

**OCCUPATIONAL HEALTH**

**IN**

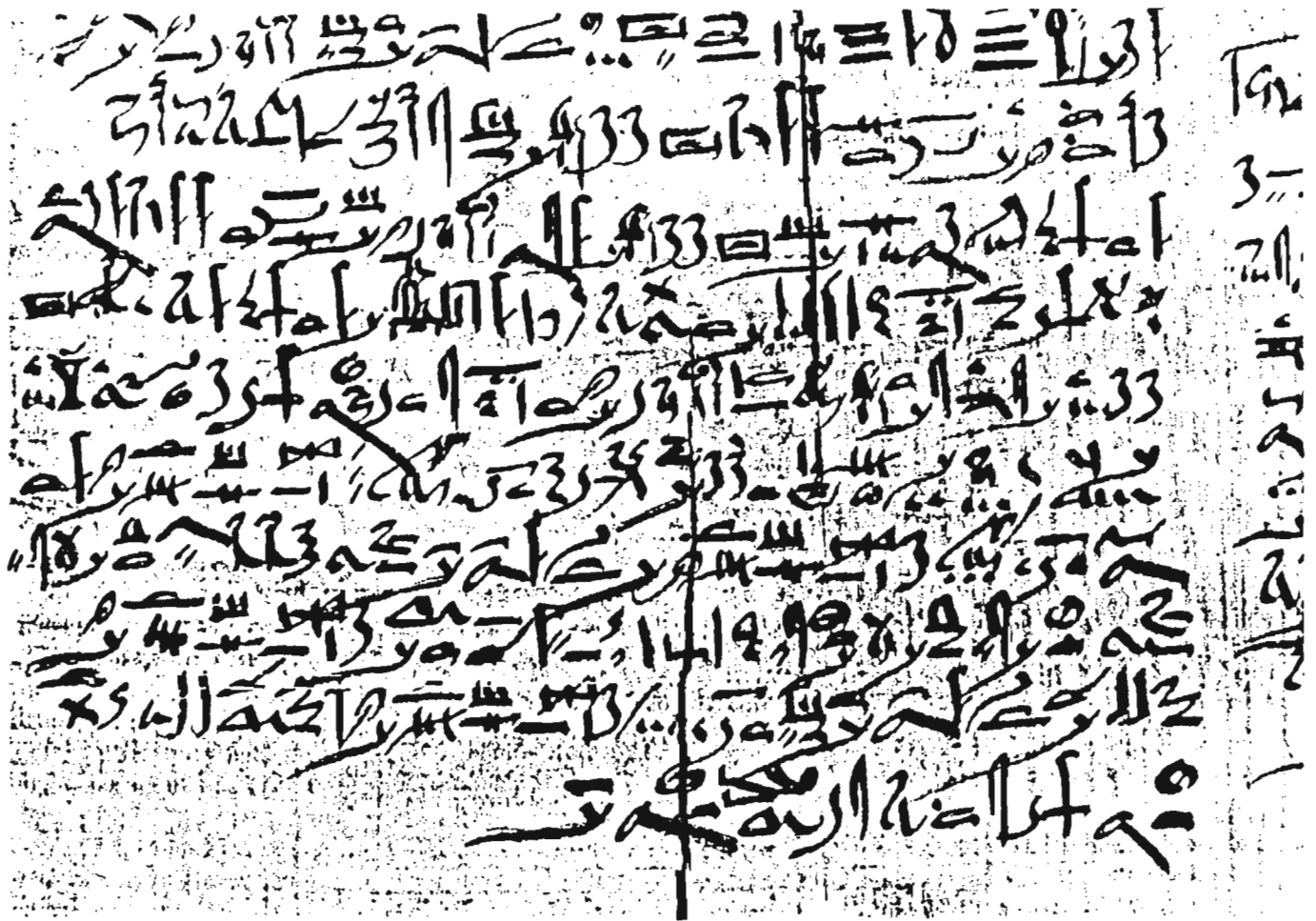
**SOUTH AFRICA**

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(Community Health).

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History of occupational medicine: relevance of Imhotep and the Edwin Smith papyrus



**FIGURE 1:** Ancient Egyptian medical literature has considerable relevance to occupational medicine. Perhaps we should regard the Edwin Smith papyrus as the first manual of occupational trauma and Imhotep\* who possibly was the scribe as the grandfather of occupational medicine<sup>(1)</sup>.

\* Imhotep (approximately 2780 BC) - Chief vizier to the Pharaoh Zoser, also physician, astrologer, priest, architect and engineer.

**PREFACE**

The work described hereunder was carried out in the Department of Community Health of the University of Natal. Where use was made of the work of others, it has been duly acknowledged in the text.

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SUMMARY

Occupational health is concerned with health in its relation to work and the working environment. This study was undertaken to present an overview of occupational health in South Africa, with national and international perspectives on the discipline, in the light of :

- (a) the recent commissions of enquiry into aspects of occupational health in South Africa
- (b) the development of the national and self-governing states
- (c) new strategies by the authorities in the form of decentralization and deregulation.

Information on the health profile of its workers, current legislative and service provisions and on policies for economic development and urbanization is vital for health administrators, occupational health and safety practitioners and policy makers.

Data was collected through the use of literature surveys and postal questionnaires to the various interested persons and groups involved with occupational health.

The findings reveal that

- (a) an inadequate occupational health policy exists in that the responsibilities of government(s), employers, workers and health professionals are not defined
- (b) there is an absence of an organizational and service framework for an occupational health system in South Africa although the morbidity and mortality data are significant (with their concomitant economic and social consequences)
- (c) there is a lack of financial and human resources for the practice of occupational health in South Africa.

Recommendations are made taking into account the developed and developing components of South Africa.

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## CHAPTER 1

### INTRODUCTION

- 1.1 INTRODUCTION
- 1.2 DEFINITION OF CRITERIA
- 1.3 REDUCTION OF BIAS
- 1.4 DATA SOURCES
- 1.5 METHOD OF DATA COLLECTION
- 1.6 LIMITATIONS OF THE STUDY

#### 1.1 INTRODUCTION

The adverse effects that work may have on health have been recognized since the age of antiquity<sup>(2)</sup>. Early writers referred to the ravages of occupational diseases among miners in Egypt<sup>(3)</sup> and slaves in ancient Greece who were considered beyond the concerns of educated citizens<sup>(4)</sup>. Diodorus Siculus, a Greek historian, sets out a vivid report of the methods of mining ore, and probably one of the earliest accounts (50 BC) of working conditions in an industry -

'As these workers can take no care of their bodies, and have not even a garment to hide their nakedness, there is no-one who would not pity them...for there is no forgiveness or relaxation at all for the sick or the maimed, or the old, or for women's weakness, but all with blows are compelled to stick to their labours until worn out they die in servitude'<sup>(5)</sup>.

Hippocratic medicine confined itself to the treatment of the upper classes and not to that of the workers<sup>(6)</sup>. Interest in occupational health emerged in the sixteenth century with Agricola's (1494 - 1555) and Paracelsus's (1493 - 1541) involvement in the health of miners. One century later, Bernadino Ramazzini (1633 - 1714), an Italian physician published the first

systematic account of the diseases of workers<sup>(7)</sup>. During his lifetime, however, neither his medical colleagues nor the society in which he lived had any strong humanitarian sense to inspire them to heed his words that,

'Medicine should make a contribution to the well-being of workers and to see to it that, as far as possible, they should exercise their calling without harm';

nor was there an economic necessity to protect the health and life of workers.

Thus while concerned and thoughtful observations of the effects of work on health date back many centuries, it was only in 1970 that the United States of America (USA) introduced comprehensive legislation governing occupational health with the United Kingdom (UK) following four years later and South Africa passing legislation on **occupational safety** in 1983. In 1981, the International Labour Organization (ILO) adopted a comprehensive programme urging governments to develop national policies on occupational safety, health and the working environment - this being further updated in 1985<sup>(8)</sup>.

As an indicator of the magnitude of the present problem in South Africa, the National Occupational Safety Association (NOSA - 1985) and other researchers<sup>(9)</sup> found that:

- (a) more than 2000 workers are killed in accidents each year
- (b) 300 000 are seriously injured (2% of the workforce)
- (c) six workers are permanently disabled every day of the year
- (d) it has been estimated that 100 000 hands, 50 000 feet and 40 000 eyes are seriously damaged each year
- (e) 700 - 800 workers die on the mines each year and about 28 000 are severely injured.

This literature study was undertaken to present an overview of occupational health in South Africa following upon a number of Commissions of Enquiry.

These commissions dealt with **occupational health** - Erasmus (1975)<sup>(10)</sup> and Niewenhuizen (1977)<sup>(11)</sup> and **labour reform** - Wiehahn (1977)<sup>(12)</sup> and Riekert (1977)<sup>(13)</sup>.

In this study, occupational health includes occupational hygiene (safety) and occupational medicine. Most studies have looked at certain components viz., health services<sup>(14).(15).(16).(17).(18).(19)</sup>, health and safety conditions<sup>(20)</sup>, legislation<sup>(21)</sup>, compensation<sup>(22).(23)</sup> and rehabilitation of workers<sup>(24)</sup>. The objectives were to :

- (a) present an overview of international perspectives on occupational health
- (b) review the history of occupational health in South Africa
- (c) review the current legislation in respect of occupational health in South Africa
- (d) ascertain the current status of occupational health practice as indicated by:
  - (i) morbidity and mortality data in respect of occupational diseases and injuries
  - (ii) occupational health services
  - (iii) employer, union, government and health professional perspectives
  - (iv) education and training for occupational health personnel
- (e) make recommendations in respect of occupational health in South Africa.

An attempt was made to ascertain the occupational health status of the national states (Transkei, Bophuthatswana, Venda and Ciskei) and self-governing states (Gazankulu, Kangwane, KwaNdebele, KwaZulu, Lebowa and QwaQwa). Current demographic profiles, decentralization and deregulation policies of the various authorities in South Africa has implications for the total health status of these populations. South Africa is the most

industrialized country on the African continent. Information on the health profile of its workers, current legislative and service provisions and on policies for economic development and urbanization is vital for health administrators, occupational health and safety practitioners and policy makers.

## 1.2 DEFINITION OF CRITERIA

### (a) Occupational Health

Occupational Health is concerned with the health of people in relation to their work and the working environment and includes the component disciplines of occupational medicine and occupational hygiene.

### (b) South Africa (SA)

South Africa includes the Republic of South Africa(RSA), the national and self - governing states.

### (c) Republic of South Africa (RSA)

The RSA excludes the national and self - governing states.

### (d) National states

The national states are Transkei, Bophuthatswana, Venda and Ciskei.

### (e) Self - governing states

The self - governing states are Gazankulu, Kangwane, Kwandebele, Kwazulu, Lebowa and Qwaqwa.

### (f) National perspective

Perspectives which include the policies of various groups in the data sources on occupational health, legislation and current status of occupational health in South Africa.

### (g) International perspectives

Perspectives which include policies, legislation and current status of occupational health in the following World Bank groupings of countries<sup>(25)</sup> :

#### (i) Industrial market economies

- (ii) East European non - market economies, and
- (iii) Developing countries

The role of the World Health Organization(WHO) and the International Labour Organization(ILO) in occupational health will also be considered.

(h) Morbidity and Mortality

Occupational injuries and diseases affecting workers are divided into categories according to the respective data source.

(i) Workmen's Compensation Commissioner (WCC) data

- Medical aid cases are those in which the worker has lost less than one day or shift
- Temporary disablement refers to those workers losing at least one day or shift
- Permanent disablement refers to those workers having a physical disability ranging from 1% to 100% according to the first schedule of the Workmen's Compensation Act (1941)
- Fatal cases are those resulting in the death of the worker at any time subsequent to the occupational accident/disease and as a direct result of the accident/disease

(ii) Data from reports under the Occupational Diseases in Mines and Works Act (1973)

- CD1 refers to compensable diseases in the first degree (pneumoconiosis or chronic obstructive airways disease(COAD) with cardio - respiratory impairment of less than 40%)
- CD2 refers to compensable disease in the second degree (pneumoconiosis or COAD with cardio-respiratory impairment of greater than 40%)
- TB refers to Tuberculosis
- CD refers to compensable disease with no degree

- CD + TB refers to compensable disease (any degree)  
plus Tuberculosis

(h) Government perspectives

The government perspectives will be the perspectives of the Departments of Health and Manpower (or equivalent) of the Republic of South Africa, the national and self-governing states

(i) Employer perspectives

The employers will be the major employer groups in the Republic of South Africa, viz., the Chambers of Commerce, Industry and Mines

(j) Trade union perspectives

The trade unions will be the major federations viz., the Congress of South Africa Trade Unions (COSATU), South Africa Confederation of Labour (SACL), Azanian Confederation of Trade Unions (AZACTU) and Council of Unions of South Africa (CUSA)

(1) Health professionals perspectives

The perspectives of the Societies of Occupational Medicine and Occupational Health Nurses, Industrial Health Groups and the National Occupational Safety Association (NOSA) will be considered.

### 1.3 REDUCTION OF BIAS

(a) Sampling

Data relevant to the study were requested from the various persons, departments and groups in the data sources using postal questionnaires. For the purposes of this literature study, no cases or controls were established.

(b) Interviewing

Interviewing was carried out using standardized self-administered questionnaires (Appendices B, C and D) which were sent to all the relevant groups.



## (c) Observer

The entire study was carried out by one researcher and adherence to the protocol (Appendix A) was maintained at all times.

1.4 DATA SOURCES

- (a) Department of Community Health (University of Natal) - relevant past dissertations, reports and general assistance
- (b) National Centre for Occupational Health (NCOH - Johannesburg)- literature and library facilities
- (c) Workmen's Compensation Commissioner (Pretoria) - Reports on the 1980 and 1984 statistics
- (d) Libraries (University of Natal - Durban, Don Africana - Durban and the Natal Society Library - Pietermaritzburg) - government reports (RP) 32/71, 53/72, 37/73, 44/74, 71/75, 27/76, 74/79, 96/80, 68/81, 102/82, 110/75, 98/76, 90/77, 62/78, 67/77, 90/80, 77/81, 86/82, 87/74, 100/75, 91/76, 16/78, 14/79, 120/79, 112/80, 95/81, 104/82, 31/84, 99/85, 73/71, 52/72, 43/73, 59/75, 33/77, 27/78, 24/80, 25/81, 16/82, 25/83, 18/84, 26/85, 45/86 and 46/87 - morbidity and mortality data
- (e) Commissions of enquiry reports in University of Natal (Durban) library - Erasmus (RP 55/76), Niewenhuizen (RP 100/81), Wiehahn (RP's 47/79, 38/80, 82/80, 27/81, 28/81) and Riekert (RP 32/79)
- (f) Departments of Health and Manpower (or equivalent) in the Republic of South Africa, the national and self - governing states - perspectives on occupational health (questionnaire-Appendix B)
- (g) Health professional groups - Societies of Occupational Medicine and Occupational Health Nurses, National Medical and Dental Association, NOSA, Health Information Centre, Technical Advice Group, Industrial Aid Society, Urban Training Project, Technical Assistance Project, Industrial Health Research Group and Health Care Trust - perspectives on occupational health (questionnaire-

Appendix C) and literature

- (h) COSATU and the National Union of Mineworkers - perspectives on occupational health
- (j) Medical schools of the Universities of Stellenbosch, Natal, Pretoria, Orange Free State and Cape Town and the Medical University of South Africa - education and training for occupational medical personnel (questionnaire - Appendix D)
- (k) South Africa Nursing Council and Nursing Association - education and training for occupational nursing personnel
- (l) Association for Societies of Occupational Safety and Health (ASOSH) symposium (Pretoria, May 1987) - current status of occupational health
- (m) Medical Research Council and the Council for Scientific and Industrial Research - literature search on occupational health
- (n) Individuals - Prof A M Coetzee (Pretoria), Prof J C A Davies (NCOH), Dr J R Johnston (AECI - Johannesburg) and Dr J T Mets (Cape Town) - literature on occupational health

#### 1.5 METHOD OF DATA COLLECTION

- (a) Objective 1: International perspectives  
Data was collected by reviewing the scientific literature and publications of the WHO and the ILO.
- (b) Objective 2: History of occupational health in South Africa  
Data was collected by reviewing articles in the scientific press, government reports, dissertations and through personal communication with some of the persons listed in the data sources.
- (c) Objective 3: Legislation on occupational health in South Africa  
Data was collected by reviewing government reports and other published literature. The postal questionnaire (Appendix B) included questions on legislation.

(d) Objective 4: Current status of occupational health

- (i) Morbidity and mortality data was collected by reviewing the annual reports of the Workmen's Compensation Commissioner, the Medical Bureau for Occupational Diseases, the Government Mining Engineer, Mining Statistics, Republic of South Africa departments of National Health and Population Development, Manpower and Mineral and Energy Affairs as well as from published articles.
- (ii) Data in respect of occupational health services (OHS) was collected by reviewing recent studies on OHS in South Africa<sup>(15)</sup>.(17).(18).(19).(26) and reviewing the reports of the NCOH. Some aspects of OHS were covered in the questionnaire to the government departments (Appendix B).
- (iii) Data in respect of government, employer, trade union and health professional perspectives were collected by means of a questionnaire (Appendices B and C) as well as from reports of the various groups.
- (iv) Data in respect of education and training for occupational medical personnel was collected by means of a questionnaire (Appendix D) which was sent to all medical schools in South Africa. Data on nursing training in occupational health was from personal communication with the South Africa Nursing Council and Nursing Association. Other information was from relevant articles in the scientific press.

#### 1.6 LIMITATIONS OF THE STUDY

- (a) Government reports from the national and self - governing states in respect of data for this study were not accessible to the researcher.

- (b) The lack of an effective health information system with a rudimentary occupational health component prevented a detailed analysis of morbidity and mortality data.
- (c) The multiplicity of government departments involved in occupational health limited the extraction of adequate data especially for comparison of data across employment sectors.
- (d) The responses to the postal questionnaire were poor:
  - 30% : Republic of South Africa, national and self-governing states
  - 50% : Health professional groups
  - 25% : Trade unions
  - 75% : Medical schools

## CHAPTER 2

### INTERNATIONAL PERSPECTIVES ON OCCUPATIONAL HEALTH

#### 2.1 INTRODUCTION

#### 2.2 THE ROLE OF THE WORLD HEALTH ORGANISATION

#### 2.3 THE ROLE OF THE INTERNATIONAL LABOUR ORGANISATION

#### 2.4 THE INDUSTRIALIZED MARKET ECONOMIES

#### 2.5 THE EAST EUROPEAN NON - MARKET ECONOMIES

#### 2.6 THE DEVELOPING COUNTRIES

#### 2.1 INTRODUCTION

Most industrialised countries through their Ministry of Health, Labour or Social Security, render health care to workers utilizing, with greater or lesser emphasis, the following methods:

- (a) legislation, regulations and standards for working environments
- (b) inspection and surveillance of work-sites
- (c) establishment of institutions for research, teaching and provision of services
- (d) specialized services of occupational hygiene and medicine
- (e) establishment of joint employee - employer committees to enhance worker's health
- (f) provision of social security benefits to injured workers due to related accidents and diseases
- (g) collection of data on occupational injuries and diseases.

The overall practice of occupational health in these countries, however varies according to its political and economic system; and according to the different stages of mining, industrial and agricultural development<sup>(27)</sup>. Historically, industrialization has been crucial to the present development of occupational health in the various countries reviewed; an outline is therefore given concerning this aspect at the beginning of each subsection.

The 1985 World Development Report of the World Bank categorizes the countries of the world<sup>(25)</sup> as:

- (a) Industrial Market Economies - most of the members of the Organization of Economic Co-operation and Development (capitalist countries)
- (b) East European non - market economies - most of which belong to Comecon (the socialist commonmarket)
- (c) Developing Countries - most of the "third world countries"

The role of the World Health Organisation (WHO) and the International Labour Organisation in Occupational Health is given before the review of Occupational Health (OH) perspectives in the aforementioned categories.

## 2.2 THE ROLE OF THE WORLD HEALTH ORGANISATION

The WHO's mandate in occupational health is derived from its constitution ('the directing and co-ordinating authority on international health work'), and stated functions which include the promotion of economic development, working conditions and other aspects of environmental hygiene<sup>(28)</sup>. Various resolutions of the World Health Assembly (WHA) have endorsed programs on occupational health, the best known being Resolution WHA29.57 (1976)<sup>(29)</sup> reaffirming that occupational health should be closely co-ordinated with or integrated into national and industrial development programs.

Its areas of work in occupational health include

- (a) technical co-operation with member states and the ILO to develop health services for workers and their families
- (b) education and training of occupational health personnel
- (c) epidemiological research and field studies
- (d) production of guidelines, technical reports and manuals eg Environmental and Health Monitoring in Occupational Health; Early Detection of Health Impairment; Occupational Health Hazards, Exposure Limits and Organisational Patterns.

The development of an infrastructure for the health care of workers is regarded as one of the components of the 'Health for All by the Year 2000' strategy.

### 2.3 THE ROLE OF THE INTERNATIONAL LABOUR ORGANISATION<sup>(30)</sup>

The ILO was created in 1919 as part of the plan for peace and reconstruction which ended the First World War (Versailles Peace Treaty). Its history dates back to the late nineteenth century when progressive liberals and economists in a number of European capitals denounced the industrial and social conditions produced by capitalism and argued strongly for improvements in the working conditions. Their task was hampered by the prevailing view that any individual country which attempted unilaterally to improve working conditions would increase costs and put itself at a disadvantage with regard to its trading competitors. The ILO was therefore established as a co-ordinating body and is one of several specialised United Nations organisations that develop international treaties and set standards. Current membership (1984) stands at 151 member states and includes capitalist, socialist/communist and developing countries. Both the executive and legislative components of the ILO consists of a tripartite structure (government, employers and workers).

The main instrument used by the ILO for improving working conditions is the International Labour Code which has two components - Conventions and Recommendations. By 1985, 16 Conventions and 23 Recommendations dealing with occupational safety and health were adopted. Present ILO safety and health activities<sup>(31)</sup> include :

- (a) contribution to workplace prevention of occupational accidents and diseases - as below:

TABLE 1

ACTION BY MEMBER COUNTRIES AND THE ILO IN RESPECT OF OCCUPATIONAL HEALTH

<u>NATIONAL ACTION</u>	<u>ILO ACTION</u>
Legislation	- Conventions, Recommendations and advice on Legislation
Regulations	- Model codes, codes of practice, technical advice
Technical and medical inspections	- Manuals, guides, technical publications, *CIS
Activities by Safety and Health institutes, training, information for specialists	- Fellowships, courses, symposia, congresses, *CIS
Information for employers	- Seminars, publications, *CIS
Worker's education	- Seminars, publications, audio-visual aids, *CIS
*CIS = The International Occupational Safety and Health Information Service	

- (b) contribution to the improvement of conditions of work and life- through the International Programme for the Improvement of Working Conditions and the Environment (PIACT).

Generally ILO standards have tended to be highly detailed, prescribing measures which too often ignored resource availability. The developing countries have expressed concern that the ILO standards have become unrealistic in relation to their financial and professional resources<sup>(32)</sup>. In addition, political issues may impede the implementation of the many conventions and recommendations despite national ratification .

(South Africa withdrew from the ILO in 1964 after increasing hostility from the other member states and the adoption by the ILO of the "Declaration concerning (the) Policy of Apartheid in South Africa"<sup>(33)</sup>.)

#### 2.4 THE INDUSTRIALIZED MARKET ECONOMIES (CAPITALIST)

Prior to the first industrial revolution, very little was known or written about occupational health, prompting Ramazzini to write:

' When a doctor visits a working-class home, he should be content to sit on a three-legged stool if there isn't a gilded chair and



he should take time for his examination, and to the questions recommended by Hippocrates, he should add one more: "What is your occupation?" (34)

The development of the steam engine, the power loom, the flying shuttle and the spinning jenny revolutionized the earlier 'cottage' textile business and turned it into a large scale mechanized, factory - based industry. It was a brutal and pitiless transformation, particularly in England where the Industrial Revolution first began.

Examination of the conditions that prevailed in England in those days leads inevitably to the conclusion that occupational accident and disease prevention as we know it today was non - existent. Apart from dirt, squalor and gross unhygienic conditions, there was a disregard for human suffering and pain; ignorance of the effects of overcrowding and a lack of industrial hygiene. The macro - effects were on the disruption of family life, malnutrition, social and mental ill-health due to the change from peasant to town-life and poverty from unemployment due to the fluctuations in the economy. Both the micro - effects of the workplace and the macro-effects of the environment outside the workplace led to many amongst the populace being maimed and deformed. Engels, writing of the population in Manchester in 1844<sup>(35)</sup> remarked that

'.... there were so many deformed persons in that city that they resembled the remnants of a defeated army returning to its base.'

The first attempts to curb these malpractices and improve the working environment occurred in England in 1802 when the Health and Morals of Apprentices Act was passed. It was largely inactive because of inadequate enforcement. Another thirty one years passed before restrictions were placed on the use of children and the appointment of the first four factory inspectors<sup>(36)</sup>. The occurrence of the two world wars (1914 and 1939) provided further impetus to occupational health<sup>(37)</sup>. Industrialization

developed somewhat later in the United States of America than in Britain; consequently occupational health did not develop to any extent until well into the twentieth century.

Levy summarizes the sequence of events in the turbulent development of occupational health in the developed countries thereafter<sup>(38)</sup> as related to:

- (a) the socio - political and industrial development of the state
- (b) the demonstration of the dangers of employment and the lack of adequate safety provisions
- (c) the drive from the public for policy on occupational health
- (d) the development, implementation and enforcement of legislation
- (e) the development of trade unions and the understanding within these unions of the value of occupational safety and health
- (f) the development of institutions devoted to research and training of occupational health personnel
- (g) the improvement of employer attitudes
- (h) worker / trade union / employer co-operation.

It must be noted that only in the last three decades that major interventions were made in the practice of occupational health; in part due to worker and union pressures<sup>(39)</sup> and to public consciousness aroused by the environmental movement.

In most western countries, Government policy on occupational health is shown by the large numbers of national laws on occupational safety and health. The trend in legislation is towards more worker involvement in occupational health matters<sup>(40)</sup>. In Sweden, recent legislation provides for labour - management co-operation in safety and health matters. Provision is made for trade unions to be involved in the assessment of health and safety risks to which their workers are exposed<sup>(41)</sup>. In this regard, differences of approach are found between the laws on safety and health in

Sweden and the United States<sup>(42)</sup> (Table 2).

TABLE 2

RIGHTS OF SAFETY REPRESENTATIVES AND SAFETY COMMITTEES  
IN SWEDEN AND THE UNITED STATES (1982)

RIGHT TO	SWEDEN	UNITED STATES
stop work	+	-
refuse work	+	+
bargain labour process	+	-
be consulted before changes	+	-
be informed about changes in process	+	-
bring in consultant	+	-
have workers' rights publication	+	-
mandatory training for all new workers	+	-
strike	+	+
consultant's services from a government agency	+	-
of interpretation of law	+	-
of veto power (changes in labour process)	-	-
do monitoring work	+	+
access to information on and to monitor hazards	+	+
be trained as a monitor	+	-
be informed about hazards	+	+
be informed about potential hazards	+	-
information about changes in the labour process and products used	+	variable
be informed automatically	+	variable
have access to information	+	+
call inspector	+	+
access to medical records of workers	+	+
access by unions to medical records	+	-
control over occupational health services	+	-
hiring and firing of doctors	+	-
inspector's right to stop work	+	-

Various advisory bodies and institutes with many technical experts have come into being eg. National Advisory Committee on Occupational Safety and Health (USA); National Institute For Occupational Safety and Health (USA); Employment Medical Advisory Service (Britain); Institute of Occupational Health (Finland).

In most cases though, a dichotomy exists in most governments as to the administration of occupational safety and health between Departments of Labour and Health and this has often led to negative effects on Occupational Health<sup>(43)</sup>.

Occupational health services are generally provided by the employers. Legislation in this regard is not clear and in most cases based on

voluntary agreements between workers and employers. Occupational Health care models<sup>(44)</sup>,<sup>(45)</sup> used vary within:

- (a) group occupational schemes
- (b) provision of occupational health services to small firms by a well established service from a neighbouring large firm
- (c) firms in the same industry arranging jointly for the provision of a common occupational health service
- (d) health maintenance organizations on contract (private initiatives serving in any field of health care delivery)
- (e) mobile occupational health services.

Education and training needs of occupational health personnel are still not being fully met leading to a lack of trained health personnel<sup>(46)</sup>. Little time is devoted to occupational medicine teaching in medical schools. A 1978 survey of medical schools in the USA showed that in only half was occupational medicine taught and in only 30% of schools was occupational medicine required in the curriculum<sup>(47)</sup> (for a mean number of 5.6 hours<sup>(48)</sup> only). In the United Kingdom, out of 25 medical schools only 15 gave minimal occupational medicine training in the undergraduate curriculum (1974)<sup>(49)</sup>. On the other hand, post - graduate education in most centres is well established<sup>(50)</sup>. The regional office for Europe of the World Health Organization has produced reports dealing with occupational health services and education and training<sup>(51)</sup>,<sup>(52)</sup>.

Improvements in occupational health have come through :

- (a) more stringent regulatory and enforcement laws
- (b) economic factors such as lost time / lost production due to accidents and illness, and
- (c) union (worker) and public policy pressures.

Current concerns in occupational health research are around cancer due to exposures to various agents in the workplace<sup>(53)</sup> and the health problems of

migrant workers (there are 12 million in Europe alone<sup>(54)</sup>), including the questions of equitable workman's compensation, social security and other social benefits comparable to that of the local people.

