AN EVALUATION OF STRATEGIC GUIDELINES FOR THE IMPROVEMENT OF HUMAN RESOURCE PERFORMANCE ON A GOLD MINE.

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Research Essay submitted in partial fulfilment of the requirements for the degree Master of Business Administration in the Faculty of Economics and Management Sciences of the Potchefstroom University for Christian Higher Education.

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POTCHEFSTROOM

1992

ACKNOWLEDGEMENTS

Sincere thanks to Mr B. Fort, the initiator of the Oryx model, for allowing access to the documents of the company. I am indebted to Albert de Beer for his guidance and assistance.

I am indebted to Barbara Rossouw for typing the manuscript.

Sincere thanks to Denise Hopkins for the editing and to Arrie Erasmus for drafting the graphs.

Many thanks to Professor J. Kotzé who supervised the preparation of this document and provided valuable criticism.

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OPSOMMING

1. Uitdagings in die goudmynbedryf

Ten einde te verseker dat 'n goudmyn kompeterend bly en om sodoende langtermyn oorlewing te verseker, gegee 'n lae goud prys, moet die myn die verwoestende effek van inflasie oorkom en die uitdagings van die veranderende politiese situasie in Suid-Afrika aanvaar. Die probleem is egter om kostes te beheer, winsgewendheid te handhaaf en terselfdertyd hernuwing in die industrie te bewerkstellig.

Die enigste lewensvatbare opsie binne die huidige ekonomiese en politiese situasie is om meer doeltreffende arbeidsbenutting te oorweeg. Buigbare bestuur van menslike hulpbronne behels saamgestelde produksiespanne wat onder andere multivaardighede en posverryking insluit.

2. Die Oryx model

Binne die huidige omstandighede wou Oryx-myn goud meer winsgewend produseer. Hulle het besluit op 'n model wat gebaseer is op buigbare bestuursmetodes. Die model is gegrond op konsepte wat selde in hierdie industrie toegepas word:

- gestandardiseerde diensvoorwaardes
- posverryking
- saamgestelde produksiespanne
- 'n kleiner, meer bekwame arbeidsmag
- dinamiese organisatoriese strukture.

3. Resultate

Die myn het tot dusver nog net die eerste fase van die model voltooi en goeie resultate word alreeds berig.

Huidige produksiesyfers dui daarop dat daar 'n dertig persent verhoging op die verwagte syfers was.

4. Aanbevelings

Ten opsigte van myne wat hierdie model, of modifikasies daarvan, wil probeer toepas, is daar sekere belangrike aspekte wat eers in oënskou geneem moet word.

5. **Belangrike aspekte**

Voordat enige poging aangewend kan word om 'n struktuursveranderende program effektief te implementeer, moet daar eers op die volgende punte gelet word:

- werknemerverbintenis en ondersteuning vir die saamgestelde produksiespankonsep moet bevorder word
- unieverbintenis en -ondersteuning vir die nuwe benadering moet verkry word
- gestandardiseerde diensvoorwaardes om spansaamhorigheid te bevorder, is belangrik
- een myntaal bevorder kommunikasie
- posverryking vereis effektiewe bestuurspraktyke
- suksesvolle opleidingsprogramme is 'n kritiese faktor wat grootliks bydra tot die sukses van die program

- effektiewe opwaartse- en afwaartse kommunikasie is essensieel

- bestaande arbeidsbetrekkingeprosedures moet hersien word.

Hierdie model, of modifikasies daarvan, behoort oorweeg te word as 'n middel wat sal bydra tot die opheffing van ons sukkelende goudmynbedryf.

CHAPTER 1

AN OVERVIEW OF THE STUDY

1.1 INTRODUCTION

The South African Gold Mining Industry is the biggest contributor in the mining industry to South African exports. Thus the profitability of this industry plays a strategic role in its direct effect on the wealth of this country. Profitability is influenced by availability of resources, the gold price and the cost of production.

