commission of Inquiry into Compensation for Occupational Diseases (1981) for an end to the system of racial discrimination, and for a uniform system for all occupational diseases, both mining and non-mining, were simply shelved.

Sekhukhuneland is particularly under-researched as more asbestos-related disease research has occurred in the Northern Cape¹⁸. The only surveillance work that has been done in Northern Province is that of a few dedicated health professionals¹⁹, and this has indicated that there is a large undetected, and, where detected, uncompensated, disease burden. Frequently the disease only manifests once the mineworker has left mine employment and returned to the rural areas. There is often, although not always, a latency period between exposure to risk and the development of disease, and the lung disease that manifests can thus relate to circumstances and conditions that prevailed many years before. The lack of an easily traceable work force compounds these difficulties. If follow-up examinations do not occur then the disease will not be identified, and there will be a failure in the detection and reporting of cases. Consequent on a failure in the coverage of detection will be a failure in compensation. This would mean that the disease burden is borne entirely by the ex-mineworkers and their families, that it is displaced onto the rural areas, and that the prevailing situation arises where the majority of ill ex-mineworkers “remain out of sight and out of mind”. (Spoor, Interview, 21 July 2000)

It was ascertained that there are pressing research questions that need to be addressed to ensure that the problem of the displaced and hidden burden of occupationally acquired asbestos-related lung disease does not remain invisible. Illich (1976: 212) writes that “negative externalities is the name of the social costs that are not included in the monetary price; it is the common designation for the burdens, privations, nuisances, and injuries” that are imposed on others. The negative externalities associated with the mining of asbestos have not been quantified in order to include them, or internalize them, in the price of a ton of asbestos. In the end, however, the ‘real costs’ cannot be fully quantified as the value of human life, and of the environment, resists quantification. What can be done, however, is to make more visible the ‘real costs’ of asbestos mining in South Africa and the high, and terrible, ‘price’ paid by mineworkers.

¹⁸ A number of projects have focused on the town of Prieska, in the Northern Cape crocidolite asbestos fields. Rees (2000: 13) writes that a birth cohort of 2 390 subjects born between 1917 and 1937 is “being followed to ascertain the cause of death”. 1 776 have been traced – of the 633 who have died 27 died of mesothelioma. This means “6.4% of this Prieska cohort who died older than 25 years has died of what is considered a rare tumour. As the cohort ages, the rates are expected to increase”. (Rees, 2000: 13) In 1998 the Pulmonology Department of the Johannesburg Hospital conducted medical evaluations of 955 Prieska residents. Of the 524 who had had occupational exposure, 270 (51.5%) had asbestos-related disease. A further 35 who had not had occupational exposure had asbestos-related pleural disease. (Rees, 2000)

¹⁹ My immediate general impression, when doing fieldwork, was that if it had not been for the efforts of the Industrial Health Research Group, and of Professor Tony Davies, previously Director of the NCOH, and Dr Marianne Felix, also of the NCOH, many hundreds more would have remained undiagnosed. This impression was subsequently confirmed by the available data.

CHAPTER TWO

RESEARCH QUESTIONS AND METHODOLOGY

The lessons of the asbestos experience, the long tragic chain of adverse medical, legal and societal consequences, have reinforced the well recognized principle that the employer, the producer, has always had the inherent responsibility not to endanger the community or society. This responsibility, when ignored or slighted by management as evidenced by asbestos, as well as other carcinogenic agents, brings about an irreversible legacy of human and economic disaster in succeeding decades.

(Dr Thomas F. Mancuso in Barry I. Castleman, Asbestos: Medical and Legal Aspects, 1996:xvi)

Research Question One: The Prevalence of Asbestos-related Disease

It is clear that officially collected data are not available to determine the actual prevalence of asbestos-related disease in the asbestos mining fields of Sekhukhuland. Substantial further radiological surveillance work is required before actual prevalence levels can be determined and recorded. The first primary research issue of this study revolves around an assessment of the extent of under-reporting. The questions to be asked are:

- Why has asbestos-related disease remained unrecognized for so long?
- Why did so many mineworkers remain undiagnosed?
- Why did the diagnosis of so many ex-mineworkers take so long?
- What are the reasons for the failure of detection systems to accurately record occupationally acquired asbestos-related disease?
- To what extent can we determine the prevalence of asbestosis?

To answer questions of why there is such poor epidemiological knowledge of this area an examination of the conditions in the asbestos mining fields of Sekhukhuland, and conditions subsequent to employment that have resulted in the facts of asbestos-related disease being hidden, is necessary. In order to make sense of the patterns of illness it is necessary to explore the context of the modes of production that the patterns of illness emerged from. In other words, the historical exposure and hazard profile must be examined.

The research of this primary issue involved a substantial literature survey relating to the history of asbestos mining in South Africa, the history of medical research into asbestos-related disease, both locally and internationally, and historical and current occupational lung disease health surveillance systems. It should immediately be noted, and stressed, that there is an extensive published body of medical literature on asbestos-related disease dating from the 1920s.

A large part of the literature survey related to investigating questions of *when* knowledge of the dangers of asbestos was available, what was actually known and done by the producers and why the production of asbestos led to destruction of the health of large numbers of people. This is crucial in ascertaining whether the epidemic²⁰ of asbestos-related disease could reasonably have been foreseen and prevented.²¹ In other words, an investigation into the negligence of the mining companies, and of the state, in the face of early and substantial medical evidence of disease, is required. Both mining companies and the state failed to operate effectively as safeguards.^{22 23}

Chapter Three sets down this background in an historical account of the progression of medical research and scientific evidence, and the attempt, on the part of the mining companies, to suppress independent studies of the subject. It also discusses industrial hygiene conditions on the asbestos mines with the available information on Penge presented, and compares these standards to those of the developed world. This chapter attempts to provide a context to facilitate explanations of why asbestos mineworkers in Sekhukhuneland were kept in ignorance of the real dangers of the mineral for so long, and why the high levels of disease ‘escaped’ detection. This

²⁰ In view of the long term effects of the very dangerous activity of working with asbestos it could be that the peak incidence is still to come. Insufficient data is as yet available to determine this. The Industrial Health Research Group (1993: 21) writes: “The size of the asbestos epidemics have not been fully estimated. As black miners have worked for shorter periods of time at these mines, resulting in a greater turnover of the workforce, the asbestos epidemic amongst black ex miners will be larger than expected. Black communities have been exposed to higher doses of asbestos dust at work in the mines and mills as well as through environmental pollution, and health effects of these exposures will be with us for at least 2-3 decades”.

²¹ In 1994, Bill Sells, a former executive for Johns-Manville, a major manufacturer of asbestos products, said it was “one of the most colossal blunders of the twentieth century. In my opinion the blunder that cost thousands of lives and destroyed an industry was a management blunder, and the blunder was denial” instead of “responsibility ...and product stewardship”. (cited in Harington and McGlashan, 1998: 326)

²² Brodeur (1985: 6) describes the asbestos industry as a “fifty year history of corporate malfeasance and inhumanity to man unparalleled in the annals of the private enterprise system”. John Waddell, Chairman of Turner Brothers Asbestos, said in 1966 that the asbestos industry was “too big a trade to be thrown over in a hurry simply because there is fairly strong evidence that the blue fibre is more dangerous than crocidolite”. (cited in Castleman, 1996: 128)

²³ An interesting comment was made by an Australian ex-miner visiting South Africa – he maintained that the asbestos mining industry closed down in his country as it was cheaper to import asbestos from South Africa; a consequence of cheaper labour and the ‘lax’ conditions in South Africa.

chapter presents a partial exploration of the background to the failure of the detection of asbestos related disease.

Chapter Four continues the investigation of the levels of under-reporting with a discussion of epidemiological surveillance work in Sekhukhuneland during the last fifteen years. It looks at the increasing levels of awareness on the part of the National Centre For Occupational Health, the ex-mineworkers themselves, and those who live in the previously asbestos producing areas. An awareness of the health consequences of decades of negligence perpetrated by the mining industry is growing. Surveillance programmes in the last fifteen years, though limited, have added substantially to the available data sources; this research has expanded the very constrained data sources of compensation statistics and national disease registers. Additionally, the work done by a few dedicated health professionals has considerably raised levels of awareness amongst the affected people.

Chapter Three and Chapter Four give the background to the failure of detection. Chapter Five continues the examination of the failure of detection in looking more closely at the health infrastructure in Sekhukhuneland, and in presenting the disease profile of the cases studied during the fieldwork. These three chapters attempt to answer the question of why the majority of asbestos workers in Sekhukhuneland have remained 'out of sight and out of mind'. The ex-mineworkers that comprised the case study had all been diagnosed. Their diagnosis, however, had been substantially delayed.

Research Question Two: Compensation for Asbestos-related Disease

The second primary research issue revolves around asbestos-related disease compensation practices, and the administration of the compensation system. Myers *et al* (1987: 664) write, "lack of concern with the asbestos hazard is further reflected in the compensation structures, which in South Africa seem designed more to frustrate victims than recompense them for damage done". The question to be asked is whether the provisions of the Occupational Diseases In Mines and Works Act No 78 of 1973 as amended (ODMWA) are uniformly applied in Sekhukhuneland:

- Are all those who are entitled to the statutory compensation receiving their benefits or is the legislation widely ignored?

- Are there long delays from submission to claim conclusion?
- Are there a high proportion of unresolved claims?
- What are the reasons for the problems encountered in accessing compensation?
- Do the amounts of compensation bear any relation to the actual damage inflicted?
- Is the compensation system a limited intervention in health and welfare?

If it is the case that the ODMWA is not uniformly applied then further questions arise as to the application of the Act and the reasons for the problems encountered in accessing these benefits. Differentiation exists as a result of difficulties and problems with the ODMWA. Dr Sophia Kisting (1999: 77) has written, “the compensation system is administered by different departments and this, as well as the centralization of the administration in one province, makes it difficult for poor rural communities to have easy access to it”.²⁴

The majority of mineworkers have always been migrants²⁵ controlled by contracts and labour recruiters. It is noted by Arkles (1993) that although there is a large body of literature on the migrant labour system this has rarely encompassed the impact of occupationally acquired disability on the ex-mineworker and his family, and the rural communities in which they live. Kisting (1999: 77) has remarked that the compensation system “raises important questions such as: How do we value human life? How do we compensate differently when people suffer from the same disease? How do we address the historic legacy of inequality?”

²⁴ The budget for the MBOD comes from the Department of Health. This institution together with the office of the Compensation Commissioner for Occupational Diseases, which administers the ODMWA (until 1984 administered by the Department of Mines), and the Pathology Division of the NCOH, provide the services required for the compensation system. All are based in Johannesburg; the MBOD closed the 3 sub-bureaux of Kuruman, Klerksdorp and Dundee in 1992, leaving only Welkom, Witbank, Belville and Rustenburg. The sub-bureaux functions are certification of fitness for risk work, and diagnosis and certification of compensable diseases. Levies, at fixed amounts, are paid by all controlled mines into a centrally administered compensation fund. This is administered by the Department of Minerals and Energy which decides the levies. (The state contributes to this fund to cover compensation to employees of mines that have closed down.) See Benjamin & Greef, *Report of the Committee of Inquiry into a National Health & Safety Council*, 1997. The question of whether the levies bear any relation to the actual level of damage inflicted is a very important one, and further research needs to be undertaken to answer the question of whether the present fund could cope with a substantial increase in the incidence of identified disease accepted for compensation.

²⁵ White (1997: 20) writes: “History tells us that the measures used to reduce the cost of labour included migrant labour controlled by contracts, pass laws and hostels; control of the labour market through recruitment agencies and virulent anti-unionism. Ultimately many of the forms of extra-economic coercion developed to control the cost of mine labour became cornerstones of the National Party government’s apartheid homeland policy”. 83% of mineworkers are migrants. (Trapido *et al*, 1998)

White miners received regular and comprehensive medical examinations for life, and had access to the MBOD. Black miners were examined by doctors in the employ of the mining industry or by labour recruiters at the start of their contracts, or they were not examined at all. Their examinations focused primarily on pulmonary tuberculosis for the purpose of repatriation²⁶, and used x-rays that were unsuitable for the detection of pneumoconiosis. There is sufficient reason to believe that exit tests were of a very poor quality.

Once ill, these mineworkers are reliant on the public health service for assistance. Occupational health infrastructure is sorely lacking in the rural areas as screening facilities are almost entirely based in the main urban centers. The legal provisions of the ODMWA, however, require regular medical examination. Added to this lack of access to examination facilities is a lack of awareness, on the part of ex-mineworkers as to their rights, and health workers in provincial and local hospitals as to their obligations, under the ODMWA. Specialist knowledge and evidence is required to prove a claim, and, without this, many who are legally entitled to at least the minimum compensation are not being brought into the net.

There are two scheduled degrees of disease eligible for compensation that takes the form of single lump sum payments: either first degree of 10 to 40% cardio-respiratory impairment, and second degree of over 40% impairment. There is no compensation for less than 10% impairment.²⁷ A key question is whether these degrees of disability, at two broad levels, bear any resemblance to the actual amount of disability experienced by the individual. Clinically diagnosed 'partial disability', for the person whose only asset, in order to engage in physical labour, is a healthy body, can be experienced as total disability. Medical assessment alone can fail to take into account all the social and economic dimensions of disease that result in disability.

Payment is based on wage levels, and low wage earners are paid out accordingly low amounts for the same disease. Calculations include no provision for loss of earnings due to disability, future medical expenses, or for pain and suffering. In other words, benefits are capped, pensions

²⁶ Between 1980 and 1985, 15 000 were repatriated after being diagnosed with tuberculosis. (White, 1997) It was only in 1985 that changes were made to the legislation to permit miners to remain in mine employment while being treated for tuberculosis.

²⁷ If "No Compensable Disease" (NCD) is asserted by the MBOD it means that the applicant is classified as not having occupationally acquired disease, or has occupational disease less than 10% cardio-respiratory impairment.

are not paid and the additional expenses that are incurred as a result of being ill are not considered. Nor do benefit calculations consider the lost income from both wages and labour performed at the rural home. It is not a system that redresses income loss. The central question is whether the amounts of compensation paid afford any real protection to the ex-mineworker with lung disease. These aspects of the compensation system are discussed in Chapter Six.

Research Question Three: Social Exclusion as a Consequence of Asbestos-related Disease

The third primary research issue revolves around social exclusion as a consequence of the failure of the detection and compensation systems. Researching this question necessitated an investigation into what happens to these mineworkers once they become ill. The following questions were posed:

- Do present levels of compensation alleviate the loss of income from the disability or death of a breadwinner?
- Does the received compensation fail to prevent a downward slide into poverty for ex-mineworkers and their families?
- Does the occupationally acquired lung disease engender destitution in both the compensated and uncompensated?
- Is the reality behind the official statistics the degradation of life, acute poverty, and permanent social exclusion?
- Is a substantial burden placed on the state health and welfare services?
- Are the main consequences of the legislation a large indirect subsidy to the mining industry, and the severe poverty of those workers, and their families, who are disabled? In other words, who does the legislation serve?

This section attempts to answer the question posed in the introduction: are the social and economic costs, the 'real costs', far from being borne by the mining companies, being externalized onto ex-mineworkers, their families, communities and the state? Have the mining companies received a subsidy in terms of years of people's lives? In other words, have the rural areas been used "to subsidise the reproduction of the mines' labour force and ultimately turned them into dumping grounds"? (Duncan, 1995: 112)

Chapter Seven describes the hardship, deprivation and underdevelopment that result from asbestos-related disease. Fieldwork rapidly revealed the misery that has been caused by various forms of social and economic organization. This chapter addresses the question of social exclusion in examining socio-economic conditions in Sekhukhuneland, and in attempting to locate the diseases within the broader context in which the ex-mineworkers live. Biographical detail of the lives of some of those who participated in the case study is presented.

Chapter Eight concludes. All these research questions are brought together in the final chapter which summarises the various conclusions discussed in each of the other chapters. It is obviously extremely difficult, within the bounds of this dissertation, to cover in detail all the research questions that were posed, and more attention is given to certain research questions to the neglect of others. All the questions posed require substantial further research.

Methods of Primary Research

In order to narrow the focus, a decision was made to do fieldwork with ex-Penge mineworkers in Sekhukhuneland. These ex-mineworkers all lived within a hundred kilometre radius of the small town of Burgersfort. A sample of 22 ex-mineworkers was selected from a compiled list of diagnosed and certified asbestosis sufferers. This list was drawn up through working with community leaders and networks to find those people who had worked at Penge mine, or who were the widows of men who had worked at Penge mine, who had been diagnosed, and who had applied for compensation under the ODMWA. The method could be described as 'networking' or 'snowballing'. The case study comprised this sample of 22 people and their families, and all interviews were conducted at the homes of the participants.

A translator/fieldworker was employed in order to assist with home locations, and translation from Northern Sotho to English. Afrikaans, and, to a lesser extent, English was additionally used by the interviewer. In-depth, semi-structured qualitative interviews were done at the homes of these men and women, and their families. It was decided that the lived experience and testimony of the afflicted people themselves would be informative and thus a biographical approach formed a large part of these interviews. The participants were spread over a large area of an approximately 100 km radius of Burgersfort, and reside in the villages of Alverton, Diphale, Motlolo, Malokela, Maandagshoek, Madiseng and Selala. A decision was made to spread the

case studies over a range of villages to inquire, through particular families, as to their knowledge of other cases in their immediate area.

The objective was to gather information on the subjects mine history, their history of illness and diagnosis, and their application for and receipt, or lack thereof, of compensation. The intention in spending time with these men and women at their homes, and with as many members of their families as possible, was to enter the household domain in order to investigate their socio-economic circumstances. The intention was to ascertain the impact of their asbestos-related disease and disability on themselves and their families. Where the compensation entitlement had been received information was gathered as to how this money had been used. The fundamental question being posed here was whether the compensation entitlement had, to any significant extent, improved their circumstances or not.

Further interviews were done with the Superintendent, a doctor and the occupational health nurses at the H.C. Boshoff Hospital in Maandagshoek, and with the Malokela Occupational Health Committee. The latter is a community based initiative set up to assist those suffering from asbestos-related disease. This fieldwork was initiated in November 1999 and completed in January 2000.

Additional shorter interviews were done with people who, having heard that there was someone in the area researching asbestos and the Penge mine, sought the author out. These were people who had worked at the asbestos mines but who had never had any medical follow-up. They were ill with respiratory disease but had remained without diagnosis. (These people were subsequently directed to the occupational health nurse at H.C. Boshoff Hospital, and to the Maandagshoek Programme) Thus was provided a smaller sample of the undiagnosed disease burden, and a sense that there were many people in the area suffering from asbestos-related disease who had had no access to medical assistance for the diagnosis of their illness, and thus no access to their statutory entitlement to compensation.

Subsequent interviews were conducted with Dr Marianne Felix and Professor Tony Davies, amongst others, at the National Centre For Occupational Health in Johannesburg, and with the Compensation Commissioner, Mr Jabu Mdluli and his deputy, Mr Jammy Maluleke at the Commission's offices in Eloff Street in February 2000.

A wide range of other key informants were contacted and interviewed both telephonically and in meetings. The former included Dr Sophja Kisting, Director of the Industrial Health Research Group, a number of doctors in the Departments of Community and Public Health at the University of Cape Town, the National Cancer Registry, The Institute For Ecological Rehabilitation at Potchefstroom University, the National Union of Mineworkers, a selection of MBOD reporting doctors, and journalists Laurie Flynn and Philip van Niekerk. The latter included Richard Spoor of Ntuli, Noble and Spoor in Nelspruit, the Industrial Health Research Group at the University of Cape Town, the Industrial Health Unit at the University of Natal, and Paul Benjamin of Cheadle, Thompson and Haysom in Cape Town. An interview with Dr A.V. Banyini, Director of the MBOD did not materialize due to her unavailability on the interviewer's arrival at her office for a scheduled interview, and subsequent unavailability for a telephone interview.

Methods of Secondary Research

An extensive literature survey was undertaken with regard to the history of asbestos mining in South Africa, the history of medical research into the effects of asbestos and the recorded disease burdens, both locally and internationally. Due to the size of the available literature only a very small portion of it is encompassed within the bounds of this dissertation. A further literature survey was done on the relevant legislation, the political economy of health, as well as the vital areas of occupational health and pneumoconiosis, in South Africa.

Research was undertaken into the current personal injury litigation involving 3000²⁸ asbestosis sufferers. Cape PLC disinvested from South Africa in 1979. The British Asbestos Newsletter (1999: 2) writes that "Cape sold up and left its former workers to fend for themselves. No settlement was made, no trust set up, no medical scheme put in place. To our knowledge, Cape has not paid one rand in compensation to any of its South African workers; nor has it contributed to government efforts to decontaminate asbestos dumps, industrial sites and derelict mines in the Northern Cape, the Northern Province and Gauteng."

²⁸ 2 250 are from the Northern Province and 750 from Northern Cape. The case started in February 1997 with three Penge workers and 2 Prieska residents (Lubbe & Others – v – Caple plc) in the English High court. On appeal the first five claimants won the right to sue Cape plc in England. Group Action Afrika et al commenced in January 1999 and comprised 1 539 further writs. This increase in numbers led to a defense application to stay proceedings, and Mr Justice Buckley found for Cape plc, ruling for South African jurisdiction. Further writs have since been added to this group making the number of claimants now 3000. There are a further 1000 cases on record for which writs have not yet been issued. (Spoor, personal communication, 2000)

Beginning in February 1997, this litigation is pursuing a claim formulated on the basis of the direct negligence of a Transnational Company (TNC), Cape plc. It is an attempt to uphold liability, in the English Courts, for Cape's failure to comply with a duty of protection for the health and safety of their South African employees.²⁹ The claimants are from the asbestos mining areas of Northern Cape and Northern Province, and have been funded by the British Legal Aid Board on the conditions of medical confirmation of asbestos-related disease, exposure to a Cape operation prior to 1979, and a means test.³⁰ Legal proceedings have revolved around the question of jurisdiction for three years. The plaintiffs argued that the legal action should be brought in England.³¹ Cape plc argued that South Africa was the appropriate forum.

On 30th July 1999 Mr Justice Buckley found for Cape plc and ruled for South African jurisdiction. Importantly, he stated in his judgment: "The operation of asbestos mines and mills in South Africa appears to have caused wide-spread injury, suffering and death over many years." Unfortunately, he went on to say, "An inquiry into the circumstances including, local standards, conditions, regulations and state of knowledge of the parties and, if appropriate, assessment of damages to compensate the South African victims are overwhelmingly matters in which the South African jurisdiction has far greater interest." (1999: 41)

The Court of Appeal upheld this judgment. The plaintiff's last legal recourse was an appeal to the House of Lords. Somewhat surprisingly, on the 20th July 2000, five Lords unanimously ruled that the case should be heard in the domicile of the defending company, namely the United

²⁹ Most importantly, "the apparent inability to hold transnational companies legally responsible for injuries caused by their overseas operations has enabled them to exploit less stringent (or less stringently enforced) laws in developing countries and to apply 'double standards'". (Meeran, 1998: 1686). This case involves crucially important issues around the role of multinational companies; their inherent responsibility as the initiators of the risk in causing exposure to occur and Article 2 of the Brussels Convention. Clearly Cape operated in defiance of British safety laws 50 years after they were established in the United Kingdom. One of the most glaring safety precaution omissions in South Africa was the failure to use impermeable sacks as was stipulated in the provisions of the 1931 British asbestos regulations. The use of porous bags (unlined hessian sacks) at Penge was confirmed by all the examiners in this case study.

³⁰ The 'means test' for the purposes of British legal aid is the least difficult to ascertain – the claimants all live in extreme poverty with almost non-existent formal income. Proof of employment at Cape owned mines is more difficult as there is poor documentation of the claimants 'labour history'. (This, however, might soon be rectified with the finding, by Richard Spoor, of many boxes of documents, including employee records, which were moved in 1982 from Penge mine to Msauli Asbes (Pty) Ltd. Personal Communication, 30 November 2000) They have all been medically certified as suffering from asbestosis.

³¹ Richard Meeran, a solicitor at Leigh Day & Co., the London firm representing most of the plaintiffs, writes, "holding a TNC civilly accountable to pay compensation in its home base is necessary not only because it provides redress for the abuse of human rights suffered by individual claimants but also acts as a powerful deterrent against future abuse. In order to achieve this objective the law must evolve to reflect the reality of TNC operations". (1998: 1707)

Kingdom. The trial will now assess whether Cape plc had a duty to protect the health and safety of South African mineworkers, whether it failed to comply with this duty and whether this failure caused disease. General damages in terms of loss of income, and special damages in terms of pain and suffering, will be assessed.

It is interesting to note that a class action brought by the 445 Tyler plant (supplied with amosite, from Penge, by Cape Asbestos) workers against Pittsburgh Corning in 1977 was settled out of court for \$20 million, of which Cape Industries paid \$5.2 million. (Castleman, 1996) Then, in 1988, Cape refused to submit to a foreign court's jurisdiction. Cape contested and did not appear at the proceedings. This product liability lawsuit resulted in the United States District Court in Tyler, Texas issuing a \$15.6 million default judgment. This default judgment, however, could not be enforced by the English Courts (British Asbestos Newsletter, 1999: 3) and the claimants received nothing.

Although this research was substantial in terms of following the case, obtaining legal documents, correspondence, and judgments, and a great deal of time spent in the offices of the South African representative of the claimants, Richard Spoor in Nelspruit, the subject, that of the role of a transnational company in South Africa, and the attempt to hold them accountable for their failure to reasonably foresee and prevent injury, is outside the bounds of this dissertation and warrants separate work. The ODMWA does not contain a clause equivalent to that found in the Compensation for Occupational Injuries and Diseases Act (COIDA) which prevents workers from bringing civil damages claims³². The concern of this dissertation, however, is the extent to which those who worked in the asbestos mining industry in Sekhukhune land are currently being deprived of their basic statutory entitlement to medical surveillance and to compensation.

³² As Benjamin (1992: 5) succinctly puts it, "historically, workers' compensation legislation represents a "trade-off" between the interests of employees and employers. For workers there are three benefits: first, they can receive compensation for the consequences of work-place accidents without having to prove that the accident was caused by the fault of their employer...and without having to institute legal proceedings in the civil courts. Secondly, workers are ensured that they will not be deprived of benefits because their employer has no assets. Thirdly, ...there is no division of liability between employee and employer...For the employer, the advantage is protection against costly damages claims by employees...In return for this benefit, the employer makes a financial contribution to the Accident Fund: safety is reduced to regular and predictable payment". The beneficiaries, however, give up their common law right to sue for damages (in the COIDA) and, most importantly, as Benjamin (1992: 6) notes, "an appreciation of this "trade-off" is essential to any evaluation of the adequacy of any scheme of worker's compensation. It distinguishes workers' compensation from other forms of social security such as unemployment insurance and social pensions which are not posited on the beneficiaries giving up their common law right to sue for damages". The crucial importance of a well administered compensation system could not be more apparent – it is a statutory right, the consequence of the "trade-off".

CHAPTER THREE

“HISTORY TELLS US”³³

For decades, the medical reports by doctors on disease and cancer pertaining to asbestos provided the essential evidence of the harmful effects of asbestos; so that proper protective measures, controls and medical surveillance by industry should not have been delayed for those who were exposed or used their products... There has been a tremendous time lag between the already medically established diseases and the time when the compensation and other governmental agencies legally recognized such diseases.

(Dr Thomas F. Mancuso in Castleman, 1996: xvi)

There are two groups of the mineral ‘asbestos’³⁴, a word of Greek origin meaning “indestructible”. The use of asbestos is mentioned by Roman historians, notably Pliny in writing of the ‘diseases of slaves’ who were weaving it. (Castleman, 1996) The serpentine group includes chrysotile³⁵ which was ‘discovered’ in Canada in the mid 19th century. All known deposits were of this type until the discovery by German geologist Lichtenstein of the first of the amphibole group, crocidolite, near Prieska in the Northern Cape. Mining of crocidolite, or Cape blue, began in 1891.