## 2.5 THE EAST EUROPEAN NON - MARKET ECONOMIES (SOCIALIST)

In most East - European countries, a high priority is placed on the health of workers. The general health care services covering workers and their families are also based at the workplace<sup>(55)</sup> and gives care for both occupational and non - occupational illnesses. The organization of the occupational health system takes the form of centralized control with some delegation of administration to the periphery to take into account local circumstances. The details about types and quality of occupational health practice were difficult to find in the literature. Kaser details the practice and organization of overall health care in these countries<sup>(56)</sup>. The provision of occupational health services is statutory. The trade unions have the authority to control practical aspects of the activities of the occupational health service jointly with state authorities<sup>(57)</sup>. The preventative and curative branches are administratively separated at central and regional levels but are integrated at the top level in the Ministry of Health and at the plant level.

Large numbers of research and teaching establishments have been set up since the 1920's (the USSR has 16 Institutes of Occupational Health administered by the Ministry of Health) and these offer a variety of services. Occupational safety and health is a multidisciplinary, dynamic and scientific discipline. Doctors, nurses, engineers, employers and workers all undergo training. Occupational hygiene is still in its developmental stages<sup>(58)</sup>. Undergraduate training is limited while postgraduate training is well developed eg. Yugoslavia by 1981 had produced 1000 specialists in occupational medicine<sup>(59)</sup>. Further, a large body of specially trained personnel in occupational safety exists in most

of these countries.

Although the socialist states may have developed their protective laws earlier and set up sophisticated occupational health services, they are by no means immune to the hazards of modern technology. As early as 1949, researchers in the USSR reported liver damage among heavily exposed vinyl chloride workers. This work was not given much attention in other countries<sup>(60)</sup>. In fact, competition with capitalist countries has made Soviet industry as pollution prone as industry in the United States<sup>(61)</sup>.

Some aspects of the laws on occupational health in socialist countries include<sup>(62)</sup> :

- (a) universal application to all workplaces and workers
- (b) government agencies to shut down machinery or processes deemed to be dangerous
- (c) every workplace to prepare a written health and safety plan (with a specific budget) for the short, medium and long term
- (d) new workplace construction or expansion to seek prior approval by the appropriate agency
- (e) definition of obligations by the trade unions in areas such as education, preparation of health and safety plans, budgeting research and inspection procedures
- (f) authorisation for trade union representatives to inspect workplaces and shut down dangerous operations
- (g) compliance by workers with existing codes
- (h) right of workers to refuse unsafe or unhealthy work
- (i) protective codes for women, youth, disabled and handicapped workers including the right of a disabled worker to be retrained
- (j) the Ministry of Health to develop an occupational health system incorporating services, research, training and record - keeping.

In summary, occupational health care is integrated with general health

care. Most eastern bloc countries have close links with each other through the COMECON'S health and safety programme.

## 2.6 THE DEVELOPING COUNTRIES

There are important differences between developed and developing countries which has a bearing on occupational health practice (Table 3)<sup>(63)</sup>. Health problems of workers in developing countries are greater than in developed (industrialized) countries because of<sup>(64), (65)</sup>:

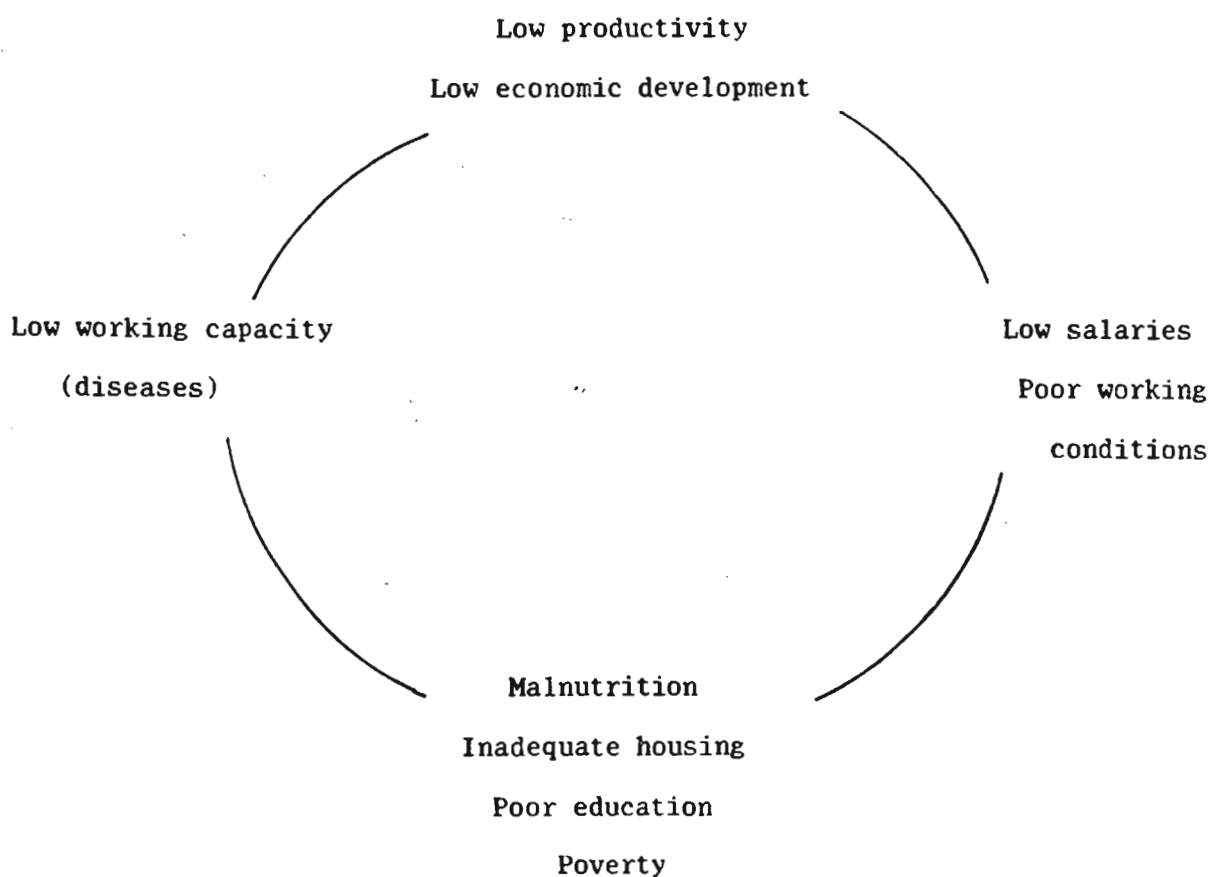
- (a) a lack of understanding of occupational health
- (b) endemicity of infectious and parasitic diseases
- (c) a lack of medical and related personnel and material resources
- (d) a large unskilled workforce
- (e) inadequate labour laws and enforcement of existing legislation
- (f) lack of information on occupational health needs (occupational diseases are often misconstrued as diseases resulting from the general environment)
- (g) the interests of politicians, landowners, multinational or transnational corporations taking precedence over those of the workers.

Climatic conditions and high altitudes may cause additional problems<sup>(66)</sup>. Social stresses<sup>(67), (68)</sup> due to the transfer of large groups of people (internal migration) from agriculture to industry and from rural to urban areas have not yet been considered within the sphere of 'social, physical and mental well - being'. Even in agriculture and forestry, the introduction of mechanization and the use of synthetic fertilizers, pesticides and other agricultural chemicals may lead to new disease profiles<sup>(69)</sup>. Of note is the use of child labour in many developing countries - in countries of Latin America and the Carribean, children between the ages of five and fourteen make up 13% of the working population<sup>(70)</sup>.

Laurel<sup>(71)</sup>, relates the occupational health problems in the developing countries to social and economic processes especially in agribusiness -

' Unorganized, poor and with little knowledge useful to the manipulation of externally imposed conditions, the rural workers - wage labourers and peasants - pay a high price for "modernization" '.

The vicious circle in the pattern of workers ill-health may be summed up as follows :



**FIGURE 2 : FACTORS INFLUENCING OCCUPATIONAL HEALTH IN DEVELOPING COUNTRIES**

Relocation of hazardous industries (precluded from operating in Western countries) to these countries with minimal or no standards may prove doubly dangerous to workers and their families<sup>(72)</sup>; in addition, 'double standards' exist with developing countries being used for the dumping and testing of hazardous technologies<sup>(73)</sup>.<sup>(74)</sup>. Some industries, however, have extended health services to include the worker's families<sup>(75)</sup>.<sup>(76)</sup>.



Interventions in the field of education and training of occupational medical personnel has expanded and improved in the last decade<sup>(77)</sup>. Sending personnel abroad (to developed countries) may result in inappropriate training<sup>(78)</sup> and has not proved to be ideal<sup>(79)</sup>. To this end, the ILO and the WHO have proved their commitment to the health problems of developing countries in general and workers in particular by organizing regular courses and providing educational teaching aids. The Pan-American Health Organization's (PAHO) commitment to a 'Program of Action on Worker's Health'<sup>(80)</sup> defined broad strategies for the South American sub-continent, including a commitment by governments to assign a high priority to the health of workers. The program has close links with other technical programs in line with the WHO's approach to services for total health; not just limited to the diseases of occupation<sup>(81)</sup>. The links between the technical resources of the developed countries and the developing countries are being strengthened by the setting up and supporting of occupational health services, and research and training facilities eg. the Institute of Occupational Health in Finland is involved in Kenya and Tanzania and will be shortly in Zimbabwe<sup>(82)</sup>.

Recognizing the above special circumstances and conditions, a Symposium on the Health Problems of Industrial Progress in Developing Countries<sup>(83)</sup> concluded that the maintenance of the health of workers in developing countries entails

- (a) the treatment and prevention of epidemic and endemic diseases, the provision of adequate housing, sanitation, nutrition and social services including health education of workers and management
- (b) prevention of occupational injuries and diseases, including the mechanical, chemical and biological risks of modern agriculture
- (c) planning and organisation of medical care for small or dispersed working groups
- (d) initial and further training for all types of health staff

- ensuring an emphasis on preventative as well as curative care
- (e) introduction and enforcement of statutory minimum standards of health, safety and medical care.

In summary, integration of occupational health care with primary health care is essential; a priority being the setting up of an Health Information System to help with the planning and measurement of the impact of interventive programs<sup>(84)</sup>.

### CHAPTER 3

#### HISTORY OF OCCUPATIONAL HEALTH IN SOUTH AFRICA

- 3.1 HISTORY OF INDUSTRIALIZATION IN SOUTH AFRICA
- 3.2 HISTORY OF OCCUPATIONAL HEALTH IN SOUTH AFRICA
- 3.3 A BRIEF REVIEW OF THE COMMISSIONS OF ENQUIRY
- 3.4 COMMENTS

#### 3.1 HISTORY OF INDUSTRIALIZATION IN SOUTH AFRICA

The development of occupational health is related to industrialization in South Africa.

South Africa, before the 1860's, had an agricultural and pastoral economy. The techniques of production were backward compared to Western Europe and North America. Economic links to the outside world were limited to wine and wool exports. The discovery of precious minerals in South Africa revolutionised economic development in the following ways :

- (a) Exports: Gold and diamonds were exported and the money was used to buy foreign machinery. This began the modernisation of production techniques - the replacement of manual production methods with mechanization. Labour - intensive practice still continued but mechanization was introduced to improve productivity. In addition, commercial farming mushroomed to serve the needs of passing traders on their way from Europe to the East.
- (b) Foreign Investment: Overseas investment flowed into the country as foreigners bought shares in the mining companies.
- (c) Employment: Black and white people who were previously

subsistence farmers now moved to wage-earning occupations. Various laws were passed forcing the Black peasant farmer to become a wage-earner (poll, hut and dog taxes)<sup>(85)</sup>. At the same time, a class of persons who owned the mines and land emerged.

- (d) Manufacturing industry: Secondary industries to serve mining towns were started to produce goods for the workers and equipment for the mines. This sparked off the development of the South African Manufacturing sector. By 1943, this sector had overtaken gold and agriculture as the largest sector of the economy.
- (e) Government revenue: The Transvaal colony, and later the Union government taxed wage earners, the mines and factories and used these to provide services like sewage removal, transport and electricity.

The indigenous population had been mining copper and other metals as early as the 1300's. With the advent of commercial mining, however, the need for labour swelled from 15 000 Africans in the gold mines in 1890 to 190 000 in 1912<sup>(86)</sup>. With the help of the government, a system of migrant labour was developed, and indentured Chinese and Indian labourers were imported<sup>(87)</sup>.

### 3.2 HISTORY OF OCCUPATIONAL HEALTH IN SOUTH AFRICA

The turbulent history of the diamond fields of Kimberley in the 1800's mirror the conditions elsewhere in South Africa at that stage -

'...this mass of humanity was concentrated on a small piece of bare desert veld, with no water, depositing their garbage and excreta, thereby contaminating the little drinking water in the few wells they had dug. Small wonder that an epidemic of what, for want of a clearer diagnosis, was called "camp fever", broke out'<sup>(88)</sup>.

The mortality rate for infectious diseases in Kimberley were 130 per 1000 workers from 1900 to 1905<sup>(89)</sup>.

The first qualified doctor to arrive at the mines was a Dr B W Hall in 1868<sup>(90)</sup> - his medical skills, however, were secondary to the lure of the riches of the diggings. Until this stage, 'quacks reigned supreme while the natives had their witchdoctors and medicine-men'<sup>(91)</sup>. The first hospital on the mines was established in Pniel in 1868. These rudimentary health services however, were geared more towards the general health needs of the colonizing people which was intertwined with the poor sanitary and housing conditions rather than to the poor working conditions.

The earliest form of occupational health legislation in South Africa dealt with Workmen's Compensation and was passed in the Cape Colony in 1886<sup>(92)</sup>. Thereafter a series of laws known as the Prior Laws, laid the basis for a comprehensive system of compensation in 1912 for white miners who were the victims of Phthisis. This was a result of the Milner and subsequent Commissions of Enquiry. Occupational health services on the gold mines were a further recommendation and Dr A J Orenstein was appointed by the Rand Mines Group in 1914 as their Chief Medical Officer<sup>(93)</sup>.

Even before the inception of the Department of Labour in 1924, the health and safety of workers in factories was controlled by the Factories Act of 1918 under the Minister of Mines and Industries. In the early 60's, the Division of Occupational Safety of the Department of Labour conducted an extensive investigation into the health of industrial workers and found sufficient evidence concerning the neglect of the preventative aspects of occupational health<sup>(94)</sup>. The Erasmus Commissions's findings prove that the former commission's recommendations were largely ignored.

The other major input of the government in terms of occupational health was the establishment of the forerunner to the National Centre for Occupational

Health (NCOH) viz., the Pneumoconiosis Unit in 1956<sup>(95)</sup>. Its chequered history and the valuable research work it has done has been well documented in the Erasmus Commission's report.

Overall conclusions on the state of occupational health pre - Erasmus, is that except for the mining industry, very little input by the employers was made in terms of protecting the health and safety of workers in South Africa. The workers and the unions on the other hand were concerned mainly with wages.

Increased local and international concern about the health of workers may have resulted in the appointment of the Erasmus Commission of Enquiry (1975) on occupational health. In 1977, two further government Commissions of Enquiry were instituted - the Wiehahn Commission to investigate the state of labour legislation with particular regard to the problem of labour disputes; and the Riekert Commission into the influx control system within the broad context of the 'Homeland' policies of the government. Soon after this the Niewenhuizen Commission (1977) was appointed to investigate aspects of compensation for workers.

The general strategy behind the four Commissions and the concessions by employers was clear - to eliminate focal points of industrial disputes and to provide a controlled framework for industrial relations. Another intention was to separate economic from political issues and to appease certain sections of the workforce. This was in response to the increasing worker militancy of the early 1970's<sup>(96)</sup> in their demand for better wages and working conditions.

### 3.3 A BRIEF REVIEW OF THE COMMISSIONS OF ENQUIRY

#### 3.1.1 Erasmus Commission

This commission was set up in 1975 and reported its findings late in 1976. The Commission presented information on the existing situation at

that time in terms of:

- (a) provision of occupational health services
- (b) occupational health legislation
- (c) occupational health personnel, and
- (d) the role of employers and employees.

It also drew attention to the inadequate notification and compensation of occupational diseases, poor training and understaffing of important departments such as the factory inspectorate; as well as the inadequate numbers of trained medical and nursing personnel.

The Commission recommended that a single, consolidated Industrial Health Act be promulgated so as to render comprehensive health services for workers and avoid duplication. Since then the Machinery and Occupational Safety Act has been passed (1983) and the Occupational Medicine Bill published for comment in 1984. Both seek to redress some of the deficiencies in previous legislation.

### 3.3.2 Niewenhuizen Commission

This Commission was set up in 1977 to examine aspects of compensation for occupational diseases. One of the main reasons was to compare the two different compensation systems viz., the Workmen's Compensation Act (1941) and the Occupational Diseases in Mines and Works Act (1973). The Commission recommended that :

- (a) the compensation procedure for all occupational diseases should be uniform, and
- (b) there should be no racial discrimination affecting the amount of money paid out.

(The former recommendation has been accepted by the government and it is expected that a new Occupational Health Act, which will cover compensation for occupational diseases, may be promulgated).

### 3.3.3 Wiehahn Commission

This Commission was appointed in 1977 with the following terms of reference:

- (a) the adjustment of the existing system for the regulation of labour relations in South Africa
- (b) the adjustment, if necessary, of the existing machinery for the prevention and settlement of disputes
- (c) the elimination of bottlenecks and other problems experienced within the existing sphere of labour, and
- (d) the methods and means by which a foundation for the creation and expansion of sound labour relations may be laid for the future of South Africa.

The Commission's report appeared in six parts from 1979 to 1981 and much of the reform of the labour legislation in South Africa resulted from its recommendations.

### 3.3.4 Riekert Commission

This Commission was appointed in 1977 to consider aspects of legislation related to the utilisation of black manpower in South Africa excluding those administered by the then Departments of Labour and Mines. Overall, its recommendations related to the migrant labour system and influx control measures. The Commission presented its report in 1979.

## 3.4 COMMENTS

Since the late 70's, new strategies by the government have included deregulation, decentralisation and privitization of services. These policy objectives are to stimulate economic growth and reduce the high rate of unemployment by :

- (a) removing a variety of laws and regulations which hamper the private sector
- (b) creating new industrial growth points away from the urban centres



- and closer to the national and self-governing states, and
- (c) transferring a range of public sector activities and services to the private sector.

These have implications for the health of workers and their families.

(To date, the government's involvement in occupational health has been at the level of promulgation of laws (chapter 4) with minimal enforcement<sup>(97)</sup>, control of the compensation bureaucracy and funding of the NCOH.)

The government has also approved the Temporary Removal of Restrictions on Economic Activities Bill early in 1986<sup>(98)</sup>. The Bill empowers the State President to suspend any laws or regulations affecting an industry or occupation, if he is of the opinion that they may impede economic progress competition or the creation of job opportunities. Included in the accompanying regulations are those governing :

- (a) occupational safety and health
- (b) conditions of service and working hours
- (c) licensing of businesses
- (d) registration of employees, and
- (e) building standards.

Some areas of the country are experimenting with free trade zones or ZEBRAS (Zero-Based Regulation Areas) especially in Natal<sup>(99)</sup>.

While the selective implementation of deregulation, decentralisation and privitisation may have some desirable results<sup>(100)</sup>, they may also erode the recent gains by workers in respect of bargaining rights, wages and working conditions. The Health Strategy Association's consolidated report of the four working groups on privitization and deregulation, view occupational health as one of the areas of consideration for privitization<sup>(101)</sup>. A separate report commissioned by the Chamber of Mines (1986) looked at the

rationalisation of health care delivery in the mining industry<sup>(102)</sup>. The resurgence of research work on occupational health may be due to cost - containment efforts by employers and the possible removal of it as an area of conflict in the workplace. Davies of the NCOH sees 'the provision of first rate occupational health services as an essential contribution to softening the harsh edges of modern capitalist industrial undertakings'<sup>(103)</sup>.

## CHAPTER FOUR

### OCCUPATIONAL HEALTH LEGISLATION IN SOUTH AFRICA

#### 4.1 INTRODUCTION

#### 4.2 CATEGORIES OF LEGISLATION

#### 4.3 COMMENTS

#### 4.1 INTRODUCTION

The development of legislation in South Africa parallels political (constitutional), social and economic development. The 1970's heralded the reform phase of the government and more sophisticated labour legislation was introduced - a side-effect was the promulgation of legislation governing occupational safety and health. The other major development was the granting of independence to the national states (Transkei, Boputhatswana, Venda and Ciskei) and self-governing status to others (Gazankulu, Kangwane, Kwandebele, KwaZulu, Lebowa and QwaQwa) - (Table 4). As a consequence of this autonomy, some operated in terms of the Republic of South Africa legislation and others drafted their own, resulting in the current miss-mesh of legislation which has implications for workers, employers, occupational health personnel and enforcement agencies.

Roman-Dutch or Common law forms the basis of all legislation in South Africa. Since 1806, laws have been promulgated to regulate local conditions and actions. These laws then take precedence over Common law.

Up to 1983, a number of laws existed governing various aspects of occupational health in different sectors of employment<sup>(104)</sup>. In addition, various local authorities passed bylaws governing scheduled trades under their jurisdiction<sup>(105)</sup>. Some of the government departments involved with their administration were :

- (a) National Health and Population Development
- (b) Manpower
- (c) Water Affairs
- (d) Agricultural, Economics and Marketing
- (e) Mineral and Energy Affairs
- (f) Transport
- (g) Environment Affairs

Laws governing employer - employee relations in South Africa overlap with occupational health legislation. The following categories were defined in order to present an overview of current occupational health legislation:

- (a) Health and Safety at work
- (b) Worker's welfare
- (c) other health related laws
- (d) other labour related laws

## 4.2 CATEGORIES OF LEGISLATION

### 4.2.1 HEALTH AND SAFETY AT WORK

#### 4.2.1.1 MACHINERY AND OCCUPATIONAL SAFETY ACT (MOSA) NO. 6 OF 1983

The MOSA's aim is to

- (a) Provide for the safety of persons
  - at a workplace
  - in the course of their employment
  - in connection with the use of machinery
- (b) To establish an Advisory Council for Occupational Safety

The Act provides for the protection of all workers except those persons governed by the Mines and Works Act 27 of 1956 and the Explosives Act 26 of 1956. Domestic workers and farmworkers are not regarded as employees for the purposes of designation of safety representatives. Employers in respect of workplaces with less than 20 workers are also excluded from this requirement<sup>(106)</sup>. The underlying philosophy is one of 'self-regulation' by

employers and workers<sup>(107)</sup> based on the principle that workers and employers have a mutual and equal interest in regard to occupational health and safety.

The Act is administered by the Department of Manpower through the Minister, the Director - General and their nominees. Local authorities may now receive authorisation under the Act to appoint inspectors in areas under their control<sup>(108)</sup>.

The Advisory Council and its technical committees (section 2 of the Act) which were appointed in August 1983<sup>(109)</sup>, will make recommendations and advise the Minister on all aspects of safety. The nine member council consists of representatives of the Department of Manpower, Health (NHPD), Workmen's Compensation Commissioner, employers and employees with the chief inspector being the chairman. (The employees representatives are from the older more established trade unions.)

Sections 9-12 make provision for the formation of safety representatives and safety committees. Sections 19-22 establishes the safety inspectorate which monitor workplaces; ensure compliance with the provisions of the Act; conduct enquiries into deaths, illnesses or injuries and direct employers to ensure workers' safety. The regulations of the old Factories, Machinery and Buildings Works Act remain in force until replacement by new regulations under MOSA.

Current regulations in force under MOSA include:

- (a) general administrative procedures
- (b) general safety regulations
- (c) electrical installation regulations
- (d) asbestos regulations (within the framework of minimum standards)

Within a few months the following are expected :

- (a) environmental regulations for workplaces (thermal conditions, lighting, ventilation, etc.)
- (b) facilities
- (c) general machinery regulations
- (d) electrical machinery regulations, and
- (e) driven machinery regulations.

Regulations governing lead and the control of substances hazardous to health are in their draft form at present. Future regulations will govern diving, elevators and escalators and pressure vessels.

Ciskei has its own Machinery and Occupational Safety Act (No 35 of 1984) administered by its Department of Manpower Utilization. The most important differences from the Republic of South Africa Act are that :

- (a) there is no mention of an Industrial Court
- (b) designation of one safety representative for 100 workers (Republic of South Africa: 1 to 50)
- (c) there is no mention of a wage board.

Transkei, Venda and Bophuthatswana are currently drafting similar occupational safety legislation<sup>(110)</sup>. Kangwane inherited the Republic of South Africa MOSA as it was still at the stage of having a legislative assembly when the act was passed<sup>(111)</sup>. In all the other states, the Black States Constitution Act 21 of 1971 ensured that the Factories, Machinery and Buildings Works Act will apply as inherited on the date of legislative assembly unless the state adopts the new MOSA specifically as with Lebowa and Kwazulu.

#### 4.2.1.2 FACTORIES, MACHINERY AND BUILDINGS WORKS ACT (FMB) NO. 22 OF 1941

It provides for the registration and control of factories; regulation of hours and conditions of work in factories; supervision of the use of machinery; precautions against accidents to persons employed on buildings or excavations work and for other incidental matters. This Act applies in

all the national and self - governing states except Ciskei, Transkei (which has passed its own FMB Act No 35 of 1978), Lebowa and Kangwane.

The major limitation of this Act is that it covers people employed in connection with building work, machinery and factories. At times, Republic of South Africa inspectors have to enforce two sets of regulations and two Acts<sup>(112)</sup>.

#### 4.2.1.3 THE MINES AND WORKS ACT (MWA) NO. 27 OF 1956

The MWA is concerned with the regulation of environmental conditions on the mines and the health of workers. It defines the various occupations and working places in mines and works; the procedure of supervision of mines, works and machinery with respect to health, safety and welfare. It is a preventative Act attempting to ensure basic standards and practices designed to minimize injury or illness from the many risk situations in the mining or quarrying industry. Regulations are promulgated by the Department of Mineral and Energy Affairs and deal with a large range of issues such as:

- (a) the storage, transfer and transport of explosives
- (b) the safety, health and welfare of persons in or at the mines
- (c) the reporting of accidents occurring at mines and works
- (d) the provision of ambulances and medical aid in case of accidents
- (e) the determination of the number of hours of work and the number of shifts
- (f) minimum standards of ventilation and illumination
- (g) the control of dust.

The Act does not address the problem of noise in the mines.

The Act applies in the Republic of South Africa and all the national and self - governing states. In August 1984, Bophuthatswana (the only national state with mines) repealed the Republic of South Africa Act and replaced it with its own MWA No. 18 of 1984<sup>(113)</sup> with important differences as to the

control of mines and has more stringent fines for non - compliance and discriminatory practices. The Republic of South Africa Act has also removed the last vestiges of discrimination during the August 1987 session of Parliament.

#### 4.2.1.4 OCCUPATIONAL MEDICINE BILL (DRAFT NOTICE NO. 20 OF 1984)

This bill was published for comment on January 13, 1984. The draft bill based on the recommendations of the Erasmus Commission, provides for an Advisory Committee for Occupational Medicine and the medical measures for the protection of the health of workers as a result of exposures to certain agents or ergonomic factors. The major features include the following :

- (a) employers are obliged to provide an environment in which workers cannot be exposed to harmful substances under certain criteria laid down by the MOSA
- (b) exposed workers must undergo medical examinations
- (c) certain occupational related diseases may be declared notifiable
- (d) no worker suffering from an occupational - related illness can be discharged from work unless suitable medical treatment and rehabilitation is carried out
- (e) deceased persons exposed to prescribed agents shall have post-mortem examinations
- (f) failure to comply carries severe penalties
- (g) regulations can be made on a variety of matters eg., minimum hygiene standards, provision of preventative, curative and rehabilitative care and education and training of workers.

The Bill (which is expected to be passed later this year or early next year) will be administered by the Department of National Health and Population Development with inspectors from the Department or Local Authority performing the monitoring and enforcement functions.



#### 4.2.2 WORKER'S WELFARE LEGISLATION

##### 4.2.2.1 WORKMEN'S COMPENSATION ACT (WCA) NO. 30 OF 1941

The WCA is intended to provide compensation and medical aid for the worker in commerce and industry who suffers personal injury as a result of an occupational accident or who is disabled by a scheduled occupational disease. It also provides compensation to dependents in the event of a fatality due to an accident or scheduled disease. The Act removes the Common Law right of workers to sue employers who fail to ensure that the workplace is safe and free from hazards. The WCA covers most workers but certain major exclusions are made<sup>(114)</sup>. The Act is administered by the Workmen's Compensation Commissioner under the Department of Manpower. Funds for payment are provided by an Accident Fund; revenue for which comes from a number of sources (the main one being employers). The Rand Mutual Fund covers workers on the mines and the Federated Employers' Mutual Fund covers the construction industry.

The Act applies to the Republic of South Africa and the self-governing states only and is administered wholly by the Republic of South Africa Department of Manpower as the Black States Constitution Act (BSCA) specifically excludes the self-governing states' control over this Act. The national states have passed their own WCA's -

- (a) Transkei - No 20 of 1977
- (b) Bophuthatswana - No 12 of 1979
- (c) Venda - No 6 of 1980
- (d) Ciskei - No 12 of 1982

which are administered by their respective Departments of Manpower.

Some differences occur in the WCA'S especially with regard to the selection of workers for compensation and the list of scheduled diseases. Of note is the exclusion, by Transkei and Bophuthatswana, of mesothelioma, which is included in the Republic of South Africa, Venda and Ciskeian schedules<sup>(115)</sup>.

4.2.2.2 THE OCCUPATIONAL DISEASES IN MINES AND WORKS ACT NO. 78  
OF 1973

This Act provides for the compensation of certain scheduled diseases contracted by workers on the mines and works. It is administered by the Department of National Health and Population Development. Some provisions of the Act include :

- (a) a medical bureau for occupational diseases
- (b) a Risk Committee to declare certain work to be risk work
- (c) determination of standards to be applied in the certification of compensatable diseases.