Gold reserves in South Africa are the largest in the world and do not pose a future problem. The gold price, however, which is fixed in London, is beyond the control of the mines. A reduction in costs is thus needed to maintain and improve profitability. Various means, such as mining ore at different grades, changing the present dividend policy, strategic planning for the periods when the gold price is below cost, mechanisation, labour retrenchment and labour utilisation, can be employed to facilitate this.

Job reservation existed on the mines until 1990, which ensured that positions for skilled workers were reserved for certain population groups. The high percentage of unskilled workers and mine traditions have contributed to the fact that productivity on the mines is achieved at a high cost but is essentially not cost-effective.

This industry has always been production-orientated, where people are merely seen as a means to an end. In order to improve profitability to ensure longterm survival, this industry needs to assess the various options that are available.

1.2 PROBLEM STATEMENT

As a result of an unpublicised gold rush during the 1980's, gold production in the west of the US, Canada, Brazil, Australia and Papua New Guinea increased, with working cost at a fifth of the selling price. The increased production was all due to a new heap leaching process coupled with new technology.

Due to an increased production at very low cost in other parts of the world, the share of South African gold in the world market diminished because we could not compete at such a low cost. The supply and demand situation has become unbalanced and South Africa finds it difficult to compete in this market.

To improve profitability, South Africa has two options:

- to increase the price of the product
- to decrease costs.

An increase in the price of the product is not possible in the gold mining industry. Reduction in costs therefore, remains as the only viable alternative. Due to the fact that labour constitutes approximately 50% of the costs, it is essential that this factor be investigated. Two essential strategies in the area of labour cost management are mechanisation and labour rationalisation. Because labour rationalisation is more effective and has long term benefits, Oryx mine decided to investigate this option.

Oryx's objective with their new value-driven system, was to enable the mine to work towards maximum profitability. The system is unique in the mining industry and therefore needs to be evaluated for further implementation of the fundamental principles at other mines within the mining industry.

The production results, comparing the utilisation of the traditional management style as opposed to this new system, need to be critically evaluated. Consideration should also be given to the cost implications of implementing such a system. The success of this new system within the mining environment needs to be assessed.

1.3 GOAL

To evaluate the FLEXIBLE MANAGEMENT SYSTEM in operation at Oryx mine.

OBJECTIVES

a) A critical evaluation and comparison between this system and the traditional management system.

b) The creation of a frame of reference which other mines can apply and adapt.

c) The formulation of recommendations for the mining industry to improve profitability.

1.4 REFERENCE FRAMEWORK

The system developed by Oryx mine will be used as a major source of reference. Similar approaches on other mines will also be evaluated.

Much has been noted in the literature on ways to improve profitability. The implementation of the Oryx management strategy will also be analysed and critically evaluated.

The results of the present traditional management system will be compared with the proposed system. As this mine is not yet in full production, proforma results will be utilised for evaluation purposes.

1.5 RESEARCH METHODOLOGY

The most important aspects of the proposed people management system, as well as the implementation thereof, will be studied. This will include an analysis of the Oryx model and visits to the mine to assess the progress of its implementation.

The importance of the successful adaptation of such a progressive system within the mining industry will be documented. The literature will be studied in order to evaluate the proposed concept as well as mining systems practised in other countries.

1.6 ACTUALITY OF THE STUDY

This study could become a source of reference for the gold mining industry. The coal, platinum and base metal mines could eventually apply the concepts within their own environment.

CHAPTER 2

FACTORS INFLUENCING THE GOLD MINING INDUSTRY

2.1 INTRODUCTION

Political and economic changes are inevitable in South Africa. The government of the day will have a significant influence on the gold mining industry. Historically, mining magnates influenced government decisions because mines funded a large portion of state income. As South Africa becomes less dependent on mining, this industry subsequently wields less clout in state decision-making.