Mining of a second amphibole, a light brown or fawn coloured fibre, began in 1914 after its discovery at Penge in 1907. It was noted as a distinctive longer fibred asbestos of which there was a substantial ore body in the region. Geologist Hall took the initials of Asbestos Mines of

³³ Jonas Maepa, of Motlolo village, said of his father, “history tells us he died of asbestos disease”. (Interview, November 1999) SeJokola Kleinbooi Maepa worked at Penge mine, crushing asbestos to a fine powder in the mill. Jonas visited his father at the mine compound in his school holidays, and described him returning to the compound covered in white dust. His father was dismissed after being diagnosed with tuberculosis, and never worked again. He died in 1984 without having had any medical examinations, and thus no certification of asbestos-related disease. This expression was used by many others when speaking of the deaths of people who were undiagnosed, but whose symptoms all pointed to asbestos-related disease. One Penge miner interviewed said of his father: “History tells us he died as a result of working at Penge”. (Interview, January 2000)

³⁴ “An asbestos fibre about the diameter of a human hair is actually a cluster of nearly two million fibres... Thus, it is said that two million fibres can fit on a pin head; or an inch cube of asbestos contains 15 million miles of fibre. Not surprisingly such fine dust, which has only mild powers as a reflex irritant, is readily inhaled into the lungs if it becomes airborne.” (Tweedale, 2000: 10)

³⁵ South Africa became the fifth largest producer of chrysotile in the world. (Felix, 1997)

South Africa and named it amosite³⁶. South Africa was the only place in the world where all three types were mined.³⁷

The Transvaal deposits were thought to be unique and remained, through the 20th century, the major source of amosite, producing 95% of world supply. In a celebratory publication of The Cape Asbestos Company (1953: 9) it was noted that “South Africa has been shown to bear inexhaustible quantities of the fibres that can be mined both quickly and economically.” Mr Giles Newton, Managing Director, wrote in the foreword of this publication (1953: 9):

“ It is right that special tribute should be paid to those who laid the foundations of our mining enterprises in South Africa, and it is proper that, while recounting with justifiable pride the growth of our various factories, we should stress the magnificent work done by men and women in our mining establishments. The success of the operations at the mines has been and is the foundation of what we hope may justifiably be called our success. In the sixty years of our existence, the company has

³⁶ Amosite production exceeded that of crocidolite because of the ease of mining the Penge deposits (Felix *et al*, 1993) Tweedale (2000: 193) writes of the confusion regarding the respective dangers of the types: “Another of the asbestos industry’s tenets that lodged itself firmly in the public’s consciousness in the early 1970’s was the belief that crocidolite was the most dangerous type of asbestos. This idea had a long lineage in the industry: even in the inter-war years, workers had regarded crocidolite as particularly dangerous (though they regarded amosite as worse).” The physician of Cape Asbestos, Dr Hubert Wyers, said in 1946 regarding amosite: “its reputation as regards health is utterly pernicious; it is seldom now used.” (cited in Tweedale, 2000: 193) ‘Utterly pernicious’ it certainly was but the statement that it was ‘seldom now used’ is patently untrue: the mining, and export, of amosite was to reach it’s peak in South Africa in the 1970s.

A study of a cohort of amosite asbestos factory workers by Erlich, Lillis, Chan, Nicholson and Selikoff, published in the British Journal of Industrial Medicine in 1992, revealed the “utterly pernicious” nature of amosite in showing high levels of disease amongst those with heavy short term exposure. Of those with one month or less of employment 20% were found to have parenchymal abnormality and a third pleural abnormality. Erlich *et al* (1992: 274) concluded that they had “shown that radiological abnormalities indicative of interstitial pulmonary fibrosis and pleural thickening can develop with as little as one month’s exposure to high concentrations of amosite fibre”. Erlich *et al* (1992: 275) commented, “the short term exposures of these workers emphasise the need for clinicians to inquire carefully into brief remote exposures that may have been long forgotten”.

³⁷ By 1930, 7,000 tons of crocidolite were produced annually. Between 1957 and 1962, South Africa’s production of all three types of asbestos was more than 120,000 tons. In 1992 135,400 tons were produced. South Africa provided the majority of world supply of crocidolite and amosite, while Canada (75%) and the USSR provided the majority of chrysotile. (Harrington and McGlashan, 1998)

Between 1980 and 1992, 26 countries, including the USA, continued to import crocidolite – exports from South Africa amounted to over 400,000 tons of this lethal fibre during this period. Imports of crocidolite ceased in Germany in 1987, France in 1988 and the U.K. in 1991. The South African export trade in asbestos swung slowly from being predominantly to the U.S., U.K. and Western Europe, to the bulk of exports then going to Japan, Korea, Thailand, North Africa and the Middle East countries. (Harrington and McGlashan, 1998) In other words, what happened was decreasing imports by the developed world, and increasing sales to the developing world. This is most significant: “Concomitant with the reduction of asbestos use in developed countries, the increasing use in developing countries, albeit it at overall lower tonnages, inevitably means that disease of long latency must continue to occur well into the twenty-first century. Even the ending of amosite operations in South Africa in 1992 and the considerable decrease in production of its even more dangerous relative, crocidolite, cannot at this stage prevent further illness and deaths. It is unlikely that developing countries will be able to apply either ‘appropriate measures of protection’...nor have they in place the medical care necessary to recognize ‘a silent epidemic of asbestos-related diseases’ when this does occur”. (Harrington & McGlashan, 1998: 326) What will be revealed in this, and later chapters, is that asbestosis is not necessarily a ‘disease of long latency’.

grown quite beyond the recognition of its first servants, but the varied factories which we now operate and the multiplicity of products which we manufacture, in some measure derive from the lifeblood which flows from our Blue and Amosite mines.”

The vitality of the company, however, was gained at the expense of the “lifeblood” of the miners. Asbestos was proved, as early as the 1920s, to be an extremely dangerous mineral that should have been left well alone, under the earth and undisturbed. That this knowledge was suppressed by the mining and manufacturing companies has been slower in emerging, and the charge of deliberate strategies and “corporate malfeasance” is one of which they are increasingly being found “guilty”.

Early Evidence of Disease:

The first ‘proved’ case of asbestos-related pulmonary disease came in 1906 when Dr H. Murray Montague described a case of an asbestos worker who had died in 1900. The cause of death was attributed to asbestos dust damage to the lungs, and the ‘lung fibrosis’ was described in his evidence to a Departmental Committee on Compensation For Industrial Diseases in London. By 1918 the Prudential Assurance Company of New York was already refusing to issue life policies on asbestos workers. This insurance company had data that revealed that 9 of 13 asbestos workers had died prematurely. (Castleman, 1996) The conditions of the industry were already regarded as ‘injurious’ and a ‘hazard’ by some in the insurance industry.

In the late 1920s it was recommended that asbestosis be added to the list of compensable occupational diseases in Great Britain, and the Workmen’s Compensation (Silicosis and Asbestosis) Act was passed in 1930.³⁸ Papers on fibrosis of the lungs due to the inhalation of asbestos dust had begun to appear in the British Medical Journal in 1924. In 1927 Dr W.E. Cooke published details of his post-mortem findings of diffuse pulmonary fibrosis and ‘asbestos bodies’ in the lungs of a female asbestos worker. He introduced the term ‘asbestosis’ to describe the characteristic lung fibrosis that could be attributed to asbestos. The same journal carried a report in 1928 on several post mortem verified cases of asbestosis amongst workers in the mills of the Rhodesian chrysotile mines.

³⁸ It was noted, at the International Labour Organization Conference on silicosis and other dust diseases held in Johannesburg in 1930, that a bill recommending the addition of asbestosis to the list of compensable diseases was before the British parliament.

These reports prompted the start of a detailed investigation by Dr E.R.A. Merewether (HM Medical Inspector of Factories) and C.V. Price (HM Engineering Inspector of Factories) in 1930. They placed before parliament a report that unequivocally demonstrated the link between exposure to asbestos dust and the development of a specific form of pulmonary fibrosis in workers in the asbestos textile industry. They had discovered that the incidence of asbestosis in British factory workers was 35%. The epidemiology was already beginning to emerge.³⁹ In the United Kingdom it was “evident by the mid-1930’s that ‘bystanders’ such as clerical workers in asbestos plants could develop asbestosis from years of relatively light exposure”. (Castleman, 1996: 517)

The first South African research

In 1926 George Frederick Slade was appointed as medical officer to a chrysotile asbestos mine in the Transvaal. Slade (1930: 24) describes working conditions in the mill in his subsequent thesis: “Several years experience of the mill has shown that the concentration of dust in the atmosphere in that building is at all times excessive, and frequently sufficiently so to render indistinguishable objects at a distance of a few yards. The mill works continuously day and night with the exception of Sundays. Thus the dust during working hours is never allowed to settle.” He goes on, “The dust is extremely fine. It is very tenacious and clings to the hair, faces and clothing of the workers whom it eventually covers with a uniform white film. Mill workers are divided into three shifts in the twenty four hours. They are thus exposed for continuous periods of eight hours to an extremely high concentration of asbestos dust”. A particular characteristic of asbestos dust is its propensity to remain suspended; it does not settle as easily, for example, as silica.

Slade’s investigation into the working conditions, and incidence of respiratory disease on this, unspecified, mine was the first to be recorded in the mining sector of the industry. Merewether’s investigation, also published in 1930, was into workers employed in the manufacturing sector of the industry. Significantly, Slade (1930: 59) commented, “whatever conditions with regard to dust evolution may exist in other asbestos mills in South Africa, the concentration of dust to

³⁹ The extremely dangerous nature of asbestos dust was already widely known in medical and industry circles in the 1930s. Literature that resulted from major studies of the biological effects of asbestos grew from the 1930s onwards. Yet, as Castleman (1996: 35) points out, “the scale of the fibre mined and used went up almost as if the medical literature did not exist” and “the major producers took concerted action to divide markets, assure continuity of raw fibre, and fix prices at the most profitable level”.

which the workers were exposed in the mill in which the present investigation was conducted, was, at all times extremely high. In comparison with this high concentration, that occurring in the various factories of the manufacturing branch in England, is very low." Yet Merewether in England had found a prevalence rate of 35%.

An investigation into the symptoms of a hundred mill workers was completed by Slade in 1929; "five Europeans and ninety-five natives" (1930: 42) with an age range of 17 to 50 and length of service varying from 3 months to 9 years. In three cases weight loss had reached 'emaciation'. It can be seen that all the workers were found to have asbestos bodies in their sputum, and had a cough. More than 45% of those with less than one year's service experienced dyspnoea on exertion. The findings can be seen in the following two tables:

2. Incidence of Important Symptoms, 1930

Length of Service	Number of Workers	Cough	Sputum: asbestos bodies.	Dyspnoea on Exertion	Weight Loss
3 mths - 1 yr	22	22	22	10	4
1 - 3 yrs	35	35	35	22	15
3 - 5 yrs	29	29	29	26	18
5 - 9 yrs	14	14	14	14	10
Total	100	100	100	72	47

Source: Slade, 1930: 47

3. Distribution of Incidence of Early and Advanced Physical Signs of Pulmonary Fibrosis, 1930

Length of Service	No. of Workers	No. Showing Early Physical Signs	No. Showing Advanced Physical Signs
3mths- 1 yr	22	8 (36%)	2 (9%)
1 - 3 yrs	35	22 (62.8%)	5 (14%)
3 - 5 yrs	29	16 (55%)	7 (24%)
5 - 9 yrs	14	5 (35.7%)	9 (64%)
TOTAL	100	51 (51%)	23 (23%)

Source: Slade, 1930

Despite these disturbing findings, of 23% showing signs of advanced disease and 51% showing early signs of disease, with a substantial percentage of those with under three years exposure showing early and advanced signs of pulmonary fibrosis, no further medical research into the health effects of chrysotile, nor of amosite, was undertaken in South Africa until 1960. Information on dust conditions, the 'killer dust', and the 'silently' increasing epidemic of asbestos-related disease, during the intervening 30 year period has to be gleaned from other sources.

'Killer Dust':

Dr Gerrit Schepers visited Penge in 1949. His description of the 'mist' of asbestos dust is reported by Flynn (1992: 193):

““One day I descended on an unscheduled mine in the eastern Transvaal. It was Penge. In the morning as we came down the valley there was a mist over the small mine town, a little morning mist. I didn't know until lunchtime that it was asbestos dust, but that is what it was. It was trapped in the area and had nowhere to go because of the lack of movement in the air currents at that time of the day. It was like that most days and it meant that there was asbestos dust absolutely everywhere in the mornings. For example we were eating some toast one morning and I remarked to one of my colleagues, "Goodness me, this is gritty marmalade". And then the penny dropped – it was asbestos dust we had been chewing.””

Schepers witnessed a child, of approximately 12, trampling down asbestos inside a sack. He described this to Flynn (1992: 193):

““It was his job to get inside the bag and trample down the fluffy asbestos. He was cheaper than machinery or safe sacks. He was covered from top to toe in asbestos dust so I grabbed him and took him off to the X-ray machine. The X-ray showed he was already suffering from asbestosis. I was told that Cape employed a lot more children and I gave instructions to my technician that he was to round up all the children in the village with the little Cape Asbestos copper identification bands riveted round their wrist – identification tags, just like slaves, so they couldn't run off. A number of the other children had asbestosis too. The conditions were unbelievable.””

Flynn (1992: 194) records that while officials were already 'worried' about the relationship between asbestos and cancer, it was the report, by Schepers and his technicians, of conditions at

Penge, to the Government Mining Engineer⁴⁰ that:

“caused a crisis of conscience in at least one senior official in the Department of Mines, T.L. Gibbs. Mr Gibbs took it upon himself to get the asbestos mines scheduled and controlled, at least in theory by government regulation. But he met with stubborn resistance from the mining companies who used all their power behind the scenes to make life difficult for him. Gibbs went out in the field in 1951 and was so worried by the hazardous conditions he saw that he took the unprecedented step in South African mining history of confiscating the main electrical fuses at a number of mines and paralyzing operations until some discussions and promises at least of a token clean-up were forthcoming. But the industry was poised on the verge of its huge, post-war expansion and Mr Gibbs and his anxieties were soon sidelined in the rush to profit from the booming world market. The result at Penge was nothing short of catastrophic.”

It was only in 1954 that the first blue asbestos mines were declared registered mines and were controlled under the Pneumoconiosis Act No. 47 of 1948.⁴¹ The registration of the other asbestos mines followed in the next few years. As these were the first steps taken by government in connection with regulating the asbestos mining industry, clearly “controls in the asbestos industry lagged decades behind those in the gold mines”. (Felix, 1997: 27)

Furthermore, self-regulation was relied upon. Legal standards for the concentration of asbestos in the air were not set, and then enforced, but were merely recommended as levels to be aimed at. The recommendation stood at 45f/cu.cm until 1973, whereafter it was revised to 12f/cu.cm. (Felix, 1997)

The South African Asbestos Producers Advisory Committee (SAAPAC), formed in 1971, worked with the GME to set permitted dust standards. In 1976 the GME wanted a limit of 5 f/cu.cm for all areas of the mines, but, with undertakings from the SAAPAC to lower dust levels, the GME set the limits at 5 f/cu.cm for underground work and 10 f/cu.cm for the mills. In 1981 this was reduced to 2 f/cu.cm and 5 f/cu.cm respectively. The mills were reduced to 2f/cu.cm in 1984, a uniform recommendation. (Felix, 1997) No distinction, however, was made between fibre types and the recommended limit applied to all types.

⁴⁰ Duncan (1995: 38) describes the responsibilities of the Government Mining Engineer: “to ensure the physical safety of those working on the mines or using machinery and explosives and to advise the government on technical mining matters. He was thus placed in the potentially awkward position of serving two masters – the immediate demands of health and safety and the wider requirements of the state in its relationship with the mining industry”.

⁴¹ This act was replaced in 1973 with the Occupational Diseases in Mines and Works Act (ODMWA)

It was only in 1987 that the Machine & Occupational Safety Act (MOSA) introduced the first statutory regulations governing exposure to asbestos with the exposure limit set at 1 f/cu.cm⁴². These regulations only governed the process and use of asbestos and did not apply to the asbestos mining industry (Kisting, 1987) which was governed only by 'recommendations'.

The severe lack of resources and staff in the office of the GME made regulation impossible.⁴³ As Mancuso writes "the mere adoption of regulations has no real meaning without the professional, industrial, and governmental resources and legal and moral determination to implement such regulations". (Castleman, 1996: xvii) Besides which, "the GME... was influenced more by the standards mine and mill owners were willing to accept than by the health risk posed by asbestos". (Felix, 1997: 50)

Actual fibre concentrations in the mills were between 10 and 400 f/cu.cm with typical fibre concentrations above 50 f/cu.cm. (Felix, 1997) The following table indicates the extent to which dust levels were above the recommended level:

4. Airborne Concentration of Asbestos In Transvaal Amosite Mines, 1940 –1977
(fibres per cubic cm in the mines overall averages)

Years	Surface	Underground
1940 – 45	234	7
1946 – 50	91	6
1951 – 55	103	9
1964 – 66	85	4
1967 –69	90	5
1970 – 71	40	2
1972 – 73	13	2
1974 – 75	23	1
1976 – 77	7	3

Source: Myers, 1980: 47

⁴² The MOSA control limit of 1f/cu.cm was five times as high as the United Kingdom control limit for crocidolite of 0,2f/cu.cm.

⁴³ In 1985 there were only 98 inspectors to cover all 'controlled' mines which had a total workforce of over 800 000. (Flynn, 1992). In 1997 the inspector/employee ratio in South Africa for all formal employment, excluding mining, was the worst of all developing countries considered by Benjamin and Greef – 1/58 274 for S.A. compared, for example, to 1/12 503 for Brazil. See *Report Of The Committee Of Inquiry Into A National Health And Safety Council in South Africa*, 1997, pages 132 – 136.

The extent to which South Africa was more lenient can be seen by looking at regulations in the United Kingdom and United States. The levels of 1969 had been thoroughly discredited by 1978 in the United Kingdom, and recommendations were made in 1980 for levels that were eventually adopted in 1983. The United States levels were 5f/cu.cm in 1971, 2f/cu.cm in 1976 and 0.2f/cu.cm in 1984. It can be seen that “so-called ‘safe levels’ vary at different times and between different countries, providing an illustration of how supposedly scientific decisions are affected by wider social and economic considerations”. (Doyal & Pennell, 1979: 79) The progressive downward revision of United Kingdom statutory regulations⁴⁴ can be seen in the following table.

5. The United Kingdom Asbestos Regulations, 1969 – 1984 (fibres/cu.cm)

	Crocidolite	Amosite	Chrysotile
1969	0.2	2.0	2.0
1983	0.2	0.5	1.0
1984	0.2	0.2	0.5

Source of figures: Castleman, 1996.

Irving J. Selikoff, a foremost authority in the field of asbestos epidemiology⁴⁵, held the view that cancer from asbestos could be caused by a single fibre; this was referred to as ‘the one fibre theory’. In other words there is no ‘threshold’⁴⁶ below which workers are protected from disease. Castleman (1996: 333) stresses that it should be recognized that 1f/cu.cm is equivalent to 1 million fibres per cubic metre of air. Dr Selikoff’s colleague at the Mount Sinai School of

⁴⁴ Media reports about asbestos-related cancer and pressure from trade unions prompted the U.K. government.

⁴⁵ Selikoff’s epidemiologic studies of insulation workers were published in 1964. He had found radiological evidence of fibrosis of the lungs in *half* of the 1117 insulation workers he examined. (Brodeur, 1985) He showed that these workers had a very high chance of dying from diseases such as asbestosis, lung cancer, mesothelioma and gastrointestinal cancer. At the New York Academy of Sciences Conference in 1965, Selikoff reported that radiological evidence of asbestosis was seen in 86% of the 392 insulators who had started in the trade more than 20 years before; 50% had extensive asbestosis. Insulation workers were generally working with only 15% asbestos; in other words, they had comparatively light exposure as the asbestos materials they used had an asbestos content of 15% (Castleman, 1996, Brodeur, 1985) Selikoff also looked at the families of men who worked in an asbestos factory in New Jersey in the 1940s and 1950s. He found that 40% had the kind of lung abnormalities that were common in asbestos workers. He also found three cases of mesothelioma as well as a higher than normal incidence of cancers of the lung and intestine. All these people had only been exposed to fibres brought home in the hair and on the clothes of the people who worked in the Paterson plant, some of whom had only worked there for a few days. (Doyal & Pennell, 1979: 76) As Felix (1997: 39) writes, “the blending of fibres outside mining localities and the transportation of asbestos to international markets created a trail of dust and, with it, a trail of disease”.

⁴⁶ The Health & Safety Executive in the United Kingdom wrote: “For all types of asbestos no ‘safe level’ of exposure could be identified” (Guidance Note EH10, Asbestos – Control Limits, 1984)

Medicine, Dr William Nicholson, "has suggested that the term "risk limitation value" is more appropriate in setting limits for asbestos exposure in the workplace". (Castleman, 1996: 356)

It could be concluded that there is no such "risk imitation value" for there is no evidence of a threshold below which disease does not appear. Aron and Myers (1987: 6) write, "A perusal of the history of the so-called 'safe level', which has to do with the setting of occupational exposure limits, demonstrates a world-wide tendency to continually revise these levels downwards as 'safe levels' are found to be unsafe. Hitherto all 'safe levels' have produced their crop of asbestos-related diseases. In other words no safe level has been demonstrated in terms of which prevention of all asbestos-related diseases is feasible." This well summarized by Aron and Myers (1987: 26): the "successive 'safe levels' had to await successive harvests of death, disease and misery before the previous safe levels were declared unsafe and downwardly revised. This grim harvest has never yet failed to appear for workers exposed to asbestos".

Dust levels in Sekhukhuneland in 1984

As has already been illustrated, dust levels at Penge were nowhere near the 'risk limitation value' for South Africa. The prevailing high dust levels⁴⁷, a critical occupational hazard, and the

⁴⁷ Dust levels and conditions at the Turner & Newall owned Havelock Mine in Swaziland are reported on by Tweedale (2000). A British government inquiry in 1974 'exploded the myth that British companies treated their African workers fairly'. It was revealed that there was wage discrimination, and that black workers were paid wages below the poverty line. Health was not mentioned. The wage issue, however, drew attention to the South African mines, and Turner & Newall's senior medical officer, Lewinsohn, visited Havelock in 1978.

There were 500 underground workers and 300 mill workers at Havelock. In his report Lewinsohn said: "I was in two minds as to whether I should enter the grading mill without the protection of a positive pressure respirator. Going through the mill to the storage shed and then through the shed was frightening. The operative sitting in a glass box and operating the scoop which feeds fibre to the conveyor was covered in fibre. I was astonished to see a man poking a blocked screw conveyor and creating clouds of dust all about him". (cited in Tweedale, 2000: 185)

T&N estimated that dust exposures before 1976 could have surpassed 100f/cu.cm - this had to be estimated as no dust samples had ever been taken. A technologist later reported: "An area which no longer exists, and had high dust exposures, was the 'old dusting and screening plant'....the description of this area by the expression 'appalling; visibility less than two metres,' is untranslatable into terms of meaningful dust levels. The 'worst job in the mill' has been described as cleaning out the main dust duct...using hand shovels. Throughout the mill, however, job practices were crude by modern standards and all employees must have had significant dust exposures." (cited in Tweedale, 2000: 185)

Thus, as late as 1978, conditions at Havelock were similar to the conditions in the T&N U.K. Rochdale plant in the 1920s. Collins reported in the SAMJ of a case of mesothelioma in a man seen at the Durban Chest Clinic. He had not been occupationally exposed to asbestos but had lived for a time in the 'vicinity of the Havelock asbestos mine'. (1967: 645) It is not unreasonable to expect that conditions at Cape's Penge mine were similar for Cape "apparently had an even worse health record than Turner & Newall". (Tweedale, 2000: 210)

Lewinsohn also visited the T&N asbestos products factories in Durban. He found that "workers and supervisors...had obviously not been instructed in the rudimentary elements of working in a safe and dustless manner". (Tweedale, 2000: 185) Black workers were described as eating their food while sitting on the floor amongst the dust. Here 600 workers were x-rayed and Lewinsohn found what he called an epidemic: 82 workers with asbestosis. (Tweedale, 2000: 185) A health study was completed at the Havelock Mine in 1979. 2 200 workers

absence of governmental intervention and regulation, became more apparent at the time of a strike over wages and working conditions at Penge in 1984.⁴⁸ Phillip van Niekerk of the Rand Daily Mail reported that the dust reports from the mill recorded several counts of 110 f/cu.cm, and one reading of 134 f/cu.cm for these surface areas. (8/8/1984) A reading of 130 f/cu.cm means that it was 65 times the recommended South African limit of 2 f/cu.cm, and 650 times the United Kingdom limit of 0.2 f/cu.cm. Dr Jean Leger from the University of the Witwatersrand reported, after a tour of the mine, that dust control technology that had been available for decades was only beginning to be introduced.

Environmental pollution was also reported on by the Rand Daily Mail, and health inspectors subsequently visited the affected areas. Lebowa's Director of Health, Dr A.M. Makunyane, "expressed extreme concern at the danger to people caused by abandoned asbestos dumps littering vast sections of the homeland east of Pietersburg". (RDM, 7/9/1984)

The GME did a dust survey in some of the densely populated areas of the abandoned dumps, and then maintained that "pollution by fibrous material was generally low".⁴⁹ (RDM, 11/9/1984). This was contradicted by the chief inspector, Mr L.W. Isserow, when answering questions at a Council for Scientific and Industrial Research conference on air pollution. He stated that most samples were around 20 000 f/cu.m, and one was substantially higher. Dr R.S.

were examined: 183 had asbestosis and 154 were possible cases. A further survey of the 178 wives of men employed for more than 15 years, revealed 12 cases of asbestosis and 10 possible cases. (Tweeddale, 2000)

⁴⁸ 1700 asbestos workers, members of the Black Allied Mining and Construction Workers Union (BAMCWU) were fired at Penge in June 1984. (RDM, 11/7/84) Myers *et al* (1987: 659) wrote: "Unionization of asbestos workers has had to be fought for every inch of the way as workers have had to contend with some of the most conservative and anti-union employers in the country.....Gencor's style in dealing with worker grievances is to employ force (police), dismiss workers, and employ new migrant workers, thereby dismissing the problems, along with the workers. The company has responded in like manner on several occasions. As a result of this anti-union stance, organization on the asbestos mines has been minimal." There was little public knowledge about safety in the mining industry prior to the emergence of the National Union of Mineworkers in 1982. As Flynn (1992: 196) describes it: "Instead with five-star rating schemes and creative use of statistics, the Chamber of mines had complete hegemony in mining matters, saying all was well. There was no-one to challenge their claims to be world leaders in the field of safety".

The 1984 strike was a protest against wage levels as well as demanding that the union, BAMCWU, be recognized. They were dismissed for failing to return to work and were forcibly removed from the hostels. (RDM, 1/7/1984)

⁴⁹ The only action taken by the GME. Mr S.P. Badenhorst, was to close down a 'brickworks' that was making bricks out of an abandoned tailings dump. He said that "his office had found a number of contraventions of the law by brickmakers and vendors on the dumps. It is considered the contraventions were committed in ignorance and that prosecutions would serve no useful purpose". As Phillip van Niekerk (RDM, 11/9/1984) comments "they are the only people whom the GME considers responsible for breaking the law in an area of widespread pollution".