Much overlapping exists between the WCA and Occupational Diseases in Mines and Works Act<sup>(116)</sup>.

4.2.2.3 THE UNEMPLOYMENT INSURANCE ACT (UIA) NO.30 OF 1966

The UIA is intended to provide financial assistance to employees during periods of unemployment and illness; to the dependents of the contributors who have died; to unemployed women contributors during pregnancy and for schemes to combat unemployment. The Unemployment Insurance Fund is administered by the Department of Manpower and obtains its revenue from contributions by employers (0.9% of wages), workers (0.9% of wages) and the government (25% of the total contributions not exceeding seven million rand per annum). A recent amendment (Act No 89 of 1982) allows migrant and contract workers to become contributors to the Fund<sup>(117)</sup>.

The Act applies in Republic of South Africa and all self-governing states (where the Black States Constitution Act specifically excludes their control over it); the national states have passed their own legislation :

- (a) Transkei - No 11 of 1983
- (b) Bophuthatswana - No 17 of 1978
- (c) Venda - No 11 of 1983
- (d) Ciskei - No 11 of 1983

The five Acts are similar.

#### 4.2.3 OTHER HEALTH RELATED ACTS

##### 4.2.3.1 THE HEALTH ACT NO 63 OF 1977

The Act defines the scope of the Department of National Health and Population Development (NHPD) and has the following objectives :

- (a) to provide for measures for the promotion of the health of the inhabitants of South Africa
- (b) to provide for the rendering of health services
- (c) to define the duties of the various authorities which render health services
- (d) to provide for the co-ordination of these services.

Section 34 specifically empowers the Minister to make recommendations regarding the regulation, restriction or prohibition of any trade or occupation entailing a special danger to health. Section 20 empowers Local Authorities to take steps to ensure a healthy environment (the Durban Municipality has several Scheduled Trade Bylaws in this regard).

##### 4.2.3.2 THE ATMOSPHERIC POLLUTION PREVENTION ACT NO 45 OF 1965

This Act's objective is to control and prevent air pollution in South Africa. In 1985, 67 scheduled processes were controlled by the regulations promulgated under this Act. The guiding policy is that of 'best practicable means' to control air pollution. The Act is administered by the Department of Health(NHPD).

##### 4.2.3.3 THE HAZARDOUS SUBSTANCES ACT NO 15 OF 1973

This Act provides for the control of substances which may cause injury, ill-health or death; and the control of the manufacture and disposal of these substances. Radiation workers are protected under regulations promulgated in terms of this Act.

Other Acts, viz., the Foodstuffs, Cosmetics and Disinfectants Act and the Medicines Control Act, administered by the Department of Health(NHPD) have

some overlap with occupational health.

#### 4.2.4 OTHER LABOUR RELATED ACTS

##### 4.2.4.1 WAGE ACT NO.5 OF 1957

The Wage Act is in force in the Republic of South Africa, the self-governing and national states except Transkei and Venda which have Acts No 15 of 1977 and No 5 of 1981 respectively. However, there is no inherited minimum wage legislation in these states until wage boards have been set up. The position with the Republic of South Africa act application in the other national and self-governing states is unclear and 'thus will not have any impact on either their citizens or industrialists'<sup>(118)</sup>.

##### 4.2.4.2 THE LABOUR RELATIONS ACT (LRA) NO.28 OF 1956

In the past decade, following on the Wiehahn and Riekert Commissions, major changes occurred to the applicable legislation on labour relations. The LRA with numerous amendments consolidated the Black Labour Relations Act No 48 of 1953 and the Industrial Conciliation Act No 28 of 1956. Transkei, Venda and KwaZulu have all passed their own LRA'S which are based on the the Republic of South Africa Act prior to its reform. Bophuthatswana's LRA differs from all the others. The other states inherited the Black Labour Relations Act in various forms. The legislation in the national and self-governing states though, makes limited provision for union activity while dispute settling procedures are outdated<sup>(119)</sup>. The Republic of South Africa legislation is relatively sophisticated though it still excludes various categories of workers<sup>(120)</sup>.

The important developments in terms of occupational health is the extending of statutory trade union rights to Black workers including commuters and migrants. Workers may be protected under this Act either in striking for better working conditions or refusing to undertake hazardous work<sup>(121)</sup>.

#### 4.2.4.3 BASIC CONDITIONS ON EMPLOYMENT ACT(BCOE) NO.3 OF 1983

The BCOE covers sick leave, sick certificate guidelines, maximum daily working hours, overtime and prohibition of certain types of employment in respect of age and pregnancy. The Act consolidates the provisions relating to conditions of employment which were formerly contained in the FMB and the Shops and Offices Acts. Various categories of persons are excluded<sup>(122)</sup> and legislation in terms of the Labour Relations Act, Wages Act, Mines and Works Act and the Manpower Training Act take precedence over the BCOE Act. The Act applies only in the Republic of South Africa and Kangwane, together with the regulations of the Shops and Offices Act.

#### 4.2.4.4 THE SHOPS AND OFFICES ACT NO. 75 OF 1964

Prior to the passing of the BCOE Act, the Shops and Offices Act together with the FMB Act governed the conditions of employment of most workers in the Republic of South Africa and the national and self-governing states. The Act is in force in Bóphuthatswana, Venda, Ciskei, KwaZulu, Gazankulu, QwaQwa and Lebowa. It applies only to shops and offices and regulates the hours and conditions of work. Transkei has its own legislation - Conditions of Employment Regulation Act No 34 of 1984 which has some differences from the BCOE of Republic of South Africa.

#### 4.2.4.5 THE MANPOWER TRAINING ACT NO 56 OF 1981

This Act was a result of the Wiehahn commission of enquiry with its recommendations on apprenticeships and training legislation. Virtually all the national and self - governing states have passed their own apprenticeship legislation; they however, inherited some of the Republic of South Africa's Acts<sup>(123)</sup>.

Implications for occupational health are in respect of hours of work, minimum age restrictions, etc., for apprentices.

#### 4.2.4.6 GUIDANCE AND PLACEMENT ACT NO 62 OF 1981

This legislation together with the Black Labour Act governs the recruitment and employment of Blacks in the Republic of South Africa, the national and self - governing states. This Act has provisions for juvenile work-seekers and takes responsibility for other work - seekers (unemployed workers). It does not apply in any other state except KwaZulu, as they all gained self - government before the date of promulgation. In these circumstances the Registration of Employment Act No 34 of 1945 applies - repealed by the Guidance and Placement Act.

#### 4.2.4.7 THE BLACK LABOUR ACT NO. 67 OF 1964

This Act was to consolidate the laws regulating the recruitment, employment, accommodation, feeding and health conditions of Black labourers. It was inherited in various forms in Ciskei, Gazankulu, Lebowa, KwaZulu, QwaQwa and KwaNdebele. Transkei, Venda and Bophuthatswana have passed their own legislation. KwaZulu's Act is the most similar to the Republic of South Africa.

#### 4.2.5 OTHER LEGISLATION

##### 4.2.5.1 SMALL BUSINESS DEREGULATION ACT (CISKEI)

This Act enables the Ciskei government to do away with town planning restrictions, the regulation of business hours, the enforcement of building standards, and the regulation of industrial relations as they apply to small businesses. There is no minimum wage in the Ciskei. Of note, the Act permits the employment of child labour<sup>(124)</sup>.

##### 4.2.5.2 TEMPORARY REMOVAL OF RESTRICTIONS ON ECONOMIC ACTIVITIES BILL

This bill empowers the State President to suspend any laws or regulations affecting any industry or occupation if he is of the opinion that they impede economic progress or competition or the creation of job opportunities. Included in the regulations which could be set aside are those governing health and safety, conditions of service and working hours,

contributions to the Unemployed Insurance and Compensation Funds, licensing of businesses, registration of employees and building standards.

The National Building Regulations (being deregulated) and regulations by the Department of Environment Affairs to control water, noise and solid waste in terms of the Environment Conservation Act No. 100 of 1982 also affect occupational health.

#### 4.3 COMMENTS

The key characteristics governing occupational health legislation as noted by Justice Erasmus still exist viz.,

- (a) multiple Acts, regulations and bylaws administered by a variety of statutory bodies
- (b) fragmentation and duplication between the Republic of South Africa where the bulk of the workers work and the national and self - governing states where they are resident.
- (c) discrepancies exist between the advanced level of industrialisation (and technology) with its attendant health risks and the statutory measures to protect workers (current standards are purely advisory).

The following recommendations made by Erasmus are still valid :

- (a) a single, uniform, comprehensive Occupational Health Act is required
- (b) the Act should be administered by the Department of Health (NHPD)
- (c) uniform standards for occupational health service provision, monitoring, inspection and enforcement is needed, and
- (d) all workers should be covered in all sectors of the economy.

## CHAPTER FIVE

### CURRENT STATUS OF OCCUPATIONAL HEALTH

Factors influencing the current status of occupational health are :

5.1 MORBIDITY AND MORTALITY DATA (Health status of Workers)

5.2 OCCUPATIONAL HEALTH SERVICES

5.3 PERSPECTIVES ON OCCUPATIONAL HEALTH (Government, Employers and Trade Unions)

5.4 EDUCATION AND TRAINING

Data in respect of each factor is analysed and priority areas are identified.

#### 5.1 MORBIDITY AND MORTALITY DATA

In 1984, ten million workers in 66 countries were involved in accidents at work which resulted in either death or injury serious enough to warrant a loss of working time<sup>(125)</sup>. The financial costs of occupational accidents have been estimated to be between 1% and 3% of a country's gross national product<sup>(126)</sup>. In South Africa, NOSA estimates that occupational accidents resulting in damage to equipment, property and worker deaths and disablements amounts to R4 billion per annum<sup>(127)</sup> at current estimates (1986). The victims and their families suffer the material consequences which include loss of earnings, pain and suffering. Thus the costs of occupational accidents and diseases have enormous repercussions on the national economy, and on individual workers and their families.

The Erasmus Commission noted the paucity of accurate information on occupational morbidity and mortality in South Africa. The situation has not changed much 12 years later.

Data was collected from a number of reports in order to present an overview of occupational morbidity and mortality for the purposes of this study.



- (a) Information on the population and economically active population size was collated from the Institute of Race Relations Survey (1985) with certain extrapolations being made using the population census report (2/8/1985) of the Central Statistics Services.
- (b) The distribution of Black commuter and migrant workers was collated from a report - Manpower Studies No 1 of the Human Sciences Research Council (1985)
- (c) The distribution of employers and workers from reports of the Department of Manpower Surveys, NCOH, WCC and from postal questionnaires.
- (d) Data in respect of occupational accidents and diseases was collected from reports of the WCC, MBOD and Government Mining Engineer as well as Hansard - House of Assembly (22/5/85 - pages 1566 - 1570)
- (e) Data in respect of occupational health epidemiological studies associated with the trade unions (Table 19) was from personal communication with members of the Industrial Health Research Group in the Department of Sociology at the University of Cape Town.
- (f) Data in respect of information in other countries was collated from the World Development Report (1985) of the World Bank and the ILO Encyclopaedia of Occupational Health and Safety Volume 1 and 2 (1983).

The results are presented as follows :

#### 5.1.1 Demographic profile of workers

- (a) In 1985, the total population of South Africa was 29 million, of which 10.8 million people were economically active (37%). The bulk of the population (16.5 million - 56,3%) live in the Republic of South Africa (Table 6, Figure 3)
- (b) In 1984, there were 2.8 million Black commuter and migrant

workers in the Republic of South Africa (Table 7)

- (c) An analysis of the distribution of workers in employment at the macro - level indicates that the public sector employed 1.4 million workers (23,2%) (Table 8, Figure 4)
- (d) The majority of workers in the manufacturing sector (46%) were employed in the Pretoria/Witwatersrand/Vaal area (Table 9, Figure 5)
- (e) At the micro - level, the largest employment sectors in the Ciskei, Lebowa and Republic of South Africa were the textile (9697 workers; 30,8%), mining (4300 workers; 21,7%) and agricultural and forestry sectors (752803 workers; 16,5%) respectively (Table 10)

#### 5.1.2 Health status of workers (national)

- (a) The analysis of data on accident cases and diseases reported to the WCC indicates that
  - (i) the twelve year trend in the proportion of temporary disablement, permanent disablement and fatal cases remained constant (Figure 6). The numbers of reported cases and lost man-days has declined with time (Table 11)
  - (ii) a decline in medical aid, temporary, permanent and fatal categories of disablement case rates has occurred between 1980 and 1984 (Table 12); the rates for Whites, Indians and Coloureds showing a greater decline than for Blacks (Figure 7)
  - (iii) the Fishing employment sector has the most frequent and severest accident case rates (Table 13)
  - (iv) the reported number of selected compensatable diseases over a five year interval (1980 - 1984) shows a decline except for asbestosis (Table 14)
- (b) The analysis of accidents (1970 - 1986) and diseases (1975-

1984) as reported to the Government Mining Engineer and the MBOD indicates that

- (i) the accident rate in the gold mines has declined but the mortality rate has remained constant (Table 15, Figure 8)
  - (ii) in coal and other mines, the accident and mortality rates have declined (Tables 16 and 17, Figures 9 and 10)
  - (iii) the gold mines have the highest accident and mortality rates of all the mines (Figures 11 and 12)
  - (iv) no changes have occurred over 10 years in respect of occupational disease rates in the mining sector; Tuberculosis remains the major compensatable disease (Table 18, Figure 13)
- (c) A review of some of the recent studies conducted in association with the trade unions in South Africa indicate that occupational health problems exist (Table 19)

#### 5.1.3 Health status of workers (international)

- (a) In all country groupings, the economically active population (EAP) has increased between 1965 and 1983 (Table 20, Figure 14)
- (b) In all country groupings, the percentage of workers in the Services sector has increased at the expense of the Agricultural sector (Table 20, Figure 15)
- (c) An analysis of the relative level of fatal occupational accidents in selected employment sectors in a number of countries indicates that the Mining and Building sectors are the most hazardous (Table 21)

#### 5.1.4 COMMENTS

The average EAP of South Africa is 37% of the total population and is probably due to the youthful structure of the Black population. The present

number of unemployed workers is estimated to be as high as three million)<sup>(128)</sup>. Occupational health problems of migrant workers have to be considered <sup>(129)</sup> given that approximately one in three workers could be considered to be migrants. (Migrants - those workers resident in the Republic of South Africa for their period of contract, usually 9 months to 1 year; Commuters - those travelling daily from their homes in the national and self - governing states to work in the Republic of South Africa; sometimes up to three hours a day may be spent on commuting time<sup>(130)</sup>.)

The bulk of the working population is employed in the public sector which may be due to the development of the national and self - governing states and 'tricameralisation' of the Republic of South Africa government. Sectors likely to have more exposed workers to occupational health problems are manufacturing, agriculture, mining and construction which account for 61.2% of all workers. The Pretoria, Witwatersrand, Vaal Triangle is still the economic 'heart' of South Africa.

Owing to the poor response rate of 30% from the various Departments of Health and Manpower, no inter - state comparisons can be made regarding the distribution of workers in South Africa. The textile industry in Ciskei and the mining industry in Lebowa are large employers. In the Republic of South Africa, in terms of employers registered with the WCC, the agricultural and forestry sectors are the largest employers.

Morbidity and mortality data reveal that there are still high rates of occupational accidents, diseases and deaths (which are preventable). Although they are declining with time, further research needs to be done to ascertain whether these are due to :

- (a) interventions in respect of safety and health
- (b) failure by the employers to notify
- (c) the changes in the prescribing period for notification (since 1985, eg., only incidents with an expected loss of 14 days or

more by the worker are reported whereas in the past, the period was three days or more <sup>(131)</sup>)

- (c) exclusion of highly important sectors of activity (eg., workers in the South Africa Transport Services<sup>(132)</sup>)

In addition, in terms of occupational diseases reported under the Second Schedule of the Workmen's Compensation Act (Table 14), the number of cases were low compared to that of Met's findings when using extrapolations from reported rates for workers in Finland<sup>(133)</sup>. He expects 21000 to 44000 workers in South Africa with occupational diseases per annum with the current workforce size.

Inter - sector comparisons in South Africa cannot be made because of the different notification systems involved. Incident data in the mining industry as reported under the Mines and Works Act of 1956 are for periods of loss of working time of 14 days or more, whereas up to the end of 1984, incidents reported under the Workmen's Compensation Act of 1941 were for the loss of working time of three days or more - now 14 days or more. The variance in work 'incapacity' days internationally<sup>(134)</sup> is as follows :

- (a) USSR - one day
- (b) France and India - two days
- (c) United Kingdom and West Germany - three days
- (d) Malaysia - four days

Improvements in rescue and medical care over the last decade may aid in the declining notification rates<sup>(135)</sup>. The morbidity and mortality data excludes major sectors like agriculture, domestic workers, building and construction workers and major municipalities depending on the legislation involved. It has been estimated that up to four million workers may be affected by lack of notifications<sup>(136)</sup>. There tends to be overlap with some mining operations reporting under the WCA and others under the Mines and Works Act or Occupational Diseases in Mines and Works Act.

Fragmentation of the South African state into national and self - governing states has reduced the ability to collect and analyse data. Some responses to the postal questionnaire (Appendix B) from certain government departments include a lack of knowledge of occupational health issues among workers under their jurisdiction (Appendices F and G).

No comparisons can be made among different countries due to different criteria for reporting and compiling statistics. To this end the tenth International Conference on Labour Statistics (1962) laid down criteria for the definitions of disablement<sup>(137)</sup>. Article 14 of Recommendation 97 of 1953 of the ILO states that national laws or regulations should

- (a) specify persons responsible for notifying cases and suspected cases
- (b) prescribe the manner in which occupational diseases can be notified.

Occupational accidents and diseases are classical indicators of occupational health problems. Important differences between them are that occupational accidents are easily identifiable; the causes can be established and they represent an abrupt break in the agent - host - environment equilibrium. Occupational diseases have a slower and more insidious destabilization of the agent - host - environment relationship.

The magnitude of the problem with regard to occupational diseases in South Africa is difficult to quantify. The factors responsible are related to :

- (a) difficulties with diagnosis
  - (i) due to the insidious nature of the diseases
  - (ii) nonspecific nature of symptoms and signs
  - (iii) may be masked by diseases of non-occupational aetiology
  - (iv) difficult to obtain diagnostic confirmation
  - (v) lack of knowledge and awareness by health professionals

- (vi) inadequate criteria and rules for properly defining occupational diseases
  - (vii) lack of understanding and participation of workers regarding the risks to which they are exposed.
- (b) inadequate recording
- (i) notification of occupational diseases is not always obligatory
  - (ii) differences between compensatable diseases and notifiable occupational diseases
  - (iii) complexity of bureaucratic procedures necessary for diagnostic confirmation
  - (iv) no real efforts by the government, employers or health professional at accurate case finding
  - (v) no efficient system for recording and reporting exists.

Morbidity and mortality information is needed at various levels within the undertaking; within the industry; nationally and internationally in order to :

- (a) at the micro - level alert management and the occupational health department in the workplace (if present) to investigate and prevent recurrences
- (b) at the macro - level, to check for breaches of statutory regulations
- (c) provide data for epidemiological research.

In view of the aforementioned,

- (a) An health information section is required within the Department of Manpower or Health (NHPD) to collate all occupationally related accidents and diseases in South Africa, the national and self - governing states.
- (b) Legislation be amended to facilitate the collection of data.

Twelve years after the Erasmus Commission's findings, the pattern is still the same. As Kinnersly points out -

'Each year the figures for occupational injuries and diseases ... are washed and shrunk in the statistical laundries of the government and industries and then delivered in separate bundles. It is hard to believe that the system is not designed to conceal the truth. It is certainly not designed to reveal it' (138).



## 5.2 OCCUPATIONAL HEALTH SERVICES

### 5.2.1 INTRODUCTION

The concept of what is meant by occupational health services (OHS) differs not only between countries but between governments and departments; industries and organizations; employers and workers; and health professionals. The ILO (Recommendation 112 - 1959)<sup>(139)</sup>, defined an OHS as a service for :

- (a) protecting the workers against any health hazard which may arise out of their work and the conditions under which it is carried out
- (b) contributing towards the worker's physical and mental adjustment, in particular the adaptation of the work to the workers and their assignment to jobs for which they are suited; and
- (c) contributing to the establishment and maintenance of the highest possible degree of physical and mental well-being of workers.

Approximately 3,7 million workers out of the six million (Table 8 - Chapter 5.1) work in sectors where there is likelihood of exposure to potentially hazardous substances and physical processes. The Erasmus Commission found that 'except in the mining industry, industrial health occupies not only a secondary position in industry in this country, but that industrialists have put very little time, money and organisation into the prevention of occupational diseases'<sup>(140)</sup>.

### 5.2.2 STUDIES IN OCCUPATIONAL HEALTH SERVICES

A review of the recent scientific literature in South Africa reveals that very few studies have been undertaken concerning OHS's. A summary of some of these studies is given in Table 22.

#### Results

- (a) Jinabhai<sup>(15)</sup> in 1981, carried out a non-representative postal survey of ten industries employing 14 245 workers in respect of

OHS. The main findings were :

- (i) the service was mainly curative and rendered by nursing sisters with some assistance from general practitioners
- (ii) they catered mainly for unskilled and semi-skilled workers while skilled workers had access to more 'sophisticated' health services through medical aid schemes
- (iii) the conditions seen and treated were aimed at short-term improvements in productivity
- (iv) there was limited liason with other health and related services outside the workplace
- (v) there was no sharing or co-ordination of facilities within or between factories.

(b) Cornell<sup>(17)</sup> in 1983, carried out a postal survey on OHS's in the Western Cape covering 66 652 workers and 518 employers. The response rate was 49,7 %. The findings were :

- (i) 12,9 % of companies provided an OHS within the definition of the criteria in the survey
- (ii) 8,5% of respondents had a full-time nursing sister and 11,4% employed doctors
- (iii) provision of an OHS ranged from 0,9% of respondents in the less than 50 employees group to 78,9% in the 1000 plus employee group
- (iv) increasing company size correlated with increasing provision of an OHS and social welfare benefits.

(c) Sitas<sup>(18)</sup> et al., in 1985 surveyed 495 manufacturing establishments in Germiston to determine the distribution, nature and content of occupational health services (the response rate was 56%).

- (i) 28% of respondents reported use of hazardous substances

- (ii) environmental conditions were monitored in 16,9% of establishments employing 51,7% of the workforce; monitoring was related to the (workforce) size of the establishment
- (iii) 15,3% of all respondents had an OHS
- (iv) in-house health services were related to the size of the establishment.

Sitas concludes that 'much needs to be done to encourage the provision of health services for the smaller establishments. Use of municipal clinics, private clinics and union - based health clinics might all be considered depending on the area, industrial class, potential health hazards and other factors.'

- (d) Baise<sup>(19)</sup> in 1987, in a survey of OHS's in 191 factories in the Durban - Pinetown area (the response rate was 78%) found that:
  - (i) 46% had an OHS
  - (ii) a further 16,7% claimed to have an OHS but in fact had a first-aider
  - (iii) 41,6% employed an occupational health nurse (74% of whom had a Diploma in either Occupational or Community Health Nursing)
  - (iv) 43,6% employed a doctor.

The studies indicate that no major changes have occurred since the Erasmus Commission's report. Justice Erasmus (1987) views this as partly being due to the government following a top - level policy of 'drift' which in large part has reduced policy - making on occupational health to its present state of dormancy<sup>(141)</sup> and thus no statutory enforcement has been placed on employers to provide OHS's. More than 80% of all OHS activities in South Africa are curative<sup>(142)</sup>. Buch et al., are in the process of developing a method for assessing the standard of OHS's<sup>(143)</sup> giving rise to a more qualitative evaluation of OHS's.

### 5.2.3 OTHER STUDIES

In 1986, due to cost - containment policies, the mining industry commissioned an investigation into the 'rationalisation of Health Care Delivery Systems in the Mining industry'<sup>(26)</sup>. The report concentrates on medical (curative) services only and no mention is made of occupational health. The general conclusions were that :

- (a) there is duplication and sub - optimal levels of utilization of facilities
- (b) there is a maldistribution of facilities and expertise
- (c) there is a need to make doctors more aware of the high costs of health care.

Leger notes that less than 2% of the Chamber of Mines Research Organization's budget was for health and safety in the mining industry in 1985 <sup>(144)</sup>.

Davies <sup>(145)</sup>, in reviewing 125 reports on occupational hygiene investigations carried out by the NCOH between 1972 and 1982 found that unsatisfactory conditions were found in :

- (a) 25 out of 26 factories handling lead
- (b) 15 out of 22 factories handling asbestos
- (c) 11 out of 19 factories handling silica.

In addition, during 1986 , other occupational hygiene investigations by the NCOH<sup>(146)</sup> revealed that various hazardous substances and physical factors were unsatisfactory in more than 50% of the studies undertaken.

### 5.2.4 SURVEY OF OCCUPATIONAL HEALTH IN THE NATIONAL

#### AND SELF - GOVERNING STATES

Ten self-administered questionnaires (Appendix B) were posted to the Departments of Health and Manpower (or equivalent) in the various national and self - governing states. The response rate was 30% of which many

sections were not filled due to a lack of data.

In 1986, Ciskei had one occupational safety inspector for 574 employers and 31 442 workers. There are three doctors out of 246 (1%) and 25 nurses out of 4489 (0,6%) working part - time in industry. The Transkei has two doctors working part - time in industry. No knowledge of actual manpower figures in terms of the occupational health personnel is known in the other states. In the Republic of South Africa, according to Erasmus<sup>(147)</sup>, there are 150 industrial doctors, 397 industrial nurses and 2213 health inspectors at our disposal (1986). It is not known what social security benefits are available to workers in the national and self - governing states.

#### 5.2.5 COMMENTS

The studies reveal that in respect of the range of health services and patterns of distribution, very little occupational health care was available to workers. Knowledge in respect of the following is inadequate:

- (a) the nature, type and distribution of industries and other establishments
- (b) morbidity and mortality
- (c) number of occupational health personnel
- (d) social welfare benefits to workers
- (e) inspectors to advise and enforce the minimum statutory laws.

In South Africa and other states more research needs to be done to provide a baseline for interventions.

The provision of OHS's especially in decentralized areas like Isithebe in KwaZulu and in the other states could serve as the link for primary health care services eg., immunisation and tuberculosis screening of the worker and his family (they are a 'captive' population). Models of OHS need to be looked at in order to facilitate provision across establishments and

sectors. In this regard, the NCOH has guidelines for the provision of occupational health services in industry (Appendix E).

### 5.3 PERSPECTIVES ON OCCUPATIONAL HEALTH

#### 5.3.1 INTRODUCTION

Postal questionnaires (Appendices B and D) were sent to government departments (Republic of South Africa, national and self-governing states), major employer groups, trade unions and health professionals working in the field of occupational health. In addition, various annual reports and publications of the respondents were reviewed to ascertain some of their perspectives on occupational health (occupational health policy, legislation and interventions). The response rate was very low and thus no general conclusions can be drawn - this was a limitation of the study. (Some examples of the responses are given in Appendices F and G).

The section is divided as follows:

#### 5.3.2 GOVERNMENT PERSPECTIVES

#### 5.3.3 EMPLOYER PERSPECTIVES

#### 5.3.4 TRADE UNION PERSPECTIVES

#### 5.3.5 HEALTH PROFESSIONALS PERSPECTIVES

#### 5.3.2 GOVERNMENT PERSPECTIVES

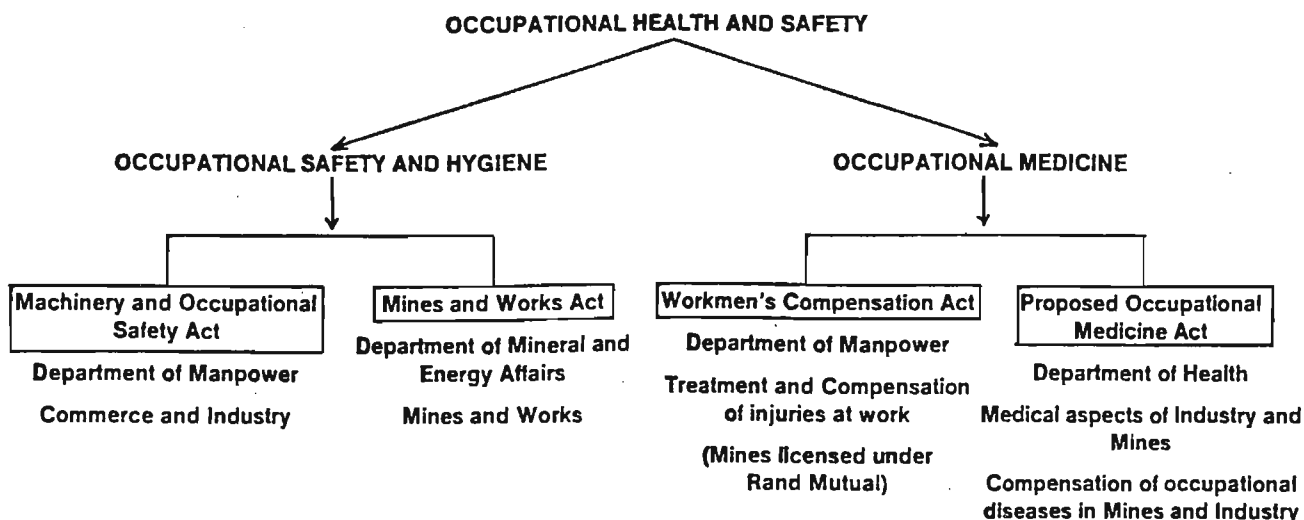
The stated policy of the Department of Manpower is 'the inalienable right of the worker to protection of his safety in the workplace'<sup>(148)</sup>. The MOSA's promulgation is aimed at self-regulation in the workplace by employers and workers, with the government playing a more advisory role<sup>(149)</sup>. Since the Erasmus report, however, there has been inactivity on the part of the government in terms of comprehensive occupational health legislation. This has partly been due to 'the considerable in-fighting between the departments of Health (NHPD), Manpower, Mining and Transport'<sup>(150)</sup>. Conflicting recommendations by the Wiehahn Commission, in that, a Directorate of Industrial health and Safety should be formed under the Department of Manpower<sup>(151)</sup> may have contributed as well to the inactivity. The Occupational Medicine (Health) Act is awaited by many employers, health professionals and unions.