The end of apartheid and the advent of majority rule has far-reaching implications. African governments will strive to find a new basis for political and economic unity in order to maintain sympathy and support from the Western World. (Hawkins 1990:33) The African National Congress has publically proclaimed that South Africa needs to transform its economy away from being dominated by industries linked around mining towards an economy with manufacturing playing a major role. (Harris 1990:31)

State intervention in the forex market preventing the appreciation of the Rand in line with the rising dollar gold price, resulted in a liquidity build-up within the economy. Due to forex controls, reinvestment abroad of this excess liquidity was discouraged and this contributed to the credit explosion of the 1980's with an associated high inflation rate. Fewer and larger organisations became the industrial and financial power of this country as they had few alternatives for investment of their funds other than the purchase of smaller competitors. This contributed to reduced efficiency, less competition, higher prices and less innovation and entrepreneurship.

This impacted negatively on the economy resulting in a rapid depreciation of the Rand. This in turn lead to a foreign debt standstill and erosion of foreign confidence in the country's ability to manage its economy.

The decline in gold as an export commodity has resulted in the Reserve Bank no longer pandering to the whims of those with vested interests in mining, by keeping the Rand artificially depressed to boost exports. It appears that the Reserve Bank is no longer going to allow the value of the Rand to be dictated by movements in the gold price.

Investments in new mining ventures have been deterred by a number of factors:

- the falling rates of investments and savings exacerbated by sanctions and disinvestment

- the endemic high inflation which increased the "hurdle rate" for real returns on capital employed

- the exchange rate

- the tax rates for capital expenditure

- soaring labour costs unaccompanied by gains in productivity.

Capital expenditure has decreased and the future of the gold mining industry is reliant on new projects and exploration for new ore bodies. (Figure 2.1)