According to the GME the asbestos fields were not covered by the provisions of the Atmospheric Pollution Prevention act. (RDM, 11/9/1984) There were no prosecutions for the excessive dust levels at Penge. In the files of the GME, for all asbestos mines, there are only three warning letters and one proposal to prosecute which was not carried out. (Felix, 1997)

du Toit, of the GME's air quality section, had recently published a paper maintaining that a figure of 1000 fibres per cubic metre had been recommended by experts as a safe environmental level. (RDM, 25/10/1984) The environmental readings were thus 20 times higher than this. Researchers had already estimated that 200 000 people were exposed⁵⁰

The environmental engineer of GEFCO, Mr D.J. Selles, reported, at the same conference, a count of 11 000 f/cu.m at a mine hostel, and described it as "very high". He maintained, in his paper, that the reason for such a high reading in the hostel was "the workers who still disregard company rules on hygiene"! Two of the readings taken 100 metres away from the mill showed counts of 600 000 and 300 000 fibres per cubic metre. Although he stated that this could have been caused by a "still unprotected tailings dump", he answered, when questioned, that "it was most likely caused by the mill." (RDM, 25/10/1984)

The response of the mining companies "to demands for safer and better working conditions from their employees have included large-scale victimization, dismissals and strong resistance to unionization of their workers". (Aron & Myers, 1987: 2) As was written by Meyers *et al* in the *International Journal of Health Services* (1987: 655): "Unfortunately, the historical role of the asbestos industry in promoting its self-interest and delaying and obstructing the process of regulation at all stages leaves little confidence in its ability to monitor itself with any integrity."⁵¹

⁵⁰ The United States Environmental Agency removed 130 people from their mobile homes in Globe, Arizona in 1983 – they were evacuated due to their proximity to an old chrysotile asbestos mine and dump, which had been covered with soil. (RDM, 7/9/1984) Far from action being taken in Sekhukhuneland to remove people the opposite occurred – people were moved in. Several farms containing asbestos dumps were sold by US Steel, Turner and Newall, and Egnep to the South African Development Trust for incorporation into Lebowa. These farms were "soon to be the scene of large scale resettlement by blacks". (RDM, 1/9/1984) Egnep sold Bewaarkloof in May 1984 to the S A Development Trust for R250 000, and, although vegetation had been planted on the dump, it was reported that "fibres continue to spill onto the road". (RDM, 1/9/1984) Black resettlement at Bothashoek, near Penge, involved the provision of 330 acres for 3 600 families. (Packard, 1989: 274)

⁵¹ Drs Rodney Ehrlich, David Rees and Yosuf Veriava were subject to such 'obstruction'. Baldwin-Ragaven *et al* write in *An ambulance of the wrong colour* (1999: 29): "Health professionals who sought to achieve redress for workers adversely affected by unhealthy working conditions were themselves targets of harassment. Simply providing a clinical service to workers was in itself seen as subversive enough to attract state harassment. In the early 1980s, three doctors who were part of an occupational health team examined former workers from an asbestos mine near Penge, in what was then the Bantustan of Lebowa. The purpose of the visit was to identify workers with possible occupational disease in order to help them apply for compensation. Bantustan security forces arrived while the doctors were busy examining the workers, stopped the examinations and arrested one of the doctors (the only one who was black). The history of labour relations in South Africa is one of collaboration between mine management and security forces, aimed at disrupting legitimate labour action. In this particular case a double tyranny was visited on the ex-miners, first by their vulnerable condition as mine labour, then by local agents of the state who were threatened by anything that may have provided even small recourse to these miners".

'Polluting' the Cancer Research:

Only three papers on asbestosis were presented at the 1959 International Conference on Pneumoconioses held in Johannesburg. Two of these, however, were extremely significant. An important paper by pathologist J.C. Wagner, from the Pneumoconiosis Research Unit, was published for the first time. It was one of the most important research papers to emerge both in South Africa and worldwide.

Wagner's research dealt with the occurrence of mesothelioma in the northwestern Cape Province. Together with a paper by C.A. Sleggs, it was shown that some of these tumours occurred in people who had not had any industrial exposure to asbestos but who were merely living in asbestos producing areas. Castleman (1996: 531) writes, "the full horror of asbestos contamination of the environment suddenly became apparent in 1960, with the report that a rare form of cancer (pleural mesothelioma) was rampant in the crocidolite mining region in South Africa. Worldwide attention immediately focused on this rare disease, which became known as a signal tumour for asbestos exposure generally".

Wagner and Sleggs' survey⁵² revealed 33 cases of diffuse pleural mesothelioma and indicated, for the first time, that environmental exposure to asbestos posed a serious health risk. The evidence that 'slight exposure' to crocidolite could cause mesothelioma was now overwhelming.

Wagner, when traveling in 1958, had discussed his research with other medical experts and executives of Cape Asbestos. He wrote: "The directors of the companies showed some interest but assured me that I was following a line of research which seemed to them of little value, and that I would be advised to follow other lines of investigation." (Castleman, 1996: 123) Wagner, however, called for further research to be done in the crocidolite mining districts, as well as for an urgent radiological survey to be done at the amosite mines in Sekhukhuneland.

⁵² Flynn (1982: 238) writes, "Wagner's investigations went further. He found unbelievable conditions at the mines and mills in the area. The roads on these huge properties were made of loose asbestos waste. There were great plumes of blue dust over the mills. The industry used unlined bessian sacks, cheaper to fill than impermeable ones, and every time the sacks were moved and loaded or unloaded, asbestos dust escaped from them. In places, the asbestos was separated from the rock by the most dangerous and primitive method, hand labour by women often with their babies strapped to their backs. Immense dumps of milled asbestos waste, heavy with fibre, lay open to the wind. People who had lived in the area for short periods, or who had simply passed through, were developing mesotheliomas. In short, there was a public health disaster on a truly terrible scale in the blue asbestos mining areas of the Northern Cape".

Suppression of data by research institutions

The Pneumoconiosis Research Unit's work began in 1960, and showed that "even after the most critical re-assessment of the findings.....people who live or have lived in the areas of Prieska, Koegas, Kuruman and Penge are in danger of contracting asbestosis even though they have no industrial exposure to asbestos dust inhalation....These discoveries now make it imperative for both the Department of Mines and the industry to assess present dust control and disposal methods and to take immediate steps to attempt to effectively deal with the hazard." (Flynn, 1982: 239)

The response of the mining industry was to withdraw funds for research: "as a result of certain deliberations at the end of the first year of the survey, it was decided that the financial contributions of the Industry and the Cancer Association would not be renewed". (PRU, 1964: 3) The CSIR/PRU Report of 1964 was marked "Restricted", and was only available to sponsors and those immediately involved in the research survey. The X-ray unit was recalled to the Department of Mines, fieldwork ceased, and an attempt was made to discredit the scientists involved and to delay publication of the findings. The suggestion was made by the asbestos mining companies and the Chamber of Mines that publication would be allowed "if the cancer hazard was passed off throughout as tuberculosis". (Flynn, 1982: 239)

As a 1962 report of the PRU explained: "The unfortunate publicity that was given to the survey in its early days has resulted in certain mining groups feeling that reference to a form of cancer has attached a stigma to the area in which they operate, and that such stigma could adversely affect not only the future recruitment of personnel for their mines, but even the economy of the industry as a whole. While emphasizing that this Unit realizes its obligation to humanity it is desired to point out that it will endeavour to continue what is regarded by us as necessary research as discretely as possible and with due consideration of all policies which may be involved", and any further work "would now be called 'An Investigation into Possible Air Pollution by Asbestos Dust' with no direct reference to any possible relationship to the term mesothelioma". (Flynn, 1982: 239) Dr Wagner resigned to continue his work on the relationship between asbestos and cancer at the Pneumoconiosis Research Unit in Wales.

These attempts, in the 1960s, to suppress research were not the last. A paper by Dr Leslie Irwig, of the National Research Institute For Occupational Diseases³³, and seven other scientists, was read at a New York Academy of sciences conference on environmental hazards in 1978. This paper dealt with the risks of contracting asbestosis from crocidolite and amosite and “reached the entirely uncontroversial conclusion that.....the risks from crocidolite and amosite are more or less the same”. (Flynn, 1982: 237) For many years an attempt had been made by the asbestos companies to maintain that amosite and chrysotile were much ‘safer’ than crocidolite.

Dr Irwig’s second paper, *Mortality from asbestos related disease in South Africa*, mentioned cancer, and concluded that people “living in asbestos producing areas (but not necessarily working in the asbestos industry) died more often than usual from cancer. The New York Academy of Sciences, which for years had periodically brought together the leading scientists in the asbestos field, was not destined to hear this important paper”. (Flynn, 1982: 237) The paper was “a relatively uncontroversial scientific paper that demonstrated an excess of cancers among people who live in asbestos mining areas”. (Flynn, 1982: 238) Irwig, and his co-author, Dr Hannes Botha, were ordered, by Professor A.J. Brink, President of the South African Medical Research Council (MRC), not to read the paper.

The South African Asbestos Producers Advisory Committee had seats on the advisory panel of Asbestos Research Project which was part of the MRC, and was thus in a position to censor research. Clearly the mining companies did not want evidence disclosed of the link between asbestos and cancer. The MRC maintained that the paper was denied publication “in the best interests of science”. (Brink, 1983) The paper eventually found a publisher in the American Journal of Epidemiology in 1986.

As Laurie Flynn (1992: 199) has pertinently put it, “the asbestos companies, besides polluting the environment, were now polluting the science of the subject as well”. Flynn (1982: 238) further comments: “every act of suppression is injurious to the scientific process as a whole. From the point of view of the victims of suppression, it has the effect of depriving them of the scrutiny, criticisms and advice of other members of their profession, all the more important in

³³ This became the National Centre For Occupational Health (NCOH)

this case because there are no other qualified epidemiologists working for the government in the field of occupational and environmental health”.

The demands of profit and safety are generally in conflict. The asbestos tragedy clearly reveals how the demands of the mining industry, and their profits, determined the research agenda. The failure to prevent disease was not a failure that resulted from deficient knowledge of the dangers of asbestos. As Baldwin-Ragaven *et al* (1999: 131) have written, “research findings inconsistent with the interests of the state or corporate sector could be manipulated, suppressed or censored, while research that was ideologically congruent with apartheid was easily published in the *South African Medical Journal (SAMJ)*”.⁵⁴ The Truth And Reconciliation Report (1998, Vol. 4: 126) in a section on the misuse of scientific and medical information states:

“Medical expertise and information should be used to heal patients and develop new methods of prevention, treatment and cure. They can, however, be used against people in destructive ways. Many people view scientific data as ‘fact’, although taken out of context or misrepresented, such data can be used for unethical purposes and have adverse outcomes.”

In the case of asbestos, as will be seen in the following chapters, the suppression of medical information has had severely ‘adverse outcomes’. Most significantly, the TRC Report (1998, Vol. 4: 36) also commented, in the section “Institutional Hearing: Business and Labour”⁵⁵:

“Mining is, of course an inherently dangerous occupation. However, there appears to be some evidence that profitability ranked higher than people’s lives – as evidenced

⁵⁴ In 1979 Dr Rodney Erhlich was requested to do research examining the socio-economic profile of racial groups “in order to contextualise the devastating differences in health status” – this was to accompany research by MRC epidemiologists Irwig and Wyndham into the inequalities evident in available mortality data. Dr Erhlich was ideally placed to contribute to such research – he had a degree in economics and was a medical student. Yet it was not destined to be published – “Dr Erhlich was told that the MRC would not permit its publication, because it contained too many citations from the South African Institute of Race Relations (SAIRR) handbook. He was also given to understand that, in the eyes of the MRC, medical practitioners who read the SAMJ would be ‘put off’ by material that was seen to be too political. Dr Erhlich’s conclusion was that ‘the MRC was governed by conservative forces concerned to avoid anything that might be seen as too critical of the status quo’”. (Baldwin-Ragaven *et al*, 1999: 138-139)

⁵⁵ It is regrettable that these hearings were not more substantial. The socio-economic legacy of apartheid was something of an ‘add-on’ in the TRC process – it was put into what were called “institutional and special hearings”. An emphasis on reconciliation incorporating socio-economic redress was present at the beginning of the TRC process, and, at the end. The TRC’s final report did link the socio-economic and justice agenda’s, but perhaps the link remains at the level of rhetoric. The actual hearings of the TRC focused almost entirely on the civil rights abuses of the security forces and the liberation movements. In other words, the focus was on what one individual did to another individual. The institutional hearings on business and labour were over in a few days. Likewise were the health sector hearings. The TRC clearly did not do enough to establish the fundamental need for socio-economic redress. Every so often attention is again drawn to the imperative of socio-economic redress – this was done by Constitutional Court President Arthur Chaskalson in his Bram Fischer Memorial Lecture in May 2000, a portion of which is cited at the beginning of this dissertation.

by the asbestos scandal and the continued use of polyurethane in mines long after the dangers had become known. It is regrettable that more details were not forthcoming on health and safety issues from the Chamber of Mines or the Anglo American Corporation”.

Clearly, for decades, there was no effective restraint in the asbestos mining industry in South Africa. The delay in the passage of laws to cope with the hazards, combined with woefully inadequate government enforcement of the few ‘regulations’ that did exist, and a conspiracy, by company doctors, industry consultants and key occupational health officials, to suppress knowledge of occupational health hazards, has resulted in an occupational and environmental health disaster. It is long overdue that the individual and community tragedies be counted, and that a concerted effort be made to apply proper epidemiological methods.

CHAPTER FOUR

“I LEARN’T FROM THIS TIME THAT ASBESTOS IS DANGEROUS”⁵⁶ – IMPROVING THE DISEASE PROFILE

For some areas and periods of history, and especially for the rural reserves or Bantustans during much of the period under study, we are often looking through a glass darkly. Occasionally, however, we are able to pierce the darkness created by the biased distribution of South African health resources and statistics and explore, in some detail, the ways in which political and economic development have intersected with biological processes.

(Randall Packard, White Plague, Black Labor, 1989: 21)

The lack of epidemiological data on asbestos-related disease formed part of a far larger lack of vital statistics on health in South Africa. Baldwin-Ragaven *et al* (1999: 23) write that “very little attempt was made to collect valid and reliable data on births and deaths for blacks” in South Africa; the National Health Services Commission of 1945 under Dr Gluckman had noted that there were no vital statistics for four-fifths of the population and that “by the 1970s very little had changed”. They go on to say that Wyndham, in a 1981 SAMJ paper, “noted that neither mortality rates for nor the age distribution of the black population could be calculated directly from the Department of Statistics reports”. (1999: 23) More specifically, Wyndham reported “12.1 per cent of deaths for Africans was due to ‘ill-defined’ diseases compared to 4 percent in Indians and ‘coloureds’ and 1 per cent in whites”. (Baldwin-Ragaven *et al*. 1999: 23)

The poor collection of vital statistics deteriorated as the policy of ‘separate development’ was intensified, and “vital statistics became even more fragmented and less complete. Botha and Bradshaw (1985) examined vital statistics for Africans from 1979 to 1980: symptoms, signs and ill-defined conditions accounted for 20 per cent of deaths, and were the primary cause of death noted for men and women over the age of 45 years. This proportion was found to be particularly

⁵⁶ Said by a sixty-five year old man who started working at Penge in 1948 at the age of 12, moving to other asbestos mines from 1953, and then working again at Penge from 1968 to 1974. He said he was never told of any dangers and only learn’t at the time of a medical examination, which detected that he has asbestosis, in 1996. He received R10 200.00 in compensation. He had extensive asbestos corns - embedded fibres - in his hands and feet. (Interview, January 2000)

high in the Bantustans of Kwazulu, Gazankulu, Lebowa and Qwa-Qwa". (Baldwin-Ragaven *et al*, 1999: 23) Clearly, as Packard (1989: 21) writes, "the exclusion of the majority of blacks from the statistical record has been part of an effort to remove black health problems from view".

As has been noted, Slade's work showing a high prevalence of asbestos related disease was done in 1930 with little more done in this area for a further 30 years until the constrained, and then curtailed, PRU research. Sluis-Cremer⁵⁷, of the same Unit, did two studies in Sekhukhuneland in 1965 and 1970. He published his autopsy findings on the lungs of 64 "Bantu miners who died while working on the asbestos mines" (Sluis-Cremer, 1965: 230) of the Pietersburg fields⁵⁸. These miners were, in fact, all from Penge. They had died of either injury or pneumonia and other infections, and Sluis-Cremer found an asbestosis rate of 80%. The second study of 139 deceased miners found a rate of 60%. All the cases had had a significantly low number of years of exposure. Sluis-Cremer's findings are presented in the following table:

6. Post-mortem findings in Penge miners, 1959 – 1969

	Number	Number with Asbestosis	Percentage: Asbestosis	Mean Age: Years	Mean service: Years
1959 – 64	64	51	80	43	4
1965 – 69	139	89	60	45	6

Source: Sluis-Cremer, 1965 and 1970.

It is interesting to note that Sluis-Cremer acknowledged that he was "indebted to the secretary for Mines for permission to publish this paper". (1970: 233) As Felix (1997: 7) succinctly comments, "the repressive influences of mining magnates and a non representative government emasculated independent research". Despite the startling findings of these post-mortems more than another 20 years were to pass before proper prevalence studies were undertaken in this part of the country. In the period leading up to the emergence of this independent research in the late 1980s and 1990s, the only attention paid to the asbestos mines of Sekhukhuneland was that of

⁵⁷ G.K. Sluis-Cremer died of mesothelioma. Asbestos-related disease has taken its toll on the staff of the NCOH as well. Dr R.E.G. Rendall died in 1998 of mesothelioma. He was Head of Hygiene at the NCOH, and, while working at the NCOH's predecessor the National Research Institute for Occupational Disease (NRJOD), was responsible for the preparation of samples of the various types of asbestos being distributed worldwide for animal research. These samples were milled at the NRJOD.

⁵⁸ The Pietersburg Asbestos Fields stretch from Penge in the south, northwest to Mafefe and further north to Bewaarkloof.

two investigative journalists, Laurie Flynn and Phillip van Niekerk, whose work has also been relied upon in the previous chapter.

Some indication of disease levels was revealed in 1984 by the Rand Daily Mail. It was discovered that while the company GEFCO publicly claimed only 13 cases of asbestosis in its annual report for 1982, the mine's internal figures for that period revealed that there had been 79 cases in that year, and the mine manager's report commented that there was a steady increase in the incidence of asbestosis. The average age of the cases was 44. Of significance was that 10 cases between 1980 and 1982 were less than 30 years old, and that more than half of the total number of cases had worked for less than 10 years. Even more significant was the fact that "among those listed as having contracted the disease are security guards, drivers, telephone operators, estate labourers and a caddie". (RDM, 8/8/1984) A report by a Penge manager, H.E. Fouche, revealed 780 *recorded* cases of asbestosis between 1973 and 1983. (RDM, 8/8/1984) These recorded cases could be expected to be a small fraction of the actual number of cases.

Mmafefe:

At the time of the media attention given to conditions in the asbestos mines, a senior official in the GME's office, which had recorded details of mining activity in Mafefe since the 1930s, said: "I didn't even know Mafefe existed". (Felix, 1991: 41) The NCOH initiated a study of this community. It was "pioneering in its attempt to document, as accurately as possible, ambient environmental asbestos levels and the prevalence of asbestos-related disease in a rural area in South Africa". (Felix, 1997: 1) It was the first real assessment of the health impact of asbestos exposure in the Pietersburg Asbestos Fields.

This seminal research began in 1987 with a demographic survey, continued with a medical survey in 1988, and did extensive atmospheric sampling. The aims were to help to educate the community about asbestos, to ascertain ambient asbestos fibre levels in the environment, and to record the levels of asbestos-related lung disease in the community. It was found that one in five people had had occupational exposure, and the medical survey was extended to assess this exposure along with those who had had only environmental exposure.

Felix (1991: 39) describes the skepticism of the community when first approached: "Community meetings were held in 1987 to discuss the NCOH's planned work. At one such meeting, when the Moshate (community hall) was jam-packed, an old man sprang to the floor demanding to be heard: 'Why should we believe in a young white woman when the men we worked with never warned us against it?'"

In all the current interviews it was repeated over and over that they were not told at the mines that asbestos was harmful⁵⁹, and that even when given respirators they were not told why it was necessary to wear them. They said that they did not know 'until this time', meaning the 1990s, that asbestos could cause disease. Many mentioned that they had first found out 'from Maandagshoek' that it was the asbestos that had caused their illness. One man said in relation to dusty conditions: 'That was how we were working and that was how we thought it should be'. Another said, with ironic laughter, 'We used to enjoy singing and dancing on the asbestos dumps'. (Interviews, January 2000)

Environmental contamination

Zacharia Mabiletje has written about how the people of Mmafefe plastered the walls of their houses blue or white, with a mixture of asbestos and cowdung: "The walls shone with this serpentine fibre: the killer dust". (Ramphlele & McDowall, 1991: 89) Asbestos from the dumps was used in bricks for private and public buildings, it was spread on playing fields and roads, brought back to homesteads by livestock grazing and lying in the vicinity of the dumps and "in the rocky terrain the fine-textured dumps were informal playgrounds for children". (Felix, 1997: 107)

The demographic study identified 1 780 households. It appears that asbestos was extensively used as a building material: 643 houses were found to be contaminated with asbestos in the building materials, 401 had bricks containing asbestos tailings, 461 were plastered with the mixture of asbestos tailings and cow dung, and 317 households had a pile of asbestos tailings in

⁵⁹ Tweedale (2000: 141) reports that, in the United Kingdom, "workers were also kept in the dark and Turner and Newall did little to publicise the health hazards of asbestos. The quarterly staff magazine, *Firefly*, which was launched in 1952, contained no mention of asbestos disease or any health warnings during its entire publication run until 1968. Its pages regularly listed obituaries, many of them workers who had died from asbestosis. Yet this was never mentioned, though the company's internal documents allow us in retrospect to find a sinister meaning in phrases such as, 'died after a fairly long period of illness'." It is thus not surprising that third world workers were 'kept in the dark' for another 20 years.

their yards. Of the 34 public buildings, 18 were contaminated, including 7 of the 12 schools. It is pertinent to remember that this is a mineral that is “indestructible”. Roads were repaired with asbestos waste, and asbestos on the roadsides was widespread. None of the dumps, created by the mines disposing of their waste, were ever fenced. (Felix, 1997)

The fibre concentrations in the water sources were also found to be very high. It was shown that contaminated clothing could create airborne asbestos fibres, particularly when being washed. It was noted that children, on average, were exposed to the highest asbestos fibre concentrations. This is significant as medical research has shown a substantially increased risk of developing disease the longer the fibres are in the lungs. (Castleman, 1996)

The results of the atmospheric sampling survey revealed that 69% of the fibre concentrations measured in Mmafele fell between 1f/l and 10f/l and that “a lifetime in Mmafele could result in a lung burden of amphiboles in excess of lung burdens necessary to induce mesothelioma and benign pleural disease.” (Felix, 1997: 119) The mean ambient environmental fibre concentration recorded in Mmafele in 1988 was 11.5f/l, with 18% of the readings higher than 20f/l.

Through strategic sampling, all the presumably secondary sources of asbestos in public places were found to have comparable fibre concentrations to the primary source, that is, the tailings dumps. Felix (1997: 123) concludes: “the majority of the villages in Mafefe have secondary sources of asbestos. Strategic sampling revealed that these secondary sources increase ambient fibres concentrations to levels comparable to fibre concentrations recorded in close proximity to asbestos tailings dumps”. She further concludes that the findings of the environmental study suggest that simply “living in Mafefe was sufficient for the development of pleural changes”. (1997: 141)

The medical survey

The medical survey assessed the pleural changes in the adult population exposed, both occupationally and environmentally, to amosite and crocidolite. As already noted “this was the first time most residents realized the potential hazards of that exposure”. (Felix, 1997: 125) The random sample consisted of 681 adult participants: 432 women and 249 men. (The larger number of women was indicative of absent men either working as migrants or away seeking work.) Two radiologists agreed that 291 (44%) of a group of 665 had pleural disease.

Prevalence of disease amongst the occupationally exposed group was 52%, while that amongst the environmentally exposed group was 34%. Thus one in two of occupationally exposed adults, and one in three of environmentally exposed adults in Mmafele had asbestos-related pleural disease. One in ten had extensive bilateral pleural changes. Some of the results of the medical survey are presented in the following table.

7. Chest radiograph changes as reported by three readers – Mmafele, 1988

Radiograph Changes:	Reader 1		Reader 2		Reader 3	
	Number	%	Number	%	Number	%
Circumscribed plaques	144	22	89	13	99	15
Calcified plaques	195	29	195	29	196	29
Pleural plaques	269	41	247	37	260	40
Diffuse pleural changes	89	13	99	15	162	24
Combined pl. changes	287	43	278	42	325	49
Tuberculosis	63	10	73	11	51	8

Source: Felix, 1997

Most importantly, Felix (1997: 88) comments, “the large sample and good response rate to the medical survey was such that the results are epidemiologically representative of the Mmafele adult population as well as generalizable to similar villages contaminated with asbestos in the Northern Province.” She concludes that “in many other villages in the adjacent Sekukuniland occupationally exposed people would have the profile of asbestos related disease as seen in the occupationally exposed group in Mafefe”. (1997: 155)

The research in Mmafele, together with the earlier media focus, finally “drew the attention of government authorities to the necessity for an asbestos abatement programmed”. (Felix, 1997: 89) It led to the start of the reclamation of the asbestos tailings dumps in 1991, undertaken by the Institute For Ecological Rehabilitation at Potchefstroom University. Their latest report (2000) indicates that reclamation work on all the sites around asbestos mines in South Africa will cost R95.3 million. Thus far R34.5 million has been spent by the Department of Minerals and Energy. (Asbestos Prioritization Report, 2000) Some sites have been rehabilitated, others have been partially rehabilitated and many have had no rehabilitation at all. Work has happened sporadically, as and when funds have been available.

Penge has been ‘rehabilitated’. It was reported, however, by a nurse at the now refurbished and public Penge Hospital that a ‘fine white dust’ is common inside the building. She maintained

that the area was still contaminated, and that people are “taking their chances”. (Interview, January 2000) The old mine property is far from abandoned; the school appeared well attended, shops were open, the mine houses occupied and cattle grazed in the streets and hillsides.

The present government carries the costs of this reclamation work while the asbestos mining companies, who created the problem in the first place, are not held liable. Once again costs are externalized. The implications of such externalization are summarized by Sachs (1999: 168):

“The illusion that growth can be relied on as a positive-sum game could be sustained because the costs associated with it remained invisible for a long time. What rendered them largely invisible is the fact that they have been successfully shifted elsewhere. Indeed, the novelty brought home by the environmental crisis is the recognition not that growth injures nature but that unpleasant consequences can no longer be kept at a distance. After all, the creation of economic value has always been the art of internalizing benefits and externalizing costs. How benefits and costs are separated out, and who is able to retain the first while shifting the latter elsewhere is obviously a matter of power; it is for this reason that power has always been an essential ingredient of value creation. Reaping value is made much easier when – mediated through power – a gradient can be established that makes the benefits accrue to the center and costs slide off to the periphery”.

The costs to the ‘periphery’, the mineworkers and the inhabitants of the contaminated rural areas, have now been partially recorded by the Mmafefe study. The Maandagshoek Programme continues this account of the negative externalities of asbestos mining in Sekhukhuneland.

The Maandagshoek Programme:

The foundation data of the Mmafefe study have been expanded through further work in the area. In 1991, during a period of sabbatical leave from the NCOH, Professor Tony Davies investigated services available for occupational lung disease and/or tuberculosis in Mpumalanga and parts of Northern Province. He concluded that the provisions of the ODMWA were not applied. A clinic was initiated in November 1991 at Groothoek Hospital to provide a service for ex-mineworkers. It ran for three days each month and was staffed by medical officers from the NCOH. This initiative would later be expanded to intensive 6 month programmes in the Maandagshoek⁶⁰ health ward run by Professor Davies. Knowledge of this opportunity for

⁶⁰ The Maandagshoek Health Ward is in the south eastern part of Northern Province, in the southern part of Sekhukhuneland. It is almost entirely rural as the small towns of Burgersfort and Steelpoort are close but are in Mpumalanga. The total population is estimated to be 250 000 and is ethnically homogenous. (Davies *et al.*, 2000)

medical benefit examinations was disseminated by community based committees in Mmafele, Mathabatha and Malokela⁶¹.