The Republic of South Africa government's other involvement in occupational health has been the support of the NCOH and the MBOD; both of which are administered by the Department of Health (NHPD). The office of the Workmen's Compensation Commissioner (WCC) falls under the aegis of the Department of Manpower. The historical development of these bodies are documented in the Erasmus and Niewenhuizen Commissions' reports. The NCOH is responsible for the development of guidelines for an appropriate health infrastructure in the non - mining sector<sup>(152)</sup>. The MBOD's main responsibilities are the certification of persons who are fit to perform risk work at controlled mines and works and the diagnosis and certification of workers with compensatable diseases under the Occupational Diseases in Mines and Works Act. The WCC compensates injuries and diseases mainly in non-mining industry according to schedules of the Workmen's Compensation Act.

The overall budget for occupational safety and health by the Department of Manpower was 3,1% in the 1985/6 financial year (Table 23). The Department of Health (NHPD) spent even less of its budget (1,6%) on occupational health (Industrial Health Services, Medical Bureau for Occupational diseases and the Mines and Works Compensation Fund) (Table 25). Forty percent of the posts are vacant in the inspectorate section of the department of Manpower<sup>(153)</sup>. Likewise, the inspectorate of radiographic services of the MBOD had two inspectors to oversee 355 places (265 controlled mines, 57 controlled quarries and 33 controlled works) in 1984/5 financial year<sup>(154)</sup>. These inspectors had to maintain standards of radiographic technique and to ensure that all workers are x-rayed regularly in accordance with the regulations.

By and large the recommendations of the several recent Commissions of Enquiry into aspects of occupational health have been ignored. Baker sees the future development of occupational health from a government perspective<sup>(155)</sup> to be as follows :





**FIGURE 16 : FUTURE ADMINISTRATION OF OCCUPATIONAL HEALTH IN SOUTH AFRICA**

Perspectives on occupational health in respect of the national and self-governing states could not be ascertained owing to the 30% response to the postal questionnaire. In those states that responded, there is an awareness of the occupational health problems, and it is seen as a 'priority that some form of (an) occupational health and safety programme is introduced, particularly at (the) Industrial growth points'. However, some states responded that they do not have the necessary legislation, funds or human resources to tackle the problem. In general, there are no government occupational health infrastructure in these states; in KwaZulu, the large industries have privatized their occupational health services. Gazankulu identified 'cross-border' migration of workers between the Republic of South Africa, Lebowa and Gazankulu as an area of concern.

Ciskei's 'free enterprise zone' strategy together with similar experiments in South Africa (free trade zones) which are characterised by :

- (a) a reduction of income and property taxes
- (b) low labour costs, and
- (c) the relaxation of environmental, health, safety and other

restrictions

may have serious implications for the health of workers. Williamson (marketing manager of the Ciskei People's Development Bank) adds that

'Ciskei has abolished most of the regulations that seem to hound industry elsewhere...'<sup>(156)</sup>

Mulder, Chief Inspector of the Department of Manpower, sees the Republic of South Africa government's involvement in occupational health as providing a basic framework for the protection of the health and safety of workers, primarily through the mechanism of self - regulation and minimum interference by the state<sup>(157)</sup>.

### 5.3.3 EMPLOYER PERSPECTIVES

The response to the postal questionnaires was very poor and probably underscores Davies' viewpoint that management perspectives are notoriously difficult to define<sup>(158)</sup>. The Erasmus Commission found that 'except in the mining industry, industrial health not only occupies a secondary position in industry in this country, but that industrialists have put very little time, money and organisation into the prevention of occupational diseases'<sup>(159)</sup>. The perogatives for occupational safety under the MOSA places the onus on employers. Sections 9 and 11 begin with 'An employer shall...'. In addition, the cost of complying with the Act must be borne by employers<sup>(160)</sup> and they may be prosecuted under the Act because of an act or omission that leads to the death or illness of a worker<sup>(161)</sup>. Dr J.C. van Zyl of the Federated Chamber of Industries in his address to the 1987 ASOSH (Association of Societies for Occupational Safety and Health) stated that employers should take the initiatives in key areas of deprivation in a worker's life viz., housing, health care and welfare.

The unitary perspective on occupational health in that employers and workers have common goals and can work together (rather than from a conflict point of view) has been criticized by various authors<sup>(162)</sup>,<sup>(163)</sup>.

Employers may concede in some areas of health and safety for

- (a) economic reasons: the concept of 'loss-control', where accidents are measured in terms of lost man-hours, implies a decrease in productivity which is equivalent to the loss of profits. There is also a de-facto loss of control over the production process if it breaks down or the operator is injured.
- (b) 'political' reasons: Myers and Steinberg suggest that improvements are made in order to pre-empt workers from using occupational health issues as organisational strategies<sup>(164)</sup>.

The previous studies on OHS's indicated that large industrial undertakings do provide occupational health care for their workers. More research, however, is required to evaluate the quality of care provided. It does not seem however, that these undertakings have an explicit health and safety policy<sup>(165)</sup>. What is needed is for employers to have a clear, written policy on occupational health embodying:

- (a) the members of management responsible for health and safety
- (b) a commitment to provide adequate information, education and training of workers, and
- (e) a description of the structures and systems such as the safety committees; safety, health and environment programme etc.

Management's involvement in the care of workers and their families may ultimately improve productivity and is also a sound investment in industrial relations.

#### 5.3.4 TRADE UNION PERSPECTIVE

There are approximately six million employed workers in South Africa. Of these, in 1985, 1,4 million were members of a trade union (Table 26). The Congress of South African Trade Unions (COSATU) has the largest membership of 565 000 (41%) (Table 27, Figure 17). There was a 25% response from trade unions - their views on occupational health being:

- (a) they should be consulted on all aspects of occupational safety and health before legislation is drawn up
- (b) major efforts are underway at present for more worker education on health and safety<sup>(166)</sup>.

For a long time occupational health was given second place to other issues by the unions. It is only recently that the newly emergent trade unions have taken up the issues of health and safety very strongly. Examples (Table 19) are :

- (a) the Brown Lung Campaign undertaken by the National Union of Textile Workers<sup>(167)</sup>
- (b) a survey of the Health Effects of Grain Dust undertaken with the Food and Allied Workers Union<sup>(168)</sup>

In 1981, the Food and Canning Worker's Union set up a clinic to provide comprehensive services to its members in Paarl<sup>(169)</sup> and have employed a full - time doctor.

In 1985, the National Union of Mineworkers (NUM) launched a 'Struggle for Safety' campaign<sup>(170)</sup> and have set out a Miner's Bill of Rights :

- (a) the right to recognition of safety stewards
- (b) the right to protection from victimization for exercising their statutory rights
- (c) the right to refuse to work under conditions or practises believed to be unhealthy, unsafe or illegal
- (d) the right to report suspected violations or damages to the inspectorate of mines
- (e) the right to request a special inspection of suspected violations and imminent dangers
- (f) the right to accompany inspectors during inspections
- (g) the right to adequate health and safety training
- (h) the right to participate in the development of plans for mining

operations

- (i) the right to attend inquiries and to represent the interests of injured or deceased miners
- (j) the right to conclude safety agreements with mine management.

Early this year (1987), NUM employed a doctor full-time as part of its Health and Safety unit, in addition to a full-time safety officer. Several inquiries were initiated by the unit eg., after the Kinross mining disaster. In this regard, close alliances have been made with health professionals working in the field of occupational health (Chapter 5.3.5).

Union initiatives in occupational health are increasingly going to take the following trends :

- (a) urging for improvements in accident and disease prevention, rehabilitation and compensation systems
- (b) improvements in existing standards and introducing new statutory standards, and
- (c) exploitation of the tripartite system of government, employers and unions in future developments in occupational health.

#### 5.3.5 HEALTH PROFESSIONALS

The paucity of health professionals involved in occupational health is very evident. The response rates from the health professional groups consulted was 50%. The Society of Occupational Health Nurses (branches which responded) commented on the inadequacy of legislation governing the practice of occupational health by nurses and the need for education and training of nurses. Thus far the industries that the nurses work in lay down guidelines for the practice of occupational health<sup>(171)</sup>.

The South African Society of Occupational Medicine (formed in 1947) has produced guidelines on various aspects of occupational health viz.,

- (a) The medical officer in industry (currently being revised)

- (b) Guidelines for the management of Tuberculosis in industry
- (c) Sick certificate guidelines

Guidelines currently being drawn up include :

- (a) Design of medical clinics for small industries
- (b) Visual standards for drivers

The society has endorsed the guidelines for Food Handlers drawn up by the Community Health Group. The Society feels that legislation in occupational health is urgently needed and does not favour the 'split' between the two government departments in terms of the administration of occupational health legislation. At present 175 doctors are registered with the Society (Transvaal and Orange Free State: 95; Natal: 47; Western and Eastern Cape: 33).

Other initiatives within the health and allied professionals have come from various 'service' groups formed since 1980 viz.,

- (a) Industrial Health Research Group in Cape Town
- (b) Technical Advice Group - Johannesburg
- (c) Health Information Centre - Johannesburg
- (d) Technical Assistance Project - Cape Town
- (e) Industrial Aid Society - Johannesburg
- (f) Health Care Trust - Cape Town
- (g) Urban Training Project - Johannesburg
- (h) Industrial Health Unit - Durban
- (i) Industrial Health and Safety Education Project - East London

These groups respond to the needs of the trade unions in terms of health and other labour related issues. Their responses included

- (a) the need for more legislation with standards
- (b) education of workers in order to promote union organising around health issues

- (c) training of workers and safety representatives in order for them to take part in the various epidemiological studies in the workplace.

A comprehensive history of these groups is given in the South African Labour Bulletin Vol 8 No 7 of August 1983. A report of the activities of the Industrial Research Group (IHRG - Cape Town) from September 1980 to December 1985 reveals the enormous service needs of the unions (Appendix H).

The National Occupational Safety Association (NOSA) was formed in April 1951 as a result of concern by the then Minister of Labour and the Workmen's Compensation Commissioner about occupational accidents<sup>(172)</sup> and their drain on the national economy. NOSA has trained 130 000 safety representatives since 1983. It responded that good progress is being made to modernise and rationalize occupational health legislation. NOSA'S MBO system (Management - By - Objectives) provides minimum standards on which industry can base its occupational safety programmes. It also requires that top management commit itself to such a program by means of an authorised policy statement. It sees its interventions over 26 years as contributing to the decline in reported accident statistics affecting workers.

Interest in the field of occupational health was shown by the attendance of over 500 people to the ASOSH symposium on 'Occupational Health - A Team Approach', held in Pretoria in May 1987. The Association of Societies for Occupational Safety and Health was formed in 1978 and has brought together the various societies (Occupational Medicine, Nursing, Mine Medical Officers etc.) under its umbrella. The symposium looked at different aspects of the health problems of workers and contributions to the symposium were from health professionals, union, government and employer representatives.

The Medical Association of South Africa (MASA) and the Society of Occupational Health Nurses have paid considerable attention to occupational health at their congresses<sup>(173)</sup>.

The dilemma facing health professionals operating in the interface between employers and workers can be very difficult and thus a strong ethical code is needed. At present the only code offering guidelines to doctors in industry are within the general code of a 'Guide to the maintenance of ethical standards' - published by the MASA.

The guiding ethic should be:

'the physician should accord the highest priority to the health and safety of the individual in the workplace'<sup>(174)</sup>.



## 5.4 EDUCATION AND TRAINING FOR OCCUPATIONAL HEALTH PERSONNEL

### 5.4.1 INTRODUCTION

On the basis of the Erasmus Commission findings, 3217 full-time safety officers, 3547 full-time occupational health nurses and 1119 occupational hygienists (technical) should have been appointed in 1975 to oversee the health and safety of the country's workers. To date, there are 150 doctors actually engaged in occupational health, 397 occupational health nurses and 2213 health inspectors<sup>(175)</sup> and possibly 50 occupational hygienists (20 academically trained and 30 technically trained)<sup>(176)</sup>.

Overall manpower needs can only be met if there is adequate (appropriate) education and training. To this end a postal questionnaire (Appendix D) was sent to all eight medical schools with a response rate of 75% (6 out of 8 medical schools). Telephonic contact with the South African Nursing Council and the Society of Occupational Health Nurses aided with collection of data on occupational health nursing education.

### 5.4.2 OCCUPATIONAL MEDICINE EDUCATION AND TRAINING

Except for the University of Witwatersrand which has links with a separate unit (the NCOH), occupational health is within the Departments of Community Health in all respondent medical schools. The University of Transkei does not offer any occupational medicine training.

#### (a) Undergraduate

- (i) The full - time staff complement for occupational health teaching at Stellenbosch and Pretoria was adequate relative to the other medical schools. There was support from ancillary personnel eg. occupational hygienists, epidemiologists and specialists from the clinical medical disciplines. Overall, 11 lecturers directly involved with the teaching of occupational health have post - graduate qualifications in occupational health (Table 28)

(ii) Undergraduate teaching in occupational health is mainly in the fourth year; the average lecture time was six hours with an additional six hours being spent on a visit to a factory (Table 29).

(iii) MEDUNSA, OFS and Cape Town include other departments like Psychology, Sociology and Medicine in their training of undergraduate students.

(iv) Stellenbosch, Natal, Pretoria and Cape Town do give occupational health lectures to non - medical students viz., pharmacy, engineering, nursing and physiotherapy.

(b) Postgraduate

(i) All respondents except Natal offer post - graduate diplomas in occupational health. Cape Town offers a doctorate in addition. Some training in occupational health is given during the Master of Medicine course in Community health.

(ii) To date, approximately 116 diplomates (Table 30) and 13 community health specialists have been trained in occupational health in the respondent medical schools; Pretoria having produced the highest number of graduates (56).

(c) Research in Occupational Health

The research interests at the respondent medical schools were varied (Table 31) and included

- (i) occupational health services
- (ii) epidemiology
- (iii) exposure profiles to various hazards, and
- (iv) planning and administration of occupational health services.

(d) Service

The service component is mainly to government and industry; Pretoria and Natal did have some service commitment to the trade unions; OFS was rendering an occupational health service to all the academic hospitals (Table 32).

(e) Funding for Occupational Health

The expenditure on the occupational health component of the departments ranged from 15% to 40% of the overall Community Health Department's budget.

(f) The future plans of the respondent medical schools varied from the need for an independent department to more intensive training of medical students in occupational health.

#### 5.4.3 COMMENTS

In order for occupational health to flourish as a discipline and to meet the health needs of workers a constant stream of graduates is required. Thus medical students should be exposed to occupational health at an early stage in their curriculum (as at Natal) for them to begin considering it as a career option against the other specialities. If this is not done, indoctrination towards the other specialities, by their very existence will be overpowering. For many present practitioners, occupational health has been a second or third option, chosen by accident rather than demand.

A standardised curriculum is needed for the training of medical students and students in other disciplines (engineers, architects, paramedical students). The curriculum should take into account the developed and developing components of South Africa with its peculiar influences on the health of workers. Due cognisance must be taken of non - occupational diseases and injuries with their concomitant effects on the workplace.

According to the WHO<sup>(177)</sup>, an undergraduate curriculum in occupational health should have the following objectives :

- (a) to understand the aetiological importance of work in health and disease, and of ill-health on work
- (b) to know the epidemiology, pathology and clinical features of common occupational diseases; the physician's statutory duties for notification of accidents and diseases; and to be aware of the social benefits available to workers
- (c) to understand the ways of investigating and controlling hazards, and
- (d) to know the aims of occupational health services and their relationships to other health services.

Davies of the NCOH considers the key to occupational health training in developing countries to be EPIDEMIOLOGY, to which must be added two conceptual models:

- (a) to define the place of occupational health within the public or community health sphere
- (b) to provide a model of the 'group - dynamic' within industry ie., the role of and relationships amongst the workers, the employer and the government<sup>(178)</sup>.

Recent curricular changes to the post - graduate Community Health course has defined occupational health as a minor component discipline<sup>(179)</sup>. This may have repercussions as the discipline does not seem to have a strong base within the medical curriculum as yet. Multidisciplinary teaching with the use of the clinical departments will strengthen the field especially in the pathology of lung diseases, liver diseases etc.

The post - graduate courses seem well established (although the courses were started in the late 1970's). The course content entails to a lesser or greater degree (Appendix I - University of Cape Town curriculum for the

Diploma in Occupational Health) :

- (a) history of occupational medicine
- (b) occupational health legislation
- (c) toxicology of industrial metals, pesticides, solvents, gases and vapours
- (d) the pneumoconioses and lung function tests
- (e) physical agents such as heat, noise and radiation
- (f) occupational hygiene
- (g) epidemiology and biostatistics, and
- (i) industrial relations.

The practical side involves visits to mines, factories and other institutions depending on their proximity and accessibility to the respective medical school.

Given the fact that many doctors are in full-time practice having part-time consultancy services with employers, a Distance - Learning Course (DLC) may enhance the practice of occupational health <sup>(180)</sup>. The courses may overcome the inability of doctors to attend courses at academic centres offering full-time or part-time courses. The other advantage of such a course (the South African Society of Occupational Health Nurses have a DLC in occupational health nursing since the beginning of 1987) is that it requires a narrow core of lecturers in occupational health. The concept of a DLC was first thought of by the Faculty of Occupational Medicine (United Kingdom) in the late 1970's after they found that many practising physicians in the field of occupational health lacked specialist training and did not have access to the available courses <sup>(181)</sup>. The course consists of four elements :

- (a) printed materials (Appendix J)
- (b) seminars
- (c) tutorials, and
- (d) practicals.

The Society of Occupational Medicine or the Faculty of Community Health should consider these methods of education and training.

The research and service components of the medical schools could be expanded considerably given the available expertise. Of note, is the lack of an academic occupational health unit in Durban, given that the Durban-Pinetown complex is the next most industrialised area outside the Pretoria-Witwatersrand-Vaal Triangle (Table 9, Figure 5).

#### 5.4.4 OTHER DISCIPLINES

##### (a) OCCUPATIONAL HYGIENE

Undergraduate training in courses in occupational hygiene is offered at certain technikons in the country and as part of the National Diploma in Public Health for health inspectors. A post-graduate qualification in occupational hygiene is obtainable from Potchefstroom University. ASOSH in conjunction with NOSA has compiled a booklet on 'Education and Training in Occupational Safety, Health and Hygiene'. The first part of the booklet deals with courses presented by NOSA; the second with relevant courses presented by other educational institutions. Of note, is that some of the courses are presented in an African language.

Erasmus sees the training of occupational hygienists at two levels:

- (i) academically sound and university based (few)
- (ii) practically orientated and technikon trained with proficiency in one or more aspects eg., noise monitoring (many)<sup>(182)</sup>. Johnstone at the ASOSH symposium (1987) estimated that it would take at least eight years to get an independent course in occupational hygiene underway and two years later for its first graduates<sup>(183)</sup>.

(b) OCCUPATIONAL HEALTH NURSING

At present less than half the registered occupational health clinics in South Africa have a nurse with qualifications in occupational health<sup>(184)</sup>. At the end of 1984, there were 326 such nurses registered with the Nursing Council (SANC)<sup>(185)</sup>. All nurses receive some training in occupational health during their community health course<sup>(186)</sup>.

A short six months course in occupational health nursing began in 1976 in Johannesburg with recognition by the SANC in 1981 (retrospective to 1976). Three years ago (1984), the SANC withdrew recognition for all short courses including occupational health, in that the certificate cannot be issued in their name<sup>(187)</sup>. Courses are still being given at Pretoria, Witwatersrand, Vaal Triangle, Natal and ML Sultan Technikons<sup>(188)</sup>. At the beginning of 1987, the Northern Transvaal branch of the Society for Occupational Health Nurses began a year long Distance Learning Course for 20 nurses country-wide. The curriculum is registered with SANC and is administered by the Pretoria School of Occupational Health<sup>(189)</sup>. A one year part-time Diploma in Occupational Health Nursing offered by the South African Nursing Association (SANA) may become a reality in a few years<sup>(190)</sup>.

(c) ERGONOMICS TRAINING

Very little could be ascertained from the South African scientific literature concerning training in ergonomics. The Chamber of Mines has a 'Human Sciences Laboratory' dealing with many ergonomic problems<sup>(191)</sup>. The Department of Biomedical Engineering at the University of Cape Town does offer a few courses on ergonomics<sup>(192)</sup>.

5.4.5 COMMENTS

The education and training needs of occupational health personnel are far from being fulfilled. In addition, the research and service components of

medical schools in terms of occupational health need to be more fully defined; a possible source of funding for the occupational health unit can be from the research and service components.



## CHAPTER 6

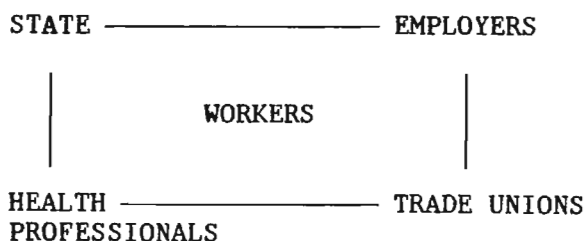
### RECOMMENDATIONS AND CONCLUSION

The key issues in occupational health in South Africa are :

- 6.1 An inadequate occupational health policy exists in that the responsibilities of governments, employers, workers and health professionals are not defined.
- 6.2 There is an absence of an organisational and service framework for an occupational health system in South Africa.
- 6.3 There is a lack of financial and human resources for the practice of occupational health in South Africa

#### 6.1 Occupational Health Policy

Historically, an interactive partnership existed amongst the state (governments), employers and workers. To this interaction must be added the role of trade unions and health professionals<sup>(193)</sup>.



- (a) It is recommended that the state must have a national policy of commitment to the health of workers. In this regard, the Regional Health Organisation of South Africa (RHOSA) can play a meaningful role by coordinating the inputs of the various Departments of Health, Manpower and Mining (or equivalent) into a uniform cohesive policy for South Africa.
- (b) Employers should note that safe working conditions and a good working environment is necessary for smooth production. It is recommended that management in all employment sectors define

their policy on occupational health.

- (c) There needs to be increased awareness and education of workers concerning occupational health, its practice and compliance with the various preventative safety mechanisms. It is considered that the trade unions can play a major role in this regard and their efforts in this field should be commended.
- (d) Health professionals have a key role to play in improving the health of workers and decreasing occupational accidents and diseases. It is recommended that there be increased awareness, education, service and the promotion of occupational health as a discipline amongst health professionals and their organisations.

## 6.2 Organisational and Service framework for Occupational Health

It is recommended that the

- (a) Occupational Medicine Act be passed as soon as possible with the Department of National Health and Population Development (NHPD) in charge of occupational medicine - the Act should include aspects of compensation.
- (b) close liason be established between the Department of National Health and Population Development and the Occupational Safety division of the Department of Manpower.
- (c) the points of intervention by the two abovementioned departments be
  - (i) the development of health and enforcement resources for occupational health (manpower, facilities, equipment and knowledge of occupational health problems).
  - (ii) the development of a service structure, in partnership with other parties, to reach workers and their families (this may include components of primary health care).
  - (iii) the development of a management system to include planning, monitoring and evaluation and an occupational health information system governing all employment

sectors.

- (iv) negotiations be entered into with the Departments of Health and Manpower of the national and self-governing states to develop an overall occupational health care system for South Africa.

### 6.3 Financial and human resources

- (a) The sources of funding for an occupational health infrastructure could be from the state, employers, organised agencies (Health maintenance organisations), workers and trade unions. It is recommended that, based on the partnership between the state and employers, a mechanism for the financing of a comprehensive occupational health system be evolved. In a free enterprise society such as in South Africa, the provision of services cannot be left to the employers or to market forces. Employers who are motivated by profit and operate within cost benefit terms could easily place health and safety as a secondary consideration especially in an economic recession.
- (b) In terms of human resources, it is recommended that
  - (i) there is a need for a standardised curriculum with more time for undergraduate and postgraduate training in occupational medicine.
  - (ii) the concept of the Distance Learning Course be investigated possibly with the assistance of the Society of Occupational Medicine.
  - (iii) further research be done into the setting up of courses for other personnel in occupational health, possibly with the assistance of the Association for Societies of Occupational Safety and Health.

## CONCLUSION

This study has presented an overview of Occupational Health in South Africa 12 years after the Erasmus Commission of Enquiry. To date very few of its recommendations have been implemented. In the absence of a National Health System in South Africa, a comprehensive occupational health system would make a valuable contribution to reducing morbidity and mortality. At an economic level, the improved health of workers and their families would result in increased productivity with gains for employers, the government and society at large. Politically and socially the creation of such a system built upon worker participation may make a contribution towards improved industrial and race relations.

Perhaps a reminder from Herbert Spencer (1820 - 1903), an English economist and philosopher may provide a starting point in the improvement of health and safety for the workers of South Africa

' The preservation of health is a duty. Few seem conscious that there is such a thing as physical morality' (194).