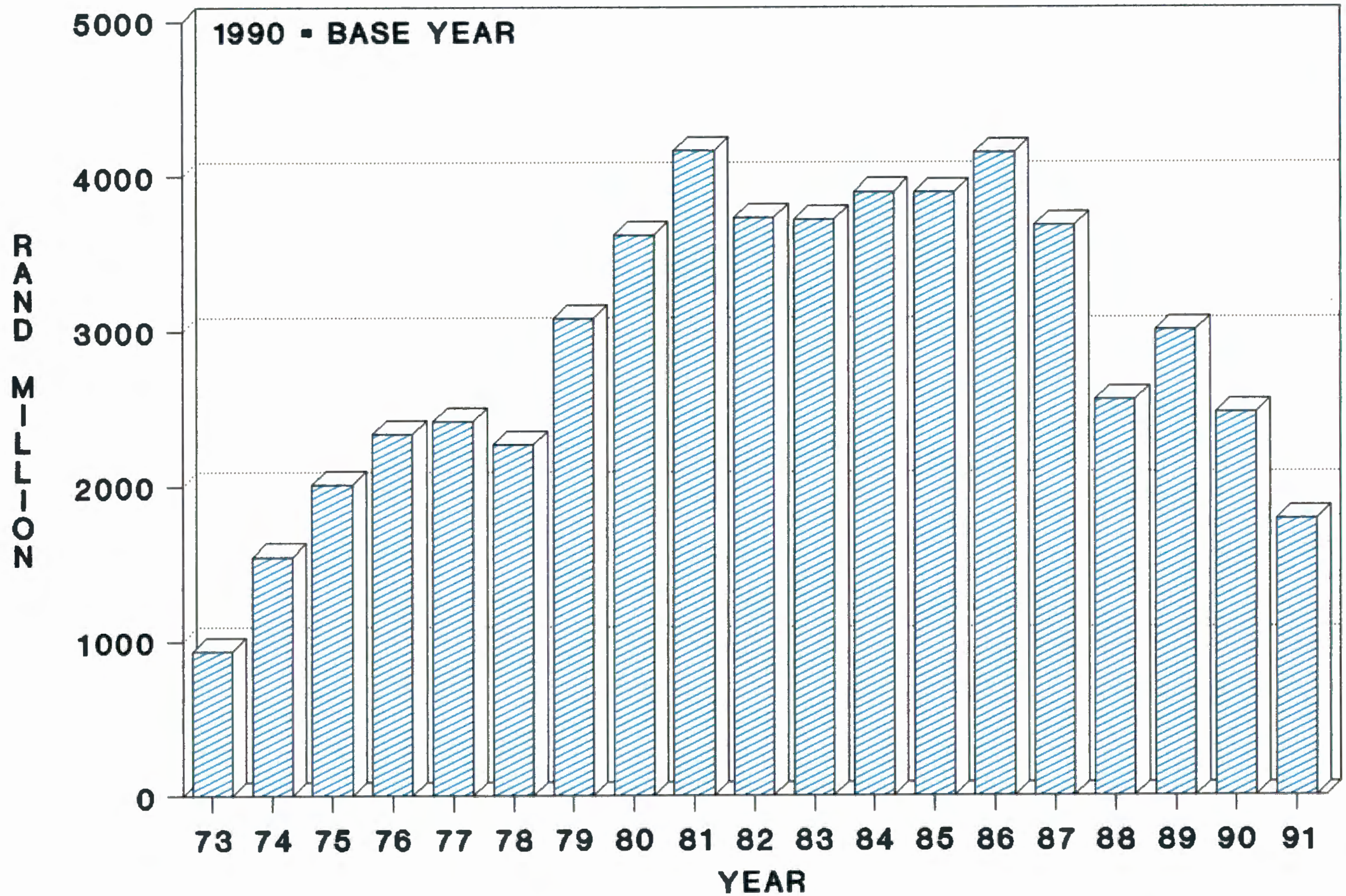

FIGURE 2.1 : Capital Expenditure in Real Terms
Gold Mines, Members of The Chamber

SOURCE : Chamber of Mines

One of the great economic challenges facing this country is the creation of equal opportunities for all. Without an educated and reasonably skilled black workforce, South Africa is unlikely to achieve high growth performance. (Human & Hofmeyr 1985:31)

Africa needs a new breed of managers. A different environment, dominated by skills and techniques taught at business schools, evolves when privatisation, multiparty democracy, less interference by the state and detribalisation become the order of the day. (Hawkins 1990:151)

In order to compete within the global market, the problem of South Africa's high inflation rate, as compared to our competitors, needs to be addressed. The challenges engendered by the changing political climate will impact on the profitability of the mining industry.

2.2 MACRO-ECONOMIC FACTORS

Gold is both a "monetary" and a "real" asset. Gold coins, for the smaller investor and gold bullion, utilised by countries to settle their debts and obtain foreign exchange underscores the monetary value of gold.

Approximately 60% of world gold stocks are held by central banks.

All gold produced is delivered to the Rand Refinery and all refined gold, not used for the production of Krugerrand coins, is sold to the Reserve Bank. Mines are permitted to undertake transactions in the gold futures market. By selling gold forward, it allows the mines to establish in advance a gold price for future delivery. They have thus hedged against any price fall during the period of the forward sale. Hedging allows marginal gold mines to effect profitable production or capital expenditure to cover expansion on some mines, secured by the higher price to be obtained for future production.

Mining is interrelated with the following five sectors of the economy: households, businesses, financial institutions and the government, as well as the foreign sector. (Lombard & Stadler 1980:2) (Figure 2.2)

Mining outputs do not feed into the inputs of the rest of the South African economy because the bulk of the minerals produced is exported. The price-cost link, through the balance of payments, influences the movements of the exchange rate of

(Adapted from Lombard & Stadler 1980 : 1)