Davies (1992: 3) writes, "however rapidly socio-economic change for the better takes place in South Africa, the poorest people will continue to be those living in the 'homelands'. The poorest segment of the community is least well served by health and educational services, and in addition carries the heaviest burden of disease and ignorance. It may be important to discuss in some detail the introduction of effective systems of health care, particularly for chronic and communicable diseases, as an essential component of any development strategy."

The stated intention of the Maandagshoek programme was simply to do what had never been properly done before: report cases of occupational lung disease in former miners. A total of 2 205 applicants for benefit examinations were seen in 1996, with a further 2000 remaining on the booking lists that had been compiled by the staff of H.C. Boshoff Hospital and surrounding clinics. As Felix (1997: 21) states, "the numbers seen represent only a small proportion of cases in the district".

Analysis of data on 770 women showed that over 90% had clinical asbestosis. Of the 761 who had been occupationally exposed to asbestos, 80% having worked as cobbers⁶² on the mines, none had been examined since leaving the mines. The average length of service on the mines was 10.8 years. Clinical diagnosis of asbestosis was made in 741 (97.4%) cases. Furthermore lung cancer was found in two and there were two possible cases of mesothelioma. Of the nine women who had had no occupational exposure to asbestos, 2 had asbestosis, and another three had pneumoconiosis from other mine work. Only 24 of the 770 women were found to have no lung disease. (Davies *et al*, 2000)

It was found that 274 of the women were widows⁶³ of men who, they said, had died of respiratory disease. It is clear that "the exact prevalence of asbestosis, in particular the more

⁶¹ Random selection of persons from the community, and such community based facilitation, is vital in this area as no records of asbestos miners, comparable to the TEBA recruitment records, are available. (Davies)

⁶² Blasted ore from the mine was dumped and 'cobbers' worked on the waste rock heaps, sorting and hammering by hand to remove the asbestos fibres. Women who were cobbers often had their babies on their backs or their toddlers with them. (Interview reports, 2000)

⁶³ Deirdre Davies writes: "At every clinic we do, there are a number of widows of miners who died uncompensated. While many have quite comprehensive documentation, others have none. All say that their

severe grades of the disease, will never be known, as we are investigating a survivor group from a population for which vital statistics, including death certificates, are non-existent." (Davies *et al*, 2000) Again it is a case of "history tells us".

Irwig *et al*'s 1979 study showed that 34.3% of white amosite miners in this area, with more than 15 years exposure, had radiological pleural abnormalities. In view of the fact that black miners comprised up to 95% of the workforce and worked in far worse conditions, the number of cases diagnosed by the Maandagshoek Programme come as no surprise.

The Malokela Occupational Health Committee did a follow up study of the occupationally exposed cases, and recorded that approximately two thirds were subsequently certified with either first or second degree asbestosis by the MBOD. Approximately one third, although diagnosed with asbestosis, were not accepted by the MBOD. A further follow up study was done of compensation outcomes in a sample of 173 who had been certified as having compensable disease. It was found that only 107 (62%) of these cases had received their financial compensation 18 months to 2 years after application was made. 66 were still waiting for compensation. Those applicants certified as First Degree received an average of R13 924.00, and those with Second Degree R30 266.00. (Mafokane *et al*, 1999)

The Maandagshoek Programme continued for another six month period from April to September 1998, examining a further 1 800 applicants. The total number now seen for these benefit examinations, including the monthly Groothoek clinic, is as high as 8000. Once examinations are completed, and a diagnosis made, based on a history of occupational exposure, clinical findings and radiological appearances, the relevant forms and the x-rays are forwarded to the MBOD. The compensation outcomes of this process are variable. Many are rejected as not having compensable disease while others are still waiting to hear from the Commissioner.

The programme is now in its third period running from April to September 2000, and is covering Penge and H.C. Boshoff Hospitals, Mecklenburg Health Centre and four clinics. Professor Davies reports that an important improvement in the provincial health service has occurred with the appointment of qualified occupational health nurses to posts at Groothoek and H.C. Boshoff

husbands 'returned from the mines coughing' and eventually died of what can only have been respiratory disease". (1999: 13)

Hospitals, and Mecklenburg Health Centre. The intention of the Maandagshoek Programme has been “to report as many former mineworkers as possible using the hospital and clinic facilities in the area” as there is an “almost inexhaustible reservoir of occupational lung disease in the rural areas”. (Davies, 1997: 4) A fourth six month programme is planned for 2002.

Of all the pneumoconiosis cases reported to SORDSA in the first two years of its existence, 84% originated from the southern region of Northern Province. 67% of all the cases of lung cancer with pneumoconiosis originated from the same region. (Sordsa News, December 1998 – January 1999) The majority of these cases were reported by the Maandagshoek Programme as there are only two other SORDSA reporting doctors⁶⁴ who recorded only 89 out of the 1672 cases reported from the Northern Province. As Davies (1998:8) comments: “It is clear that we are dealing with a huge problem which has contributed to the extreme poverty in the area. I have said in the past that this may be the poorest part of the poorest province, and that we are working in the largest reservoir of asbestos related lung disease in the world, particularly among women. There is no readily available data to prove or disprove these statements, but both imply research opportunities.”

Closure of the World’s Last Amosite Mine – Penge:

The Griqualand Finance and Exploration Company Limited’s (GEFCO) Annual Report for 1991 disclosed that asbestos sales were 26% lower than 1990, and that unsold stock increased 46%. The market was, by now, mainly a far Eastern and north African one. It was noted that “asbestos production cost increases for the group were kept rather low due mainly to savings on unit costs arising from severe rationalization at the Penge Amosite mine”. (1991: 5) The rationalization at Penge “worked extremely well and the mine was able to produce at the same level as the previous year at a net decrease of some 8% in unit costs”. (1991: 5)

Chairman H.P. Hart (GEFCO, 1991: 6) wrote that “demand for the group’s amphibole fibres remains under pressure from environmental groups and Government authorities in many of the major market areas. These actions are in most cases spurred on by the concerted activities of

⁶⁴ Gauteng has 75, Western Cape 39, Kwazulu-Natal 48, Eastern Cape 19. The Northern Cape has 3 and Mpumalanga 4. (Sordsa News, Dec. 98 – Jan. 99, Vol 2 No 4)

chrysotile fibre producers who have a vested interest in discrediting amphibole fibres".⁶⁵ The rejection of a ban on asbestos in the U.S.A.⁶⁶ was welcomed as "positive for the future of the remaining asbestos industries". (GEFCO, 1991: 7) It was, however, acknowledged that the loss of the main market for amosite was "a severe blow to the future of the Penge mine and its continued operation in 1992 is in doubt". (GEFCO, 1991: 7) Planning, in fact, was "in place for closure during 1992 should the market shrink to below economic levels". (GEFCO, 1991: 7) Penge still operated at a profit in 1991, and the group results show income at R3.2 million with earnings per share at 8 cents. The latter was substantially down from 24 cents in 1990 and 66 cents in 1989.

Mining ceased at Penge in 1992 as amosite sales dropped by approximately 50%. The last ton of amosite was produced on 26 June, and "all assets pertaining to that operation are currently being realized". (GEFCO, 1992: 7) No awareness of the real costs of the levels of asbestos disease left behind is revealed in the Chairman's opening paragraph which says that "all that remains after nearly eighty years of operation are the memories". (GEFCO, 1992: 5)

What actually remains is far more than 'memories' of successful mining operations. What has been left behind are very high prevalence levels of asbestos-related disease, an increasing incidence in the years to come, and a contaminated environment. These costs are not calculated in the annual financial statements of GEFCO which record R6.9 million as an "extraordinary item" of income, and the "result on discontinuance of mining operations". (GEFCO, 1992: 13) The "successful marketing of most of the remaining amosite fibre stocks resulted in a positive contribution to profits from the group's asbestos section". (GEFCO, 1992: 5) The group results for 1992 show that earnings per share were 7.8 cents with a dividend of 3 cents and that the group achieved a profit after tax of just under R3 million for the year. The remaining 'few thousand tons of amosite' were sold in the first quarter of 1993. (GEFCO, 1992: 6)

The question of safety was dispensed with in the 1991 Annual Report with one sentence: "A safe working environment for all employees continues to receive the full attention of the

⁶⁵ It was claimed in the 1992 Annual report that "blue asbestos sales suffered from the depressed state of the world construction industry and shortage of foreign currency in some major market areas". (Gefco, 1992: 5) No mention was made of the real reasons - awareness of the dangers of this amphibole fibre and the ban on crocidolite in many countries. Japan, belatedly, banned the use of amosite in Calcium silicate boards in 1988 (Castleman, 1996)

⁶⁶ Asbestos is now banned in Sweden, Iceland, Norway, Denmark, Finland, Netherlands, France, Switzerland, Germany, Italy, Austria, Poland, Belgium and Saudi Arabia. (Castleman, 1996)

management”.⁶⁷ (GEFCO, 1991: 6) The same single sentence covering ‘safety’ was repeated in the 1992 Annual Report, along with a few paragraphs on environmental rehabilitation which maintained that Penge would be ‘permanently rehabilitated’. (GEFCO, 1992: 6) The fact that there had been anything but a ‘safe working environment’ would be revealed by the Industrial Health Research Group’s 1992 audit of Penge.

The Industrial Health Research Group has undertaken screenings and audits of workers in asbestos mines. These were mainly done at the request of the National Union of Mineworkers. Over a five year period these audits revealed inadequate record keeping, inadequate occupational histories, poor quality x-rays and lung function tests, inadequate training of medical staff, varied availability of industrial hygiene measurements and poor information on compensation outcomes. Not surprisingly, in view of this long list of inadequacies, a large percentage of workers carried a “heavy disease burden”. (Kisting *et al.* 1997) The prevalence of asbestos-related disease amongst retrenched workers in the crocidolite mines of Kuruman was found to be 21 to 39%, and 28 – 36% at chrysotile mines. The only amosite mine that was screened was Penge at its closure in June 1992. The prevalence rate here was 45%. (IHRG, 1993)

The objective of the medical screening of recently retrenched workers at Penge was to determine the presence of asbestos related disease on chest radiographs, to evaluate lung functions, to document the history of workers exposure to asbestos dust, and to submit those with disease for compensation.

A total of 591 workers had been retrenched. Of these 23 did not have medical records available for assessment, and a total of 568 were reviewed. The age breakdown of these workers is shown in the following table. Two doctors with experience in reading chest radiographs for asbestos related disease, reviewed medical records that included personal details, exposure histories, chest x-rays and lung function tests. The chest radiographs were compared with the ILO set of Standard Radiographs for Pneumoconiosis, and the ILO classification was used to grade each chest x-ray for both pleural and parenchymal disease.

⁶⁷ To be fair, there was also a mention, on the subject of occupational safety, that “the refurbishing of the mills in the Kuruman area included considerable expenditure on dust control”. (Gefco, 1991: 6) Nothing more was said about occupational health – in an industry that for decades had been regarded as extremely hazardous.

8. Age Distribution of Penge Workers, 1992

AGE	PERCENTAGE
21 – 30	16.1
31 – 40	33.3
41 – 50	32.5
51 - 60	16.7
60 -66	1.4

Source: IHRG, 1992.

The age breakdown of 565 workers was analysed as ages for 3 workers had been found to be incorrect and they were thus excluded from analysis. The mean age was 41.10 years. The following table shows duration of exposure, calculated from the time of first employment at Penge. Company records were missing or incorrect for 31 workers, and they were thus excluded. The mean exposure duration was 14.43 years, more than half had had 15 years exposure, and 135 had had over 20 years exposure.

9. Duration of Exposure in Penge Workers, 1992

Duration of Exposure : Years	Number of Workers
1 – 4	92
5 – 9	78
10 – 14	66
15 – 19	155
20 – 24	77
25 – 29	40
30 – 34	18

Source: IHRG, 1992

Prevalence of disease. An ILO grading of greater than or equal to 4 is considered to be established asbestosis. The medical screening diagnosed 208 workers to have asbestosis of the lung parenchyma. 89 of these 208 also had pleural disease. 51 were found to have only pleural disease. Thus a total of 259, or 45%, of the workers had asbestosis. This was broken down into a prevalence rate of 37% for parenchymal fibrosis and 24.6% for pleural fibrosis. A further 110, or 19%, were diagnosed as borderline cases. (IHRG, 1992 and 1993)

The total number graded at 3, indicating borderline asbestosis, was 137. Of these 27 also had established pleural disease and are thus included in the total number eligible for compensation. The remaining 110 are regarded as requiring annual follow-up examinations. Importantly, as the IHRG (1992: 8) report states in its recommendations, “particular attention needs to be paid to those who have been assessed as borderline for asbestos related disease”. The parenchymal disease results are presented in the following table.

10. Prevalence of Parenchymal Disease in Penge Workers, 1992

Diagnosis	ILO Grading	Number	Percent
Normal	2	221	39
Borderline	3	137	24
Abnormal	4	155	27
Abnormal	5	38	6
Abnormal	6	6	1
Abnormal	7	5	1
Abnormal	8	2	0.4
Abnormal	9	1	0.2
Abnormal	10	1	0.2

Source: IHRG, 1992

The IHRG report noted that lung function testing had been done at the mine by the company sister every two years. However, none of the measures could be used as “the machine had not been calibrated daily and this has produced incorrect tests. Importantly, the 1 second time signal was completely incorrect. All measures calculated from time are grossly incorrect”. (IHRG, 1992: 7)

As regards industrial hygiene data it was noted that the company had kept this data “for many years”, as well as doing environmental monitoring in the town. The IHRG report was released stating that “we have requested this data from the company and are awaiting a response. We need this data to evaluate the dose of fibre that has resulted in the disease profile that we have seen at Penge”. (1992: 8) The lack of readily accessible industrial hygiene data, or a reluctance to pass this data on, indicates that Gefco management was not paying the “full attention to a safe working environment” that it claimed in its Annual Reports.

It was found that the company had submitted 155 cases of asbestosis related disease to the MBOD for compensation. The outcome had been 103 compensated, 41 rejected and 11 pending. The IHRG identified a further 167 who were eligible for compensation and whose cases should be submitted to the MBOD.

In the IHRG's recommendations emphasis was placed on "ongoing medical care and compensation for workers who become ill from asbestos disease at a later stage in their lives". (1992: 8) To this end it was recommended that "each worker should be sent a letter which states that they have been exposed to asbestos dust. It should also explain that ex-employees are eligible for benefit examinations". (IHRG, 1992: 8) The importance of this, aside from workers being poorly informed about the dangers of asbestos, as well as being poorly informed about the compensation system, stems from the fact that asbestosis is a progressive disease and one which can have a long latency period. Those whose chest x-rays were read as normal or borderline in 1992 could, and are likely to, find that they have an abnormal reading in the years ahead.

The Mmafefe research, the Maandagshoek detection programme and the IHRG audit of Penge all "pierce the darkness created by the biased distribution of South African health resources and statistics" (Packard, 1989: 21), and give a far better idea of the high prevalence levels of asbestos-related disease in Sekhukhuneland. Importantly, as stated by Felix (1997: 155) subsequent to the extensive Mmafefe research, "the results of the demographic, atmospheric and medical surveys are generalisable to the villages throughout the Pietersburg Asbestos Fields and the three villages linked to Penge mine". This statement has been borne out by the Maandagshoek detection programme.

These belated surveillance programmes have substantially improved on the almost total neglect of the area that lasted until 1987, and they have expanded the severely limited data sources that were previously available. The doctors involved, however, would be the first to acknowledge that such coverage is far from comprehensive in what is increasingly recognised as the 'largest reservoir' of asbestos-related disease in the world.

CHAPTER FIVE

“THIS IS NOT MY NATURAL BODY” – CASES OF MORBIDITY AND DEATH

While the development of capitalism may have facilitated an improvement in the general health of the population (as measured, for example, in life-expectancy rates), the health needs of the mass of the population continue to come into frequent conflict with the requirements of continued capital accumulation. This produces contradictions which are ultimately reflected in historical changes in patterns of morbidity and mortality.

(Lesley Doyal with Imogen Pennell, The Political Economy of Health, 1979: 23)

For those caught up in it, cheap labour was an incredibly costly system.

(Mahmood Mamdani, Citizen and Subject, 1996: 228)

Behind the, now improved, statistical data are individual men and women, and their families, who have been pushed into ill-health and desperate poverty. The importance of health cannot be over-emphasised. Dr Trevor A. Lloyd Davies, Senior Medical Inspector of Factories in the United Kingdom has stated, “A workman’s capital is his health – without it he is bankrupt”. (cited in Castleman, 1996: 839) The case study of this research comprised 22 former Penge mineworkers of whom 17 were men and 5 women. In one instance the miner concerned was deceased, and his widow and children were interviewed.

The ex-mineworkers ranged in age from 49 to 80. They were all asked about diagnosis and symptoms. Medical certificates, viewed in all cases, revealed that they had *all been diagnosed only since 1995*. 2 were diagnosed in 1995, 12 in 1996, 5 in 1997 and 3 in 1998. All, however, had been ill from a much younger age and for a far longer period. Comparing the dates of diagnosis to the dates of the start of their illness confirmed the extensive delays in the identification of their disease.

Symptoms were observed in each person and described, by themselves and by other family members. These interviews were slower than they would have been in the absence of respiratory illness as frequent pauses were required due to breathlessness and recovery from bouts of coughing. They were mostly conducted under trees in the yards of their homes. When

documentation was fetched from indoors the trip took an inordinately long time. Clearly minimal exertion was strenuous.

The medical identification of their disease is presented in the following table. It should be noted that the various kinds of asbestosis are frequently defined on MBOD certificates as 'pneumoconiosis' without further specification as to exactly which kind. The Act itself does not specify the different kinds of asbestosis as 'compensable disease' but merely lists 'pneumoconiosis'. Hence many of those interviewed had 'pneumoconiosis' down on their MBOD certificates.⁶⁸

11. Diagnosis of 22 ex-Penge Mineworkers in Sekhukhuneland, 2000

Pneumoconiosis 1 st Degree	Pneumoconiosis 2 nd Degree	A.I. 2 nd Degree	A.P. 1 st Degree	A.P. & I. 1 st Degree
13 (59%)	2 (9%)	2 (9%)	2 (9%)	3 (13%)

AP & I: Asbestosis Pleural & Interstitial

AI: Asbestosis Interstitial

Symptoms observed and described are presented in the following table. The symptoms of the deceased miner were described by his wife. He was diagnosed as having asbestosis pleural and interstitial in the first degree, and was compensated as such shortly before he died. It would appear, however, from the description of his condition, that his disease had progressed to second degree, and he should thus have been re-examined, and further compensated if second degree had been diagnosed. Furthermore, a post-mortem could have revealed progression to 2nd degree asbestosis pleural and interstitial. None of this occurred.

12. Symptoms of 22 ex-Penge Mineworkers in Sekhukhuneland, 2000

	Dyspnoea	Moderate Cough	Chronic Cough	Loss of Weight	Emaciation	Pain
Number	22 (100%)	4 (18%)	18 (82%)	9 (40%)	5 (22%)	22 (100%)

Dyspnoea: breathlessness

⁶⁸ "PN", according to the MBOD, refers to "Pneumoconiosis consisting of Silicosis, Coalworkers Pneumoconiosis and Asbestosis" (MBOD, 1999/2000) The SORDSA project has reported that of the diseases ascribed to asbestos 79.2% were described as pneumoconiosis, 6.5% as Chronic Obstructive Pulmonary Disease (COPD) + Pneumoconiosis, 5.5% as tuberculosis + pneumoconiosis, 3.2% as pleural plaques, 2.3% as mesothelioma, 1.1% as pleural disease and 2.3% as other. The industries from which these cases originated were mining (87%), the asbestos industry (8.5%), power stations (1.2%), building and roads (0.9%) and other industries (2.3%). (Sordsa, August 1999: 4)

It can be seen that all suffered dyspnoea and pain. Many described their nights as filled with fever, pain and coughing. The only medication in their possession consisted of paracetamol tablets (usually the Panado brand), and two had ordinary non-prescription cough mixture. All described this medicine, not surprisingly, as being of little assistance in the alleviation of their symptoms.

One woman, diagnosed with asbestosis in the second degree, was interviewed in the tuberculosis ward of H.C. Boshoff⁶⁹ Hospital on 26 January 2000. She described this as “the tenth year of my illness”. Her last work had been on a tea farm which she had left when she was physically unable to continue working. Although only diagnosed in 1996 she had been ill with respiratory disease since 1990. She had been admitted to the hospital in 1996, twice in 1998 and twice in 1999. Admittance in December 1999 recorded her weight as 32 kilograms. She was re-admitted on 23 January 2000 weighing 30 kilograms. A doctor’s report noted ‘extensive pleural disease due to asbestos exposure’, and a danger of ‘cardiac failure secondary to lung disease’. (H.C. Boshoff Hospital records) She turned 49 on the 15 February 2000, and died at her home in Diphale village in Driekop exactly two months later, on 15 April 2000.

Her work comprised the off-loading of asbestos bags at Marico Minerals Station, a goods shed extension of Penge where asbestos was stored for transport by train. She had also lived at Penge mine as a girl, and described playing on the dumps and swimming in the river, adding that they ‘were only girls and didn’t know the dumps were dangerous. The adults didn’t know the dumps were dangerous’. Her mother, grandmother and grandfather all worked at Penge. She commented, ‘I think my mother, my grandmother and my grandfather died because of asbestos. They were working there for a long time and they had the same sickness’.

A Sample of Undiagnosed Illness:

Five of the many people who, unsolicited, sought the author out had worked at Penge Mine. These four men and one woman were seeking assistance. None of them had had chest x-rays but now suspected, with the increased knowledge in their communities, that their illnesses had been caused by working with asbestos. The woman (55) was working as a cleaner at a local lodge and had worked at Penge as a domestic worker, during which time four of her children had been

⁶⁹ This hospital opened in 1955 as a Missionary hospital, then becoming the Montrose Mine hospital and subsequently a public hospital. It presently has 150 beds and is seriously under-resourced. It was referred to by most as the Maandagshoek Hospital.

born. She described the 'first born' as now 'sick and coughing'. Her husband (52) had worked 'breaking stone' underground at Penge, and was described by her as very ill and unable to work. She was extremely thin, coughing intermittently, and said, 'I thought it was Penge when I was first sick'.

The first man (50) had worked at Penge from the age of 20 in 1970, packing asbestos into sacks. In 1979, while working underground, he was crushed in a rockfall. He described how a very large rock had crushed his legs and chest. His injuries had clearly been severe; he had a mutilated knee, extensive and very large scars on his legs and back, and a pronounced 'limp'. After recovering in hospital and returning to surface work, he was dismissed in 1980 with a diagnosis of tuberculosis. His compensation for the injuries sustained in the accident was R350.00. He has managed to support his wife and four school-going children since then as a painter. However, he described himself as 'always tired and coughing', and fearing that he would soon no longer be capable of working. He also described the people in his village, many of whom worked in the asbestos mines, as 'not alright. They go slowly, slowly, slowly'.

The second man (47) had worked at Penge as a cook from 1977 until it closed in 1992. He was presently working as a gardener at a local lodge. He said he had 'learned from Maandagshoek that asbestos was dangerous' but had not had any chest examinations. His comment of conditions at the mine in 1992 was that 'even though the dust wasn't so bad then it had already condemned us'. He also feared that he would soon lose his job through his ill-health.

The third man (51) had worked loading asbestos sacks from 1974 until 1979. He did some farm work for a few years thereafter, found himself too ill to continue and had been unemployed since. He was emaciated and spoke with difficulty. The fourth man (60) described himself as 'growing big at Penge', and then working there 'a long time'. He had many asbestos 'corns' in his hands and feet. He said he had been unable to continue farm work due to the condition of his feet, and his coughing. He had never had a chest x-ray.

These people reflected a certain stoicism in regard to their health. They were obviously ill yet had not sought medical treatment. May, Woolard and Klasen (2000) comment on presentations from the South African Participatory Poverty Assessment: 'reliance on a respondent's own perception of his or her health status often leads to biases since better-educated individuals are

typically more concerned about their health status and report being sick even if they suffer from comparatively minor ailments. In contrast, health awareness among poorer groups is often lower and leads to a lower reported incidence of ill-health, despite objectively worse health indicators". (May, 2000: 37) These undiagnosed people support this insight. They also gave a very real indication of substantial levels of unidentified disease in this area.

'The Hospital at Maandagshoek':

Dr Mbala Mampunima, Superintendent of H.C. Boshoff Hospital at Maandagshoek, reported four cases of mesothelioma since his arrival at the hospital in 1995; the youngest was 27 years old and 'he passed away one month after prognosis'. This young man had worked at Penge for only four years. At the time of visiting there was one mesothelioma case in the wards. This was a man in his mid-thirties who was too ill to be interviewed. Five staff members, two nurses, two clerks and a kitchen assistant, who had all once worked at Penge, had 1st degree asbestosis. Every three months these staff members receive a chest x-ray, and if succumbing to any respiratory infection they receive antibiotics. They managed to work 'more or less normally' but experienced a lot of chest pain. Treatment was only symptomatic in that it was the treatment of the complications of the disease. (Interviews, 24 January 2000)

Dr Mampunima described prognosis as variable. He said that some with 1st degree could work but that this 'depended very much on the type of work' as in most instances even minimal exertion could lead to breathlessness. Those with second degree could be 'breathless at rest'. He added that stress can also cause a much faster deterioration in the condition of asbestosis sufferers. Good nutrition is very important as 'those with poor nutrition deteriorate faster'.

The significance of this can immediately be seen – the majority of asbestosis sufferers interviewed experienced very poor nutrition; their diet consisted almost entirely of maize meal with mogoro, or wild spinach, when available, as the general supplement. Dr Mampunima described the people in the area as generally having a very poor nutritional status. This was particularly so amongst the children; 'the nutritional status of the children is very bad.' There were four cases of kwashiorkor (severe protein deficiency) in children in the hospital at the time of the interview, and there were 6 deaths in 1999. He said that in some the cases the 'children are discharged and two weeks later they are back'. (Interviews, 24 January 2000)

Asbestos fibres in the skin, mainly the hands⁷⁰ and feet, were described by Dr Mampunima as a good sign of how long the patient had been working with asbestos. If there are asbestos ‘corns’ the length of time is generally longer than four years. He described problems with the digestive system as one of the things ‘which can lead us to asbestos disease’. Heart problems were another indication.

A staff doctor, Dr David Kgwedi, who grew up in the area and was doing his community service after having studied at Medunsa, described the treatment of the patients with asbestosis as ‘only palliative. We can only give them cough mixture and painkillers’. He confirmed the perception of the area as one of the poorest in the Northern Province. (Interview, 24 January 2000)

Health Infrastructure:

Northern province has the fourth highest concentration of people in South Africa. The 1996 Census gave the population as 4,9 million, and estimated that the population would be 5,4 million by 2000. It has the lowest urbanized population at 12%, and the third highest population density at 42.2 per square km. When selected health personnel are considered, as in the following table, Northern Province reflects lower ratios than the national average, comparing unfavourably with the rest of South Africa.

13. Health Personnel in the Public Sector – Northern Province & S.A., 1994 and 1998 (per 10 000 population)

Health Personnel	Northern Province		South Africa	
	1994	1998	1994	1998
Nurses	21.2	30.6	25.1	32.4
Doctors	0.6	1.5	2.5	2.9
Pharmacists	0.1	0.22	0.2	0.37
Dentists	0.1	0.06	0.1	0.12

Source: DBSA, 2000.