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**FIGURES**

**FIGURE 3**  
**DISTRIBUTION OF THE POPULATION**  
**OF SOUTH AFRICA (1985)**

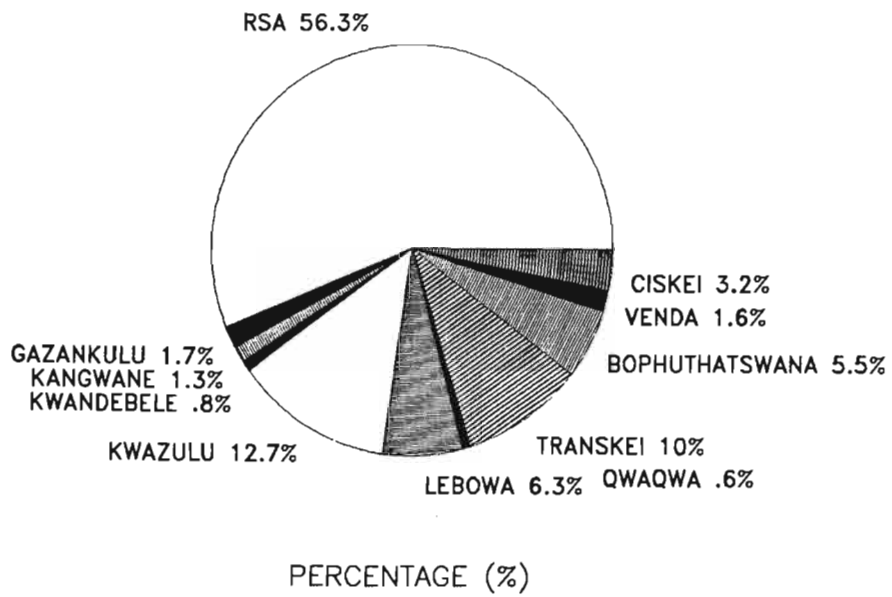
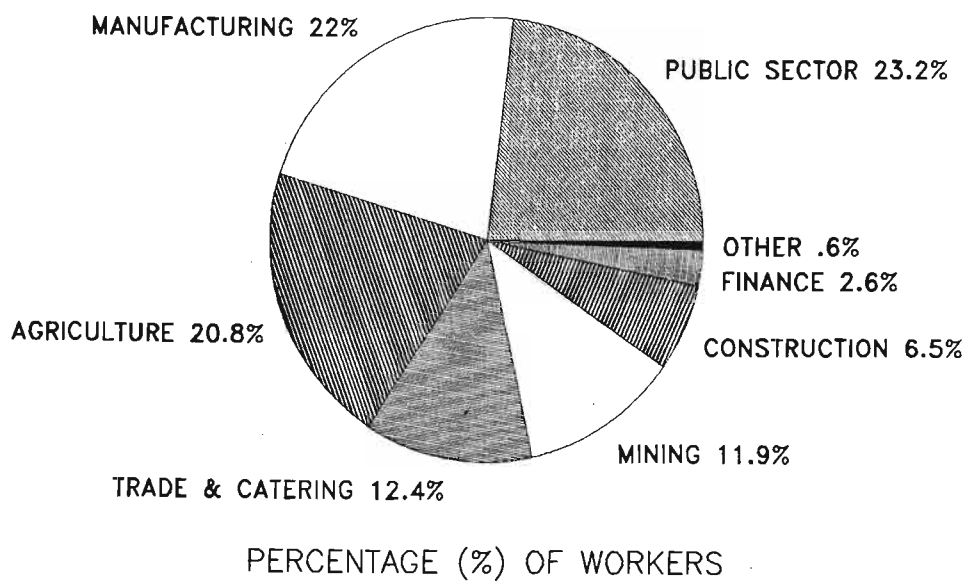
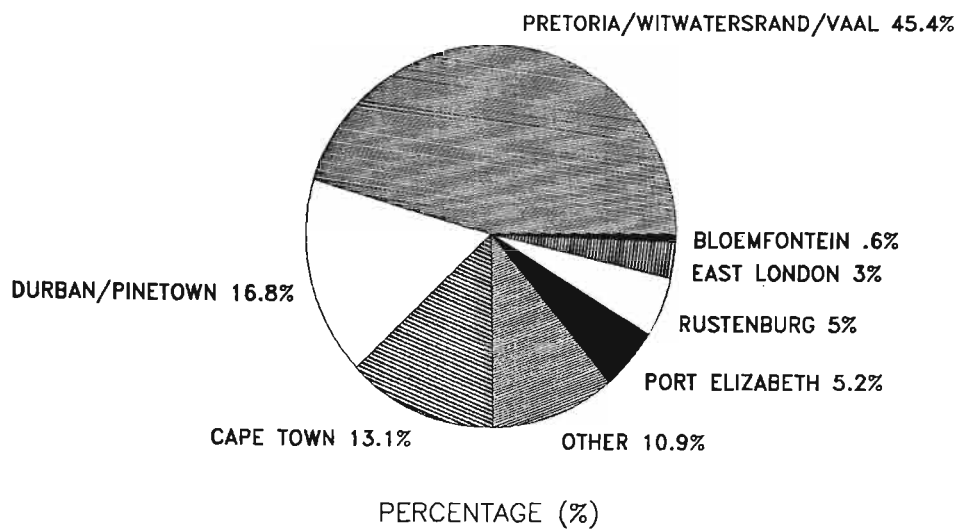




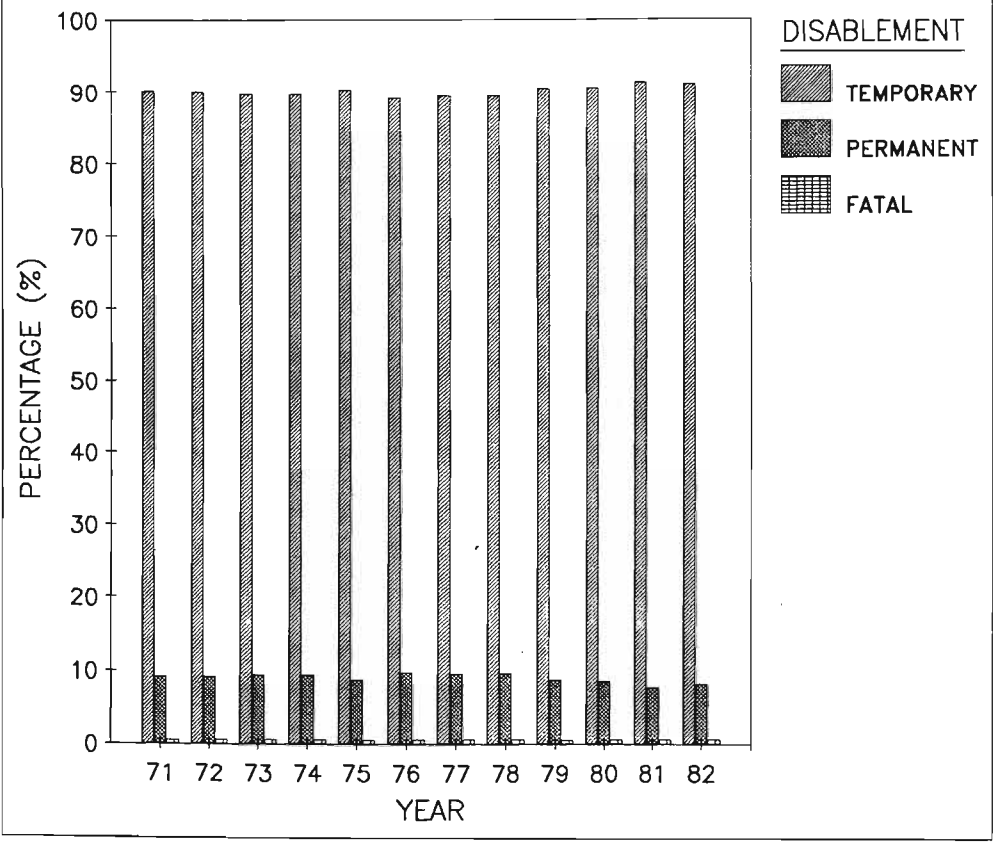
FIGURE 4  
DISTRIBUTION OF WORKERS  
ACCORDING TO EMPLOYMENT SECTOR  
IN SOUTH AFRICA (1985)



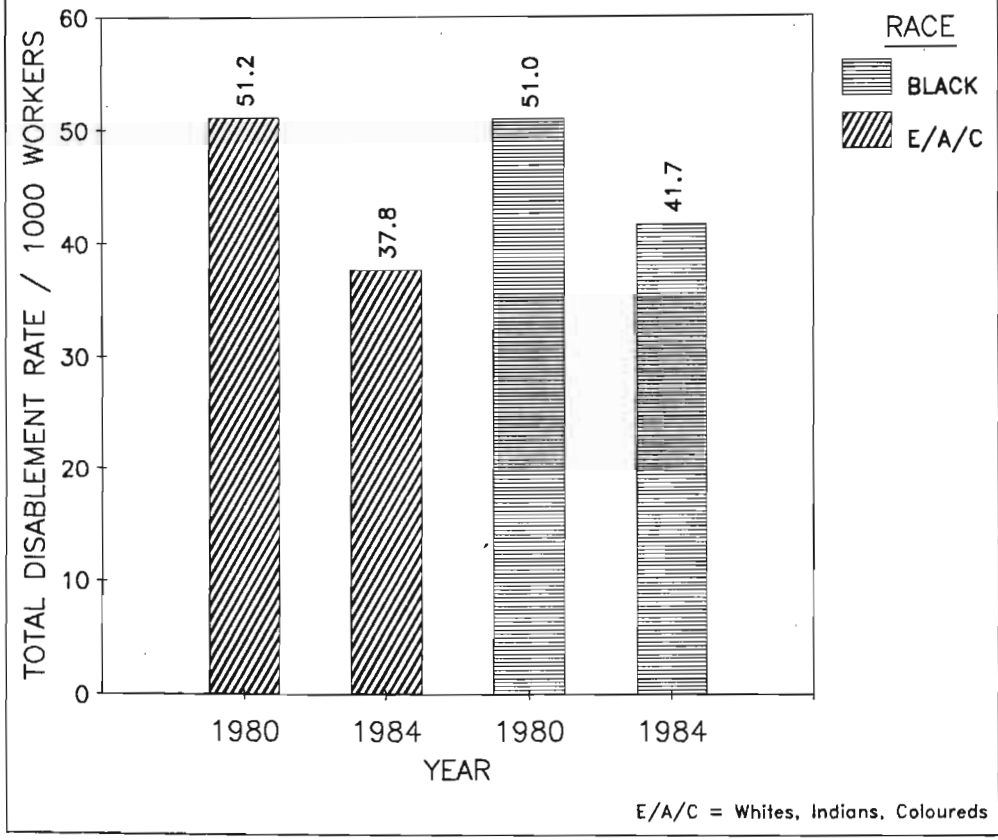
**FIGURE 5**  
**DISTRIBUTION OF WORKERS IN THE**  
**MANUFACTURING SECTOR ACCORDING TO**  
**AREA OF EMPLOYMENT IN SOUTH AFRICA (1979)**



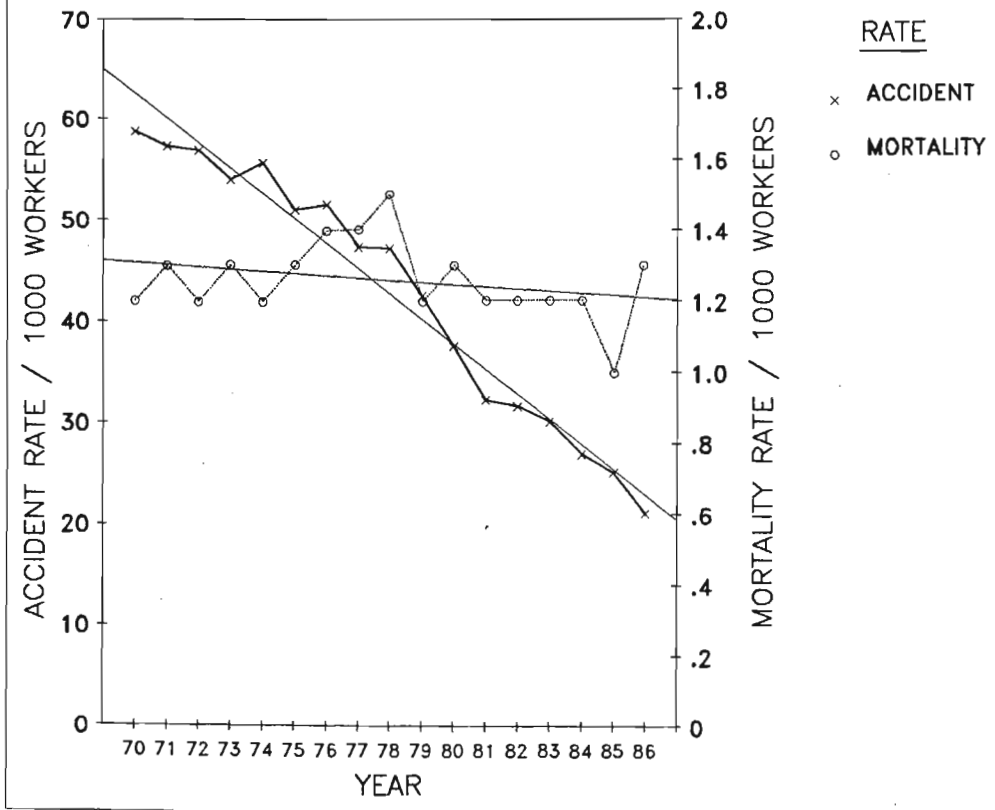
**FIGURE 6**  
**DISTRIBUTION OF ACCIDENT CASES REPORTED TO THE**  
**WORKMEN'S COMPENSATION COMMISSIONER ACCORDING TO**  
**THE EXTENT OF DISABLEMENT (1971 - 1982)**



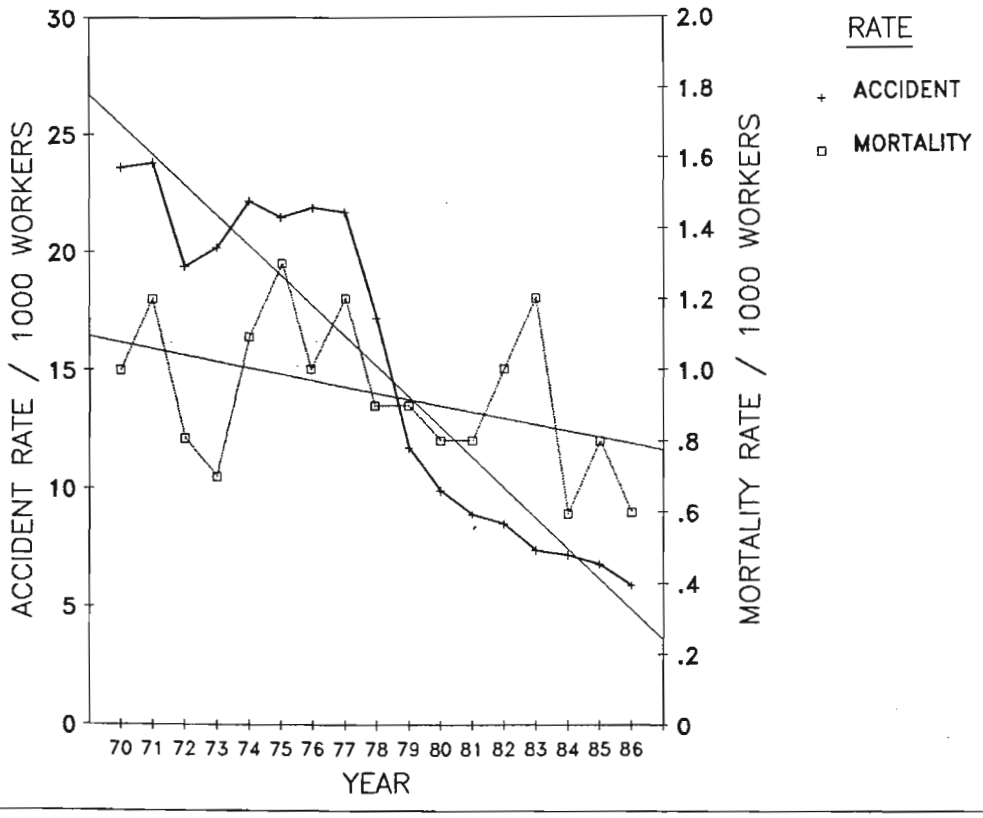
**FIGURE 7**  
**DISTRIBUTION OF ACCIDENT CASES REPORTED TO**  
**THE WORKMEN'S COMPENSATION COMMISSIONER ACCORDING**  
**TO RACE AND TOTAL DISABLEMENT (1980, 1984)**



**FIGURE 8**  
**DISTRIBUTION OF ACCIDENT AND MORTALITY**  
**RATES IN GOLD MINES IN SOUTH AFRICA**  
**(1970 - 1986)**



**FIGURE 9**  
**DISTRIBUTION OF ACCIDENT AND MORTALITY**  
**RATES IN COAL MINES IN SOUTH AFRICA**  
**(1970 - 1986)**



**FIGURE 10**  
**DISTRIBUTION OF ACCIDENT AND MORTALITY**  
**RATES IN MINES OTHER THAN GOLD OR**  
**COAL IN SOUTH AFRICA (1970 - 1986)**

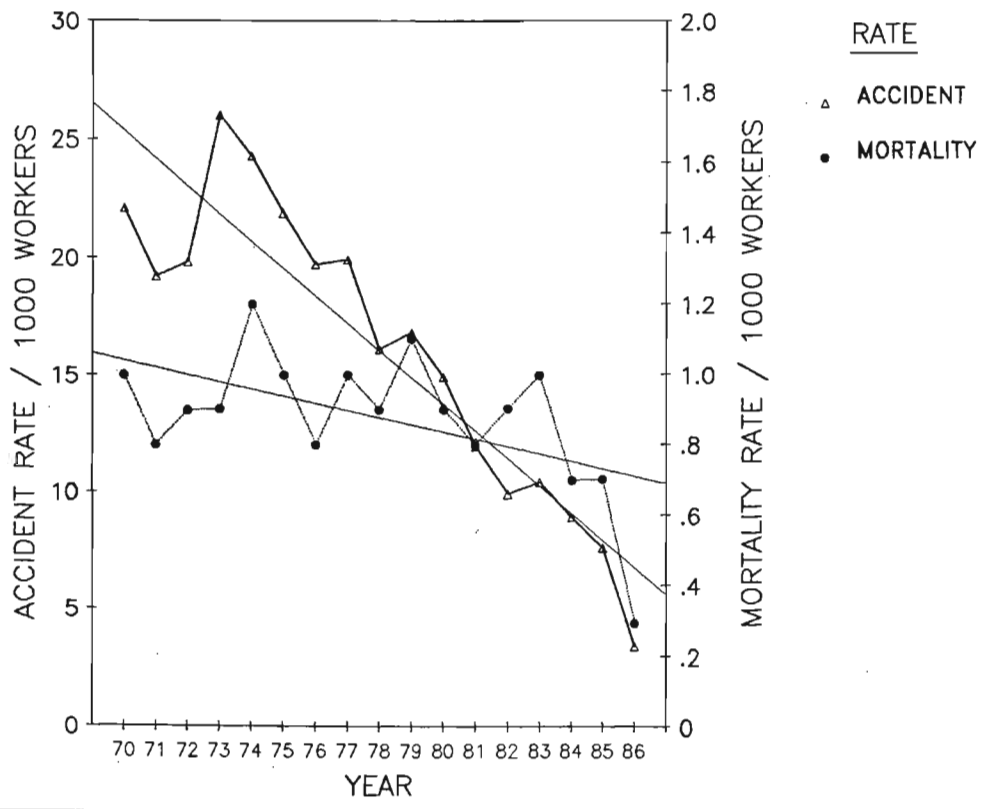


FIGURE 11  
DISTRIBUTION OF ACCIDENT RATES  
IN GOLD, COAL AND OTHER MINES  
IN SOUTH AFRICA (1970 - 1986)

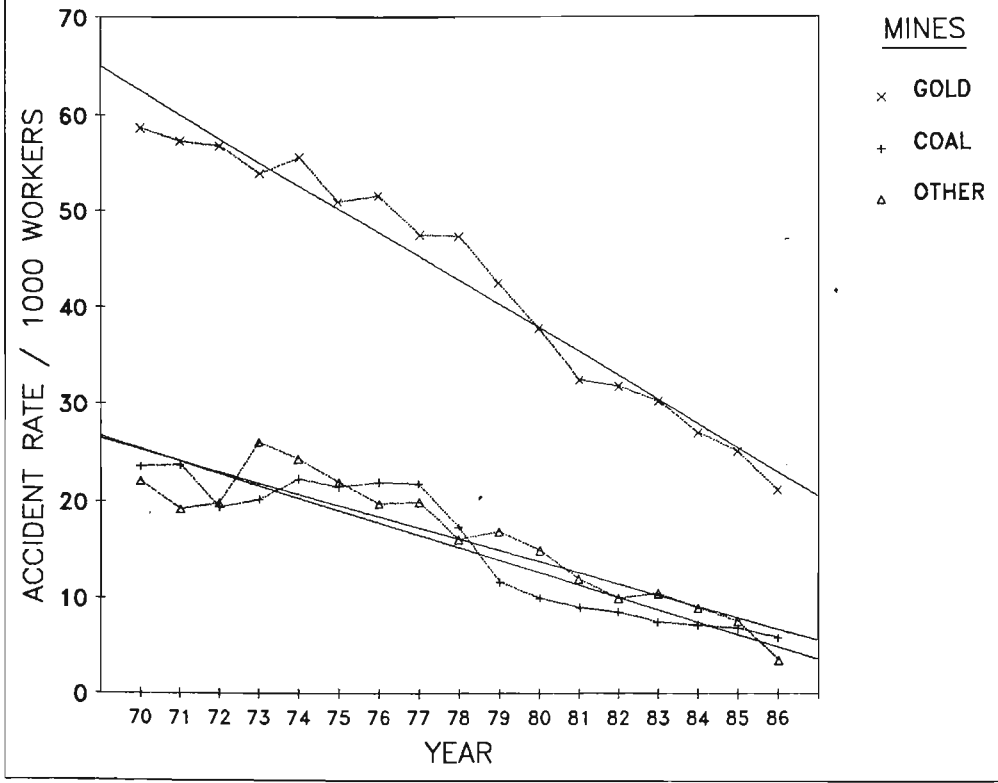
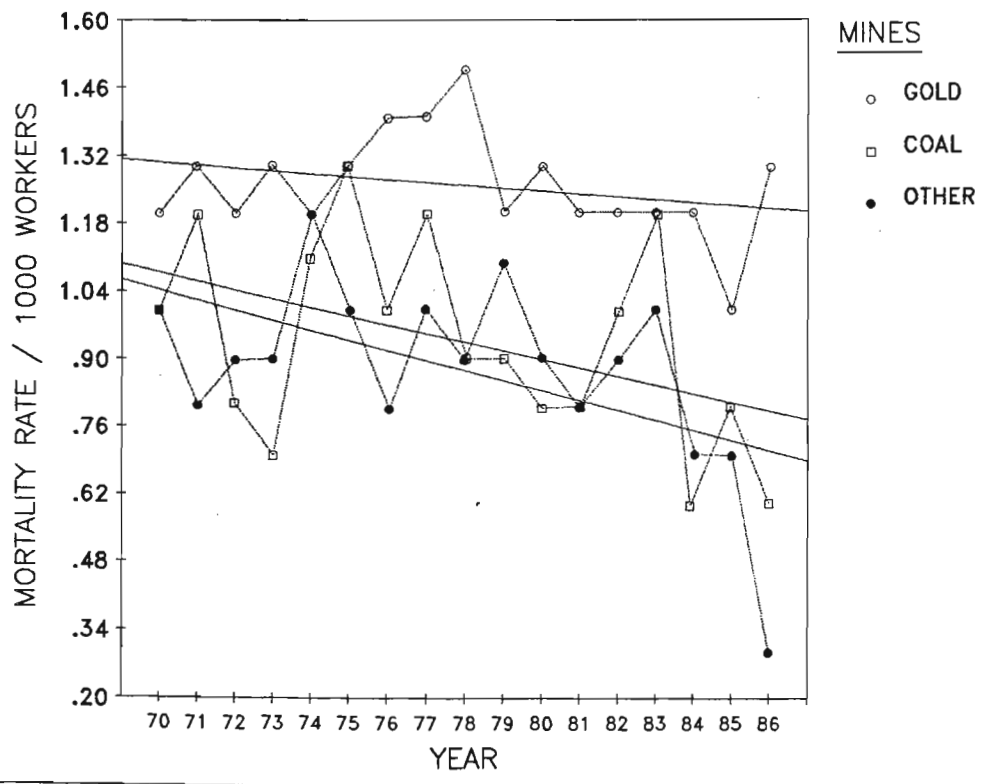




FIGURE 12  
DISTRIBUTION OF MORTALITY RATES  
IN GOLD, COAL AND OTHER MINES  
IN SOUTH AFRICA (1970 - 1986)



**FIGURE 13**  
**DISTRIBUTION OF RATES OF OCCUPATIONAL**  
**DISEASES IN MINES IN SOUTH AFRICA**  
**(1975 - 1984)**

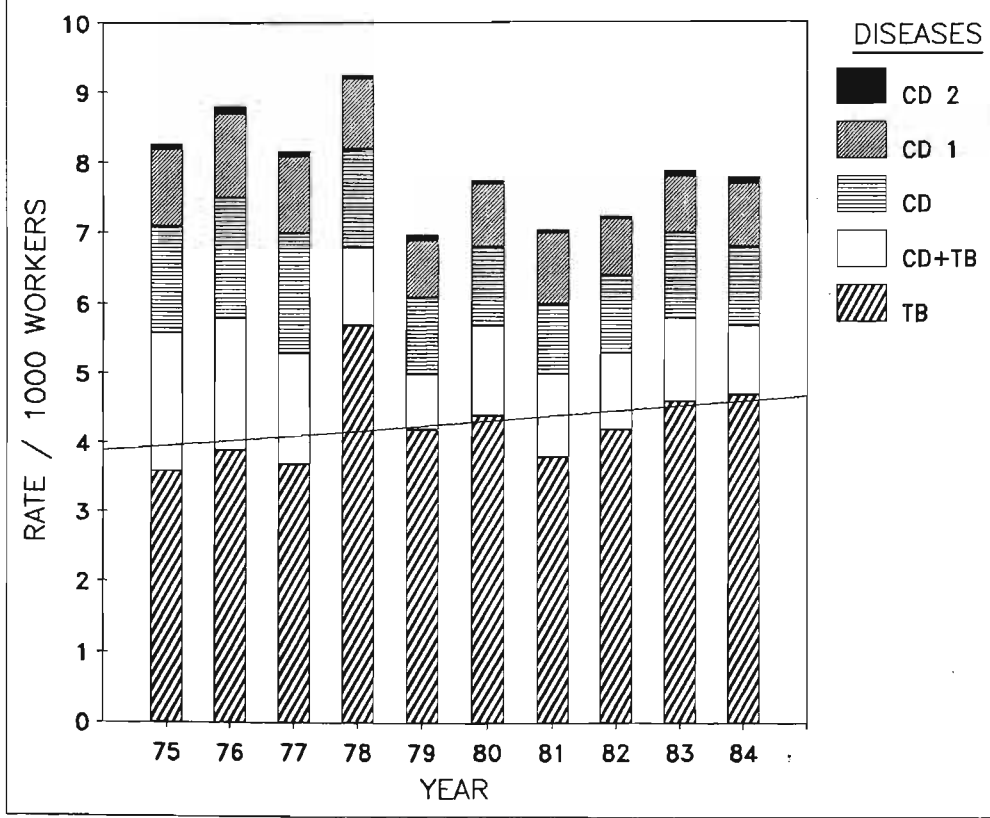
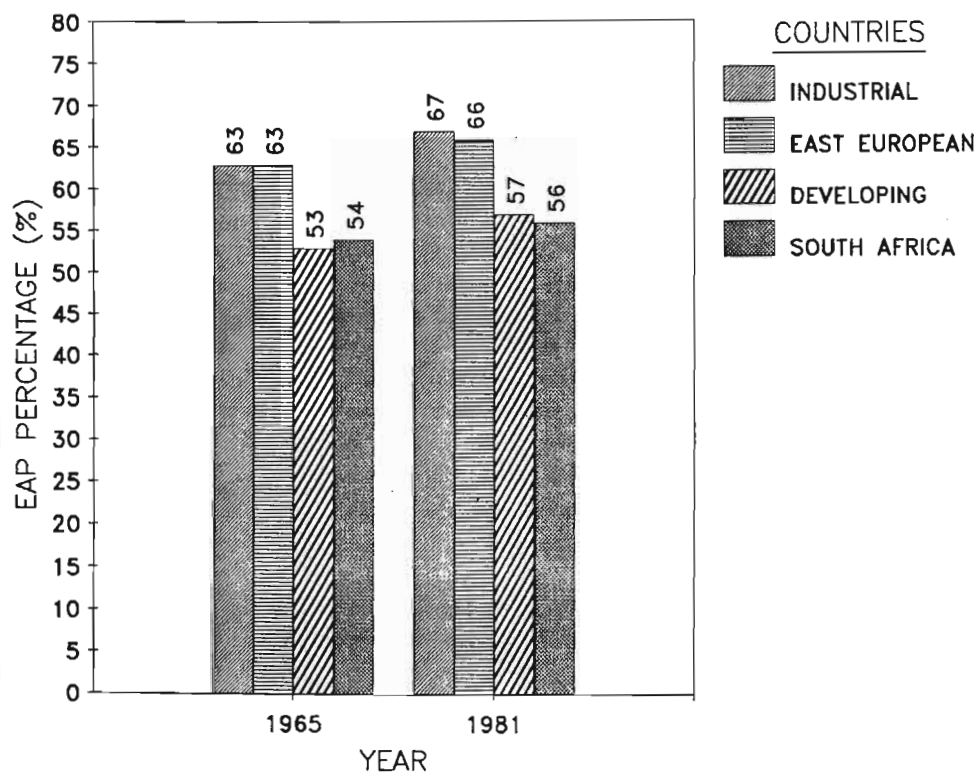


FIGURE 14  
**DISTRIBUTION (%) OF ECONOMICALLY  
ACTIVE POPULATION (EAP) ACCORDING  
TO COUNTRY GROUPINGS (1965, 1981)**



**FIGURE 15**  
**CHANGE (%) IN DISTRIBUTION OF WORKERS IN**  
**SELECTED EMPLOYMENT SECTORS BETWEEN 1965**  
**AND 1981 ACCORDING TO COUNTRY GROUPINGS**

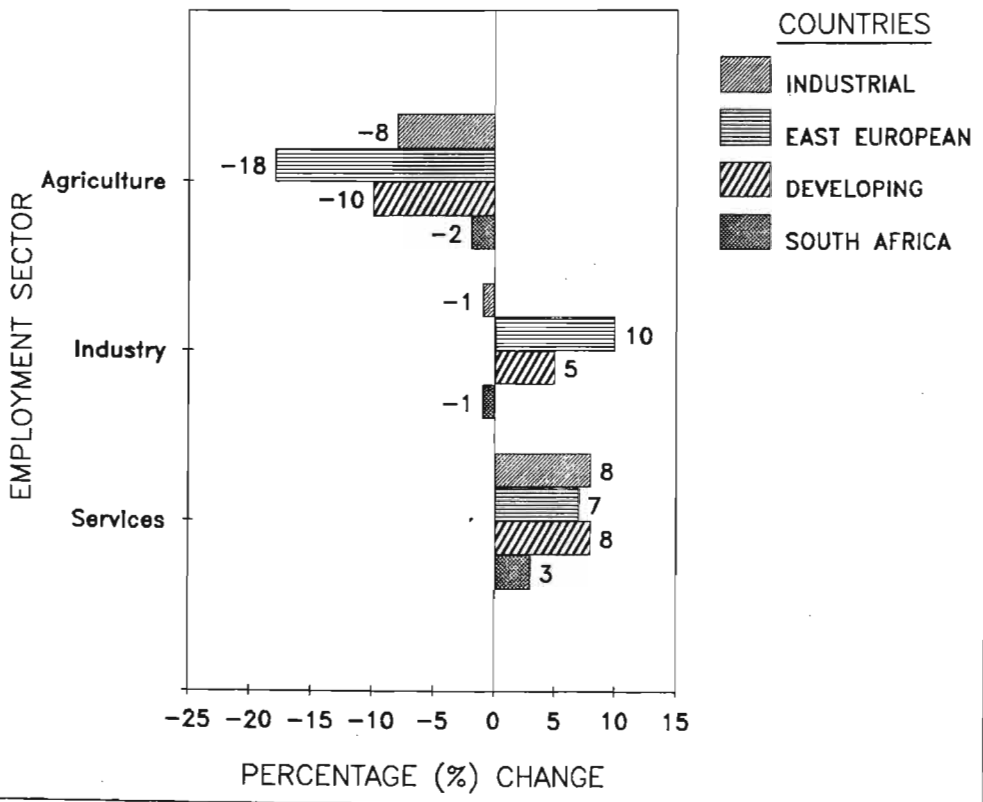
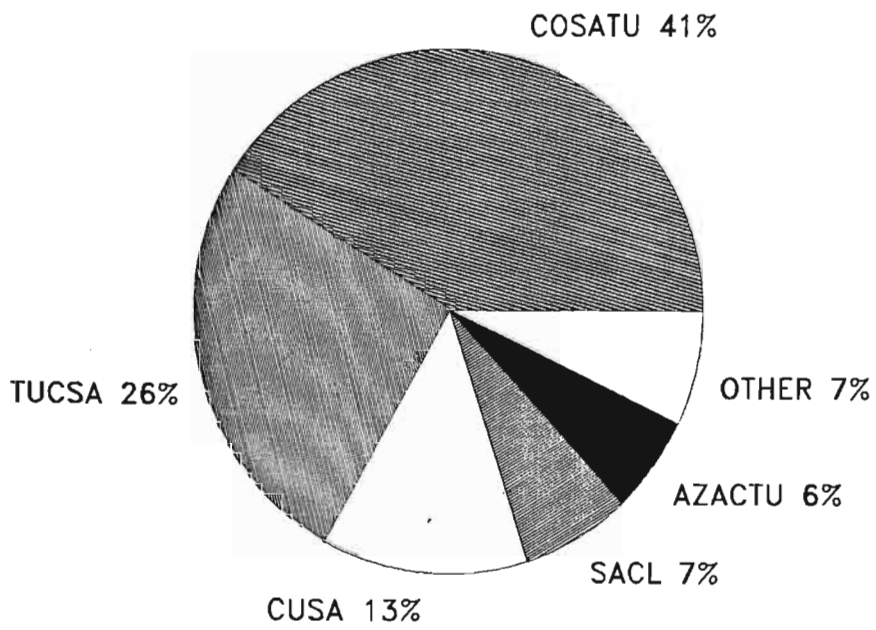


FIGURE 17  
TRADE UNION AFFILIATION  
OF WORKERS (1985)



PERCENTAGE (%) OF WORKERS

**TABLES**

**TABLE 3**

**CHARACTERISTICS OF DEVELOPED AND DEVELOPING COUNTRIES**

CHARACTERISTIC	DEVELOPED	DEVELOPING
Population structure <15 years >65 years distribution	Low (25%) High (10%) Urban	High (40%) Low (3%) Rural
Birth rates	Low	High
Death rates (Crude) (Infant mortality)	Low Low	High High
Dependency	Low	High
Employment	High	Low
Literacy	High	Low
Socio - economic status	High	Low
Diseases	Affluence Sedentary Degenerative	Nutritional Infective Preventable
Health Services	Plentiful High technology Access good Private and public	Sparse Low technology Access poor Public with little private
Needs: Education	Provided	More schools Teacher training Adult literacy
Economic	Retirement preparation	Decentralisation of industry Cottage crafts Agricultural reform
Health care	Provided plus Frail aged homes	Primary health care clinics Community health workers
Health education	Stress, exercise diet	GOBI - FFF <sup>1</sup>

<sup>1</sup> Growth monitoring. Oral rehydration. Breastfeeding. Immunisation. Female education. Family spacing. Food supplementation

TABLE 4

KEY DATES IN THE CONSTITUTIONAL DEVELOPMENT  
OF THE NATIONAL AND SELF - GOVERNING STATES IN SOUTH AFRICA<sup>1</sup>

STATE	DATES OF			
	TERRITORIAL AUTHORITY	LEGISLATIVE ASSEMBLY <sup>2</sup>	SELF- GOVERNMENT <sup>3</sup>	INDEPENDENCE <sup>4</sup>
TRANSKEI	01/08/56	-	31/05/63	26/10/76
BOPHUTHATSWANA	21/04/61	01/05/71	01/06/72	06/12/77
VENDA	20/06/62	01/06/71	01/02/73	13/09/79
CISKEI	24/03/61	01/06/71	01/08/72	04/12/81
GAZANKULU	09/11/62	01/07/71	01/02/73	-
KANGWANE	28/11/75	01/11/77	31/08/84	-
KWANDEBELE	07/10/77	01/10/79	01/04/81	-
KWAZULU	01/05/70	01/04/72	01/02/77	-
LEBOWA	10/08/62	01/07/71	02/10/72	-
QWAQWA	02/03/69	01/10/71	25/10/74	-

1 HSRC Investigation into Manpower Issues: Manpower studies No 1: 1985: 7

2 First stage of constitutional development; law-making with limited powers, consistent with Black States Constitution Act(1971)

3 Stage beyond 1; more functions are transferred from the RSA eg Health, Welfare

4 Full territorial sovereignty; can make agreements with the RSA



TABLE 5

## OCCUPATIONAL HEALTH AND RELATED LEGISLATION IN SOUTH AFRICA (1986)

ACT (RSA TITLES)	NO	YEAR	RSA	TRANSKEI	BOPHUTHATSWANA	VENDA	CISKEI	GAZANKULU	KANGWANE	KWANDEBELE	KWAZULU	LEBOWA	QWAQWA
MACHINERY AND OCCUPATIONAL SAFETY	6	1983	AP <sup>1</sup>	NA <sup>2</sup>	NA	NA	35/1984 <sup>R</sup>	NA	AP	NA	NA	AP	NA
FACTORY, MACHINERY AND BUILDING	22	1941	NA <sup>4</sup>	35/1978 <sup>R</sup>	AP	AP	34,35/1984 <sup>R</sup>	AP	NA	AP	AP	NA	AP
MINES AND WORKS	27	1956	AP	AP	18/1984 <sup>R</sup>	AP	AP	AP	AP	AP	AP	AP	AP
WORKMEN'S COMPENSATION	30	1941	AP	20/1977 <sup>R</sup>	12/1979 <sup>R</sup>	9/1980 <sup>R</sup>	11/1982 <sup>R</sup>	AP	AP	AP	AP	AP	AP
OCCUPATIONAL DISEASES IN MINES AND WORKS	78	1973	AP	NA	NA	NA	UNK <sup>3</sup>	UNK	UNK	UNK	UNK	UNK	UNK
UNEMPLOYMENT INSURANCE	30	1966	AP	11/1983 <sup>R</sup>	17/1978 <sup>R</sup>	11/1983 <sup>R</sup>	11/1983 <sup>R</sup>	AP	AP	AP	AP	AP	AP
WAGE	5	1957	AP	15/1977 <sup>R</sup>	8/1984 <sup>R</sup>	5/1981 <sup>R</sup>	*AP	*AP	*AP	*AP	*AP	*AP	*AP
LABOUR RELATIONS	28	1956	57/1981 <sup>R</sup>	13/1977 <sup>R</sup>	8/1984 <sup>R</sup>	18/1982 <sup>R</sup>	AP	AP	AP	AP	10/1981 <sup>R</sup>	AP	AP
BASIC CONDITIONS OF EMPLOYMENT	3	1983	AP	NA	NA	NA	34/1984 <sup>R</sup>	NA	AP	NA	NA	NA	NA
SHOPS AND OFFICES	75	1964	NA	3/1979 <sup>R</sup>	AP+25/1979	AP	34/1984 <sup>R</sup>	AP	NA	AP	AP	AP	AP
MANPOWER TRAINING	56	1981	AP	*A	NA	NA	33/1984 <sup>R</sup>	*A	AP	NA	NA	NA	NA
GUIDANCE AND PLACEMENT	62	1981	AP	NA	NA	NA	NA	NA	AP	NA	NA	NA	NA
BLACK LABOUR ACT	67	1964	AP	14/1977 <sup>R</sup>	4/1979 <sup>R</sup>	18/1982 <sup>R</sup>	AP	AP	AP	AP	AP	AP	AP

1 Applicable

2 Not applicable

3 Unknown if applicable

4 Some regulations still in force

R Repealed by this Act

\* Not applicable for wage determination

**TABLE 6**

**DISTRIBUTION OF THE POPULATION AND ECONOMICALLY  
ACTIVE POPULATION (EAP) IN SOUTH AFRICA (1985)**  
**(NUMBER AND PERCENTAGE)**

<b>STATE</b>	<b>NUMBER</b>	<b>%</b>	<b>EAP</b>	<b>%</b>
RSA	16547931	56.3		
GAZANKULU	495993	1.7		
KANGWANE	390103	1.3		
KWANDEBELE	232726	0.8	9758000	42
KWAZULU	3744380	12.7		
LEBOWA	1844315	6.3		
QWAQWA	183142	0.6		
TRANSKEI	2947058	10.0	553789	19
BOPHUTHATSWANA	1627475	5.5	333200	20
VENDA	454797	1.6	59550	13
CISKEI	925095	3.2	136220	15
<b>TOTAL</b>	<b>29393015</b>	<b>100</b>	<b>10840759</b>	<b>37</b>

**TABLE 7**  
**DISTRIBUTION OF BLACK COMMUTERS AND MIGRANTS**  
**IN THE RSA ACCORDING TO AREA OF USUAL RESIDENCE (1984)<sup>1</sup>**  
**(NUMBER AND PERCENTAGE)**

AREA OF RESIDENCE	NO OF COMMUTERS	%	NO OF MIGRANTS	%	TOTAL	%
GAZANKULU	6548	1.0	93821	4.3	100369	3.6
KANGWANE	47737	7.7	70008	3.2	117745	4.2
KWANDEBELE	22716	3.6	72181	3.3	94897	3.4
KWAZULU	282578	45.4	48651	22.4	766229	27.5
LEBOWA	68342	11.0	261625	12.1	329967	11.9
QWAQWA	3542	0.6	69807	3.2	73349	2.6
<sup>2</sup> ONVERWACHT	4091	0.7	493	0.2	4512	0.2
TRANSKEI	9180	1.5	378312	17.5	387492	13.9
BOPHUTHATSWANA	115388	18.5	259282	12.0	374670	13.5
VENDA	5703	0.9	53369	2.5	59072	2.1
CISKEI	56579	9.1	66627	3.1	123206	4.4
BOTSWANA	-	-	26433	1.2	26433	0.9
LESOTHO	-	-	138443	6.4	138443	5.0
MALAWI	-	-	29268	1.4	29268	1.1
MOZAMBIQUE	-	-	60407	2.8	60407	2.2
SWAZILAND	-	-	16823	0.8	16823	0.6
ZIMBABWE	-	-	7492	0.3	7492	0.3
<sup>3</sup> OTHER	-	-	72394	3.4	72394	2.6
<b>TOTAL</b>	<b>622332</b>	<b>100</b>	<b>2175935</b>	<b>100</b>	<b>2798267</b>	<b>100</b>

<sup>1</sup> HSRC Investigation into Manpower Issues: Manpower studies No 1; 1985: 4

<sup>2</sup> Status not clear as yet in terms of inclusion into the RSA

<sup>3</sup> Assumed to come from Namibia, Zambia and Angola

**TABLE 8**  
**DISTRIBUTION OF WORKERS ACCORDING TO**  
**EMPLOYMENT SECTOR IN SOUTH AFRICA<sup>1</sup> (1985)**  
**(NUMBER AND PERCENTAGE)**

EMPLOYMENT SECTOR	NUMBER	%
PUBLIC SECTOR	1413892	23.2
MANUFACTURING	1346300	22.0
AGRICULTURE	1270000	20.8
TRADE & CATERING	755712	12.4
MINING	724587	11.9
CONSTRUCTION	398800	6.5
FINANCE	160857	2.6
OTHER	37061	0.6
<b>TOTAL</b>	<b>6107209</b>	<b>100</b>

<sup>1</sup> Excluding TBVC

**TABLE 9**

**DISTRIBUTION OF WORKERS IN THE MANUFACTURING INDUSTRY**

**ACCORDING TO AREA (1979)<sup>1</sup>**

**NUMBER AND PERCENTAGE (%)**

<b>AREA</b>	<b>NUMBER</b>	<b>%</b>
PRETORIA/WITWATERSRAND/VAAL TRIANGLE	607466	45.4
DURBAN/PINETOWN	224324	16.8
CAPE TOWN	175791	13.1
PORT ELIZABETH	69751	5.2
RUSTENBURG (NE TRANSVAAL)	67253	5.0
EAST LONDON	40505	3.0
BLOEMFONTEIN	7582	0.6
OTHER	146333	10.9
<b>TOTAL</b>	<b>1339005</b>	<b>100</b>

**1 South African Statistics 1986. Central Statistical Services.  
South Africa (Republic). Pretoria; Government Printer; 1986:  
12.2 - 12.4. 12.44 - 12.54.**

TABLE 10

**DISTRIBUTION OF EMPLOYERS AND WORKERS ACCORDING TO  
EMPLOYMENT SECTOR IN CISKEI<sup>1</sup>, LEBOWA<sup>1</sup> AND SOUTH AFRICA<sup>2</sup>  
(NUMBER AND PERCENTAGE)**

EMPLOYMENT SECTOR	CISKEI			LEBOWA			SOUTH AFRICA		
	E <sup>3</sup>	W <sup>4</sup>	%	E <sup>3</sup>	W <sup>4</sup>	%	E <sup>3</sup>	W <sup>4</sup>	%
AGRICULTURE	22	3186	10.1	70	2066	10.4	57986 <sup>5</sup>	752803	16.5
FORESTRY	-	-	-	8	856	4.3	-	-	-
FISHING	-	-	-	2	-	-	58	4007	0.1
MINING	-	-	-	7	4300	21.7	781	112173	2.5
BUILDING & CONSTRUCTION	119	3640	11.6	2	161	0.8	16662	335093	7.3
FOOD, DRINKS & TOBACCO	36	2281	7.3	6	779	3.9	5934	318067	7.0
TEXTILE	45	9697	30.8	2	444	2.2	2443	277007	6.1
WOOD	17	1478	4.7	4	387	2.0	3678	154451	3.4
PAPER & PRINTING	3	103	0.3	-	-	-	1375	68171	1.5
CHEMICAL	13	920	2.9	1	14	0.1	2280	187089	4.1
LEATHER	6	863	2.7	2	40	0.2	664	43295	0.9
GLASS, BRICKS & TILES	31	1246	4.0	2	480	2.4	1667	92535	2.0
IRON & STEEL	52	1988	6.3	2	162	0.8	17327	567852	12.4
DIAMONDS, ASBESTOS, & BITUMEN	4	250	0.8	1	700	3.5	1784	20395	0.4
TRADE & COMMERCE	133	1556	4.9	18	722	3.7	35470	585699	12.8
BANKING, FINANCE & INSURANCE	13	162	0.5	8	16	0.1	3207	172104	3.8
TRANSPORT & COMMUNICATION	19	1126	3.6	4	1614	8.2	4828	146017	3.2
PUBLIC ADMINISTRATION & SERVICES	7	230	0.7	-	-	-	12444	413322	9.1
ENTERTAINMENT, SPORT & HOTELS	28	743	2.4	14	53	0.3	22988	258095	5.7
CHARITABLE, RELIGIOUS & POLITICAL	6	118	0.4	-	-	-	3759	58409	1.3
UNSPECIFIED	20	1855	5.9	157	6983	35.3	-	-	-
<b>TOTAL</b>	<b>574</b>	<b>31442</b>	<b>100</b>	<b>310</b>	<b>19777</b>	<b>100</b>	<b>195335</b>	<b>4566582</b>	<b>100</b>

1 Responses to Postal Questionnaire - Appendix B (1986)

2 Workmen's Compensation Commissioner (1984)

3 Number of Employers

4 Number of Workers

5 Includes Forestry

**TABLE 11**  
**DISTRIBUTION OF ACCIDENT CASES REPORTED TO**  
**THE WORKMEN'S COMPENSATION COMMISSIONER**  
**ACCORDING TO EXTENT OF DISABLEMENT (1971 - 1982)**  
**(NUMBER AND PERCENTAGE)**

YEAR	TOTAL CASES	TEMP <sup>1</sup>	%	PERM <sup>2</sup>	%	FATAL <sup>3</sup>	%	MANDAYS <sup>4</sup> LOST
1971	346712	312661	90.2	31819	9.2	2232	0.6	29927332
1972	348005	313702	90.1	32019	9.2	2284	0.7	30191054
1973	354823	318525	89.8	33752	9.5	2546	0.7	32534762
1974	355552	319354	89.8	33676	9.5	2522	0.7	32515539
1975	355615	321564	90.4	31819	8.9	2232	0.6	29927332
1976	340063	303765	89.3	33752	9.9	2546	0.7	32534762
1977	309223	277005	89.6	30134	9.7	2084	0.7	27671221
1978	309085	276819	89.6	30233	9.8	2033	0.7	26552997
1979	299532	271190	90.5	26546	8.9	1796	0.6	23881530
1980	311648	282338	90.6	27074	8.7	2236	0.7	27701748
1981	316466	289241	91.4	24891	7.9	2334	0.7	27504915
1982	289052	263217	91.1	23920	8.3	1915	0.7	24507693

1 Number of Medical Aid & Temporarily disabled cases

2 Number of Permanently disabled cases

3 Number of Fatal cases

4 Mandays are calculated on a different formula for each of the categories of disablement and take into account unreported losses of working time as well

**TABLE 12**

**DISTRIBUTION OF ACCIDENT CASES REPORTED TO THE WORKMEN'S COMPENSATION**

**COMMISSIONER ACCORDING TO RACE AND EXTENT OF DISABLEMENT (1980, 1984)**

**(NUMBER AND RATE / 1000 WORKERS)**

YEAR	WORKFORCE	M <sup>1</sup>	RATE	TEMP <sup>2</sup>	RATE	PERM <sup>3</sup>	RATE	FATAL <sup>4</sup>	RATE	TOTAL <sup>5</sup>	RATE	
EAC <sup>6</sup>	1980	1623280	53421	32.9	26701	16.4	2711	1.67	252	0.16	83085	51.2
	1984	1788764	43117	24.1	22072	12.3	2235	1.25	192	0.11	67616	37.8
BLACK <sup>7</sup>	1980	2522880	62858	24.9	58506	23.2	6292	2.49	1059	0.42	128715	51.0
	1984	2777818	59700	21.5	49822	17.9	5498	1.98	754	0.27	115774	41.7
TOTAL <sup>8</sup>	1980	4146160	116279	28.0	85207	20.6	9003	2.17	1311	0.32	211800	51.1
	1984	4566582	102817	22.5	71894	15.7	7733	1.69	946	0.21	183390	40.2

1 Medical Aid cases

2 Temporarily disabled cases

3 Permanently disabled cases

4 Fatal cases

5 Total number of cases by racial grouping

6 Racial grouping of Whites, Indians, Coloureds

7 Racial grouping of Africans

8 Total number of cases by disablement class



**TABLE 13**

**DISTRIBUTION OF ACCIDENT CASE FREQUENCY AND SEVERITY RATES ACCORDING TO  
EMPLOYMENT SECTORS REGISTERED WITH THE WORKMEN'S COMPENSATION COMMISSIONER**

**(1984)**

<b>EMPLOYMENT SECTOR</b>	<b>FREQUENCY RATE<sup>1</sup></b>	<b>SEVERITY RATE<sup>2</sup></b>
FISHING	38.6	4.13
TRANSPORT	15.5	3.37
WOOD	12.9	1.54
BUILDING AND CONSTRUCTION	11.4	1.93
MINING	11.3	2.62
GLASS, BRICKS AND TILES	11.2	1.36
IRON AND STEEL	10.4	1.17
FOOD, DRINK AND TOBACCO	9.1	0.82
LOCAL AUTHORITIES	9.0	1.25
PRINTING AND PAPER	8.0	0.67
ALL INDUSTRIES	7.7	1.09
CHEMICALS	7.3	0.94
AGRICULTURE AND FORESTRY	7.3	1.41
TRADE AND COMMERCE	5.5	0.65
DIAMONDS, ASBESTOS	5.2	2.15
LEATHER	5.2	0.33
TEXTILES	4.3	0.30
EDUCATIONAL SERVICES	3.5	0.31
ENTERTAINMENT AND SPORT	3.3	0.44
PERSONAL SERVICES	2.7	0.28
MEDICAL SERVICES	2.1	0.19
CHARITABLE, RELIGIOUS AND TRADE ORGANISATIONS	1.9	0.21
PROFESSIONAL SERVICES	1.1	0.24
BANKING, FINANCE, INSURANCE	1.0	0.10

<sup>1</sup> Rate per 1000000 manhours of exposure

<sup>2</sup> Rate per 1000 manhours of exposure

TABLE 14

DISTRIBUTION OF SELECTED COMPENSATABLE DISEASES ACCORDING TO CAUSAL AGENT  
AS REPORTED TO THE WORKMEN'S COMPENSATION COMMISSIONER (1980, 1984)

CAUSAL AGENT	CASES		DEATHS	
	1980	1984	1980	1984
ARSENIC	209	138	12	-
ASBESTOS	42	64	8	7
CHROMIUM	13	10	-	-
LEAD	14	9	1	-
MERCURY	6	4	-	-
SILICA	3	1	-	-
SOLVENTS	391	373	-	-
VAPOUR, GAS	939	813	20	30

**TABLE 15****DISTRIBUTION OF ACCIDENTS AND DEATHS****IN GOLD MINES IN SOUTH AFRICA (1970 - 1986)****(NUMBER AND RATE / 1000 WORKERS)**

YEAR	SIZE OF WORKFORCE	ACCIDENTS		DEATHS	
		NO	RATE	NO	RATE
1970	425871	24997	58.7	524	1.2
1971	425163	24341	57.3	546	1.3
1972	412584	23490	56.9	511	1.2
1973	430463	23248	54.0	539	1.3
1974	403996	22448	55.6	489	1.2
1975	377924	19275	51.0	498	1.3
1976	401907	20691	51.5	557	1.4
1977	424992	20099	47.3	594	1.4
1978	440221	20782	47.2	654	1.5
1979	455555	19380	42.5	563	1.2
1980	472251	17757	37.6	633	1.3
1981	487086	15702	32.2	608	1.2
1982	483914	15302	31.6	588	1.2
1983	489378	14721	30.1	604	1.2
1984	510171	13736	26.9	588	1.2
1985	524001	13168	25.1	539	1.0
1986	551794	11624	21.1	702	1.3

**TABLE 16****DISTRIBUTION OF ACCIDENTS AND DEATHS****IN COAL MINES IN SOUTH AFRICA (1970 - 1986)****(NUMBER AND RATE / 1000 WORKERS)**

YEAR	SIZE OF WORKFORCE	ACCIDENTS		DEATHS	
		NO	RATE	NO	RATE
1970	75742	1788	23.6	79	1.0
1971	76307	1813	23.8	94	1.2
1972	75338	1464	19.4	58	0.8
1973	73438	1487	20.2	52	0.7
1974	73992	1643	22.2	84	1.1
1975	76893	1651	21.5	100	1.3
1976	83814	1835	21.9	86	1.0
1977	96919	2105	21.7	120	1.2
1978	114928	1979	17.2	105	0.9
1979	120474	1406	11.7	112	0.9
1980	128936	1272	9.9	104	0.8
1981	136248	1219	8.9	112	0.8
1982	112000	951	8.5	109	1.0
1983	110886	826	7.4	129	1.2
1984	116608	840	7.2	73	0.6
1985	119294	806	6.8	93	0.8
1986	119734	709	5.9	66	0.6

**TABLE 17**

**DISTRIBUTION OF ACCIDENTS AND DEATHS IN MINES**

**OTHER THAN GOLD OR COAL IN SOUTH AFRICA<sup>1</sup> (1970 - 1986)**

**(NUMBER AND RATE / 1000 WORKERS)**

YEAR	SIZE OF WORKFORCE	ACCIDENTS		DEATHS	
		NO	RATE	NO	RATE
1970	159834	3532	22.1	167	1.0
1971	155711	2989	19.2	125	0.8
1972	142266	2819	19.8	131	0.9
1973	163767	4266	26.0	146	0.9
1974	188705	4588	24.3	218	1.2
1975	173498	3799	21.9	167	1.0
1976	189414 <sup>2</sup>	3732	19.7	153	0.8
1977	179523	3574	19.9	176	1.0
1978	131872	2124	16.1	118	0.9
1979	143415	2403	16.8	157	1.1
1980	141965	2119	14.9	124	0.9
1981	140219	1665	11.9	118	0.8
1982	115935	1153	9.9	110	0.9
1983	99626	1037	10.4	98	1.0
1984	106802	952	8.9	79	0.7
1985	111406	846	7.6	74	0.7
1986	110093	376	3.4	32	0.3

1 Mines such as asbestos, diamonds etc

2 Corrected for misprint in government report

**TABLE 18**

**DISTRIBUTION OF OCCUPATIONAL DISEASE CASES IN MINES**

**AS REPORTED UNDER THE OCCUPATIONAL DISEASES IN MINES AND WORKS ACT (1975 - 1984)**

**(NUMBER AND RATE / 1000 WORKERS)**

YEAR	SIZE OF WORKFORCE	CD1 <sup>1</sup>		CD2 <sup>2</sup>		TB <sup>3</sup>		CD <sup>4</sup>		CD+TB <sup>5</sup>		TOTAL <sup>6</sup>	
		NO	RATE	NO	RATE	NO	RATE	NO	RATE	NO	RATE	NO	RATE
1975	628315	677	1.1	52	0.08	2240	3.6	949	1.5	1230	2.0	5148	8.2
1976	675135	833	1.2	77	0.11	2617	3.9	1179	1.7	1300	1.9	6006	8.9
1977	701434	766	1.1	51	0.07	2587	3.7	1221	1.7	1094	1.6	5719	8.2
1978	687021	672	1.0	41	0.06	3901	5.7	929	1.4	743	1.1	6286	9.2
1979	719444	602	0.8	56	0.08	3035	4.2	803	1.1	590	0.8	5086	7.1
1980	743152	643	0.9	37	0.05	3246	4.4	824	1.1	982	1.3	5732	7.7
1981	763553	602	1.0	35	0.05	2926	3.8	791	1.0	907	1.2	5261	6.9
1982	711849	571	0.8	32	0.04	2971	4.2	788	1.1	801	1.1	5163	7.3
1983	699890	582	0.8	61	0.09	3243	4.6	822	1.2	828	1.2	5536	7.9
1984	733581	662	0.9	64	0.09	3410	4.7	795	1.1	795	1.0	5726	7.8

1 Compensatable disease 1st degree, <40% cardio-respiratory impairment

2 Compensatable disease 2nd degree, >40% cardio-respiratory impairment

3 Tuberculosis

4 Compensatable disease no degree

5 Compensatable disease + Tuberculosis

6 Total compensatable diseases

TABLE 19

## OCCUPATIONAL HEALTH EPIDEMIOLOGICAL STUDIES ASSOCIATED WITH TRADE UNIONS

CATEGORIES OF WORKERS	SAMPLE SIZE	YEAR	PREVALENCE %
STEVEDORES (Hypertension)	421	1981	43.9
STEVEDORES (Asbestosis)	147	1982	23.0
CHEMICAL WORKERS (Respiratory)	91	1982	- Excess respiratory symptoms
COTTON WORKERS (Byssinosis)	2421	1982-4	11.2 Spinning section 6.6 Winding section 6.4 Weaving section
GRAIN WORKERS (Occupational asthma)	582 153	1983 1983	37.0 20.0
STEVEDORES (Lead)	36	1984-6	9.0> 80 ug/100ml 13.0> 70 ug/100ml 31.0> 60 ug/100ml 69.0> 50 ug/100ml 81.0> <sup>1</sup> 40 ug/100ml
CEMENT WORKERS (Asbestosis)	922	1984-6	8.0
FOUNDRY WORKERS (Silicosis)	107	1984	10.3
BRICK WORKERS (Silicosis)	575	1985	7.8 Radiographs 2.4 Clinical
CHEMICAL WORKERS (Neuro & Skin toxicity)	73	1986	38.0 Exposed
SHIFTWORK	76	1986	- Excess of GIT symptoms
ALL STUDIES (Tuberculosis)			14-15 Radiological 2-5 Active

1 Cumulative prevalence percentage

**TABLE 20**

**DISTRIBUTION OF THE ECONOMICALLY ACTIVE POPULATION (EAP)**  
**AND WORKERS IN MAJOR EMPLOYMENT SECTORS ACCORDING TO**  
**THE WORLD BANK GROUPINGS OF COUNTRIES**  
**(PERCENTAGE)**

COUNTRY GROUPINGS	EAP %		PERCENTAGE OF WORKERS IN					
			AGRICULTURE		INDUSTRY		SERVICES	
	1965	1983	1965	1981	1965	1981	1965	1981
INDUSTRIAL MARKET ECONOMIES	63	67	14	6	39	38	48	56
EAST EUROPEAN ECONOMIES	63	66	35	17	34	44	32	39
DEVELOPING COUNTRIES	53	57	64	54	13	18	20	28
LOW INCOME ECONOMIES	54	59	77	73	9	13	14	15
MIDDLE INCOME ECONOMIES	53	56	57	44	16	22	27	35
HIGH INCOME ECONOMIES	53	55	58	46	15	19	27	35
SOUTH AFRICA	54	56	32	30	30	29	38	41



TABLE 21

**DISTRIBUTION OF FATAL ACCIDENTS IN SELECTED EMPLOYMENT SECTORS  
IN SELECTED COUNTRIES**

COUNTRY	YEAR	MINING QUARRYING	MANUFACTURING	BUILDING	RAILWAY
EGYPT <sup>1</sup>	1969	0.30	0.12	0.64	0.44
	1979	0.47	0.16	0.46	0.57
TUNISIA <sup>2</sup>	1969	0.71	0.05 <sup>3</sup>	0.43	0.24
	1979	0.39	0.01	0.06	-
ZAMBIA <sup>4</sup>	1969	1.01	0.11	1.18	0.24
	1979	-	-	-	-
CANADA <sup>5</sup>	1971	2.07	0.12	1.02	0.28
	1979	1.59	0.09	0.39	0.27
GUATEMALA <sup>5</sup>	1969	1.85	0.26	3.28	1.54
	1979	2.27	0.23	2.13	1.79
UNITED STATES <sup>1</sup>	1969	0.48	0.04	0.19	0.16
	1978	0.26	0.03	0.14	0.10
INDIA <sup>1</sup>	1969	0.50	0.15	-	0.25
	1977	0.40	0.13	-	0.21
JAPAN <sup>2</sup>	1969	0.57	0.04	0.21	0.06
	1979	0.48	0.03	0.03	0.01 <sup>6</sup>
MALAYSIA <sup>1</sup>	1969	1.18	1.09	0.83	0.24
	1979	-	-	0.50	-
FRANCE <sup>7</sup>	1969	0.72	0.12	0.48	-
	1978	0.43	0.08	0.31	0.21
WEST GERMANY <sup>7</sup>	1969	0.71	0.17	0.40	0.38
	1979	0.52	0.13	0.35	0.20
HUNGARY <sup>1</sup>	1969	0.48	0.10	0.33	0.30
	1979	0.33	0.10	0.26	0.31
NEW ZEALAND <sup>1</sup>	1969	0.99	-	-	0.08
	1979	-	-	-	-
SOUTH AFRICA <sup>8</sup>	1980	1.16	0.19	0.68	-
	1984	1.01	0.12	0.43	-