There are 49 public and private hospitals providing only 2.6 hospital beds per 1000 people. One indication of constraints on resources is that the H.C. Boshoff Hospital stopped ante-natal HIV

⁷⁰ The clinical aspects of asbestosis were emphasized by Dr Meiklejohn at the 1959 Pneumoconiosis Conference in Johannesburg. He reported in the *Proceedings*: “A workman refused to be examined. He said he knew quite well how to diagnose asbestosis. He took me to the factory and asked the workers to hold out their hands. He picked out those with ‘clubbing’ and said that these had the disease. I followed this up and found it to be correct”. (cited in Castleman, 1996: 723) ‘Clubbing’ refers to the area behind the finger bed (nail) becoming raised and spongy. It is indicative of chronic suppurative lung disease.

testing in 1998. (Interview, Dr Mampunima, 24/1/2000) The incidence rate of certain diseases is higher in Northern Province than for South Africa as a whole: the incidence rate (per 100 000) for measles is 4.48 for Northern Province and 2.50 for South Africa, and typhoid is 1.83 for Northern Province and 0.99 for South Africa. (DBSA, 2000) The infant mortality rate is 53.9, while it is 41.0 for South Africa as a whole.

Tuberculosis has a lower incidence rate at 42.9; South Africa has a rate of 206.40. (DBSA, 2000) However, these official tuberculosis statistics might be far from the real incidence as a result of incomplete notification. Davies reports on a 1991 study by Dr T.P. Newson at Jane Furse hospital which found 200 cases of tuberculosis between January and September in that hospital alone. The official notifications for Lebowa, which had 17 hospitals, was only 360 for the same year.

The district health service

Two studies have been done of the district health service in Sekhukhuleni. The first of these was published by Edginton *et al* in the SAMJ in 1972. They looked at 538 patients admitted to the medical wards over a sixteen month period at the Jane Furse Memorial Mission Hospital. Almost fifty percent were diagnosed as respiratory conditions. Davies (1997) notes that, despite these findings, along with one case of mesothelioma, this report made no mention of asbestos mining in the area which was at the height of its production at this time.

Reeve and Faulkner carried out a similar study, considering 997 patients, at this same hospital over a twelve month period in 1982/83. Of these 489 or 40.8% were admitted for respiratory conditions: tuberculosis in 273, 15 with pneumoconiosis alone, and the rest with other respiratory diseases.

Davies (1997: 10) states, "there is little doubt that lung disease is a major burden on the district medical services and is intimately related to, and inextricably mixed with, the consequences of occupational exposure among migrant workers and those employed in local mineral exploitation, such as the asbestos mines".

Occupational Health Facilities

The mines are covered by the Mine Health and Safety Act which is administered by the Department of Minerals and Energy. Occupational health and safety legislation as a whole, however, straddles the Departments of Health, Labour⁷¹ and Minerals & Energy. The Department of Health is responsible for promoting occupational health, managing the National Centre For Occupational Health (NCOH), and for managing the statutory obligations under the Occupational Diseases in Mines and Works Act (ODMWA) that relate to health services. The statutory obligations require ensuring occupational disease surveillance under the MBOD. It is the MBOD which has the responsibility of improving access. Added to the many inherited problems which the Department of Health has to deal with is that of a lack of occupational health services at provincial, regional and district level.

Prior to 1994 all benefit medical examinations were centralized at the MBOD in Johannesburg. The MBOD Annual Report of 1998/99 claims to have 'improved service delivery' through 'increasing the accessibility of benefit medical examinations in the provinces' through the public district hospitals; thus far in the Eastern Cape, Northern Cape and Northern Province. It appears, however, to still be a highly centralized bureaucracy. Although access in Northern Province has improved it still remains severely limited. MBOD examinations can only be obtained in Northern Province at H.C. Boshoff and Mecklenburg hospitals or through one of the three authorized private practitioners. The financial accounts of patients seeing these private practitioners are sent through to the MBOD. One such authorized doctor in Lebowakgomo is only permitted to do 40 benefit examinations per month, while he receives 40 applicants per week. (Spoor, Interview, 3 August) In other words, the MBOD will only accept and pay for 40 per month while the rest are turned away.

Dr Meyer, a second authorized doctor, said, in a telephone interview on 3 August 2000, that on average 20 to 30 people arrived daily at his practice in Pietersburg, and that he had already seen 76 benefit examination applicants three days into the month. His monthly quota was only 200. In 1999 his quota was 112 per month. Once 200 x-rays have been done, the others must wait until the following month. Dr Meyer added that there "was a great demand coming in from the rural places" for the benefit examinations which ex-miners were entitled to. He said that in most cases

⁷¹ The Dept. of Labour administers the Occupational Health and Safety Act (OHSA) which excludes the mines.

these people had traveled long distances only to be sent home again, and told to return the following month. Clearly there is need for more private practitioners to be authorized by the MBOD to do examinations⁷², and for the limit set on the number that can be done to be lifted. This need is certainly self-evident in those parts of the country that mined and milled asbestos.

Dr Meyer estimated the asbestosis rate for his practice at 10 – 15%. In other words up to 30 per month were forwarded to the MBOD for compensation for asbestos-related disease. Other cases forwarded were mostly pneumoconiosis resulting from work on gold mines. The radiologist, Dr Piet Van Zyl, said he saw at least one case daily of asbestosis in white patients who had no history of occupational exposure. (Interview, 3 August 2000) If there is this level of asbestosis, seen while x-rays are being done for other reasons, in white patients not occupationally exposed, then it can reasonably be predicted that a much higher incidence exists in black people who have been environmentally exposed.

Jeebhay and Jacobs note that specialist occupational medicine services for public sector patients are only present in Gauteng, Western Cape and Kwazulu-Natal, and that the majority of the workers seen at these clinics are referred by either private workplace-based occupational health services and private hospitals and doctors; only 20% are referred via the public sector health services. They write, “While all the provinces provide some form of occupational health service, none of them have fully functional occupational health units (with occupational medicine and hygiene expertise accompanied by compensation advice service) for public sector patients as defined in these documents.⁷³ Dedicated diagnostic and rehabilitative capabilities have not been established at regional level. There is however evidence of sporadic occupational health activity at district level in some provinces, but this remains underdeveloped”. (Health Systems Trust, 1999: 270)

No provincial specific data with which to assess whether there has been any increased surveillance coverage in the historically poorly serviced areas are available from the MBOD. As a result, it is extremely difficult to assess whether there has been any improvement in

⁷² The 1999/2000 MBOD Annual Report states: “the MBOD has 75 general practitioners spread across South Africa and five private hospitals rendering medical examinations on its behalf” (4)

⁷³ This footnote is my insertion – the documents referred to are Department of Health documents: Report of the Committee on Occupational Health (1996), Occupational Health and the White Paper on transformation of the Health System (April 1997).

occupational health services in specific areas. The SORDSA, however, reveals substantially increased reporting from the Northern Province, reflecting the detection efforts of the Maandagshoek Programme.

As already mentioned, the only alternative at the local level for former mineworkers is the services of private medical practitioners who 'have entered into an agreement with the MBOD to render these services.' (MBOD, 1999) The costs of the consultation and x-rays are covered by the MBOD but frequently, in addition to the substantial transport costs that are incurred, these examinations can not be accessed due to the number of doctors authorized by the MBOD being severely limited, and the number of patients they are permitted to examine being restricted.

Accessing private doctors outside of the small MBOD pool is not viable in poor rural areas. As already noted there are only 1.5 doctors per 10 000 people in the Northern Province, just under half the national average. More importantly, consultations with private doctors are beyond the means of most ex-mineworkers, as are the costs of x-rays. The ODMWA does state that "whenever a medical practitioner in the Republic considers or suspects that any person medically examined or treated by him, who has to his knowledge worked at a mine or works, or who he believes on reasonable grounds to have so worked, is suffering from a compensable disease, such practitioner shall forthwith communicate to the director his findings at the examination, and shall on demand by the director furnish such further information at his disposal in regard to the health of such a person as the director may require". (Act 78 of 1973, 33(1))

The pivotal role of doctors in the diagnosis and detection of occupationally-related disease is clearly very significant. They are pivotal in that they decide what is disease, what is disability and what is job-related. They also need to be able to inquire into possibly long-forgotten exposures to asbestos, and to be knowledgeable of the ODMWA in order to assist those who are unaware of their rights.

If these limited chances of recognition of asbestos-related disease fail in an individual's lifetime there is one last chance of identification - diagnosis in the form of a post-mortem after death.⁷⁴

⁷⁴ The ODMWA does state that a medical practitioner who attends "a deceased person at the time of or immediately before his death, or who has opened the body of a deceased person" and who knows or thinks that the person worked at a mine or works, should send the cardio-respiratory organs "to the bureau or any other place specified by the director". (Act 78 of 1973, 34 (2))

However, as Felix (1997: 19) writes, “most deceased white miners have post mortems, but no follow up system is complied with for black mine workers. In practice, it is generally only black workers who die whilst in employment who have the statutory post mortems”. It is admitted by the MBOD, in relation to the “cardio-respiratory organs of deceased miners submitted for pathological examination”, that “the majority of submissions are from the mines”.⁷⁵ (MBOD, 1999/2000: 16)

The 22 ex-mineworkers interviewed were ‘fortunate’ to have, eventually, received medical attention and to have been diagnosed. This small redress, however, does not automatically mean that compensation is on the way. As will be seen in the following two chapters, the first obstacle, that of access to health services for detection purposes, is but the first in a long and difficult process that does not always culminate in monetary recompense and, if the ‘guaranteed’ compensation is received, the payment amounts do not approximate a reasonable livelihood.

⁷⁵ 2 689 “Deceased Certified” cases were reported on by the MBOD in 1999/2000. A racial breakdown is not given for these. 124 were certified as 1st Degree, 322 as 2nd Degree, and 59 as TB. In the pneumoconiosis category: 59 were certified for the first time with 1st degree, and 35 were certified for the first time with second degree ie as “Deceased New Certifications”. “Deceased Upgraded Certification” of pneumoconiosis (previously graded NCD) comprised 25 certified as 1st Degree and 18 as 2nd Degree. Additionally, 29 cases of mesothelioma were also only discovered on post mortem. (MBOD, 1999/2000) These cases were clearly missed, while the miners were alive, by the medical services. Disturbingly, the MBOD Report comments: “The numbers of cardio-respiratory organs of deceased miners submitted for pathological examination to the NCOH is declining. The factors are multifactorial. This may partly be due to the declining numbers of active mine workers as well as lack of ‘postmortem’ services at provincial district hospitals. In some Provinces, certain funeral undertakers have agreed to offer the removal of heart and lungs of a deceased former mine worker if the family give consent. The MBOD pays R150 to the service provider. The employer is required to remove these organs, with the consent of the family by the ODMWA. The majority of submissions are from the mines”. (MBOD, 1999/2000: 16)

CHAPTER SIX

“IT WAS NOT ENOUGH TO CARE FOR MY WHOLE LIFE” – THE COMPENSATION DISPENSATION

Adequacy of compensation has never been a guiding principle of British Workmen's Law. Payments thereunder have always been regarded, with some justification as contributions wrung from employers, who collectively and individually insisted upon the 'principle' that the injured workman should shoulder a part of the loss arising from circumstances, which, in most cases, were wholly beyond their control.

(A. Wilson & H. Levy, Workmen's Compensation, cited in Tweedale, 2000: 59)

The widow who was interviewed had lived with her husband at Penge for 15 years. She said that she was now ill, and, when she had money for transport, she would go to Maandagshoek for a medical examination. Her husband had worked as a clerk at Penge. She had held on to his old 'dompas' or Reference Book – all the mine stamps, under “Labour Bureau, Efflux and Influx Control and Registration”, revealed that he had worked at Penge for 20 years: from 12 April 1958 until 14 January 1978. Illness was the cause of his dismissal in 1978, and he returned home to Selala where his wife was with their 8 children. He was 46 and never had a job again.

She described a life of struggle: ‘I trust in god. It is not to say I managed to support. I struggled.’ All of her children except the ‘last born’ had had to leave school to seek work. Four of her children were born at Penge, and she described them as ‘playing on the asbestos dumps and playing with the sorting’. She was expressed anxiety about her ‘third born’ son who is now constantly coughing.

Her husband was ‘ill from 1978’, and ‘very ill from 1986 until his death’ at the Jane Furse hospital in 1998. She said that she spent most of her time looking after him in the last years of his illness: ‘I had to help him to dress, to wash and to eat. It was like that for five years.’ In the years before his death he had frequent, and lengthy, periods of being bedridden. She commented that, before he died, ‘he lay for six months. You couldn’t look at him’.

His first examination for lung disease was at the MBOD in Johannesburg in 1995, some 17 years after the onset of his illness. She stated, 'We only realized about the asbestos when he was examined in 1995'. They had been informed by the Tuberculosis Officer at H.C. Boshoff Hospital, Albert Debeila. Certification from the MBOD of a compensable disease was only received in October 1997, and compensation some 12 months later. This arrived shortly before his death on 20 October 1998. It did, however, enable the family to provide for a better funeral than they otherwise would have been able to afford.

Compensated Cases:

14. Onset of respiratory Disease, Certification and Compensation Outcomes In ex-Mineworkers in SekhukhuneLand, 2000

CASE NO.	AGE	YEAR/AGE: ONSET OF RESP. DISEASE	MONTH & YEAR CERTIFIED BY MBOD	COMPEN-SABLE DISEASE	COMPENSATION AMOUNTS RECEIVED	RESO-LUTION TIME IN MONTHS. (& YEAR PAID)
1 (M)	75	1990 – 65	08/1996	A.I. 2 nd	R19 137.00	11 (1997)
2 (M)	65	1993 – 59	09/1996	Pn. 1 st	R10 200.00	25 (1998)
3 (M)	51	1993 – 45	11/1996	Pn. 1 st	R17 000.00	27 (1999)
4 (F)	72	1990 – 62	01/1998	Pn. 1 st	R12 922.00	16 (1999)
5 (F)	67	1990 – 57	08/1996	A.P. 1 st	R 5 000.00	23 (1998)
6 (M)	71	1988 – 59	11/1996	A.P.& I.1 st	R17 175.00	33 (1999)
7 (M)	78	1990 – 68	11/1996	Pn. 1 st	R12 000.00	24 (1998)
8 (M)	52	1991 – 43	04/1996	A.P. 1 st	R10 340.00	23 (1998)
9 (M)	52	1993 – 45	09/1996	Pn. 1 st	R28 000.00	25 (1998)
10(M)	62	1986 – 49	01/1995 06/1996	Pn. 1 st Pn. 2 nd	R14 463.00 R23 141.00	10 (1995) 18 (1998)
11(M)	61	1986 – 47	03/1995 11/1996	Pn. 1 st Pn. 2 nd	R18 347.00	7 (1995)
12(M)	Died: 66	1978 – 46	10/1997	A.P.& I. 1 st	R15 000.00	12 (1998)

A.I. : Abestosis Interstitial Pn. : Pneumoconiosis
A. P & I: Asbestosis Pleural & Interstitial 1st & 2nd : Degree

Gender is specified alongside the case number. The table presents the details of current age, age at which their illness began, and the date of certification with the 'compensable' disease specified. Onset of illness ranged from 1977 to 1993. Details of the amounts of compensation received, and the length of time taken for resolution of the claim, are included. It will be seen that of this case study of 22 ex-mineworkers fifty-four per cent had been compensated.

The details of the table reveal that long periods elapsed between the start of respiratory illness and the date of certification with a compensable lung disease. The longest period was 20 years, and the shortest 3 years. The average is 7.75 years. This indicates extremely long delays between the onset of respiratory disease and eventual diagnosis. All these cases were only examined, diagnosed, and subsequently certified by the MBOD, between 1995 and 1998. The failure of detection could not be more apparent.

A further time delay is that between official certification and application for compensation, and receipt thereof. The longest period here was 33 months, the shortest 7 months and the mean 19.5 months. Such extensive delays in payment severely impact on those who are ill and without any means of support.

The time taken for receipt of further compensation for one case subsequently certified with 2nd Degree was 18 months. A second case, who had progressed to second degree, was still awaiting his statutory entitlement to further compensation some 31 months after his certification date. One case was diagnosed with 2nd degree on first examination. Case number 12, undiagnosed for 20 years, received his cheque shortly before he died.

Of the 11 cases compensated for 1st Degree, the highest amount received was R28 000.00, the lowest R5 000.00 and the average R14 586.09. One further case was classified on first diagnosis with 2nd Degree asbestosis interstitial and received R19 137.00. The varying amounts are a reflection of varying wages; the woman compensated R5000.00 would have had her benefit calculated on a wage of R317.00 per month, and the man compensated R28 000.00 would have had his benefit calculated on a monthly wage of R1 777.77. Receiving a benefit of R19 137.00 for 2nd Degree entails a calculation based on a monthly wage of R546.77. Thus someone suffering from second degree asbestosis interstitial received substantially less than someone suffering from 1st degree pneumoconiosis.

Uncompensated Cases:

The following table gives the details of those cases who had been diagnosed, and certified by the MBOD, but who were still awaiting resolution of their claims. It gives information on the current age, the year and age of the onset of respiratory disease, and the month and year of certification by the MBOD with the compensable disease specified.

15. Unresolved Compensation Claims In ex-Mineworkers in Sekhukhuneland, 2000

CASE	AGE	ONSET OF RESPIRATORY DISEASE : YEAR - AGE	CERTIFIED DISEASE	MONTH/ YEAR CERTIFIED	ONSET OF ILLNESS TO CERT. - YEARS
1 (M)	70	1982 – 52	Pn. 1 st Degree	04/1996	14
2 (F)	68	1996 – 64	Pn. 1 st Degree	01/1997	1
3 (F)	58	1989 – 47	Pn. 1 st Degree	03/1997	8
4 (M)	58	1989 – 39	Pn. 1 st Degree	04/1997	8
5 (F)	70	1995 – 65	Pn. 1 st Degree	11/1998	4
6 (M)	80	1996 – 76	A.P. & I 1 st Degree	10/1997	1
7 (M)	64	1985 – 49	Pn. 1 st Degree	07/1998	13
8 (M)	72	1982 – 54	Pn. 1 st Degree	11/1996	14
9 (F)	49	1990 – 39	A. I. 2 nd Degree	10/1996	6
10(M)	53	1977 – 30	Pn. 1 st Degree	07/1996	20

Pn.- Pneumoconiosis A. P. & I. – Asbestosis Pleural & Interstitial
 A. I. – Asbestosis Interstitial.

The range between onset of illness to recognition of disease was 20 years to 1 year. The average length of time between illness and diagnosis was 8.9 years. Again, all these cases were only recognized between 1996 and 1998. They are still waiting, up to four years later, for their compensatory benefit.

One case, very ill since 1990, diagnosed in 1996 and certified by the MBOD that same year, died waiting for her cheque. Forty-six percent of the case study, although certified, have not been compensated. It should be noted that there are more women in the uncompensated group than in the compensated group; four as opposed to two.

Compensation Benefits:

The ODMWA No 78 of 1973 as amended, covers a defined category of compensable diseases, and is applicable only to 'risk work'⁷⁶ at a controlled mine or controlled works. No benefit is paid to those diagnosed as having less than 10% impairment. As stated in the introduction, first degree relates to 10 – 40% impairment and second degree to over 40% impairment. The act is based on a 'no-fault' principle which means that even if the disease was caused by the negligence of the mineworker, for example, by not wearing a respirator when instructed to, he is still entitled to compensation. The amounts involved are calculated according to a formula, and are based on the salary earned by the claimant. In terms of a job held many years previously "his earnings shall be calculated on the basis of the earnings that he would probably have been earning had he still been performing risk work". (ODMWA, 1.56, 80B) The defining aspect of the ODMWA is that the amount of compensation calculated has a fixed relationship to wages. This is highly discriminatory in that different benefits will be paid out for the same disease.

Wages. It should be noted that the wages of black mineworkers are on average 30% lower than those in manufacturing. The present average wage for unskilled workers in the mining sector is R770 per month. However, differences between the wages paid by different companies are enormous. In 1995 the highest wage for unskilled mine labour was R1572 and the lowest R232. As Torres *et al* (May, 2000: 77) state, "the wage gap in the mining sector is 68% higher than the average wage gap in the country". The consequences of such wage differentials will be seen in the compensation amounts paid out for lung disease.

The lower wages paid on the asbestos mines compared to the gold mines can be seen when comparing the compensation amounts. The average compensation amount for 1st degree pneumoconiosis in gold miners is R22 888.00, and for 2nd Degree R45 505.00 (White, 1997) The average amounts for asbestos miners are R13 924.00 and R30 266.00 respectively. (Davies *et al*, 2000) In this study the average amount for asbestos miners for 1st degree is R14 586.00.

One-sum benefits are calculated in accordance with a statutory formula: $(A \times 12) \times B$, in which "A" represents the person's earnings, but not exceeding an amount of R2000, and "B" represents-

⁷⁶ All work on asbestos mines is regarded as risk work.

(a) in the case of a person who is found for the first time to be suffering from a compensable disease in the first degree, 1.31

(b) in the case of a person who is found for the first time to be suffering from a compensable disease in the second degree and –

(i) who did not previously become entitled to any benefit in terms of this Act, 2.917;

(ii) who previously became entitled to a one-sum benefit in respect of a compensable disease in the first degree, 1.607 (ODMWA, 1.53,80(2).)

It can be seen that the maximum payable for second degree, at the ODMWA limit of R2000 per month, would be R70 008.00, the equivalent of less than three years wages. For first degree the amount is only 1.31 x annual salary. This is in effect less than 16 months wages. The Act states that the minimum benefit in accordance with subsection 80(2) is an amount of R7000.00. It should be noted, once again, that there is no allowance made for dependents, for future medical costs, or for pain and suffering.

There is a large range of disability between those classified 40% disabled and, for example, those who might be 90% disabled. They will get the same amount. These compensation amounts do not even closely approximate the damages actually suffered for they compensate merely for a limited period of loss of earnings. Such lump sum payments of low amounts point more to the reality of paying a minimal amount, and then ‘washing one’s hands’ of them. Furthermore, as Tweedale (2000: 59) writes, “compensation paid to sick workers either by industries or by the state has never fully compensated the victims of industrial disease. Indeed, one might say that the whole idea of ‘compensation’ is misconceived: for how can anyone be properly compensated for the loss of their health or life?”

Duncan (1995: 63) writes that “compensation was supposed to bolster the impression among prospective migrant workers that they would be well looked after in the mines and labour areas”, and “would also counter fears of living out a useless life in miserable penury after sustaining an injury or contracting an incurable disease”. The compensation laws, including the Miners Phthisis Act, were “a cornerstone in the state’s attempt to limit the ‘violence’ which the capitalist class inflicts upon the working class, and in the process preserves what David Harvey has called the ‘happiness, docility and efficiency of labour’. Official ideology presented these laws as promoting all these at once. However, as officials themselves tacitly admitted over the

next few years, the law afforded only a minimum of relief to black mineworkers". (Duncan, 1995: 65)

Although writing of the period to 1948 these statements still apply today. In spite of the removal of racial discrimination from the Act, a life of 'miserable penury' is the reality for the majority of sick asbestos ex-mineworkers. White (1997: 20) comments on the amendments of 1993: "These changes nominally brought to an end a century of racial discrimination in the surveillance and compensation for occupational disease of miners. Although the ODMWA is no longer racist in its context, it is worth noting that minimal provision was made to make amends for the past failings of the ODMWA system. Furthermore the basic structure of this compensation system, administered and funded by the DoH, remains unaltered".

Compensation procedures and administration

Aron and Myers (1987: 20) have written that "the level of proof required to obtain compensation for an ARD may be interestingly compared with the level of proof required from industry in demonstrating compliance with safe working conditions. Such conditions in South Africa are neither legislated nor regulated by the State, neither are industrial hygiene measures in routine operation in all places where asbestos is used. Proof of safe working conditions is very seldom required and such legal requirements, as there are, are inadequately policed, whereas proof of workers compensation is invariably rigorous".

Firstly, it is necessary for ex-mineworkers to be aware of their rights under the ODMWA. Secondly, they must then be able to access a medical examination as their claim must be adequately supported by medical evidence. The lack of occupational health infrastructure severely impacts on access, and "for the majority of former mineworkers access is still *de jure* and not *de facto* as occupational health screening facilities are still almost entirely based in the areas in which white workers have historically lived and not in the migrant labour sending areas". (Trapido *et al*, 1998: 27) Of crucial significance is the fact that medical and legal knowledge remains in the hands of too few people.

If the obstacles of a lack of knowledge and the inaccessibility of medical services are overcome, and a diagnosis is acquired, then documentation and x-rays can be forwarded to the MBOD.

The Medical Certification Committee⁷⁷ then determines whether the applicant is suffering from a compensable disease⁷⁸, or a non-compensable disease, and issues a Certificate of Finding which is forwarded to the individual concerned⁷⁹, and “only to the CCOD if compensation will be necessary”. (MBOD 1999/2000)

The Compensation Commissioner for Occupational Disease (CCOD) controls and manages the compensation fund. Supplementary documentation in the form of proof of employment must also be provided. All correspondence is between the claimant, the MBOD and Compensation Commissioner under formal procedures. This externalizes the compensation process and distances companies from any correspondence with claimants.

The supplementary documentation required is one of the major stumbling blocks in the administration of compensation payments. As discovered in Sekhukhuneland, very few people have proof of employment on the asbestos mines. Many people spoke of how their ‘labour history’ was stamped in their ‘dompas’ or reference books (‘pass books’) but how these had to be handed over, and were subsequently destroyed by the previous government, when Identification books were issued. One man who had held on to his ‘dompas’ described it as having been eaten by insects, a not uncommon problem, amongst others, in the attempt to maintain paper in the rural areas. With the destruction of these ‘reference books’ whole ‘labour histories’ disappeared. Women often did not even have a ‘pass book’, and if they did they were

⁷⁷ Made up of not less than five doctors appointed by the Minister of Health; one of which is nominated by employer bodies and one nominated by employee bodies. The director of the MBOD acts as ex-officio chair.

⁷⁸ “compensable disease” means

(a)pneumoconiosis;

(b)the joint condition of pneumoconiosis and tuberculosis;

(c)tuberculosis which, in the opinion of the certification committee, was contracted while the person concerned was performing risk work, or with which the person concerned was in the opinion of the certification committee already affected at any time within the twelve months immediately following the date on which that person performed such work for the last time;

(d)permanent obstruction of the airways which, in the opinion of the certification committee, is attributable to the performance of risk work;

(e)any other permanent disease of the cardio-respiratory organs which in the opinion of the certification committee is attributable to the performance of risk work; or

(f)progressive systemic sclerosis which, in the opinion of the certification committee, is attributable to the performance of risk work; or

(g)any other disease which the Minister, acting on the advice of a committee consisting of the director and not fewer than three other medical practitioners designated by the Minister, has, subject to the provisions of subsection (2), by notice of government Gazette declared to be a compensable disease and which, in the opinion of the certification committee, is attributable to the performance of risk work at a mine or works.” (Occupational Diseases In Mines and Works, Act No.78 of 1973, Fourth edition, 1999, 1.3)

⁷⁹ Strangely described as “the client” by the MBOD. (MBOD, 1999/2000) A copy is also forwarded to the “service provider”.

generally not filled in. This research found, however, that people recalled their 'labour history' with ease and accuracy, and many quickly ran through the mines and the years in which they had worked.

As Davies reports, 'many hundreds' of individuals who have been certified by the MBOD as having 'compensable disease' are denied compensation payment on the grounds that they are unable to 'prove' their mining service. Yet they simply never had documentary proof of their employment to attach to their medical records in the first place. The majority of miners, particularly in the asbestos mining industry, did not receive certificates of service.

Mr Jabu Mdluli, Compensation Commissioner for Occupational Diseases, commented that 'there is this issue of labour history. The Act is prescribing that we only pay people who have been exposed to risk work. We had a problem where there are mines which have long closed, for instance in those particular areas which you have visited.' He emphasized that the Act is strictly referred to when assessing claims. Affidavits made with magistrates regarding employment at a particular mine, were accepted for a short period and then discontinued. The Commissioner is now working with a list of employees provided in June 1999 by Griqualand Exploration and Finance Company Limited (GEFCO) and African Chrysotile Asbestos (ACA). It is a list of some 80 000 people. (Interview, 23 February 2000)

The legislation that pertains to land claims admits oral evidence that is heard and evaluated. The problems with documentary proof of land ownership have been recognized. This is not being considered in the case of mine employment although one could argue that it is an analogous situation.