1 Reported accidents per 1000 manyears of 300 days each.

2 Reported accidents per 1000000 manhours worked. Japan's data refer to establishments employing 100 or more workers.

3 1970

4 Reported accidents per 1000 workers.

5 Reported accidents per 1000 wage earners.

6 1978

7 Compensated accidents per 1000 manyears of 300 days each.

8 Reported deaths per 1000 workers.

TABLE 22

## RECENT STUDIES ON OCCUPATIONAL HEALTH SERVICES IN SOUTH AFRICA

YEAR	AREA	SAMPLE SIZE	FACTORY SIZE <sup>1</sup>	EMPLOYMENT SECTOR	INFORMATION GATHERED	SURVEY METHOD	RESPONSE RATE(%)	OCCUPATIONAL HEALTH SERVICES (%)
1980 <sup>2</sup>	WITWATERSRAND	60	0+	CHEMICAL	HEALTH SERVICES, CONDITIONS	WALK-THROUGH	100	8
1981 <sup>3</sup>	DURBAN	10	100+	ALL	HEALTH SERVICES	POSTAL QUESTIONNAIRE	100	80
1983 <sup>4</sup>	WITWATERSRAND	30	0+	FOUNDRIES	HEALTH SERVICES, CONDITIONS	INTERVIEW QUESTIONNAIRE	90	20
1983 <sup>5</sup>	CAPE TOWN	1066	0+	ALL	HEALTH SERVICES, WELFARE BENEFITS	POSTAL QUESTIONNAIRE	50	13
1985 <sup>6</sup>	GERMISTON	495	50+	ALL	HEALTH SERVICES	POSTAL QUESTIONNAIRE	56	15
1987 <sup>7</sup>	DURBAN, PINETOWN	191	100+	ALL	HEALTH SERVICES, OH PERSONNEL	POSTAL QUESTIONNAIRE	78	46

- 1 Number of workers  
2 Reference 14  
3 Reference 15  
4 Reference 16  
5 Reference 17  
6 Reference 18  
7 Reference 19

**TABLE 23**

**BUDGET OF THE DEPARTMENT OF MANPOWER  
ACCORDING TO MAJOR PROGRAMMES (1985/6)**

**(RANDB X 1000 AND PERCENTAGE)**

<b>PROGRAMME</b>	<b>BUDGET</b>	<b>%</b>
ADMINISTRATION	10419	8.1
LABOUR RELATIONS	4130	3.2
<b>SAFETY AND HEALTH</b>	4031	<b>3.1</b>
TRAINING	54856	42.9
SOCIAL SECURITY	22497	17.6
UTILIZATION OF MANPOWER	24664	19.3
SUPPORTING SERVICES	7376	5.8
<b>TOTAL</b>	<b>127973</b>	<b>100</b>

TABLE 24

EXPENDITURE OF THE DEPARTMENT OF NATIONAL HEALTH AND

POPULATION DEVELOPMENT ON PROGRAMMES (1985/6)

(RANDS AND PERCENTAGES)

<b>PROGRAMME</b>	<b>EXPENDITURE</b>	<b>%</b>
ADMINISTRATION	16 540 941	1.2
INFECTIOUS AND COMMUNICABLE DISEASES	88 320 823	6.6
MENTAL HEALTH	119 511 461	9.0
MEDICAL CARE	59 661 894	4.5
AUXILLARY SERVICES	98 130 750	5.3
POPULATION DEVELOPMENT	48 497 391	3.7
PENSIONS	876 257 450	65.9
SUPPORTING SERVICES	7 160 890	0.5
HEALTH PROTECTION AND OCCUPATIONAL DISEASES IN MINES AND WORKS	44 415 960	3.3
TOTAL	1 330 050 386	100

**TABLE 25**

**EXPENDITURE OF THE DEPARTMENT OF  
NATIONAL HEALTH AND POPULATION DEVELOPMENT  
ON OCCUPATIONAL HEALTH (1985/6)  
(RANDS AND PERCENTAGES)**

<b>SUB-PROGRAMME</b>	<b>EXPENDITURE</b>	<b>%</b>
Pollution control	3 240 834	0.2
Control of consumer goods	3 806 818	0.3
Public environmental services	12 173 354	0.9
Malaria	2 867 319	0.2
Bilharzia	203 791	0.02
Vector surveillance	406 575	0.03
Port health services	689 638	0.05
Industrial health services	3 128 961	0.2
Medical control (MBOD)	4 044 958	0.3
Mines and works compensation fund	13 853 712	1.1
HEALTH PROTECTION AND OCCUPATIONAL DISEASES IN MINES AND WORKS	44 415 960	3.3
<b>TOTAL DEPARTMENT EXPENDITURE</b>	<b>1 330 050 386</b>	

**TABLE 26**

**NUMBER AND MEMBERSHIP OF TRADE UNIONS REGISTERED WITH  
THE DEPARTMENT OF MANPOWER (1976 - 1985)**

<b>YEAR</b>	<b>NO OF TRADE UNIONS</b>	<b>NO OF MEMBERS (X 1000)</b>
1976	173	673
1977	174	677
1978	174	698
1979	167	727
1980	188	781
1981	200	1054
1982	199	1226
1983	194	1288
1984	193	1406
1985	196	1391

**TABLE 27****TRADE UNION AFFILIATION OF WORKERS (1985)****(NUMBER AND PERCENTAGE)**

<b>UNION FEDERATION</b>	<b>NUMBER OF WORKERS</b>	<b>%</b>
CONGRESS OF SA TRADE UNIONS (COSATU)	565 000	41
TRADE UNION COUNCIL OF SA (TUCSA)	360 000	26
COUNCIL OF UNIONS OF SA (CUSA)	180 000	13
SA CONFEDERATION OF LABOUR (SACL)	100 000	7
AZANIAN CONFEDERATION OF TRADE UNIONS (AZACTU)	86 851	6
OTHER	99 149	7
<b>TOTAL</b>	<b>1 391 000</b>	<b>100</b>

**TABLE 28**

**DISTRIBUTION OF OCCUPATIONAL HEALTH TEACHING STAFF**  
**IN MEDICAL SCHOOLS IN SOUTH AFRICA ACCORDING TO PROFESSIONAL**  
**STATUS AND QUALIFICATION IN OCCUPATIONAL HEALTH (1987)**

STAFF	STELLENBOSCH	NATAL	PRETORIA	MEDUNSA	OFS	CAPE TOWN
PROFESSOR	1(Di <sup>1</sup> )	1	1(Di)	1(Di)	2(Di)	-
S/LECTURER	1	-	2(Di)	-	-	-
LECTURER	2(Di <sup>2</sup> )	1	-	-	-	-
P/T LECTURER	1(Di)	-	2(Di)	-	-	1
ANCILLARY STAFF						
Clinical depts?	No	Yes	Yes	No	No	Yes
Occ.Hygienist	Yes	No	Yes	No	No	Yes
Nurse	Yes	No	Yes	No	No	No
Epidemiologist	No	No	No	No	No	Yes
Other	No	No	Yes	No	No	Yes

1 Diploma in Occupational Health

2 Only 1 lecturer has a diploma



**TABLE 29**

**TIME SPENT ON UNDERGRADUATE EDUCATION IN OCCUPATIONAL HEALTH  
ACCORDING TO ACADEMIC YEAR AND MEDICAL SCHOOL (1987)**

COURSE	STELLENBOSCH		NATAL		PRETORIA		MEDUNSA		OFS		CAPE TOWN	
	Y <sup>1</sup>	T <sup>2</sup>	Y	T	Y	T	Y	T	Y	T	Y	T
LECTURE	3rd	1	1st	2	4th	4	4th	4	4th	6	4th	2.5
	4th	5	4th	1	-	-	-	-	-	-	-	-
	5th	6	-	-	-	-	-	-	-	-	-	-
TUTORIAL	5th	1	-	-	-	-	-	-	-	-	-	-
FACTORY	4th	8	4th	2	4th	3	4th	15	-	-	4th	4

1 Year of study

2 Time in hours

TABLE 30

DISTRIBUTION OF GRADUATES IN OCCUPATIONAL HEALTH  
ACCORDING TO MEDICAL SCHOOLS AS AT THE END OF 1986

(NUMBER AND PERCENTAGE)

MEDICAL SCHOOL	NO OF GRADUATES	%
STELLENBOSCH	28	31
NATAL	0	0
PRETORIA	56	63
MEDUNSA	0	0
OFS	0	0
CAPE TOWN	5	6
TOTAL	89	100

**TABLE 31**

**DISTRIBUTION OF FIELDS OF OCCUPATIONAL HEALTH ACTIVITY**  
**ACCORDING TO MEDICAL SCHOOLS (1987)**

<b>MEDICAL SCHOOLS</b>	<b>ACTIVITY</b>
STELLENBOSCH	OH SERVICES, INFECTIOUS DISEASES
NATAL	OH SERVICES, EPIDEMIOLOGY
PRETORIA	EPIDEMIOLOGY, PLANNING OF OH SERVICES, ADMINISTRATION
MEDUNSA	MANAGEMENT, EPIDEMIOLOGY
OFS	EPIDEMIOLOGY
CAPE TOWN	EPIDEMIOLOGY, EXPOSURE PROFILES, OH SERVICES, MANAGEMENT

**TABLE 32****NATURE OF SERVICE OF OCCUPATIONAL HEALTH PERSONNEL**  
**ACCORDING TO MEDICAL SCHOOL (1987)**

<b>MEDICAL SCHOOL</b>	<b>SERVICE TO</b>			
	<b>GOVERNMENT</b>	<b>INDUSTRY</b>	<b>TRADE UNIONS</b>	<b>OTHER</b>
STELLENBOSCH	YES	YES	NO	UNIVERSITY
NATAL	NO	YES	YES	-
PRETORIA	YES	YES	YES	-
MEDUNSA	YES	YES	NO	-
OFS	YES	NO	NO	HOSPITAL
CAPE TOWN	YES	YES	NO	NOSA, INSTITUTE OF SAFETY MANAGEMENT

**APPENDICES**

**APPENDIX A****PROTOCOL****OCCUPATIONAL HEALTH IN SOUTH AFRICA****A PURPOSE**

To review the current status of occupational health in South Africa with reference to national and international perspectives on the discipline.

**B OBJECTIVES**

- 1 To ascertain an overview of international perspectives on occupational health.
- 2 To review the history of occupational health in South Africa.
- 3 To review the current legislation in respect of occupational health in South Africa.
- 4 To ascertain the current status of occupational health in South Africa in terms of:
  - (a) an overview of morbidity and mortality data in respect of occupational diseases and accidents
  - (b) a review of studies on occupational health services
  - (c) government, employer, trade union and health professional perspectives
  - (d) education and training for occupational health personnel.
- 5 To make recommendations in respect of occupational health in South Africa.

**C DEFINITION OF CRITERIA**

- (a) Occupational Health  
Occupational Health is concerned with the health of people in relation to their work and the working environment and includes the component disciplines of occupational medicine and occupational hygiene.
- (b) South Africa (SA)  
South Africa includes the Republic of South Africa(RSA), the national and self - governing states.
- (c) Republic of South Africa (RSA)  
The RSA excludes the national and self - governing states.
- (d) National states  
The national states are Transkei, Bophuthatswana, Venda and Ciskei.
- (e) Self - governing states  
The self - governing states are Gazankulu, Kangwane, Kwandebele, Kwazulu, Lebowa and Qwaqwa.
- (f) National perspective  
Perspectives which include the policies of various groups in the data sources on occupational health, legislation and current status of occupational health in South Africa.

- (g) International perspectives  
 Perspectives which include policies, legislation and current status of occupational health in the following World Bank groupings of countries<sup>(1)</sup> :
- (i) Industrial market economies
  - (ii) East European non - market economies, and
  - (iv) Developing countries
- The role of the World Health Organisation(WHO) and the International Labour Organisation(ILO) in occupational health will also be considered.
- (h) Morbidity and Mortality  
 Occupational injuries and diseases affecting workers will be divided into categories according to the respective data source.
- (i) Workmen's Compensation Commissioner (WCC) data
    - Medical aid cases are those in which the worker has lost less than one day or shift
    - Temporary disablement refers to those workers losing at least one day or shift
    - Permanent disablement refers to those workers having a physical disability ranging from 1% to 100% according to the first schedule of the Workmen's Compensation Act (1941)
    - Fatal cases are those resulting in the death of the worker at any time subsequent to the occupational accident/disease and as a direct result of the accident/disease
  - (ii) Data from reports under the Occupational Diseases in Mines and Works Act (1973)
    - CD1 refers to compensatable diseases in the first degree (pneumoconiosis or chronic obstructive airways disease(COAD) with cardio - respiratory impairment of less than 40%)
    - CD2 refers to compensatable disease in the second degree (pneumoconiosis or COAD with cardio-respiratory impairment of greater than 40%)
    - TB refers to Tuberculosis
    - CD refers to compensatable disease with no degree
    - CD + TB refers to compensatable disease (any degree) plus Tuberculosis
- (h) Government perspectives  
 The government perspectives will be the perspectives of the Departments of Health and Manpower (or equivalent) of the RSA, the national and self - governing states
- (i) Employer perspectives  
 The employers will be the major employer groups in the RSA, viz., the Chambers of Commerce, Industry and Mines
- (j) Trade union perspectives  
 The trade unions will be the major federations viz., the Congress of SA Trade Unions (COSATU), SA Confederation of Labour (SACL), Azanian Confederation of Trade Unions (AZACTU) and Council of Unions of SA (CUSA)
- (l) Health professionals perspectives  
 The perspectives of the Societies of Occupational Medicine and Occupational Health Nurses, Industrial Health Groups and the National Occupational Safety Association (NOSA) will be considered.

**D REDUCTION OF BIAS**

- (a) **Sampling**  
Data relevant to the study will be requested from the various persons, departments and groups in the data sources using postal questionnaires. For the purposes of this literature study, no cases or controls will be established.
- (b) **Interviewing**  
Interviewing will be carried out by the researcher using standardised and self-administered questionnaires.
- (c) **Observer**  
The entire study will be carried out by one researcher.

**E DATA SOURCES**

- (a) Medical Research Council - relevant literature searches and general assistance
- (b) National Centre for Occupational Health (NCOH - Johannesburg)- literature and library facilities
- (c) Workmen's Compensation Commissioner (Pretoria) - Reports on the 1980 and 1984 statistics
- (d) State Libraries - government reports - morbidity and mortality data
- (e) Commissions of Enquiry reports - Erasmus (RP 55/76), Niewenhuizen (RP 100/81), Wiehahn (RP's 47/79, 38/80, 82/80, 27/81, 28/81) and Riekerk (RP 32/79)
- (f) Departments of Health and Manpower (or equivalent) in the RSA, the national and self - governing states - perspectives on occupational health
- (g) Health professional groups - Societies of Occupational Medicine and Occupational Health Nurses, National Medical and Dental Association, NOSA, Health Information Centre, Technical Advice Group, Industrial Aid Society, Urban Training Project, Technical Assistance Project, Industrial Health Research Group and Health Care Trust - perspectives on occupational health and literature
- (h) Major trade union federations - perspectives on occupational health
- (j) Medical schools of the Universities of Stellenbosch, Natal, Pretoria, Orange Free State, Witwatersrand and Cape Town and the Medical Universities of SA and Transkei - education and training for occupational medical personnel
- (k) SA Nursing Council and Nursing Association - education and training for occupational nursing personnel
- (l) Council for Scientific and Industrial Research - literature search on occupational health

**F METHOD OF DATA COLLECTION**

Permission to carry out the study will be requested from the Head of the Centre for Epidemiological Research in Southern Africa (CERSA).

- (a) **Objective 1: International perspectives**  
Data will be collected by reviewing the scientific literature and publications of the WHO and the ILO.
- (b) **Objective 2: History of occupational health in SA**  
Data will be collected by reviewing articles in the scientific press, government reports and dissertations
- (c) **Objective 3: Legislation on occupational health in SA**  
Data will be collected by reviewing government reports and other published literature; as well as by a postal questionnaire.



- (d) Objective 4: Current status of occupational health
- (i) Morbidity and mortality data will be collected by reviewing the annual reports of the Workmen's Compensation Commissioner, the Medical Bureau for Occupational Diseases, the Government Mining Engineer, Mining Statistics, RSA departments of National Health and Population Development, Manpower and Mineral and Energy Affairs as well as from published articles.
  - (ii) Data in respect of occupational health services (OHS) will be collected by reviewing recent studies on OHS in South Africa and reviewing the reports of the NCOH. Some aspects of OHS will be covered in the questionnaire to the government departments.
  - (iii) Data in respect of government, employer, trade union and health professional perspectives will be collected by means of a questionnaire as well as from reports of the various groups.
  - (iv) Data in respect of education and training for occupational medical personnel will be collected by means of a questionnaire which will be sent to all medical schools in South Africa and from relevant articles in the scientific press.

Informed consent will be obtained from all persons in the data sources to publish the findings of the study in the scientific press.

#### G COLLATION OF DATA

Collation will be done manually by the researcher using collation sheets and with the aid of the computer facilities of the MRC.

#### H ANALYSIS OF DATA

Analysis will be carried out by the researcher.

#### I PUBLICATION OF FINDINGS

Publication will be in the form of articles in the relevant scientific press

#### J TIME BARRIERS

1	Design of research protocol	30 September 1988
2	Data collection	31 December 1988
3	Data collation and analysis	31 March 1989
4	Draft report	31 August 1989
5	Final report	30 September 1989

#### K REFERENCES

1. Country groupings. In: World Development Report 1985, The World Bank, New York, Oxford University Press: xi.

APPENDIX B

OCCUPATIONAL HEALTH IN SOUTH AFRICA  
QUESTIONNAIRE TO DEPARTMENTS OF MANPOWER

I. POPULATION (1986)

MEN	WOMEN	TOTAL

II. State number of main industrial groups and number of workers in each industry.  
(If unknown, state UNKNOWN)

INDUSTRIAL GROUP *	NUMBER OF INDUSTRIES	NUMBER OF WORKERS
AGRICULTURE		
FORESTRY		
FISHING		
MINING		
BUILDING AND CONSTRUCTION		
FOOD, DRINKS AND TOBACCO		
TEXTILE		
WOOD		
PAPER AND PRINTING		
CHEMICAL		
LEATHER		
GLASS, BRICK AND TILES		
IRON AND STEEL		
DIAMONDS, ASBESTOS AND BITUMEN		
TRADE AND COMMERCE		
BANKING, FINANCE AND INSURANCE		
TRANSPORT AND COMMUNICATION		
PUBLIC ADMINISTRATION AND PUBLIC SERVICES		
ENTERTAINMENT AND SPORT/HOTELS		
CHARITABLE, RELIGIOUS, POLITICAL		
UNSPECIFIED		

( \* Adapted from Classification of Industries - Workmen's Compensation Commissioner )

III. MANPOWER

A. Number of medical doctors in the country.....

B. Number of doctors working in industry (If unknown, CROSS appropriate block)

FULL-TIME	<input type="text"/>
PART-TIME	<input type="text"/>
UNKNOWN	<input type="text"/>

C. Number of nurses in the country.....

D. Number of nurses working in industry

FULL-TIME	<input type="text"/>
PART-TIME	<input type="text"/>
UNKNOWN	<input type="text"/>

E. Are any minimum qualifications and experience required for doctors working in industry.....  YES  NO  UNKNOWN

F. Are any minimum qualifications and experience required for nurses working in industry.....  YES  NO  UNKNOWN

G. Do societies or organisations in the field of occupational safety and health exist.....  YES  NO  UNKNOWN

If YES, state names

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

H. Do factory inspectors in respect of safety and health exist.....  YES  NO  UNKNOWN

If YES, state number.....

If NO, state which governmental category of persons is entrusted with inspection of workplaces.

IV. SOCIAL SECURITY

- I. Does sickness insurance exist.....  YES  NO  UNKNOWN
- J. Does workmen's compensation for occupational accidents exist.....  YES  NO  UNKNOWN
- K. Does workmen's compensation for occupational diseases exist.....  YES  NO  UNKNOWN

Is coverage	BLANKET	SCHEDULED
-------------	---------	-----------

- L. Does a vocational rehabilitation scheme exist.....  YES  NO  UNKNOWN
- M. Does a disability scheme exist.....  YES  NO  UNKNOWN
- N. Does an old-age pension scheme exist.....  YES  NO  UNKNOWN

V. LEGISLATION

List the main laws dealing with the protection of the health and safety of workers, indicating the authority (department) responsible for their administration eg

Machinery and Occupational Safety Act (RSA-1983)....Department of Manpower

LEGISLATION	AUTHORITY

VI. Is "Deregulation" being considered in terms of occupational health and safety ?

- YES     NO     UNKNOWN

VII. Major problems\needs in public health and occupational health

.....

.....

.....

.....

.....

.....

.....

VIII. Is there any government policy on occupational health.....  YES  NO  UNKNOWN

If YES, please give summary of the policy

.....

.....

.....

.....

.....

.....

.....

IX. Contact person in department (Name and telephone number)

.....

Please return to : Dr M B Kistnasamy  
 Dept of Community Health  
 Faculty of Medicine  
 P O Box 17039  
 Congella  
 4013

Telephone : 031-254211 ext. 211









- 1.1 Is there involvement of other departments of the university or other institutions in the teaching of occupational health ?

YES		NO		UNKNOWN
-----	--	----	--	---------

- 1.2 If YES, state departments or institutions.


- 1.3 Is there teaching of occupational health to students in other disciplines eg. Engineering, Pharmacy, etc.?

YES		NO		UNKNOWN
-----	--	----	--	---------

- 1.4 If YES, state disciplines.


## 2. POSTGRADUATE:

- 2.1 What is the qualification that can be obtained and duration of course? (Please specify)

DEGREE/TIME	DIPLOMA/TIME	OTHER/TIME

- 2.2 State numbers of persons trained according to RACE and SEX as at 31st December 1986 in each of the categories above.

	DEGREE		DIPLOMA		OTHER	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
WHITE						
COLOURED						
INDIAN						
AFRICAN						
OTHER						

2.3 Are there any non-degree, non-diploma courses offered ?

YES		NO	
-----	--	----	--

2.4 If YES, state courses.


2.5 Is there teaching of occupational health to post-graduates in other disciplines?

YES		NO		UNKN
-----	--	----	--	------

2.6 If YES, state disciplines.


2.7 In which year did post-graduate training in occupational health start at your institution ?

--

N.B. Please send copy of curriculum, entrance requirements and duration of courses.

F. RESEARCH

State current area of interest in occupational health research eg. Epidemiology, History of Occupational Medicine, etc.


G. SERVICE

Is there a service component to:

YES	NO
-----	----

2.1 Government departments.....

--	--

2.2 Employers/Industry.....

--	--

2.3 Trade Unions.....

--	--

2.4 Other groups eg Professional associations.....  
(specify group if YES in 2.4)

--	--


H. FINANCING OF DEPARTMENT (If any of the following is UNKNOWN, indicate with XXX )

1.1 Percentage of departmental expenditure on occupational health (including personnel, equipment, etc.)

Box with % symbol

1.2 Annual source of funds for occupational health (percentage)

1.2.1 Central government eg Dept of National Health.....

Box with % symbol

1.2.2 Provincial Administration .....

Box with % symbol

1.2.3 Local Authority.....

Box with % symbol

1.2.4 Private sector (Commerce and Industry).....

Box with % symbol

1.2.5 Trade Unions.....

Box with % symbol

1.2.6 Statutory research groups eg HSRC, MRC, CSIR.....

Box with % symbol

1.2.7 Other eg Academic fees, Individual donors, etc.....

Box with % symbol

I. FUTURE PLANS OF DEPARTMENT

.....

J. ANY COMMENTS ON THIS QUESTIONNAIRE OR GENERAL

.....

K. CONTACT PERSON IN DEPARTMENT (Name and telephone number)

.....

Please return to : Dr M B Kistnasamy, Dept of Community Health, P O Box 17039, Congella 4013 Telephone : 031-254211 ext.211

Department of Health and Welfare  
NATIONAL CENTRE FOR OCCUPATIONAL HEALTH



106 Joubert Street Extension  
P.O. Box 4788  
Johannesburg  
2000

Telegraphic address: BACTERIA  
Telex: 4-22251  
Telephone: 724-1840 and 724-1844/9

GUIDELINES FOR THE PROVISION OF HEALTH SERVICES IN INDUSTRY

Cost effectiveness in any health service will depend on the standard of the infrastructure; that is, how effectively the health service reaches out to all members of the community or group at risk, throughout their lives or the period during which the group is at risk. In the case of groups of workers the service should be designed to achieve certain clearly stated objectives, the first of which should be the promotion of health and the prevention of disease or disability in the workforce as a whole. If this approach is accepted then the introduction of special investigations for the detection of particular hazards is obviously inappropriate unless these sophisticated investigations are the pinnacle of a sound comprehensive service. It is important to remember that the majority of any workforce in the Republic of South Africa may not be covered by medical aid, and do not have easy access to primary health care in the way in which the affluent have access to a general practitioner.

Furthermore, absence from work is most commonly due to simple illness or to non-occupational chronic disability, and much less frequently to occupationally related disease or disability. Thus, in an average workforce in this country, absence from work or interruption of work by the need to seek medical attention is likely most often to be due to one of the following diseases - upper respiratory infections, (coughs and colds of viral origin most commonly), high blood pressure, diabetes mellitus, coronary artery disease, asthma, pulmonary tuberculosis, and so on. Much of the time away from work is likely to be spent waiting in doctors' surgeries, in queues at clinics, or in travelling.

Many managers fight shy of providing "in house" health services because they regard them as expensive and find it difficult to measure benefit. In fact this is due to the absence of proper design in setting up the health service, which results in much wasted time on the part of the health staff and an imbalance between intermittent curative activity and continuing preventive and promotive activity. It is the latter from which most benefit is likely to result. The active study and accurate recording of the health status of the workforce and the detailed analysis of the causes of absence from work are almost always neglected. In general, management reacts to questions about occupational health by asking for expert advice on complex biomedical problems. The advice may consist of expensive investigations without detailed plans for interpreting, and acting on, the results, or for recording them for future reference.

Thus in order not to labour the point, we suggest that in every workplace an appropriate "in house" health service be set up in advance of any sophisticated "high tech" investigations. "Appropriate" in this context means a service designed to take into account the size of the workforce and the likely hazards of the particular process involved. "Health service" in this context means a service designed to promote the health of the workforce as a whole and to prevent adverse effects of occupational exposure in particular individuals or groups. "In house" means designed, managed, paid for and evaluated by the management of the workplace concerned, with, in the initial stages, advice (design input) from a specialist in these matters.

Particular problems exist in estimating the number of hours of medical or nursing time required to provide an adequate health service for a workforce of any particular size. The following simple formula is suggested as a starting point for discussion: For every workplace with 20 or more employees (total on premises) - 1 hour of registered nurse time per day for every 50 employees (or part thereof) and  $\frac{1}{4}$  - 1 hour of medical practitioner time per week for -

APPENDIX F

**KWA ZULU**

ZH.116

**UMNYANGO WEZEMPILO  
NEZENHLALAKAHLE**



**DEPARTMENT OF HEALTH  
AND WELFARE**

**IHOVISI LIKA:—**

**OFFICE OF:—**

**NOBHALA WEZEMPILO NEZENHLALAKAHLE**

**THE SECRETARY FOR HEALTH AND WELFARE**

Ikheli Locingo : Telegraphic Address: IMPILO	Isikhwama Seposi: Private Bag : X10 ULUNDI 3838	Ucingo : Telephone: 202871
Imibuzo : Enquiries: Dr Hall	Usuku: Date : 14/4/87	Inkomba : Reference: 16/4P

Dr M B Kistnasany  
Department of Community Health  
Faculty of Medicine  
P O Box 17039  
CONGELLA  
4013

Dear Dr Kistnasany

I refer to your letter of 24 March 1987 and Occupational Health Questionnaire.

The KwaZulu Department of Health do not have an Occupational Health Officer or section and I regret we are not in the position to adequately complete your questionnaire.

May I wish you luck with your reseach.

Yours sincerely

SECRETARY FOR HEALTH

pp

APPENDIX G

TRANSKEIAN GOVERNMENT



No. ....  
URULUMENTE WASETRANSKEI

iAdilesi yoCingo }  
Telegraphic Address } "TYEZA"

iNgxowa eYodwa yePosi  
Private Bag X 5005

iMBUZO }  
ENQUIRIES } Dr. Stanley

iFoni }  
Tel. } 9111

ISEBE LEMPILO,  
DEPARTMENT OF HEALTH,

UMTATA

May 7th. 19 87

Dr. M. B. Kistnasamy  
Dept. of Community Health  
Faculty of Medicine  
P. O. Box 17039  
Congella  
4013

Dear Dr. Kistnasamy

I am returning your questionnaire, I am afraid, mostly uncompleted. We do not keep the sort of statistics you are wanting at this department.

I would suggest you adress your questions to the Department of Commerce and Industry and to the Department of Manpower.

Yours faithfully

*A. M. Stanley*

Chief Medical Officer (Medical Services)

APPENDIX H

Industrial Health Research Group  
Room 437  
Department of Sociology  
Robert Leslie Building  
University of Cape Town  
Private Bag Rondebosch 7700  
South Africa

Telephone: 69 8531 Ext 394

**REPORT OF THE ACTIVITIES OF THE  
INDUSTRIAL HEALTH RESEARCH GROUP (IHRG)**

**FROM SEPTEMBER 1980  
TO DECEMBER 1985.**

The IHRG is based in the Department of Sociology at the University of Cape Town, and is involved in research, educational and consultancy activities related to occupational health and safety. Its work and services are principally directed towards the needs of the independent Black trade union movement, and are provided free of charge.

The following people currently work in the group: **Jonny Myers**, a doctor, **Danielle Edwards**, a part-time administrator, **Peter Lewis**, a sociologist, **Ian Macun**, a full-time researcher and **Willy Hofmeyr**, a part-time researcher.

**Alide Kooy**, **Jud Cornell**, **Dawn Garisch**, **Rufus Rwexu** and **Jennifer Fine** have worked in the group in the past.

### **THE SCOPE OF IHRG WORK**

The work of the IHRG falls into 4 overlapping categories for which fuller details are given below. These are:

1. Research into the sociological and social welfare aspects of occupational health
2. Research into the epidemiology of occupational diseases
3. Information and consultancy (including industrial hygiene measurements, clinical evaluations and negotiation aids) on occupational health problems
4. Worker education in health and safety

### **CONTACT WITH TRADE UNIONS**

The IHRG has had contact with the following trade unions:

1. The **Brewery Employees Union** in Cape Town
2. The **Cape Town Municipal Workers Association (CTMWA)**
3. The **Clothing Workers Union (CLOWU)** in Cape Town
4. The **Commercial, Catering and Allied Workers' Union (CCAWUSA)** in Cape Town
5. The **Council of Unions of South Africa (CUSA)** in the Eastern Cape and the Transvaal.
6. The **South African Chemical Workers' Union (SACWU)**
7. The **Federation of South African Trade Unions (FOSATU)** affiliates:
  - The **Metal and Allied Workers' Union (MAWU)**
  - The **National Union of Textile Workers (NUTW)**
  - The **Paper Wood and Allied Workers Union (PWAU)**
  - The **National Automobile and Allied Workers Union (NAAWU)**
  - The **Chemical Workers' Industrial Union (CWIU)**
8. The **Food and Canning Workers' Union (FCWU)**
9. The **General Workers' Union (GWU)**
10. The **Motor Assembly and Components Workers Union (MACWUSA)** in the Eastern Cape.
11. The **National Union of Mineworkers (NUM)** in the Transvaal and Namaqualand.
12. The **Plastic and Allied Workers Union (PAAWU)** in Cape Town.
13. The **South African Allied Workers Union (SAAWU)** in the Eastern Cape
14. The **South African Society of Journalists (SASJ)** in Cape Town



## WORKING RELATIONS WITH RESOURCE AND RESEARCH AGENCIES

The IHRG has links with the following groups active in the field of industrial health:

1. The Health Information Centre (HIC) in the Transvaal
2. The Industrial Aid Society (IAS) in the Transvaal
3. The Technical Advice Group (TAG) in the Transvaal
4. The Technical Assistance Project (TAP) in Cape Town.
5. The Urban Training Project (UTP) in the Transvaal
6. The Departments of Sociology at the Universities of Natal and Witwatersrand.
7. The Centre for Applied Legal Studies of the University of the Witwatersrand.

Each year since 1983 the IHRG has participated in a national conference on Occupational Health in order to exchange views and experiences with the above groups.

## INFORMATION AND CONSULTANCY SERVICES

Information is made available on request in suitable form for worker audiences on hazards, legal rights, negotiations, agreements and other topics.

The IHRG has developed a sizeable library of health and safety materials, safety standards from other countries, ILO materials, trade union publications, a variety of academic and trade union journals, and trade union education and training materials. We also have some audio-visual materials.

The IHRG has been consulted on the following topics:

### Hazards

- Talc
- Lead
- Chrome
- Various Chemicals - benzene, other solvents, silver nitrate, pitch, sulphuric acid, nitric acid, ammonia
- Pesticides and insecticides in the food industry - Methyl Bromide and Phosphine gas
- Fruit bleaching agents like sodium metabisulphite
- Spray painting
- Stress at work
- Video display terminals
- Noise
- Work in hot environments; heat stress on the mines
- Work in confined spaces
- Work in cold environments and protection against cold injury
- Cereal dusts and flour milling
- Glass fibre and slagwool
- Silica dust
- Asbestos and asbestos substitutes for various usages
- Raw human sewage and garbage handling
- Hazards in the metal industry - welding
- Injuries and protective equipment in the metal industry
- Galvanising and anodising

Hazards in the chemical industry manufacturing  
- explosives, mirror, inks and dyes  
Road transport work  
Foundry hazards  
Quarry hazards  
Handling bulk cargoes of toxic, corrosive or dusty  
materials  
Hazards in the stevedoring industry  
Hazards in the paper-making industry  
Hazards in working with rubber products  
Hazards in the clothing industry  
Hazards for distributive and clerical workers  
Hazards of brickmaking  
Hazards of coal gasification

### **Workers' Legal Rights**

Up to date information and commentary on intended, new and amended legislation and regulations, commissions of enquiry, and administrative practices within the state regulatory and compensation apparatuses related to health and safety at work are made available to interested parties. The group regularly submits comments to the relevant government departments. This covers:

- Machinery and Occupational Safety Act 6/1983 and its regulations on: asbestos, noise, thermal conditions, and general administration.
- Occupational Medicine Bill 1984
- Basic Conditions of Employment Act
- Workman's Compensation Act
- Mines and Works Act
- Occupational Diseases in Mines and Works Act

The group makes submissions to the relevant authorities for the inclusion of occupational diseases like occupational asthma or lung cancer not presently on the schedule of compensable diseases.

Occupational asthma in the Grain and other industries, and lung cancer caused by exposure to asbestos are two examples.

We have also provided information on the following areas of workers' benefits and legal rights:

- Unemployment insurance benefits
- Sickness benefits and sick leave
- Maternity benefits
- State pensions
- Employers' pension schemes and pensions bargaining
- Wage regulation machinery and minimum wages
- Industrial council agreements
- Social security changes in relation to the "independent homelands"
- Compensation for occupational diseases for mineworkers and workers in other industries
- Access to company medical records by medical personnel of the workers' choice

### **Industrial hygiene assessments**

- Thermal (cold) conditions in the transport industry
- Grain dust in air in grain mills
- Efficacy of ventilation systems

Noise level determination for people exposed to printing presses  
Measurement of sulphur dioxide in the air  
Measurement of protection factors and workplace efficacy of  
respiratory protective equipment (air-stream helmets)  
Asbestos in air measurements  
Comprehensive survey of ways and means of reducing lead-in-air  
exposures to stevedores

### **Evaluation and medical opinion**

Periodic screening of stevedores for lead toxicity  
Individual compensation cases, especially those arising from  
survey work, but also including other problem cases  
Occupational illness diagnosis  
Cost-benefit analysis and advice related to medical benefit funds  
Computerisation of financial and medical record systems for the  
running of clinic facilities  
Design of screening programmes and epidemiological surveys for  
industrial illness and accidents in various industries  
Medico-legal evidence in compensation and other court hearings  
Evaluation of disability for purposes of medical certification  
Second opinions on findings from medical screening conducted by  
company medical personnel.

### **Other information**

Respiratory protective equipment  
Health and safety organisation and structures in the  
factory  
Tuberculosis screening  
Design of pre-placement and periodic medical screening systems  
that do not disadvantage workers  
Record-keeping systems, in particular worker-based records for:  
accidents, illness, occupational history, and workplace  
inspections  
Independent consultant services for negotiations  
The application of the Machinery and Occupational Safety Act  
In-house retirement and disability pension schemes in relation to  
the disability profile and medical screening systems of  
particular industries  
Work study systems  
Job evaluation systems  
Worker rights and trade union education in other countries  
Health and safety agreements  
Design and content of health and safety training courses  
Structure of health and safety organisation at work in other  
countries

### **EDUCATION AND TRAINING**

Worker education in health and safety is a large part of the  
project and ranges from short one-off sessions on limited topics  
to full 5 day training courses for safety representatives and  
shop stewards. The methods used aim for maximal participation  
and for problem solving between sessions. Workers are encouraged  
to go back to the factory and work out how to deal with problems  
covered in the course. Visual materials and plays are used as  
educational aids.

Opportunities are always taken to provide educational input for management, industrial sociology students, the medical profession and the general public. This is done by means of lectures, seminars and publications in various journals.

The following educational courses and sessions have been held with unions:

#### SAAWU

1. Workmen's Compensation sessions for officials in East London, 1981.
2. A series of meetings with committee members from SAAWU factories, on the health and safety problems of their industries, 1981.
3. A series of sessions for committee members from a lead smelter and battery factory in East London 1982.
4. Seminar with battery workers' committee in East London about new legislation and health and safety organisation at work, 1983.

#### GWU

1. Staff seminar on health and safety at work in Cape Town, 1981.
2. Health and safety training course for stevedores committee to enable them to participate in lung function survey, Port Elizabeth 1982.
3. Pensions bargaining course with stevedores committee and organisers, Cape Town 1982.
4. A series of seminars with committee members from five engineering factories on health and safety, Cape Town 1982.
5. Staff seminar on organisation of hospital workers, Cape Town 1982.
6. Seminar on the new legislation and health and safety organisation at work for stevedores committee, 1983.
7. Seminar on the new legislation and health and safety organisation for engineering workers' committee, 1983.
8. A series of seminars on workers' rights, health and safety and general conditions at work under the new legislation, for sewage and garbage workers' committee, 1983.
9. Seminar on hazards and conditions at work for workers in the building, construction and civil engineering industries, 1983.
10. A series of seminars for asbestos-cement and asbestos-cement transport workers on the hazards of their work, comparative conditions in other countries, and health and safety negotiation, 1984.
11. A series of seminars for stevedores on negotiating a health and safety agreement, 1984.
12. A seminar with stevedores in Durban on the new Machinery and Occupational Safety Act and on hazards at work, 1984.
13. A seminar with stevedores in Richard's Bay on the new Act and hazards of handling bulk chemical cargoes at work, 1984.
14. A series of seminars on the application of the new Act for sewage and garbage workers, 1984.
15. Seminar with asbestos-cement workers, working through their proposed health and safety agreement and a protocol for medical screening, 1984.

## **A/F&CWU**

1. Health and safety training session with medical benefit fund committee members in Paarl, 1981.
2. Seminar with Paarl branch on the new legislation and health and safety organisation at work, 1983.
3. Seminar with Grabouw branch, 1983.
4. Two-day training course for worker safety reps from a flour mill and an oil milling company, October 1984. This was the first part of a five-day training course, which was completed in January 1985.

We have also given talks at the annual general meetings of the Medical Benefit Fund: in 1981 on health and safety organisation in other countries, and in 1984 on the effects of the double workday on women workers' health.

## **FOSATU unions**

1. A seminar for shop stewards from the CWIU in Northern Natal, on the hazards of their industry and on protective measures, 1982.
2. A series of seminars for PWAWU in Northern Natal on hazards at work in the paper industry, 1982.
3. A joint meeting with Fosatu staff from CWIU, SFAWU and MAWU, Northern Natal, on worker health and safety, 1982.
4. A joint seminar for FOSATU staff from all member unions in the Transvaal, on worker health and safety, 1982.
5. A seminar for the Transvaal staff of MAWU, on the hazards of their industry, 1982.
6. A seminar for PWAWU shop stewards in a paper factory in Durban, 1984.
7. A seminar for PWAWU shop stewards on choosing a medical aid scheme, Pietermaritzburg 1984.
8. A seminar for MAWU in Durban on the application of the new Act, 1984.

A joint workshop for GWU, AFCWU and SAAWU on handling worker complaints was held in East London in 1982.

NUCCAW (now NUDAW) Workmen's Compensation training session for organisers, Cape Town 1982.

A joint seminar on the new legislation and health and safety organisation at work was run for a number of Johannesburg unions, together with the South African Labour Bulletin (SALB) and Johannesburg industrial health groups in August 1983.

A seminar on the same model as the Johannesburg seminar with SALB and Cape Town unions was held in October 1983.

A seminar with Johannesburg industrial health workers on worker participatory survey methods was held in August 1983.

In 1983 a series of seminars was held in East London and Port Elizabeth with local unions. These focused on the implications of MOSA for union organisation around health and safety, and also dealt with subjects of interest to the unions in the field of health and safety, such as compensation, sick pay, unemployment payments and pensions.

In 1985, the following worker training sessions were held:

#### **General Workers' Union**

1. MOSA training with asbestos cement workers
2. Training in survey techniques for shop stewards survey of the occupational history of asbestos-cement workers.

#### **Food and Canning Workers Union**

1. MOSA training for grain milling and vegetable oil workers in Cape Town.
2. MOSA training for grain milling workers from Durban and the Transvaal

#### **Chemical Workers Industrial Union**

1. MOSA training for shop stewards

#### **National Union of Mineworkers**

1. Shaft stewards training on the hazards of heat stress and methods for conducting a heat stress survey

#### **SURVEY WORK**

Research work involves surveys which investigate a range of problems from specific illnesses at work to the structure of health services and compensation administration to various social welfare concerns like pensions and sickleave. An attempt is always made to obtain maximal worker participation in these surveys. This may involve shop stewards marshalling subjects through the stages of a survey, or administering questionnaires themselves, or even doing some of the tests performed.

The IHRG has been involved in the following surveys and screenings. Some of these have been collaborative ventures with other groups.

- GWU:**
1. High Blood Pressure prevalence study of Cape Town stevedores in relation to work intensity and stress at work, 1981.
  2. Asbestosis prevalence study of Port Elizabeth stevedores, 1982.
  3. Workers' self-survey into foot injuries in a Cape Town engineering works, 1982.
  4. Asbestosis prevalence study of East London stevedores
  5. Asbestosis prevalence survey among Port Elizabeth asbestos-cement workers after closure of their factory.
  6. Survey into the effects of lead on stevedores loading lead ore in Saldanha Bay, 1984.
  7. Survey of the respiratory health of foundry workers, Cape Town, 1984.
  8. Screening of medical records for retrenched asbestos workers, Cape Town, 1984.

**A/F&CWU:**

1. Cost benefit analysis of the medical benefit fund in the fruit and vegetable canning industry, 1981.
2. Feasibility study for a union medical clinic, Paarl 1981.
3. Cost benefit analysis of the sick pay fund in the fruit and vegetable canning industry, 1981.
4. Cross-validation analysis of employers' sick leave records to check the conclusions of (3) above, 1981.
5. Worker self-survey for accidents and illness at work, 1981.
6. Survey of the respiratory effects of exposure to sodium metabisulphate used in fruit drying with clinic doctor, Montague, 1983.
7. Re-evaluation of Medical Benefit Fund by cost benefit analysis, 1984
8. Survey into the health effects of exposure to grain dust in milling and bakery workers in Cape Town with the Department of Medicine at the University, 1984.
9. Screening of a group of workers in a dried-fruit factory exposed to methyl bromide, Wolseley.

**MAWU:** The IHRG has been involved in planning a survey into silicosis in foundries with Dr. A. Zwi of HIC and the Dept. of Community Medicine at Wits University.

**NUTW:** The IHRG has been assisting with a survey into the prevalence of byssinosis in the textile industry being conducted by Dr. N. White of the NUTW.

In 1985, the following surveys were in progress:

**General Workers' Union**

1. Shop stewards survey of occupational histories of asbestos-cement workers combined with checking the company medical records for asbestosis.
2. Western Cape Brickworkers for chest diseases.
3. The health of stevedores exposed to lead dust, the prevention of lead poisoning, and the efficacy of the air stream helmet in reducing exposure.

**Sacwu**

1. Benzene poisoning among ink and dye workers

**Other research work being conducted in 1985:**

1. Tuberculosis control policy and practice for factory employees in South Africa with special reference to radiological screening.
2. The implementation in greater Cape Town of the Machinery and Occupational Safety Act no 6, 1983.
3. Assisting with a survey of health services at work in Atlantis near Cape Town being conducted by the Department of Community Medicine.

4 . The compensation system for occupational diseases. Evaluating historical and existing structures and practices, and recent changes in administration.

5. Validation of the mini-xray (100mm) against full size films as a screening device in the ascertainment of occupational respiratory disease.



APPENDIX I

POSTGRADUATE COURSE IN OCCUPATIONAL HEALTH

To be offered by the Department of Community Health  
Medical School  
University of Cape Town  
OBSERVATORY  
7925 Telephone no: 47-1250

Head: Professor J M L Klopper  
Senior Lecturer in Occupational Health: Dr J T Mets

The course will run over a 2-year period and lead to a Diploma in Occupational Health (D O H) to be awarded after completion of the course and passing the required examinations.

Attendance at the course will be for one week (5 or 6 working days) every three months for a total of eight periods. Students will be able to enroll every calendar year; examinations will be held each year.

Aim and objectives of the course

After completing the course you should be able to:

1. Describe adequately, taking into account local context and cost-benefit considerations:
  - a) the design of an occupational health service unit, appropriate to a specific enterprise, in terms of requirements of space, facilities, equipment, personnel and materials;
  - b) job descriptions for staffmembers envisaged;
  - c) estimated running costs per annum;
  - d) an overall policy for the unit in relation to the enterprise and to the community around it.

■  
Criterion: The adequacy of such description will be judged against the contents of the literature and of the learning material provided during the course. (See under "Examination")

2. Run an occupational health service once requirements for facilities, staff and finances are met.
3. Identify, evaluate and control potential hazards in the working

environment, utilizing the principles and methods of occupational hygiene and safety.

4. Apply epidemiological and statistical concepts in the running of an occupational health service as well as in applied research.
5. Describe the special problems and aspects of relationships between workers and management, of the place of enterprises in society in general and of their relations with specific institutions, organisations and government departments.
6. Apply essential knowledge of relevant legislation pertaining to the practice of occupational health.
7. Call on available sources of information and organisations for consultation in matters in the field of occupational health that you are not competent to deal with on your own.

#### Admission requirements

Registration as a qualified medical practitioner by the S A Medical and Dental Council and as a postgraduate student of the University of Cape Town.

The WHO in its report on "Education and training in occupational health, safety and ergonomics"<sup>1</sup> introduces the formulation of objectives for occupational health physicians by stating:

To carry out their functions, occupational health physicians should enjoy the full professional and moral independence of both the employer and the workers. As appropriate, professional secrecy might have to be respected. Free access to all workplaces and information on industrial processes are essential prerequisites to enable the occupational health physician to advise management on the application of appropriate occupational health standards.

Generally, occupational health physicians should be able to carry out the following tasks:

- to assess the incidence and prevalence of ill-health in relation to work conditions, and to recognize work conditions that contribute to subclinical and overt ill health and its short-term and long-term consequences; this requires special experience in such fields as toxicology, physiology, bio-statistics, psychology and internal medicine, and knowledge of basic principles of technology and specific technological hazards;

### 3.

- to identify occupational health problems in the light of the general health of the working population;
- adequately to manage accidents and other emergencies; this management involves diagnosis, first-aid treatment and organization of a first-aid service and a disaster programme;
- to prepare and evaluate statistical records of sickness absences, to use such records to identify causes, and to propose measures to eliminate causes;
- to assess working capacity;
- to apply the legislation relating to occupational health in a specific industry;
- to build up and maintain good relationships with workers and management, and to educate management, heads of departments, foremen, and workers to understand the complex relationship between work and health, with special emphasis on specific hazards and methods of prevention;
- to apply the basic principles of occupational hygiene, and to build up and maintain effective collaboration with occupational hygienists;
- to apply the basic principles of ergonomics, to apply them to a proper adjustment of job to man, and to make use of available resources from various ergonomic disciplines;
- to apply epidemiological and other methods to investigate occupational risk factors, the possibility of their prevention, and the means by which they may be prevented;
- additionally, in order to be able to contribute to existing or planned safety programmes, to master the basic principles of safety management and loss control.

Ref. 1: Education and training in occupational health, safety and ergonomics. Technical Report Series 663. In Eighth Report of the Joint ILO/WHO Committee on Occupational Health (1981) pp. 24-25.

CONTENTS OF COURSEI Occupational Health

1. Industrial development, philosophy and concepts.
2. Occupational Medicine
  - a) Aims and functions of an occupational health service
  - b) Relationships with other health services (private and public), voluntary organisations, supporting social services and other relevant organisations
  - c) Organisational aspects with regard to staffing, accommodation, facilities, equipment, record keeping, budgeting and management of an occupational health service
  - d) Preventive services, medical examinations, health education and counselling
  - e) Curative services; aetiology, diagnosis and treatment of occupational diseases and injuries, rehabilitation, treatment of minor ailments, chronic conditions, acute emergency cases and disaster intervention planning
  - f) Care for "vulnerable groups", i.e. workers who have particular medical conditions, the older and the younger worker, variations in genetic structure related to sensitivity to exposure effects, hypersensitivity in groups or in individual workers, sex difference.
3. Occupational Hygiene and Safety
  - a) The physical working environment; recognition, evaluation and control of physical, chemical and biological hazards, relevant physics, chemistry and microbiology subjects
  - b) The psycho-social environment, human relations, mental health, industrial psychology
  - c) Ergonomics, environmental measurements and methods for monitoring and quality control
  - d) Biological monitoring methods
  - e) Occupational physiology and pathology (target-organ systems, carcinogenesis)

- f) Occupational toxicology, exposure, absorption, effects, "acceptable levels", code of practice, standards
- g) Accident prevention, safety management, loss control
- h) Relationships of the micro (work place) and macro (general) environment, with special emphasis on effects of (new) products and processes, pollution and its control

II Relevant Legislation

- a) South African legislation, development and scope
- b) Comparative legislation, international trends

III Epidemiology and Statistics

- a) Basic statistical concepts and methods
- b) Research methods and requirements
- c) Demography, vital statistics, rates and measurements
- d) Epidemiological concepts and methods
- e) Use of computer

IV Social and Behavioural Sciences

- a) Applied psychology, behaviour in relation to health and disease, social aspects of illness
- b) Socio-economic considerations, industrial psychology and relations, trade unions, employer and employee organisations, industrial council (labour) contracts and agreements, personnel and welfare services
- c) Theory of organisation, business administration, management functions, organisational structures, communications
- d) Urbanisation, industrialisation, cultural heterogeneity, ecological aspects
- e) Medical ethics in occupational health and research

V Sources of information, including national and international organisations and institutions relevant to the practice of occupational medicine.

## VI Practical instructions and visits to:

factories, mines, workplaces, rehabilitation centres, clinics and research institutes. Demonstrations and practical execution of methods of measuring environmental conditions.

Students will be required to submit written reports during the course of their studies, prior to the final examination date:

During the first year

1. a literature study of an occupational health problem of their choice, approved by the course leader;

During the second year, not later than the 3rd block:

2. A report on an occupational hygiene survey visit to a factory or workplace;
3. A research project of, preferably, an epidemiological nature, selected in consultation with one of the lecturers. This may be an individual or a combined team project.

The reports under 1 and 3 should be submitted in a format which would be acceptable to the editor of a scientific journal.

### Examination

The examination will consist of three written papers, the three reports and an oral examination.

The written papers will mainly consist of essay questions. For paper I short questions about definitions, basic statistical concepts and problems; for paper III, questions about specific agents or diseases may be asked.

Interim class tests will be designed to indicate the format of the final examination, at the same time serving as a monitor for the students concerned on their acquisition of knowledge and skill.

The literature study and project reports, the main aim of which is learning experience, will also be assessed by the course leader or lecturers concerned as to whether they are of a standard commensurate with a postgraduate course. If not they will influence the results of the final examination adversely by being scored zero, whereas each of the three can earn up to 5 bonus points (out of 100 for the final result) for the final examination.

The three written papers, examined by at least one internal examiner and one external examiner will earn a credit of up to 25 points each. The oral examination, conducted by at least three examiners will take the form of a question and answer discussion on a wide range of relevant topics and may earn a credit of up to 10 points.

The final result will therefore be computed as follows:

Paper I	max. 25 points
Paper II	max. 25 points
Paper III	max. 25 points
Oral examination	max. 10 points
Literature study	max. 5 points
Occupational hygiene report	max. 5 points
Research project	max. 5 points

The student will have to accumulate a minimum of 60 points to pass the examination.

During the year interim class tests may be presented, but these will not be taken into account for the final result.

Prepared by Dr J T Mets MD MFOM DOH  
Senior Lecturer in Occupational Health

Notes on the "block release" system to be used for the DOH Course

1. One of the available 8 weeks will be utilised for field visits to mines and enterprises in the northern part of the country, as an essential element in order to observe prevailing work conditions and gain an understanding of specific problems there.
2. Each block comprises about 40 lecture-discussion periods of 45 minutes each, one afternoon field visit and one (or two) afternoons for practical and/or student presentations. Five morning periods and four afternoon periods (except practical afternoons) provide for a total of 280 lecture-discussion periods. The whole course, including visits, will take about 300 hours, the emphasis being on the participation of the students.
3. Each block will have a main theme, but it is intended to spread the following subjects over a number of blocks to avoid students being exposed to a mass of closely similar information or losing out on continuity:
  1. Legislation
  2. Toxicology
  3. Occupational hygiene (measuring and monitoring)
  4. Epidemiology and statistical methods

Instruction in statistical and epidemiological methods will be repeated over a number of blocks. This would solve problems which might be experienced by "new" students enrolling at the beginning of the second year of their colleagues.

Main themes for the 8 available blocks will be:

- I Occupational Medicine - organisation of OH services
  - II Occupational Hygiene (General aspects)
  - III Social and behavioural sciences, business administration, management and industrial relations
  - IV Occupational diseases and injuries, safety management, loss control
- 
- V The working environment I
  - VI The working environment II (interaction of occupations and man)
  - VII Field visits away from Cape Town
  - VIII Interfaces of occupational health, supporting institutions and organisations.



4. As far as will be possible, combination of DOH students with the M Med (Comm Health) registrars for sessions which are of benefit to both will be attempted. The latter group would in turn be served by attending lecture discussions relevant to their own curriculum.
5. Parts of the course will be presented by NOSA or Technikon lectures in package deals, as these institutions run established courses covering such subjects as

Occupational Hygiene  
 Industrial Accident Prevention I  
 Management Principles and Practice I  
 Human Factor in management  
 WCC Act  
 Factory Act  
 Mines and Works Act  
 Occupational Diseases in Mines and Works Act

A number of outside lecturers, from University staff (biomedical engineering, social sciences, medical school), as well as a few from other sources (Dept of Manpower, Dept of Health and/or Divisional c/q City Council) will be called upon to assist.

6. A detailed syllabus for each following block will be provided, together with suggested references required to be read by the students before each block.

10.

TIMETABLE FOR DOH COURSE

## BLOCK I to VII

<u>Mornings</u>	08h00 - 12h00	5 periods
08h00 - 08h45		
08h00 - 09h30		
09h30 - 10h15		
Tea		
10h30 - 11h15		
11h15 - 12h00		
	Lunch 12h00 - 13h00	
<u>Afternoons</u>	13h00 - 16h15	4 periods
13h00 - 13h45	Practicals	
13h45 - 14h30	Presentations	
Tea		
14h45 - 15h30	Visits	
15h30 - 16h15		

(Occasionally the afternoon period may be extended to 17h00.)

During each block, on average 3 afternoons will be utilized for practical or presentation periods and visits.

The early lunchtime will avoid rush period in the cafeteria and offer an opportunity to leave in good time for outlying objects of visits.

Venue: Department of Community Health  
Anatomy Building, Medical School

The Cafeteria: Postgraduate Medical Centre  
Bernard Fuller building

OCCUPATIONAL HEALTH LEGISLATION SESSIONS FOR

M. COMM. MED.

Introduction overview.

Historical remarks.

Résumé (Ringrose).

Existing Base.

Manpower data.

- I            Basic conditions, etc.  
              Unemployment Insurance.
- II            Legislation on Employee Health (Ringrose).  
              Erasmus Report extract.  
              M O S Act.
- III            Occup. Medicine Bill.  
              W C C Act.  
              (Nursing Act - Hazardous Substances).
- IV            Mines and Works Act.  
              Occup. Dis. in M and W Act.  
              Nieuwenhuizen Report.

LIST OF JOURNALS SUGGESTED FOR OCCUPATIONAL HEALTH  
POSTGRADUATE STUDENTS

International Archives of Occupational and Environmental Health	
Scandinavian Journal of Work, Environment and Health	(Finland)
Archives of Environmental Health	(USA)
Journal of Toxicology and Environmental Health	(USA)
American Journal of Industrial Medicine	
The Annals of Occupational Hygiene	(UK)
British Journal of Industrial Medicine	
The Journal of the Society of Occupational Medicine	(UK)
Journal of Occupational Medicine	(USA)
Tijdschrift voor Sociale Gezondheidszorg	(Nederland)
C.T.S. Abstracts (Occupational Health and Safety Centre - I.L.O.)	(Geneva)

*Appendix.* Teaching manuals

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1. Workings of Industry
  2. Historical Development of Occupational Medicine
  3. Occupational Health Services
  4. Communication
  5. Practical Applications of the Law
  6. Ergonomics
  7. Shift Work and Circadian Rhythms
  8. Medical Examinations
  9. Rehabilitation and Resettlement
  10. Sickness Absence
  11. Ageing and Employment
  12. Occupational Psychology
  13. Accidents
  14. Epidemiology and Statistics
  15. Occupational Mental Health
  16. Occupational Hygiene
  17. Industrial Chemical Toxicology
  18. Radiation
  19. Noise
  20. Temperature: Heat and Cold
  21. Light and Vision
  22. Compressed Air and Diving
  23. Occupational Lung Disorders
  24. Occupational Dermatoses
  25. Occupational Cancers
  26. Food Hygiene
  27. Microbiological Hazards
-