The Commissioner is of the view that mine employment 'is different' and that 'it's very clear that oral evidence cannot be admitted'. The reasons given were generally that there is a great deal of 'corruption' and dishonesty, and that people 'were told what kind of evidence to give by quasi-legal representatives.' The prevailing view from the Commissioner and his deputy appeared to be that the rural areas are inundated with dishonest people. It was maintained that when affidavits were admitted as evidence of employment there were many fraudulent claims. This perception was far removed from a general sense of honesty, and accuracy, gained during fieldwork in Sekhukhuneland.

If asbestosis is diagnosed, however, there is only one possible cause – exposure to asbestos⁸⁰. The only distinction that could possibly be made is that between occupational and environmental exposure. It is “a distinctive disease, both radiologically and pathologically. The clinical findings are also distinctive enough that the diagnosis can usually be made on the basis of an adequate occupational history and chest x-ray, other causes having been ruled out with reasonable medical certainty. Asbestosis is caused by one thing only – breathing asbestos”. (Castleman, 1996: 402) In other words, if a person is suffering from asbestosis and they have no history of occupational exposure then they most certainly have been environmentally exposed to asbestos.

There is no compensation for those with “bystander” or “environmental” exposure status. This is highly questionable in South Africa for “the majority of ‘environmental’ cases are due to localized industrial activity and not general pollution, due to decades of widespread asbestos use. In other words an attributable workplace can often be identified”.⁸¹ (Rees, 2000: 13) As Castleman (1996: 531) so aptly puts it, “this tragedy is best understood as an outgrowth of the failure to take the appropriate precautions in the workplaces where asbestos was used and long known to be a mortal threat to those using it”. (1996: 531) Importantly, in view of the fact that an attributable source of asbestos can usually be identified, this is “a factor which should change our approach to financial compensation”. (Rees, 2000: 14)

Compensation is also denied to those who were employed under the age of sixteen. As Mr Mdluli remarked: ‘That’s unfortunate because for each and every administrative issue you consider the Act, and that is operating outside the Act’. Clearly the Act is read very narrowly and perhaps what is ‘unfortunate’ is the Act itself. The Commissioner pointed out that a lot of women worked for contractors, and were thus not directly employed by the mines. The

⁸⁰ “We now recognize that the threat to life from breathing asbestos extends in some degree even to individuals only slightly exposed to the dust. We also know that levels of exposure insufficient to produce asbestosis can nonetheless cause cancer; moreover, the exposures that can cause asbestosis are not as great as once imagined: on the continuum of risk were, roughly speaking, the asbestos handling workers (‘direct’ occupational exposure), others who worked nearby but did little or no work with asbestos themselves (‘indirect’ occupational exposure), asbestos workers’ family members (household contact exposure), and neighbours of sources of asbestos air pollution and solid wastes.” (Castleman, 1996: 516)

⁸¹ In 22 cases of “environmental” mesothelioma in South Africa 9 had lived near a mine mill or store of asbestos, 6 had lived with a relative who worked on an asbestos mine and 6 had spent time in mining districts. (Rees, 2000: 14) Rees (2000: 14) notes that “this pattern is also found elsewhere”. In Wittenoom, Australia (the only place other than South Africa where crocidolite was mined) 27 cases of mesothelioma caused by “environmental” exposure were reported by 1993. 24 of these 27 had lived with an asbestos worker. (Rees, 2000) It is most notable that the number of Australian cases is significantly lower than the number of identified South African cases.

Commissioner stated that 'the source of our payment is levies, so if levies were not paid by them, how can we expect the government to pay? Where is the money coming from?'⁸² (Interview, 23 February 2000)

A prevailing issue is that of the backlog of claims. Mr Mdluli noted that there was a backlog of 12 000 unprocessed claims when he started in 1997; something that was described as a consequence of the 'manner in which the Compensation Commission was functioning', the history of his office having 'been to serve the white miners on the Reef'. There has not, however, been any staff increase, and the number of clerks remains at ten. Statistics are difficult to access, and only give total numbers under the different categories of compensable disease with no indication as to which mines the cases are coming from. It was maintained that not many cases are refused and that when they are it is generally because of insufficient information provided and a 'failure to respond to reminders'. Computerisation, however, is presently underway and a 30-day target has been set for the processing of applications which are being received at a rate of approximately 50 per week.

The Need for a Review:

Lewis and Jeebhay (1996: 439) state that there is an 'urgent need' to review the ODMWA for "this Act provides mineworkers with less compensation for occupational disease than is provided to their fellow workers in the manufacturing industry by the Compensation For

⁸² Levies are the same for all mines according to the mineral mined; all gold mines pay the same amount of 39c per shift worked, coal mines 24c per shift worked and asbestos mines R2.34. (ODMWA, Government Notice, 23 October 1998) In other words, levies are standardized and are not based on particular dust levels indicating increased risk at different mines. The Commissioner stated that there are no longer Inspectors to monitor dust levels, and that the Risk Committee, which measured dust levels and made recommendations on levies, generally only in the gold mines, was disbanded in 1996. Previously the Commissioner would recommend to the Minister of Minerals and Energy that there be an increase in levies on the basis of recommendations from the Risk Committee. In response to a question as to whether this system, with standardized levies for all mines, encourages negligence, the Commissioner replied that it was 'not about penalizing but rather about negotiating where there is more co-operation from management'. (Interview, 23 February 2000) This would indicate that 'self-regulation' continues. Those mines that are closed no longer contribute any revenue to the ODMWA fund – asbestos claims are now funded from general revenues which are supplemented by the State.

The State pays for the full cost of the administration of the compensation scheme under the ODMWA. In 1997/98 the ODMWA Compensation Office, the MBOD and the Pathology Division of the NCOH received R15 million from the DoH to cover these administration costs. The State contribution to cover those who contract diseases at mines which have closed, as well as those white and coloured mineworkers who were entitled to a pension before 1973, was R12.7 million in 1997/98. It was a R4 million decrease on the previous year. (Benjamin & Greef, 1997) These are substantial costs that are borne by the State and not by the mining companies. The costs of administering COIDA are borne by the COIDA Compensation Fund. With regard to the ODMWA it is clearly a case of State subsidization of the mining industry.

Occupational Injury and Disease Act of 1994. (COIDA) The need for a review was identified in both the African National Congress Health Plan and the RDP. This is the inevitable result of fragmentation of compensation legislation, jurisdiction and service provision between two government departments, which have not co-operated in the past". It is clear that "there are certainly no health related reasons for a special dispensation for mining". (Abdullah *et al*, 1994: 133) Benjamin (1995: 84) writes that "this Act's benefits are worse than those paid under COIDA – no pensions are paid to sick miners or their families".⁸³

Racial discrimination has been removed from the Act thereby redressing the massive disparity between the amounts paid out to black and white miners, and admitting black mineworkers into the 1st and 2nd Degree distinction (previously there was only one category of disease for black mineworkers) but the amendments remain those of "inconsistent tinkering". (Abdullah *et al*, 1994: 133) Those classified as having disease of less than 10% are now excluded from compensation. The amendment has thus raised "the threshold for compensability". (Abdullah *et al*. 1994: 133) As can be seen by the lump sum payments that are in a fixed relationship to wages earned, discrimination continues against low wage earners. It is also of considerable concern that lung cancer in asbestos workers remains excluded from the limited list of 'compensable' diseases.

There is little flexibility in the guidelines for diagnosis and certification, and 'stringent criteria' results in many claims being rejected, as well as causing lengthy delays for those accepted. Garisch (1984: 10) noted that "the application of unreasonably strict criteria for the establishment of causation of an occupational disease" contrasts with the fact that "employers are subject to the duty of providing protection only as is 'reasonably practicable'. It is internationally accepted that claims of this nature should be subject to the principle of balance of reasonable probability". In other words, the "establishment of causation should only be required

⁸³ COIDA which replaced the Workmen's Compensation Act in 1994 established a tripartite compensation board to advise the Minister of Labour and the Compensation Commissioner. Provision is made for employers to pay workers for the first three months of a temporary disability, as well as the provision for receipt of up to 75% of earnings during a temporary absence of up to 2 years. Permanent disability is assessed by the 'meat chart' percentage system with those above 30% receiving pensions. (a lump sum is paid for lower than 30% disability) 100% disability, eg paraplegics, receive pensions equal to 75% of their earnings. Widows receive a pension equal to 30% plus 15% for each of the first three children. (Benjamin, 1995) These better pension benefits are qualified, however, by the fact that COIDA remains wage based. Benjamin (1995: 82) writes that "suggestions for reform have been either to have a higher percentage for lower paid workers – for instance, 90% for workers earning below R1000 – or a minimum benefit that all workers would receive regardless of their earnings".

as far as is 'reasonably practicable'". (Garisch, 1984: 10) The "onus is on the claimant to provide the evidence" while "the employer and the fund enjoy the benefit of the doubt". (Garisch, 1984: 11)

Although the amendments do provide for court authority to overturn decisions of the certification committee and the commissioner, this is hardly accessible as a means of redress for those who have battled to access a simple medical examination and the official detection of their disease in the first place⁸⁴.

Inadequate lump sum payments, or no payments at all, do not redress income loss for people without any other means of subsistence. The system pushes those suffering from asbestos-related disease below the poverty line. Consumption needs are not met, health care is virtually non-existent and misery is reproduced. The asbestos mines made use of the able-bodied, destroyed their health and left the burden of providing for them to the rural areas where it has largely remained hidden from public view. The mines also left extensive environmental damage. While the environmental pollution originates from the same source as the occupational exposure, those affected remain without any means of redress.

The conditions that existed in the asbestos mining industry in South Africa, the almost entire lack of health services in the areas in which the ex-miners live, and the legislation relating to compensation have resulted in severe social exclusion for thousands of people. Compensation claims are decided by an administrative agency wherein lie many procedural obstacles which stall, and deny, the processing of claims. The legislation is clearly in the interests of business, and has been used to control the costs of occupational lung disease. The costs to the mining companies, in the form of levies paid to the fund, are insignificant and they have effectively escaped liability. The compensation system does not compensate for the fact that someone will never get a job again, and it does not provide the resources needed to proximately repair the damage. Importantly, the system as it stands could lead to increasing levels of social exclusion for, as was concluded by Felix (1997: 156), "the consequences of past and continued exposure" to asbestos "will be with us for decades".

⁸⁴ Benjamin (1992: 1) writes, in the context of the COIDA, that "the extremely low number of objection hearings stems from a general ignorance of rights in terms of the Act, the low level of public interest and the lack of expert agencies to assist workers in prosecuting objections". This statement certainly applies, verbatim, to the ODMWA as well.

CHAPTER SEVEN

“WHEN THERE IS MONEY I BUY 80KG’S” – SOCIAL EXCLUSION IN SEKHUKHUNELAND.

The spectre of unemployment and poverty which stalks these lands is grim. And it is directly related to the pattern of capital accumulation in the sub-continent which has left some areas with less capacity to generate jobs within certain geographical limits than they had before the process began.

(Francis Wilson, Mineral Wealth, Rural Poverty, 1985: 28)

It's always the same phenomenon: powerful people in small numbers no longer needing the labour of others, while those others can get lost and take their states of mind and their health reports elsewhere. Alas, there is no elsewhere.

(Viviane Forrester, The Economic Horror, 1999: 34)

Northern Province has the second highest unemployment rate in South Africa. Only 42.6% of its potentially economically active population participate in the formal labour market. It is calculated that a further 11.5% participate in the informal labour market. The national average for the formal labour market is 57.3%, and 8.9% for the informal labour market. (DBSA, 2000)

May (2000: 2) writes:

“the inability of many to satisfy their essential needs while a minority enjoys extreme prosperity stems from many sources. The specificity of this situation in South Africa has been the impact of institutional discrimination. Colonial and Union government policies directed at the extraction of cheap labour were built upon by apartheid legislation. The result was a process of state-driven underdevelopment that encompassed dispossession and exclusion for the majority of South Africans. An important outcome brought about by these policies was the loss of assets, such as land and livestock, and the simultaneous denial of opportunities to develop these assets through limiting access to markets, infrastructure and education. As such, apartheid, and the legislation and institutions through which it was implemented, operated to produce poverty and extreme inequality.”

A memorandum of 1943 from the Native Affairs Department to acting prime minister, J.H. Hofmeyr is cited by Delius (1996: 56): “Rightly or wrongly the SA policy has been to give the native a little land, not sufficient to make him independent of the labour market but sufficient to

enable wages to be fixed on the assumption that the native's earnings are augmented by what he gets from the land". However, earnings were never adequately 'augmented' by what was 'got on the land'. And what was 'got from the land' became less and less as the years passed.

Between 1970 and 1985 the official population of Sekhukhuneland more than doubled. It rose from 162 889 in 1970, to 377 140 in 1985. (Delius, 1996) This was caused mainly by immigration from white farms, a result of the evictions of labour tenants, and by forced removals from 'black spots'. It is pertinent to note that far from people being moved out of asbestos mining areas, as happened in other parts of the world, people were moved in⁸⁵. Several farms containing asbestos dumps were sold by TNC's to the South African Development Trust for incorporation into Lebowa, and were "soon to be the scene of large scale resettlement by blacks". (RDM, 1/9/1984) Bothashoek near Penge provided 330 acres for 3 600 families. (Packard, 1989)

The increasing land shortage resulted in up to 40% of households being completely landless by the early 1980s. (Delius, 1996) Consequent on the land shortage was a severe reduction of cattle ownership, and goats started to dominate the stock herds. This not only resulted in the loss of the meat and milk supply but also in the loss of draught power. Decades of change in the rural economy saw almost all becoming reliant on cash as the "fragmentation of fields and landlessness mounted with each succeeding generation". (Delius, 1996: 145)

Reliance on remittances extended, in the 1960s, to the additional reliance on pensions. Delius (1996: 151) writes that "in many villages in the early 1980s, pensions which amounted to R30 a month were second only to remittances in overall significance for household income, while land and livestock lagged even further behind".

It is all too obvious that Lebowa was a 'dumping ground'. Delius (1996: 3) summarizes this: "Dispossession and a cheap labour system was the basis of the South African political economy. The 'reserves' constituted the shock absorbers of South African industrialization. They bore the burden of nurturing new generations of migrant workers, sustained their families during their long absences from home and cared for those discarded by the mines and the factories – the old,

⁸⁵ See footnote No.50

the disabled and the dying. Warnings were sounded from diverse quarters that this was taking a terrible toll on these communities and that economic, social and ecological disaster loomed.” The numbers of ‘disabled and dying’ have been swelled by those who were employed on the asbestos mines.

‘Economic and social disaster’:

The percentage of households living in poverty in the Northern Province is the highest in the country at 61.9. The percentage of individuals living in poverty, again the highest in the country, is 69.3. And the poverty gap⁸⁶ as a percentage of GDP is the highest of all the provinces at 21.4. Thus the depth of poverty is the greatest in the Northern Province. The percentage of children living in poor households is 60.9. (May, Woolard and Klasen in May, ed., 2000) The poverty line is R352.53 per adult equivalent. The ‘ultra-poor’ poverty line is R193.77 per adult equivalent.

The unemployment indicators for Northern Province are much higher than for South Africa as a whole. Northern Province’s total unemployment rate is 45.9%, with rural unemployment as a percentage being 91.1. The total unemployment rate for South Africa is 33.8%, with rural unemployment as a percentage being 43.0. (DBSA, Development Information Business Unit, 1999)

All those in the sample of ex-asbestos miners interviewed are unemployed, and all are ‘ultra-poor’. In other words, they are living on less, and in many cases much less, than R193.77 per adult equivalent. Although some, after many years of illness and extreme poverty, had reached the age of qualification for a state pension these pensions were the only income in large households.

Some had been given the ‘red ticket’⁸⁷, failing to pass a medical examination, while in employment. Others had lost their jobs, and subsequently failed the entrance medical when applying for other mining work. Others had left their employment due to ill health and had never

⁸⁶ May *et al* define the poverty gap: “Not all households classified as poor or ultra-poor suffer the same degree of deprivation. For this reason we calculate the poverty gap in order to get some sense of the depth of poverty. The poverty gap is the aggregate poverty deficit of the poor relative to the poverty line. In other words, it is the amount that is needed to lift the poor to the poverty line through a perfectly targeted transfer.” (May, 2000. 30)

⁸⁷ A colloquial term for dismissal on the basis of poor health, frequently occurring when tuberculosis was diagnosed.

been employed again. One man was last employed at the age of 30 in 1977. He left due to ill health, and was refused all subsequent applications for mine work. At the present age of 53 he would only be eligible for a state pension in 2012, an age which he clearly would not reach.

In entering the household domain a biographical approach informed the interviews and the collection of research material. Behind the statistics of asbestos-related disease are individual people and their families who are destitute; occupationally acquired disease has engendered destitution and thrown them into permanent social exclusion. Their poverty is acute, and their pain and suffering extreme. From being productive and stable wage earners their lives have deteriorated. They are all now “a prey of that body that must be fed, sheltered, cared for, kept alive and which is such a grievous burden”. (Forrester, 1999: 30)

Not only are individuals grievously affected, but the lives of families, households and communities are degraded as well. The consequences are not only wage loss alone for the ex-mineworker as lost wage income is merely the first and most obvious consequence of disabling illness. The ramifications of asbestos-related diseases are vast: there are increased dependency ratio's within families, there is reliance on the wider community, further lost income from labour that would have been performed at the rural home by both the ill ex-mineworker and his wife, with her intensified role as care-giver frequently taking her away from agricultural and other activities, and there are the additional expenses incurred in seeking medical assistance. All these debilitating consequences can have a profound effect on the lives of children whose basic needs of adequate nutrition and schooling might not be met, with the result that their future is severely compromised, and all that beckons for them is continued social exclusion. All these factors compound and extend the impoverishment caused by wage loss.

SELECTED CASE STUDIES:

The most important trigger for downward mobility was illness and injury – everywhere, illness was dreaded. (The World Bank, Can Africa Claim the 21st Century? 2000:85)

Dependence on the pension of a family member: a fifty-two year old man, certified with pleural asbestosis in April 1996. This man lost the job he'd had since 1980 in 1991 when, at the

age of 43, he became too ill to work. His salary at the time was R600.00 per month. His history of work with asbestos began in 1960, at the age of 12, at Dublin Mine, a subsidiary of Penge. He started at Penge in 1963 and remained as a crusher in the mill until 1975. This work involved holding a bag before a 'crushing machine' which broke the rocks down and fed the asbestos fibre into a bag. He described himself and his fellow workers as covered in dust 'all day' with only their eyes visible. No water sprinkler system nor any other equipment was used for dust control. The bags were shaken to create more space. No masks were ever provided. Overalls covered with asbestos were worn back to the compound, and were shaken out before being washed in the river. Windy days saw the compound living quarters covered in grey dust which settled on the furniture and floors. He had thus had 15 years of exposure during his working hours in the mill, as well as exposure where he lived.

He said he was 'first sick' with 'chest problems' while still at Penge in 1975, and consulted traditional healers at this time. He had, additionally, lost two fingers in an accident in the mill in 1966, for which he had not received any compensation. It was a community leader who advised him to go to Mecklenburg Hospital for a chest x-ray in 1995, and it was at this time that he became aware that his exposure to asbestos had caused lung disease. He had no knowledge of eligibility for occupational disease benefit examinations; nor was he aware that there was any compensation system for occupationally contracted lung disease. He was certified with a compensable disease in April 1996, and received a one sum payment of R10 340.00 in 1998.

This money was used to pay debts, to improve the families mud huts and to buy cattle. The money was 'quickly gone'. Subsequently he was forced to sell the cattle acquired. The selling off of assets such as oxen, which provide draught power, to provide desperately needed revenue is at the cost of long-term survival and development.

He is an emaciated man who spends his days and nights coughing and in pain. Any physical activity results in breathlessness; he was clearly unable even to carry firewood which, in the early years of his illness, he had gathered to sell. The women and children collect both firewood and water. Treatment was only sought when, as his first wife described, 'he is very bad'. The clinic is 17 km's away and transport costs him R11.00. Here he can obtain painkillers, generally only in the form of paracetamol, free of charge. He had not been back to the district hospital due to 'a lack of funds' for transport. It would appear, however, that his condition had rapidly

worsened and, if re-examined, he could well be found to be suffering from second degree asbestosis, and be entitled to further compensation.

He is living with his first wife (37), with whom he had had no children, and his second wife (41) and their 7 children. The children ranged in age from 4 to 16. His frail mother⁸⁸ (73) resided with them, and her old age pension was their only source of monthly income; an amount of R520.00 per month for the needs of three adults and 7 children. Pension pay-out day saw the purchase of two 80kg bags of maize meal. Small irregular amounts were earned from the gathering and selling of firewood by his wives and children, and up until last year he had looked after the cattle of neighbours for a remuneration of R100.00 per month. Sometimes they had to go 'to the neighbours begging for some maize'. The women said, 'we depend on the wild spinach'. Their land allowed for the planting of a small maize crop.

The children were all clearly malnourished, and appeared wasted and stunted; they all had low height for their ages and were very thin. The most important observation with regard to these children is that the development of stature and strength is extremely sensitive to nutrition during early childhood and adolescence, and improved conditions later in life will not reverse the impacts of malnutrition during childhood.

The children were described by their mother as 'always going to bed hungry', and often 'going to school without food in the morning'. She said that they had relied on the school feeding scheme until it stopped in the middle of 1999. She added that the children had on many occasions 'been chased from the school for not paying the school fees' of R24.00, and that they had not been given school reports in 1999 for the same reason. She said, 'We are struggling. You can see for yourself.'

Dependence on a wife's informal sector earnings: this man's father worked at Penge, and he was born there in 1947. He passed 'standard six' and began working at the mine at the age of sixteen. Although 'enjoying the work', the wages paid were 'bad' and he left after five years. In Witbank he trained and worked as a fitter and electrician from 1969, until he became ill with

⁸⁸ She reported that she had lived at Penge with her husband who had worked there for many years. He had been diagnosed with asbestosis shortly before he died. An application had been made for compensation after his death but she was 'still waiting'.

respiratory problems in 1977. He returned to his home village at the age of 30. Initially the family lived on the savings he had accumulated while working, his last formal salary being R300.00 per month. He failed in any further job applications, stating that he was 'rejected because I was sick'. Other than some 'piece jobs' he had not had 'a straight job' for 23 years.

The family consisted of himself, his wife and three sons; two of whom were still at school. His eldest son completed Grade 12 in 1999, and wanted to study further in the field of computers but as there was 'no money' he was now looking for work. They all depend on his wife who sells tomatoes in Burgersfort. The expression he used was 'I just rely on my wife', although 'sometimes she makes nothing' and 'sometimes she only manages to bring home a little food.' He estimated that the family was surviving on less than R300.00 per month and were frequently reliant on credit from the local store. They had often relied on help from other families to pay school fees and for food.

In addition to her informal sector activities his wife must take care of him; 'sometimes, when I'm critical, I cannot do anything and my wife has to help me to get dressed'. He described himself as 'growing thinner and thinner and weaker', and that each clinic visit shows that his weight has gone down. He described the tablets given out by the clinic as 'useless for the pain'. He was visibly short of breath, becoming exhausted when talking. It would appear that the disease is a kind of slow strangulation.

Diagnosis came in 1996 at Maandagshoek, with certification by the MBOD the same year. He was still awaiting compensation, and thought that the cause of the delay was that he had been unable to provide proof of his employment at Penge from 1963 to 1968. He commented, 'if it had not been for working and living at Penge mine I could have been strong now. I could have still been working as an electrician and fitter and doing many things, doing all the things other people are doing but now I am powerless. Penge destroyed my life and it has disturbed my children's future.'

His elder brother had also worked at Penge for 'a very long time', and died in December 1998. Although not certified by the MBOD, and thus not compensated, he had been diagnosed at Maandagshoek as having asbestosis. He had spent the two years preceding his death 'coughing badly, shivering and breathing very hard', and his five children were left without a breadwinner.

They were never told that asbestos was dangerous. The maintenance areas were 'very dusty. We blew dust out of our noses and when we spat we were spitting asbestos. The dust came like a cloud. It was all over. We didn't mind about the dust. We didn't know it was a killer'. Their residence shacks were built with asbestos containers and asbestos bags. Food was brought in an open bakkie 'mixed with the dust'.

Dependence on irregular maintenance from an absent husband: this woman worked at the Penge mine laundry, from the age of 20 in 1962 until 1973. The clothes were 'shaken before being put into the water'. She lived with her husband who worked as a fitter in the engineering section and also washed his clothes. She commented that dust was always visible in the air.

She now lives with her two unemployed adult children, and three minor children who she is managing to keep in school. None of her three adult children 'finished their schooling'. They live in a block brick house of three rooms. She has no income other than an amount of R200.00 maintenance from her absent husband. This is irregular; she said that 'some months there is nothing coming from him'. Some assistance is received from her one employed child.

She first became ill in 1989 at the age of 47, but was only diagnosed at H.C. Boshoff hospital in 1995. She stated that she can do very little for herself, that the children have to do all the household work and they 'even have to help me put my shoes on'. Due to extreme tiredness she needs to lie down 'most of the time', and at night 'my breathing stops'. Her pain is constant. She is also suffering from oedema and high blood pressure. Until 1990 she sang in the church choir. Certification of pneumoconiosis by the MBOD in November 1995 has yet to result in compensation payment. The reason for this appears to be the lack of documentary proof of her employment at Penge.

She only became aware that it was asbestos that had caused her respiratory problems at the time of diagnosis, and said that they 'never knew of any danger with the asbestos'. Subsequent to her diagnosis she was informed of her eligibility for compensation and was assisted by the doctor to make an application. She said, 'maybe if I am still alive I can get a pension in two years'.

Dependence on a small business: this 51 year old man⁸⁹, born at Penge, started work in the mill at the age of 17. For six years he was 'tasked to put asbestos in the bags and load them'. Thereafter he found employment in Germiston where he trained in woodwork and became a shopfitter. When his chest problems, 'coughing and breathing very hard', started in 1990 he was examined by a doctor in Germiston but only later told by a doctor in Burgersfort that he had asbestosis. By 1994 he was too ill to work. He was 45. He commented that 'if it was not for Penge my life would have been a good one. Penge has destroyed my life'.

He was certified with 1st degree pneumoconiosis November 1996 and received a compensation payment of R17 000.00 in January 1999. He used this money to build his house, to pay debts and to purchase power tools with which to do woodwork and welding. As he stated: 'I had experience of this woodwork and I decided when I got the compensation money to buy the machines so that I can make a living from those machines in the future. I knew I would not be able to get a job. Any job which will need my powers, I cannot do it. Only the jobs using the power tools I can do'. They were connected to electricity in 1998 and work on a card system. This they reserve only for lighting and his tools and cooking is done with wood and a primus stove. Wood, however, is in short supply; 'there is no more firewood. It is far up the mountain'.

He manufactures benches and wardrobes, and does a little welding work. The work is slow as he needs to stop and rest frequently, describing his condition as 'coming worse on a daily basis'. He can only walk 500 metres before having to stop and rest. This means a slow journey to the clinic to obtain painkillers, which 'do not help'. Nights are spent sleeplessly coughing, frequently accompanied by a fever. Judging by a photograph taken six years ago he is a shadow of his former self. He stated: 'This is not my natural body'.

Demand for his goods is small and, without transport, there is no means to market them. He commented that he needs to 'go out and sell', and if he had received more in compensation he would have purchased a bakkie. Income fluctuates, 'sales are very slow', and is on average R300.00 per month. A good month yields R400.00. This must provide for himself, his wife and

⁸⁹ His father worked as a 'boss boy' (supervisor) at Penge until he died in 1992. He said: 'History tells us he died as a result of working at Penge. I cannot guarantee that he was afflicted by these diseases. He worked there for a long, long time and he was still working there when he died. He had serious respiratory problems and he coughed all the time'. He was never diagnosed, nor compensated. His mother also worked at Penge and has been diagnosed with pneumoconiosis.

three young children. The income generated from such a small business does not raise the family above the poverty line. His earnings from his last formal employment in 1994 were R1400.00 and now 'by doing this, I am just trying to make a plan for them to survive. If I pass away it will be a disaster. They will have no one to rely on'.

They purchase 80kg's of mielie meal monthly, eat wild spinach and grow a small amount of maize on a 90m square plot. There is not enough food. Sometimes assistance is forthcoming from neighbours. Credit can be obtained from the local store and 'when I sell a bench I pay'. School fees are 'not guaranteed'. Water is relatively close by and is fetched by his wife although it is polluted and often causes 'sickness in the children'. Firewood takes up to 5 hours daily to collect.

Dependence on a disability grant: two men were found to be in receipt of a disability grant. The first of these men (61) was in the second year of receiving the grant after a 13 year period of unemployment. He was in possession of a document issued in 1986 which stated "permanently prohibited from performing risk work at controlled mines and works". His old 'dompas' was also in his possession and recorded that he had worked at Penge from 1966 to 1986. However, he added that he had started at the mine in 1951 at the age of 12, had worked continuously from then on, and had thus been employed at Penge for 35 years. He first worked as a 'cobber' and later as a boiler-maker. His wife (56) remained at home in Diphale village and, although sometimes visiting him at the mine, never spent very long at Penge. He lived in the compound which 'by the end' was made of brick.

He described conditions at the mine as 'very bad' with 'the dust all over. It was obvious, it got into our food'. It was only in the mid-eighties that they were told of the dangers of asbestos by their supervisors. They were issued with masks but he maintained that these did not work; 'the dust still got in our mouths'. He became ill with respiratory problems while still at the mine, saying that they were given examinations but 'they were not specific with the results'. He was dismissed due to his ill health in 1986. His salary at the time was R400.00 per month. He was 47 with a wife and 5 school-going children at home. Two subsequent applications for mine employment resulted in rejection on medical examination, 'I was rejected as unfit', and the prohibition from future 'risk work'. He was at no time informed of his legal entitlement to be examined for occupationally acquired disease, nor of his right to compensation.

The following 13 years saw the family surviving through assistance from 3 adult children 'working on the farms', buying and selling things in the community and their own subsistence crops. They were helped by his brother's⁹⁰ disability grant. In spite of the struggle to survive three of his children managed to complete their schooling to matriculation.

He had no knowledge of medical benefit examinations until informed by a tuberculosis officer in 1995. He was certified by the MBOD with first degree pneumoconiosis in March 1995 and paid compensation of R18 347.00 in October of the same year, an unusually short time from certification to receipt of compensation. This money was used to build a brick house, to pay debts, for food and for school fees. He was re-examined at the end of 1996 and certified with second degree pneumoconiosis in November that year. He is still awaiting further compensation.

His disability grant, together with that of his younger brother which 'makes a bigger amount', supports 5 adults and 6 children; himself, his wife, his brother, his unemployed son (32), his unemployed daughter (20), 4 school-going grand-children and two toddlers. The grandchildren's parents are 'working on the farms'. There are 'no funds' for his youngest daughter to continue her education. When the disability grants are received two 80kg bags of mielie meal are bought along with 'sugar, tea and washing soap'. Their small plot yields four to six bags of mielies per annum, 'depending on the rains'. His wife, together with the children, is 'doing all the work'. They do not have electricity and water is obtained from a small river 2km's away.

He gives the appearance of a man 15 years older, emaciated, walking very slowly and having to pause for breath when speaking. He described his deterioration as rapid over the last years, 'I become weaker and weaker', with sleepless nights and extreme pain. When he can afford it he goes to H.C. Boshoff hospital where he obtains painkillers.

The second man with a disability grant had had it for a longer period. He is, however, still waiting for compensation. He was certified in 1996. He added that the 'the bureau does not give reasons for not paying' and that 'applications are just being put aside'. It would appear that the reason for his failure to be paid any compensation is the fact that he began work at Penge at the age of 8 in 1950. He remained working at the mine until he was 16 and was never registered. He

⁹⁰ An epileptic who was badly burn't, losing the use of one hand, after falling into a fire as a child. He still resides with the family and his grant helps to support the larger group.

described himself as 'working in the mill as a crusher and packer'. He commented: 'We were not made aware that the dust was dangerous to us'. He was told by the mine manager that he could no longer work due to a 'chest infection', and was dismissed. He then obtained employment at Rustenberg Platinum Mines and worked there for twenty years until he became ill in 1978. Two mines subsequently 'refused' him due to his 'chest condition'.

His wife 'took the children' and went Pietersburg to her family as 'I had nothing to give her'. He relied on neighbours for nine years; 'if not for my neighbours I would have died'. Seeking relief from family friends and neighbours was found to be a common response to the economic crises that result from illness. This community safety-net, however, has steadily weakened with the growing impact of asbestos-related disease in these communities, and frequently the failure of such community safety-nets means that families move from poverty into destitution.

This man's nine year reliance on neighbours was alleviated by receipt of a disability grant at the age of 45. He commented that 'Penge was so very much ignorant. They were not providing safety clothes like boots, overalls and gloves. You can see the asbestos in our hands and feet. We only became aware now, in the last few years. They regarded us as cheap labour and people who could not think. They relied on the apartheid system. If it was not for the asbestos disease we would have been in a good standing and in a good position to help ourselves. I cannot even help myself to fetch firewood'

Dependence on a state pension: this 75 year old Xhosa man was recruited by TEBA, in 1960 in Umtata, to work at Penge. He remained at Penge with his wife, who was a domestic worker for one of the managers, until shortly before its closure in 1992; he started on 10 January 1961 and left on 20 February 1992. He had no income thereafter for four years, and relied on his son.

During 1990 to 1992 he was "in and out" of the mine hospital. He was told he had tuberculosis, and was taken off his duties as a fitter in the engineering section to work 'cleaning toilets'. He settled in Madiseng in 1992, and continued to believe that he had tuberculosis. He gave 31 years service but was not given a proper medical examination when ill or at the time of his departure, nor was he informed of his statutory right to medical surveillance subsequent to employment and of his statutory entitlement to compensation. He was only examined at H.C. Boshoff Hospital in 1996, diagnosed and helped to apply both for a state pension and for compensation

by the examining doctor. He was certified by the MBOD as having 2nd degree Asbestosis Interstitial at the end of 1996. He received R19 137.00 in compensation in August 1997. He stated, 'It was not enough to care for my whole life'.

He had been a large man, clearly visible in a few photographs, and weighed over 100 kilograms. His weight is now 40kg's. He can barely walk, coughs constantly and has to lie down most of the day. His medication consisted of paracetamol tablets and an ordinary cough mixture expectorant. His wife said of him, 'it is hard to believe that he still has lungs left'. She added that since 1992 she has had to 'help him with everything. I have had to help him to wash. I am too tasked, I am now ill and not strong enough to work'. She said their neighbours had planted their small patch of maize as 'they had felt for me'.

She described the dust levels saying, 'we were eating, drinking, sleeping and breathing asbestos. We didn't know. The mine doctors told us much later to avoid this dust but it was too late, we were already affected. The children used to play on the asbestos dumps as they passed them on their way to fetch water, they were all exposed'.

These case studies give some idea of the social realities and costs to the workers, families and communities of the high incidence of asbestos-related disease. The productive capacity of individuals and of those on whom they are dependent, for daily assistance in the form of physical care, is severely reduced. Families and communities absorb the costs; it is families and communities that provide the social 'security' net. This net has become increasingly insecure with its capacity weakened as many members of the same communities are afflicted and as the cumulative burden has grown larger. Anxiety and depression, in varying degrees and most severe is those with minor children, was found to accompany the physical impairment.

Forrester (1999: 42) powerfully describes these realities of unemployment and ill-health: "Soon there is no one and nothing to turn to, or almost nothing. Everything fails, closing in and moving away at the same time." There is "no worse horror than to know your life ended long before your death and must be dragged about for the rest of your days". (Forrester, 1999: 31)

CHAPTER EIGHT

CONCLUSION

We are all part of a world system which perpetuates poverty and deprivation. The usual reflex is to seek answers to this question by analyzing poverty and deprivation themselves. Papers on poverty are commissioned for conferences and roundtables, for symposia and summits. One may speculate on what topics the poor and powerless would commission papers if they could convene conferences and summits: perhaps on greed, hypocrisy and exploitation. But the poor are powerless and cannot and do not convene summits; and those papers are rarely written. It is not surprising. We do not like to examine ourselves. To save our consciences we rationalize. Neo-liberalism paints greed as inadvertent altruism. The objects of development are anyway the poor, not us. It is they who are the problem, not us. We are the solution. So we hold the spotlight to them (from a safe distance). The poor have no spotlight to hold to us.

(Robert Chambers, Poverty and Livelihoods: Whose Reality Counts? 1995: 5)

The findings of the preceding chapters fully accord with the assertion of Marks and Andersson (1987: 178): “The contemporary health pattern in Southern Africa is rooted in the social changes which began with the discovery of minerals in the last third of the nineteenth century”. The evidence presented also accords with the statement, “contrary to much conventional wisdom, the state does not follow utilitarian principles, providing the greatest good for the greatest number, nor are its failures only the result of defects in knowledge or technical skill”. (Marks and Andersson, 1987: 182) These two insights are well illustrated by the history of asbestos mining in South Africa, and by the resultant epidemics of asbestos-related disease. There was sufficient early knowledge of the lethal nature of asbestos to have averted this tragedy.

It was not only a tragedy that mining companies and the state failed to avert, it remains a tragedy that we have barely begun to document. This research has made more visible the high levels of asbestos-related disease that existed in Sekhukhuneland for seventy years. It has made more visible the existing epidemic which reveals the continued failure of proper medical surveillance, and it has shown that the compensation system is an ineffective form of recompense.

The fieldwork immediately revealed social exclusion, and the selected case studies present a profile of the all too obvious poverty amongst those with asbestosis, both compensated and uncompensated. As Forrester (1999: 53) writes, “ ‘Social exclusion’ is ascribed to differences of colour, nationality, religion and culture, which supposedly have nothing to do with market laws. But the socially excluded are the poor, as it has always been....the poor and poverty”.

The poverty of these ex-mineworkers excludes them, for the most part, from accessing even the most minimal means of redress in the form of diagnosis and, thereafter, statutory compensation. Their poverty further excludes them from appeal against the delay or rejection of their applications. They are even further removed from the possibility of accessing legal assistance to pursue civil liability claims, directly against the mining companies, through the courts in South Africa. All these ‘exclusions’ are the consequence of one of the most fundamental aspects of poverty which is powerlessness.

The failure of epidemiological knowledge

The high prevalence levels of asbestos-related disease were revealed as early as 1930 with Slade’s work, and again in the 1960s by Sluis-Cremer. The severe repression of research and information, as apartheid intensified into ‘separate development’, resulted in Lebowa being further neglected. Information on disease levels and the extremely dangerous working conditions in the 1970s and early 1980s is difficult to obtain. The evidence presented is reliant on the sporadic research findings of some scientists, and on the work of investigative journalists. There are ‘large gaps’ in epidemiological knowledge. What does exist, however, is sufficient to confirm a history of decades of very high levels of asbestos-related disease.

This extreme failure in the identification and documentation of asbestosis cases has resulted in the exclusion of very large numbers from official statistical records. Until the 1990s the available data sources recorded but a small fraction of the actual burden of disease. As Felix *et al* (1993: 282) write, “the gaps in our epidemiological knowledge mean that the gravity of these asbestos epidemics will never be fully recorded. What is clear is that where scientists conducted sound studies, high proportions of the populations surveyed were found with asbestos-related disease. This contrasted with the relatively small number of cases of asbestos-related disease diagnosed by standard medical services serving these populations”. There are improvements,

however, in detection in certain areas. The findings of high levels disease, that have come with increased medical surveillance, strongly indicate the imperative to enlarge such detection efforts.

That the 'survivor' population is now being recorded as having prevalence rates of 50% and higher does not come as a surprise but it is cause for the gravest concern. All the evidence presented here, both from the literature and from field research, supports Dr Neil White's assertion of a "global epicentre of asbestos-related disease".

It was, quite simply, made very easy for the asbestos mining companies to suppress knowledge of the fatal nature of the fibre, to deny the rights of workers to be informed of the lethal potential of the material that they came into daily contact with, to discard their workers without proper exit tests, to fail to inform them of their right to post-employment medical examinations, and to keep knowledge of the high levels of disease hidden. The people afflicted were rural mineworkers; the last to learn of the dangers of asbestos, the last to access medical assistance, the last to learn of their statutory rights for examinations.

The fact that ex-mineworkers in Sekhukhuneland were the last to learn of the nature of their illnesses is borne out by the information presented from the pioneering epidemiological work in the late 1980s and 1990s of Felix in Mmafefe, Davies and the NCOH in the Maandagshoek Programme, and the IHRG at Penge. That mineworkers were kept in ignorance of the dangers, and in ignorance of occupational health regulations and compensation legislation, is again strongly supported by the evidence emanating from the fieldwork of this study.

All the factors that have been covered attempt to illuminate what is, in the end, a consistent ethical, corporate, legal and governmental failure to protect the health of mineworkers. Following on from this failure, there has been a similar moral, legal, corporate and state failure to provide the social and economic resources required to detect those who have been affected, and the social and economic resources that are needed to address the question of repair for the damage that has been done.

It can be concluded that there was a very marked lack of control of asbestos in the mines in Sekhukhuneland. Clearly there is a direct relationship between the production of asbestos, a very

dangerous activity, and the destruction of health. The international and local findings of medical scientists can, without doubt, be said to have been ignored and actively suppressed.

Evidence from medical monitoring did not lead to stricter controls of production processes. In the prioritisation of corporate interests, the demands of profits left the needs of safety on the sidelines. There were seriously inadequate regulations for the control of dust, and a complete failure of inspection and control systems. The most shocking evidence of this, in view of evidence of the prevailing high dust levels in the Pietersburg Asbestos Fields and elsewhere, is the fact that in almost a century of asbestos mining there were only three warning letters, and one proposal to prosecute which was not carried out, from the offices of the government mining engineer. (Felix, 1997)

The marked absence of proper health services in the workplace, the further lack of an adequate health infrastructure generally, and the absence of an occupational health infrastructure to implement the ODMWA, has led to the health of black mineworkers being almost entirely neglected. Although a more equitable regulatory framework for the medical surveillance of all mineworkers has been instituted since 1993, in measures that make the system uniform, this is not enough for “there does not appear to be an all embracing framework for these changes”. (IHRG, 1993: 1)

Legislation alone will not redress the extremely high levels of under-reporting of disease, and clearly many problems remain. Jeebhay (1991) notes some of these as insufficient health personnel who are trained in the identification of occupational diseases, as well as insufficient awareness and equipment amongst existing health professionals, and insufficient awareness amongst mineworkers of their rights to free benefit examinations subsequent to employment. There is clearly a need to properly publicise the ODMWA. It is noted by the IHRG (1993: 17) that ill ex-mineworkers will often only “present to state health services in the late stages of disease”.

Although it was recommended by many occupational health practitioners that guidelines for the diagnosis and assessment of pneumoconioses should be widely publicised, along with greater publicity given to the ODMWA by the compensation authorities, this has not occurred. Although the ODMWA was the last of South Africa’s racist legislation to be amended, seven

years have passed since these amendments were introduced. The consequences of this are that a “substantial proportion of workers will die waiting for a medical benefit examination”. (Trapido and Goode, 1999: 55) Or, they could die unaware even that they are entitled to a free medical examination.

The recommendation of the IHRG to the Leon Commission on Health and Safety in the Mining Industry was that occupational medicine, as a seriously undeveloped medical discipline in South Africa, requires substantially greater resources. What is needed are regional centers and specific occupational disease surveillance programmes, which would give greater recourse to diagnostic facilities. What is also required are occupational disease clinics at hospitals in the asbestos mining districts, and in those areas that have large ex-mineworker populations. The IHRG (1993: 20) has commented: “Given the unprecedented world outcry over asbestos, and the large amount of blame placed on South African crocidolite and amosite asbestos fibres, it is remarkable that no regulations exist for the medical surveillance, diagnosis, treatment and compensation of asbestos-related disease”.

The IHRG has maintained that a special case can be made for the asbestos mining districts, and have recommended a special programme in the asbestos contaminated areas: for greater awareness on the part of health professionals, greater access to health care and improved access to the compensation system. Such a programme should comprise the tracing of ex-asbestos mineworkers, medical surveillance, ongoing medical care and treatment, and compensation. All this should be “tailored to the hazard profile of the asbestos mining sector”. (IHRG, 1993: 31) The tracing of ex- asbestos mineworkers is very important as passive case finding is inadequate. The reasons for this are the very high levels of ignorance of the dangers of asbestos exposure, as well as ignorance of the ODMWA. These recommendations, made 7 years ago, have yet to be acted upon.

The minimal redress of the compensation system

It is clear that only a small fraction of incident cases are recognized and properly diagnosed. Of those that have been diagnosed, not all will be successful in their applications for compensation. The IHRG (1993) noted that there was a lack of education and commitment in the state health sector to applications for compensation. For those who reach the point of applying for

compensation there are then many problems with claim resolution, as well as long delays for those claims that are successfully resolved.

One of the problems is that “in practice the workings of the certification committee and the basis of its decisions have not been transparent”. (IHRG, 1993: 5) The use of chest x-rays alone in the certification process is problematic as “there is significant inter reader variability”, and “certification outcomes may in a significant proportion be controversial”. (IHRG, 1993: 15) Certification based on x-ray findings together with work history is problematic in that many mineworkers are without any ‘labour history’ documentation. If insufficient documentation is provided, and/or chest radiographs are of poor quality, then there is a good chance that the claimant will be informed that a “compensable disease” is not present.⁹¹ Not only does the compensation system need to be made more accessible, it needs to be made more accountable as well.

In summary, the main administrative problems in the compensation system are:

- the length of time taken from application to outcome for those cases that are administratively in order in terms of the requirements, and which places a burden of delay onto the already injured ex-miner
- the stringent criteria that result in a high proportion of claim refusals for which reasons are not given
- the general lack of mining service records which again places a burden, that of proof, onto the ex-miner.

Any time lapses have serious implications for workers who, through no fault of their own, have contracted respiratory diseases while in the employ of the mining industry.

The overwhelming perception on the part of those whose compensation claims had not been resolved, almost half of the case study, was that their files had simply been put aside and ignored

⁹¹ Benjamin (1992: 17) writes that “institutional means must be created to ensure that employees receive competent advice and assistance in assessing and if necessary challenging awards of compensation and to promote a greater awareness of employee’s entitlement to benefits. The extremely low number of objection hearings stems from a general ignorance of rights in terms of the Act, the low level of public interest and the lack of expert agencies to assist workers in prosecuting objections”. Within the MBOD appeals against the findings of the Medical Certification Committee are referred to the Medical Reviewing Authority, appointed by the Minister of Health. This Reviewing Authority either confirms the findings of the Medical Certification Committee or refers them for upgrading. In 1999/2000 only 232 appeal applications were received – 190 decisions were confirmed and 37 were upgraded, while 5 were deferred for more medical information. (MBOD, 1999/2000)

by the Compensation Commission. The idea that their applications had been 'shelved' appeared to be the only one they could conclude as they had received no information as to the status of their compensation claims. The actual reason is a lack of administrative effectiveness in the office of the Compensation Commissioner, and a strict adherence to an Act that fails to take many factors into account. A strong case could be made for the admittance of oral evidence similar to that accepted in the land claims restitution process.

The Commissioner is aware of the extensive delays between application and receipt of compensation; he stated that his intention was to reduce the time taken from application to claim resolution to a maximum of three months. The ill people in Sekhukhuneland do not have the means, financially, to travel to Johannesburg to press an inquiry at the offices of the Compensation Commission. Nor, in fact, are they physically well enough to do so with any ease.

A further fundamental shortcoming in the compensation system is that of the clinical rating of disease. The clinical rating system takes into account only a medical assessment of *impairment*, with lung disease classified into only two degrees of disease representing two categories of impairment. These two broad categories are hardly adequate to assess physical injury to lung capacity and thus degree of general incapacity, and certainly of little use in assessing *disability*. Disability is the impact of the physical injury on the mineworker's life. A clinical rating alone cannot calculate the disabling impact on the mineworker whose only asset is that of good health and a strong body.

The impact of disability is often totally disproportionate to the degree of impairment. The assumption of the clinical rating system is that lesser degrees of impairment result in lesser degrees of lost earnings. Yet for the worker dependent on manual labour this is not the case; even relatively minor degrees of impairment can result in total disablement for employment⁹², and for the reasonable survival of themselves and their families. Physical impairment alone is not a sufficient measure of disability for it does not consider the social context of the workers life. In other words, assessing degrees of disability needs to take into account *the effect* of impairment on the patient's life.

⁹² Benjamin and Greef state, of manual and semi-skilled worker, that they "may be rendered unemployable by a relatively minor permanent disability." (1997: 173)

Compounding the limitations of such clinical assessment of 'disability' is the further disadvantage, for lower wage earners, and wages in the asbestos mining industry were uniformly low, of the wage-based calculation of compensation benefits. As has been illustrated, it also leads to differing compensation amounts for the same degree of disease, as well as larger amounts for lesser degrees of disease. Benjamin (1992: 21) writes, "it can be argued that a higher percentage should be paid to very low wage earners who may spend their entire income on the necessities of life". It can surely be argued that the system of lump sum payments at their current levels does not redress income loss. In order to protect the worker from income loss pensions are clearly needed.

Though these lump sum payments might provide an initial injection of cash which was found to be used in the same way wages are used; for the purposes of fixed capital investment in improving houses, for payment of debts, and for consumption expenses, such as food, clothing, school fees and uniforms, and medical expenses, they are amounts which are 'quickly gone'. This leaves the ill ex-mineworker, at a time when funds are increasingly required for medical expenses, without any source of income.

Due to the long periods between the onset of illness and loss of employment, the two generally going together, and diagnosis and compensation, many people were already in debt. A substantial portion of their compensation benefit was already accounted for. It is hardly reasonable to think that these people would be in a position to 'wisely' save the lump sum. Yet even if these lump sum amounts were invested they would hardly yield sufficient interest to substitute for a pension.⁹³ An evaluation of the compensation legislation must conclude that it offers no protection in terms of income replacement.

Clearly, "the operation of two workers' compensation systems has produced administrative and financial inconsistencies and inequalities in benefits" (Benjamin & Greef, 1997: 162) leaving ill ex-mineworkers the worst off when it comes to compensation for disease. The compensation system fails to deal with all the problems that arise from asbestos-related disease.

⁹³ For example, R10 000.00 saved at 7% would yield R700 per annum, giving a monthly income of R58.33. This beneficiary would have been earning R634.92 per month on the wage-based calculation of the lumpsum payment. If they were to receive a 75% pension they would get R476.19 monthly. Larger lumpsum compensation amounts make little difference to the possibility of generating a pension from savings: R28 000.00 would yield approximately R1960.00 per annum, and give only R163.33 monthly.

Social exclusion

It has been shown that the failure of detection and compensation has resulted in a substantial externalization of the costs of production onto mineworkers, their families and their communities. It is an externalization of injury that is, perhaps, unparalleled in the history of the asbestos industry. It appears that knowledge of the trail of disease, somewhat earlier and better detected in the industrialized world, is traveling slowly backwards to those who were the 'lifeblood' of the South African export market.

There is no doubt that poor health takes a heavy economic toll and that health is an important determinant of economic well-being. Illness can bring about poverty which then brings about further ill-health for the already ill person, as well as for other family members. As noted by Dr Mampunima poor nutrition in those with asbestos-related disease results in a faster deterioration. Stress and anxiety are inevitable accompaniments of severe incurable illness, and they are intensified when experienced in the midst of extreme poverty.

Chronically poor health status impacts directly on household income, on labour productivity, and on labour force participation. There are the costs of lost work time, the costs of treatment and the costs of foregone productivity in the household domain. The latter is not only applicable to the ill ex-mineworkers themselves but, in the inflation of dependency ratios, to those caregivers, mainly wives, who spend more time looking after the ill household member than they did before the illness. This is time that is taken away from other productive activities which, in the rural context, are, significantly, those that relate to subsistence agriculture. Further impoverishment, justifiably called a downward spiral, results from the incapacity of sick adults, and the reduced capacity of their carers who are usually women.

This is something of a vicious cycle which can further impact on the health of other family members, particularly children. The majority of the younger children in the households of the asbestosis sufferers that were interviewed were clearly malnourished, with signs of stunting in many. This was a clear reminder of how poverty and ill-health can be transmitted from one generation to the next. It is not isolated individuals who experience the economic consequences of asbestos-related disease and long-term permanent disability but their families as well. These dynamics need to be understood, identified and taken into account.

Disease that causes increased dependency ratios reveals the importance to households of the physical well-being of adults. Chambers (1989: 5) stresses this in saying that “much attention has been focused, correctly, on the health and well-being of women and children, and nothing should detract from that. But what we now see is that among the very poor the health of a breadwinner, whether male or female, is critical for the well-being of the rest of the household; and that preventing disability in breadwinners, or curing it, can also prevent malnutrition in children. Indeed, the cheapest way to prevent child malnutrition may often be to prevent adult sickness, and the most sustainable way to overcome the malnutrition of a child may often be to overcome the disability of an adult”.

Such widespread incidence of long-term permanent disability and illness renders individuals, households and whole communities vulnerable. It is noted by Chambers (1989) that all too frequently ‘vulnerable’ is used as a synonym for ‘poor’ when it does not have the same meaning. ‘Vulnerable’ means “defencelessness, insecurity, and exposure to risk, shocks and stress. This contrast is clearer when different dimensions of deprivation are distinguished, for example, physical weakness, isolation, poverty and powerlessness”. (Chambers, 1989: 1) All those in the case study in Sekhukhuneland suffered, intensely, all these ‘dimensions of deprivation’.

The external side of ‘vulnerability’ is that of the ‘risks, shocks and stresses’, while the internal is ‘defencelessness’. It is the economic and physical vulnerability, the permanence of the ‘shock and stress’, within those households affected by asbestos-related disease that has a severely impoverishing impact. Physical vulnerability and economic vulnerability interact and lead to the “further impoverishment of already resource-poor households”. (Corbett, 1989: 58) The ill health of those with asbestos-related disease results in extreme vulnerability that is permanent and progressively worse; it is not the temporary vulnerability of ill-health that can be treated, overcome and cured.

Asbestos-related disease could have been *prevented*, it cannot be *cured*, and the *disability* which results remains without redress. It would appear, however, that these fundamental facts are often overlooked, and perhaps Duncan is right when he states, “the idea that people somehow deserve their miserable lot has shown remarkable staying power throughout the history of race relations in South Africa”. (1995: 166) To go beyond such limited structural understanding we need to recognize that “poverty and deprivation are functions of polarization, of power and

powerlessness. Any practical analysis has to examine the whole system: - 'us', the powerful, as well as 'them', the powerless. Since we have more power to act, it is hard to evade the imperative to turn the spotlight round and look at ourselves". (Chambers, 1995: 5)

In the attempt to show the failure of detection and compensation systems, and the price that is being paid for the inadequate protection of workers lives on the asbestos mines, the 'spotlight' inevitable falls onto the 'greed, hypocrisy and exploitation' (Chambers) of the asbestos mining companies, and onto the state in its compliance. It was a case of 'knowingly and recklessly' endangering the health of mineworkers and whole communities.

The 1998 National Asbestos Summit temporarily drew attention to the devastating impact that the mining of this mineral has had in South Africa. A further Summit, planned for the following year, has still not occurred. This should be rectified immediately, and due attention should be paid to the need for vastly improved occupational health surveillance systems, to the procedures and practices of the compensation system, and to the far-reaching consequences that asbestos-related disease has had in rural areas.

The spotlight needs to be turned onto the profits that accrued to the center through exploitative mining practices that pushed the mineworkers to the extreme margins of destitution and disease. It needs to be recognized that asbestos mining in South Africa 'stole' the lifeblood of the mineworkers. Their health cannot be returned to them but reparation could be made to alleviate their, and their families, suffering.

BIBLIOGRAPHY

Abdullah, F., Jeebhay, M. and Meyers, J. (1994) *Occupational Diseases in Mines and Works Amendment Act, 1993*. S Afr Med J, Vol 84:132-133.

Arkles, R. S. (1993) *The Social Consequences of Industrial Accidents: Disabled Mine Workers in Lesotho*. Thesis, M.A. (Sociology), University of the Witwatersrand.

Aron, J. and Myers, J. (1987) *Asbestos And Asbestos Related Disease In South Africa: An Update*. Southern Africa Labour and Development Research Unit (SALDRU), Working Paper No 71.

Asbestos Regulations, 1987 in Machinery and Occupational Safety Act (1983) Government Printer, Pretoria.

Baldwin-Ragaven, L., de Gruchy, J. and London, L. (1999) **An Ambulance of the Wrong Colour. Health Professionals, human rights and ethics in South Africa**. University of Cape Town Press, Cape Town.

Barroetavena, M.C., Teschke, K. and Bates, D.V. (1996) *Unrecognized Asbestos-Induced Disease*. Am J Ind Med 29:183-185

Benjamin, P. (1992) *Compensation for accidents and diseases at work*. South African Labour Bulletin, Vol 16 No 3:86-88.

Benjamin, P. (1995) *Is the workers' compensation system adequate?* South African Labour Bulletin, Vol 19 No 3:81-84.

Benjamin, P. (1992) *The Reform Of The Workmen's Compensation Act: The Beginning Of Democratic Social Security?* Working Paper 16, Centre For Applied Legal Studies, Johannesburg.

Benjamin, P. and Greef, J. (1997) *Report Of The Committee Of Inquiry Into A National Health And Safety Council In South Africa*. Presented To Mr Tito Mboweni, Minister of Labour, 29 May.

Bernstein, H. (1998) *Social Change in the South African Countryside? Land and Production. Poverty and Power*. The Journal of Peasant Studies, Vol. 25, No. 4:1-32.

Bethlehem, L. and Goldblatt, M. (eds) 1997 **The Bottom Line: Industry and the Environment In South Africa**. University of Cape Town Press and the International Development Research Centre, Cape Town.

Bhorat, H. (1995) *The South African social safety net: past, present and future*. Development Southern Africa, Vol 12 No 4: 595-604

Bond, P. (2000) **Elite Transition. From Apartheid to Neoliberalism in South Africa.** Pluto Press, London.

Botha, J.L., Irwig, L.M., Strelbel, P.M. (1986) *Excess Mortality From Stomach Cancer, Lung Cancer, And Asbestosis And/Or Mesothelioma In Crocidolite Mining Districts In South Africa* Am J Epidemiology Vol. 123, No 1:30-40.

✂ Brink, A. (1983) *Asbestos denial.* New scientist, 26 May.

Brodeur, P. (1974) **Expendable Americans.** Viking Press, New York.

Brodeur, P. (1985) **Outrageous Misconduct: The Asbestos Industry on Trial.** Pantheon, New York.

Budlender, D. (1984) *Workmens' Compensation.* South African Labour Bulletin, Vol 9 No 4:22-41.

Budlender, D. (1999) *Patterns of Poverty in South Africa.* Development Southern Africa, Vol 16 No 2:197-219.

Burke, G. and Richardson, P. (1978) *The Profits of Death: A Comparative Study of Miners Phthisis in Cornwall and the Transvaal.* Journal of Southern African Studies, Vol 4 No 2:147-171.

Cape PLC (1993) *A Distinguished Past And A Confident Future. A Short History of Cape PLC 1893 – 1993.* London.

The Cape Asbestos Company Ltd. (1953) *The Cape Asbestos Company Ltd.* London.

The Cape Asbestos Company (1957) *The Cape Asbestos Company Ltd. Some Historical events. 1893 – 1956.* London.

Carter, M. R. and May, J. (1998) *Poverty, Livelihood And Class In Rural South Africa.* Centre for Social and Development Studies, Working Paper No 17.

Castleman, B.I. (1996) **Asbestos – Medical and Legal Aspects.** Fourth Edition, Aspen Law & Business, New Jersey.

Chambers, R. (1995) *Poverty and Livelihoods: Whose reality Counts?* Institute Of Development Studies, Sussex, Discussion Paper 347.

Chambers, R. (1983) **Rural Development: Putting the Last First.** Longman, London.

Chambers, R. (1989) *Vulnerability, Coping and Policy.* IDS Bulletin, Vol 20. No. 2, Institute of Development Studies, Sussex.

Clear, M. (1999) *The 'Normal' and the Monstrous in Disability Research.* Disability and Society, Vol.14 No.12:435-448

Coetzer, G.J., Kinghorn, J. and Van Der Berg, S. eds. (1992) *Working Documents on the Post-Apartheid economy. No. 5: Social Safety Nets*. Stellenbosch Economic Project, Stellenbosch.

Collins, T.F.B. (1967) *Asbestos – the lethal dust*. S Afr Med J, Vol 41:639-646.

Commission for Gender Equality, South African Human Rights Commission and the South African NGO Coalition (1998) *Poverty And Human Rights. National Speak Out on Poverty Hearings, March to June 1998*. SANGOCO, Johannesburg

Commission for Gender Equality, South African Human Rights Commission and the South African NGO Coalition (1998) *The People's Voices. National Speak Out On Poverty Hearings, March to June 1998*. SANGOCO, Johannesburg.

Commission of Inquiry into Health and Safety in the Mining Industry (1995) Report, Department of Minerals and Energy, Pretoria.

Compensation For Occupational Injuries and Diseases Act No 130 of 1993. Government Gazette 1994, No. 15158. Amended by Act No 61 of 1997.

Corbett, J. (1989) *Poverty and Sickness: The High Costs of Ill-Health*. IDS Bulletin, Vol 20 No 2:58-62, Institute Of Development Studies, Sussex.

Davies, D.A. and Davies, J.C.A. (1999) *Widows of miners in the Northern Province*. Occupational Health SA, Vol 5 No 3:14-15, May/June.

Davies, J.C.A. (1998) *A Report On The Maandagshoek Project – Second Programme, April – September 1998*. Unpublished document available from the author.

Davies, J.C.A. (1992) *Occupational Lung disease And Pulmonary Tuberculosis At Tintswalo Hospital And In The Eastern Transvaal Lowveld – An Exercise In Re-Perception*. - NCOH Report No 1, Johannesburg.

Davies, J.C.A. (1997) *Report On the Maandagshoek Project And Proposals For The Integration Of Occupational Health Care Into The District Medical Services*. Unpublished document available from the author.

Davies, J.C.A. (1999) *Silicosis And Tuberculosis Among South African Miners: An Overview Of Recent Studies And Current Issues*. Address to a Rand Mutual Symposium, and presently being revised for the SAMJ.

Davies, J.C.A., Williams, B.G., Debeila, M.A. and Davies, D. (2000) *Occupational Lung Disease Among Women in the Northern Province of South Africa*. Forthcoming.

Delius, P. (1996) **A Lion Amongst The Cattle. Reconstruction and resistance in the Northern Transvaal**. Ravan Press, Johannesburg.

Delius, P. (1990) *Migrants. Comrades And Rural Revolt: Sekhukuneland 1950 –1987*. Transformation 13:2-26.

Development Bank of Southern Africa (2000) *South Africa: Inter-Provincial Comparative Report*. Development Information Business Unit, Johannesburg.

Doyal, L. with Pennell, I. (1979) **The Political Economy of Health**. Pluto Press, London.

Duncan, D. (1995) **The Mills of God. The State and African Labour in South Africa 1918-1948**. University of the Witwatersrand Press, Johannesburg.

Erhlich, R., Lilis, R., Chan, E., Nicholson, J. and Selikoff, I.J. (1992) *Long term radiological effects of short term exposure to amosite asbestos among factory workers*. Br J Ind Med 49:268-275.

Evans, T. (1989) *The impact of personal disability on rural households: evidence from endemic areas of river blindness in guinea*. IDS Bulletin, Vol. 20 No.2, Institute of Development Studies, Sussex.

* Felix, M.A. (1997) *Environmental Asbestos And Respiratory Disease in South Africa*. Doctoral Thesis, Faculty of Medicine, University of the Witwatersrand.

Felix, M.A. (1991) *Risking Their Lives In Ignorance: the story of an asbestos-polluted community in Going Green – People, Politics and the Environment in South Africa*, Cock, J. and Koch, E. (eds) Oxford University Press, Cape Town.

Felix, M.A., Leger, J-P. and Erhlich, I. (1993) *Three Minerals. Three Epidemics – Asbestos Mining And Disease In South Africa*, in *Advances In Modern Environmental Technology*, Vol 22 Part 1:265-286. The identification and control of environmental and occupational diseases, M.A. Mehlman and A.Upton (eds), Princeton Scientific Publishing Company Inc.

* Felix, M.A., Rendall, R.E.G., Schwitz, I.A. and Murray, J. (1995) *Mesothelioma resulting from asbestos cement exposure*. OccHSA Vol 1. No 1:26-27.

Flynn, L. (1982) *South Africa blacks out blue asbestos risk*. New Scientist, 22 April:237-239.

Flynn, L. (1992) **Studded With Diamonds And Paved With Gold. Miners, Mining Companies And Human Rights In South Africa**. Bloomsbury Publishing Ltd, London.

Forrester, V. (1999) **The Economic Horror**. Polity Press, Cambridge.

* Garish, D. (1984) *ILO: Working with Asbestos*. South African Labour Bulletin, Vol 10 No 3:59-61.

Garish, D. (1984) *Workmen's Compensation – Who Pays the Price?* South African Labour Bulletin, Vol 9, No 7:6-11.

Goodman, K.C., Rees, D. and Arkles, R.S. (1994) *Compensation for occupational lung disease in non-mining industry*. S Afr Med J, Vol 84:160-164.

The Griqualand Finance and Exploration Company Limited, (1991) *Annual Report*.

The Griqualand Finance and Exploration Company (1992) *Annual Report*.

Hansen, J. de Klerk N.H., Musk A.W. and Hobbs M.S.T. (1998) *Environmental Exposure to Crocidolite and Mesothelioma*. Am J respir Crit Med. Vol 157:69-75.

Harrington, J.S. and McGlashan, N.D. (1998) *South African Asbestos: Production, Exports, and Destinations, 1959 – 1993*. Am J Ind Med 33:321-326

✂ Hart, H.P. (1988) *Asbestos in South Africa*. J. S. Afr. Inst. Min Metall. Vol 88 No 6:185-198.

✂ Health Systems Trust (2000) *South African Health Review 1999*. Health Systems Trust, Durban.

Hirson, B. (1989) **Yours For The Union. Class and Community Struggles in South Africa**. Zed Books, London.

Hnizdo, E. and Rees, D. (1995) *Surveillance of occupational diseases – where does SORDSA fit in?* Occupational Health SA, Vol 3:26-31.

Illich, I. (1976) **Medical Nemesis. The Expropriation Of Health**. Random House, New York.

Industrial Health Research Group (2000) *Comments On The Draft Amended Asbestos Regulations*. IHRG, University of Cape Town.

Industrial Health Research Group (1992) Abdullah, F. and Jeebhay, M. *Medical Screening At Penge Amosite Mine*. Report Prepared for the National Union of Mineworkers. IHRG, University of Cape Town.

Industrial Health Research Group - Abdullah, F., Jeebhay, M. and Edwards, D. (1993) *Occupational Diseases on Mines*. Submission to the Commission of Inquiry on Mining Safety and Health. Prepared for the National Union of Mineworkers.

Institute For Ecological Rehabilitation (2000) *Asbestos Prioritization Report*. Potchefstroom University, 24 March.

International Labour Organization (1995) *Convention Concerning Safety and Health In Mines*. Convention 176, ILO, Geneva.

Irwig, L.M., du Toit, R.S.J. and Sluis-Cremer, G.K. (1979) *Risk of asbestosis in crocidolite and amosite mines in South Africa*. Ann NY Acad Sci, 330:35-52.

Jeebhay, M. (1997) *Challenges Facing Us In Dealing With The Health Of Ex-Miners*. Paper delivered at a seminar: An occupational disease epidemic – is there a cure? Frere Hospital, East London.

✂ Kisting, S. (1999) *Asbestos. The Problem and The Challenges Facing South Africa*. Indicator SA, Vol 16 No 1:75-82.

✂ Kisting, S. (1987) *Regulating Asbestos: Too little. Too late?* South African Labour Bulletin, Vol 12 No 8:73-79.

Kisting, S., Jeebhay, M and Abdullah, F. (1997) *Respiratory Health Surveillance Programmes On Asbestos Mines In South Africa – Findings of Medical Audits Over A Five Year Period*. Proceedings of the International Symposium on Epidemiology in Occupational Health, September, Harare.

Klasen, S. (1997) *Poverty, Inequality and Deprivation In South Africa: An Analysis of the 1993 SALDRU Survey*. Social Indicators Research, Vol. 41 No 1-3:51-94, Kluwer Academic Publishers.

Leger, J-P. (1992) *Occupational diseases in South African mines – a neglected epidemic?* S Afr Med J, Vol 81:197-201

Leger, J.P. and Arkles R.S. (1989) *Permanent disability in black mineworkers. A critical analysis*. S Afr Med J 76:557-561

Lewis, P. and Jeebhay, M. (1996) *The Mines Health and Safety Bill 1996 – A New Era for Health and Safety in the Mining Industry*. Industrial Law Journal Volume 17, Part 3:429-447.

Lipton, M., Ellis, F. and Lipton, M. (eds) (1996) **Land, Labour and Livelihoods in Rural South Africa. Volume Two: Kwazulu-Natal and Northern Province**. Indicator Press, Durban.

Mafokane, M.R., Davies, J.C.A., Davies, D. and Sekgobela, P.C. (1999) *Compensating Miners in the Northern Province*. OccHSA, May/June:11-12.

Mamdani, M. (1996) **Citizen and Subject**. David Philip, Cape Town.

Marks, S. and Andersson, N. (1987) *Issues in the Political Economy of Health In Southern Africa*. Journal of Southern African Studies, Vol. 13, No.2:177-186.

May, J. (1999) *'Carried With My Teeth' . Poverty And Caring For Children In South Africa*. Paper presented to the XDX International Vitamin A Consultative Group Meeting, 8-12 March, Durban.

May, J. (1998) *Poverty and Inequality in South Africa*. Report prepared for the Office of the Executive Deputy President and the Interministerial Committee for poverty and Inequality. Praxis Publishing, Durban.

May, J. (ed) (2000) **Poverty and Inequality in South Africa. Meeting The Challenge**. David Philip, Cape Town and Zed Books, London.

May, J. and Norton, A. (1997) *"A Difficult Life": The Perceptions And Experience Of Poverty In South Africa*. Social Indicators Research 41:95-118, Kluwer Academic Publishers.

McMurty, J. (1999) **The Cancer Stage of Capitalism**. Pluto Press, London.

Medical Bureau For Occupational Disease (1999) *Annual Report 1998/99*. MBOD, Johannesburg.

Medical Bureau For Occupational Disease (2000) *Annual Report 1999/2000*. MBOD, Johannesburg.

Meeran, R. (1998) *Accountability of transnationals for human rights abuses - 1*. New Law Journal, 13 November: 1686-1687, London.

Meeran, R. (1998) *Accountability of transnationals for human rights abuses - 2*. New Law Journal, 20 November: 1706-1707, London.

Meeran, R. (2000) *Multinational accountability: workers' quest for justice*. International Union Rights, Vol 7 Issue 2:9-12.

Mine Health And Safety Act, Act No 29 of 1996. Government Gazette 1996, No. 17242.

Mthintso, V. (1999) *The War on Poverty Forum*. Development Update, Vol. 2 No. 4: 99-106, South African National NGO Coalition.

Murray, R. (1990) *Asbestos: a chronology of its origins and health effects*. Br J Ind Med 47:361-365.

Myers, J. (1980) *Asbestos and Asbestos-related disease in South Africa*. Southern Africa Labour and Development Research Unit (SALDRU), Working Paper No 28.

Myers, J. (1981) *The Social Context Of Occupational Disease: Asbestos and South Africa*. Int J Health Services 11 (2):227-245.

Myers, J., Aron, J. and Macun, I.A. (1987) *Asbestos And Asbestos-Related Disease: the South African Case*. Int J of Health Services, Vol 17, No 4:651-665.

Mzileni, O., Sitas, F., Steyn, K., Carrara, H. and Bekker, P. (1999) *Lung cancer, tobacco, and environmental factors in the African population of the Northern Province, South Africa*. Tobacco Control; 8:398-401.

National Asbestos Summit – Final Proceedings. (1998) 24 – 26 November, Esselen Park, Johannesburg, convened by the National Parliamentary Portfolio Committee on Environment and Tourism.

Occupational Diseases in Mines and Works Act No. 78 of 1973, (ODMWA). Government Gazette 1973, No. 3970.

Occupational Diseases In Mines And Works Amendment Act No. 205 of 1993. Government Gazette 1994, No. 15449.

Occupational Health and Safety Act No 85 of 1993. Government Gazette 1993, No. 14918.

Packard, R.M. (1987) *Tuberculosis and the Development of Industrial Health Policies on the Witwatersrand 1902-32*. Journal of Southern African Studies Vol 13, No 2:187-209.

Packard, R.M. (1989) **White Plague, Black Labour. Tuberculosis and the Political Economy of Health and Disease in South Africa.** University of Natal Press, Pietermaritzburg.

Packard, R.M. and Coetzee, D. (1995) *White Plague. Black Labour Revisited: TB and the mining industry*, in **Crossing boundaries: mine migrancy in a democratic South Africa**, edited by Jonathan Crush and Wilmot James, Institute For Democracy in South Africa, Cape Town.

Pneumoconiosis Research Unit (1964) *Field Survey In The North Western Cape And At Penge In The Transvaal (Asbestosis and Mesothelioma)*. Report No 1/64, Council For Scientific and Industrial Research, Pretoria.

Ramplele, M. and McDowell, C. (1991) **Restoring The Land. Environment And Change in Post-Apartheid South Africa.** Panos, London.

Rees, D. (2000) *The Burden of Occupational lung disease*. Occupational Health SA, July August 2000, Vol 6 No 4:10-14.

Rees, D., Goodman, K., Blignaut, C. and Bachmann, M.O. (1999) *Case-control Study of Mesothelioma in South Africa*. Am J Ind Med 35:213-233.

Rees, D., Goodman, K., Fourie, E., Chapman, R., Blignaut, C., Bachmann, M.O. and Myers, J. (1999) *Asbestos Exposure and Mesothelioma in South Africa*. S Afr Med J, Vol 89, No 6:627-634.

Reid, G., Kielkowski, D., Steyn, S.D. and Botha, K. (1990) *Mortality of an asbestos-exposed Birth Cohort*. S Afr Med J., Vol 78:584 -586.

Sachs, W. (1999) **Planet Dialectics. Explorations in Environment and Development.** Zed Books Ltd, London.

SA-PPA (1997) *The Experience and Perceptions of poverty: The South African Participatory Poverty Assessment*. Praxis Publishing, Durban.

Selikoff, I.J. and Hammond, E.C. eds. (1979) **Health Hazards of Asbestos Exposure.** New York Academy of Sciences, New York.

Sitas, F., Madhoo, J. and Wessie, J. (1998) *Incidence of histologically diagnosed cancer in South Africa*. National Cancer Registry, Johannesburg.

Slade, G.F. (1930) *The Incidence Of Respiratory Disability In Workers Employed In Asbestos Mining. With Special Reference To The Type Of Disability Caused By The Inhalation Of Asbestos Dust*. Thesis presented for the M.D. degree of the Witwatersrand University.

Sluis-Cremer, G.K. (1965) *Asbestosis In South Africa – Certain Geographical And Environmental Considerations*. Ann N Y Acad Sc 132:215-234.

Sluis-Cremer, G.K. (1970) *Asbestosis in South African Miners*. Environmental Research, 3: 310-319.

Sluis-Cremer, G.K. (1992) *Pneumoconiosis Research In South Africa With Emphasis on Developments in the Last Quarter Century*. Am J Ind Med, 22:591-603.

Sluis-Cremer, G.K., Hessel, P.A. and Hnizdo, E.R.A. (1989) *Factors Influencing the Reading of Small Irregular Opacities in a Radiological Survey of Asbestos Miners in South Africa*. Archives of Environmental Health, Vol 44 No 4:237-243.

Smith, A.H. and Catherine C. Wright (1996) *Chrysotile Asbestos is the Main Cause of Pleural Mesothelioma*. Am J Ind Med 30:252-266.

Snyman, P.H.R. (1987) *Safety and Health in the Northern Cape Blue Asbestos Belt*. Paper presented at The First Mining History workshop, 10-11 September, Dundee, Institute for Historical Research, Human Sciences Research Council, Pretoria.

SORDSA (Surveillance of Occupational Respiratory Diseases in South Africa.) Alert (1999) *Asbestos: An Introduction*. National Centre For Occupational Health, Johannesburg.

SORDSA News: Vol. 1, 1997 to Vol. 4, 2000. NCOH, Johannesburg.

Spoor, R. (1998) *Asbestos, Workmen and the Law*. Paper presented at the Mpumalanga Provincial Workshop on Asbestos, 17 November, Nelspruit.

Steen, T.W., Gyi, K.M., White, N.W., Gobosianeelwe, T., Ludick, S., Mazonde G.N., Ncube, M., Monare, N., Ehrlich, R. and Schierhout, G. (1997) *Prevalence of occupational lung disease among Botswana men formerly employed in the South African mining industry*. Occu Environ Med, Vol 54:19-26.

Tallent, J.M., Harrison, W.O., Solomon, A. and Webster, I. (1980) *A Survey of Black Mineworkers of the Cape Crocidolite Mines*, in Biological Effects of Mineral Fibres, Vol 2, ed. Wagner, J.C., IARC Scientific Publications No 30, International Agency for Research into Cancer, Lyons:723-729.

Terreblanche, S. (2000) *Dealing with systematic economic injustice*, in **Looking Back. Reaching Forward. Reflections on the Truth and Reconciliation Commission of South Africa**, Villa-Vicencio, C. and Verwoerd, W. (eds), University of Cape Town Press, Cape Town and Zed Books, London.

Trapido, A., Goode, R. and White, N.W. (1998) *Costs of occupational lung disease in South African gold mining*. J Mineral Policy, Business and Environment, Raw Minerals Report, Vol 13 No 2:26-33.

Trapido, A. and Goode, R. (1999) *Polluters should pay*. South African Labour Bulletin, Vol 23 No 4:53-58.

Trapido, A.S., Mqoqi, N.P., Williams, B.G., White, N.W., Solomon, A., Goode, R.H., Macheke, C.M., Davies, J.C.A. and Panther, C. (1998) *Prevalence of occupational lung disease in a random sample of former mineworkers. Libode district, Eastern Cape Province, South Africa*. Am J Ind Med, Vol 34:305-313.

TRC (1998) **Truth and Reconciliation Commission of South Africa Report**. Volume Four, Chapter Two, *Institutional Hearing: Business and Labour* and Volume Four, Chapter Five, *Institutional Hearing: The Health Sector*. TRC, Cape Town.

Tweeddale, G. (2000) **Magic Mineral To Killer Dust: Turner & Newall And The Asbestos Hazard**. Oxford University Press, Oxford.

Van Niekerk, P. (1984) *Blue and White Disaster*. New Statesman, 11 September, London.

Wagner, J.C., Sleggs, C. A., and Marchand, P. (1960) *Diffuse pleural mesothelioma and asbestos exposure in the northwestern Cape Province*. Brit J Ind Med, Vol 17:260-271.

White, N. (1997) *Dust related diseases in former miners – the ODMWA legacy*. OccHSA Vol 3 No 4:20-24.

White, N. (1994) *Health Hazards In The Mining Industry: An Overview*. Commission of Enquiry Into Health And Safety In The Mining Industry; Cheadle, Thompson and Haysom, Johannesburg.

White, N. (1997) *Occupational lung diseases in ex-mineworkers – misinformed critique*. S Afr Med J, Vol 87:468

White, N. and Bachman, M. (1990) *Problems with workers' compensation for occupational diseases*. South African Labour Bulletin, Vol 15 No 2:54-57.

White, N. and Bateman, E. (2000) *Mesothelioma In South Africa : A Review*. Respiratory Clinic, University of Cape Town/Groote Schuur Hospital.

Wilson, F. (1985) *Mineral Wealth. Rural Poverty*. Optima Vol.33:23-28.

Wilson, F. and Ramphlele, M. (1989) **Uprooting Poverty. The South African Challenge**. Oxford University Press, Cape Town.

The World Bank. (2000) *Can Africa Claim the 21st Century?* The World Bank, Washington D.C.

Zwi, A.B., Reid, G., Laundau, S.P., Kielkowski, D., Sitas, F. and Becklake, M.R. (1989) *Mesothelioma in South Africa. 1976 –1984; incidence and case characteristics*. Int J Epidemiology, Vol 18 No 2:320-329.

JUDGEMENTS

In The High Court of Justice (Queen's Bench Division), London, 30th July 1999, before The Hon. Mr Justice Buckley, Between Group Action Afrika et al (Claimants) and Cape plc (Defendants).

In The Supreme Court of Judicature Court of Appeal, London, 24th November 1999,
Before Lord Justice Pill, Lord Justice Aldous and Lord Justice Tuckey, Rachell Lubbe
(Appellants) v Cape plc (Respondents).

NEWSPAPER ARTICLES

Business Day:

Asbestos victims may sue, 15 December 1998.

Workers' compensation system 'ailing', 15 March 2000.

The Cape Times:

Asbestos levels dangerous, 11 August 1984.

City Press:

Old Asbestos mine is still killing villagers, 25 July 1999.

The Independent on Sunday (U.K.):

Asbestos deaths to soar despite ban, 12 December 1999.

The Mail & Guardian:

The message in a bottle, 1 – 7 August 1997.

Asbestos battle looms, 27 November – 3 December 1998.

If you're poor, don't get hurt, 27 October – 3 November 2000

The Rand Daily Mail (all by Phillip van Niekerk):

Lebowa asbestos workers sacked, 1 July 1984

Sick miners are paid off, 19 July 1984

Shock figures expose extent of asbestosis, 8 August 1984

100 deaths each year linked to asbestos, 21 August 1984

US Steel holds interests in asbestos dumps, 1 September 1984

Concern over asbestos dumps in Lebowa, 1 September 1984

Government orders brickworks out of asbestos dumps, 11 September 1984

Shock asbestos dust figures, 25 October 1984

Asbestos may not be cause of cancer – expert, 31 October 1984

Asbestos-cancer link 'firm', 1 November 1984

Seminar under fire, 1 November 1984

The Sunday Independent:

Compensation chief faces a legal challenge to his official lethargy, 30 April 2000.

The Saturday Star:

Asbestos miners between a rock and a hard place, 20 February 1999.

Asbestos takes a horrifying toll, 24 April 1999.

Floating fibres a menace to community, 24 April 1999.

Asbestos poses little or no risk, 1 May 1999.

Alone, he lives on oxygen and borrowed time, 1 May 1999.

The Star:

Penge not charged for illegal fibre levels, 18 August 1984.

Asbestos epidemic looms, summit told, 25 November 1998.

Thousands dying from asbestos-related disease, 27 November 1998.

'Miracle mineral' in 3000 products, 27 November 1998.