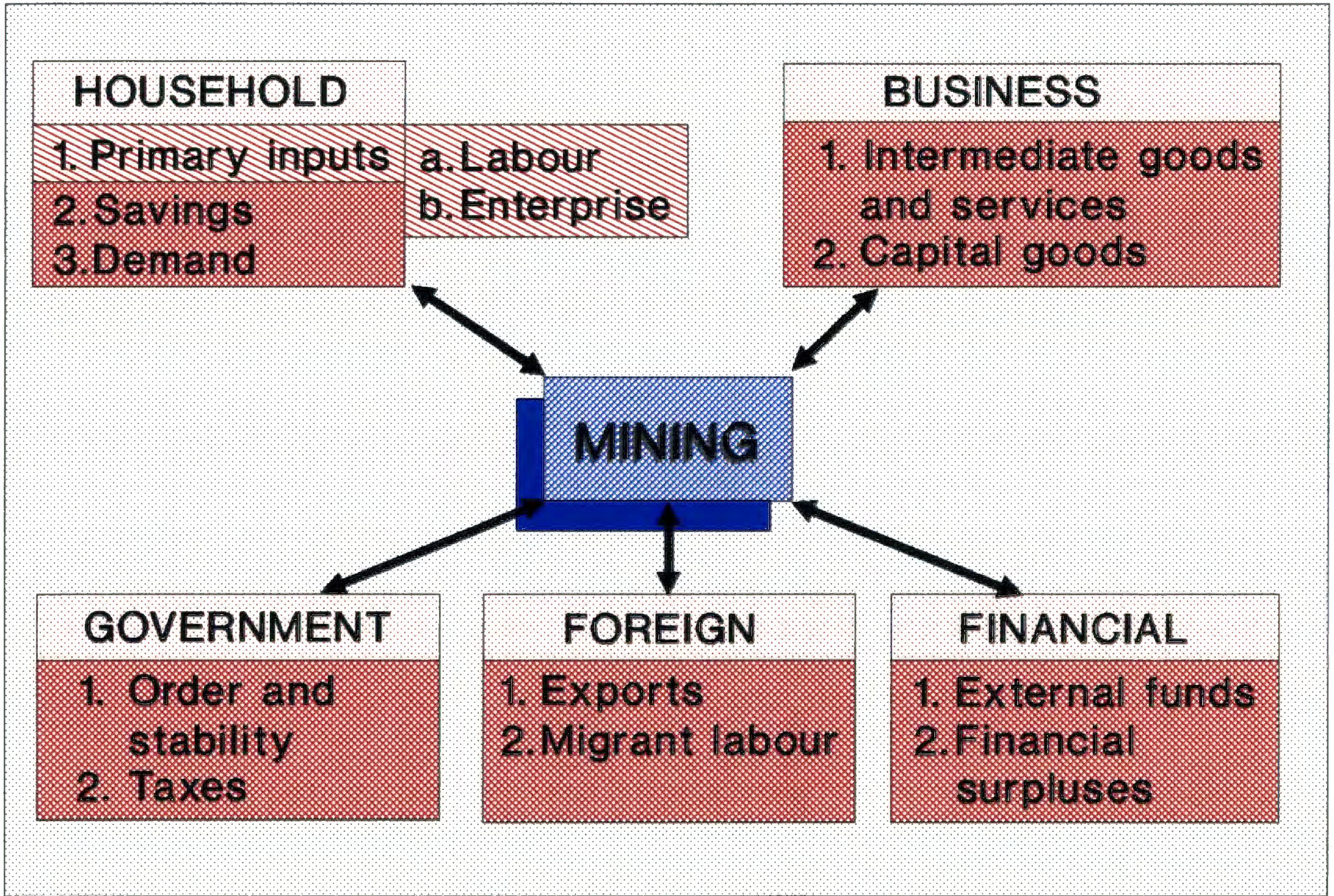

FIGURE 2.2 : Relationship between mining and the economy.

the Rand in terms of the dollar and the dollar price of imports. (Lombard & Stadler 1980:41)

Gold production is influenced by the gold price, the availability of payable gold ore deposits, the high cost of deep level mining and the general policy of gold mines of varying the ore grade in relation to the profit margins in order to prolong the life of the mine.

The gold price is currently determined solely by free market forces reflecting, amongst others, inflationary expectations and exchange rate instability.

From figure 2.3 it is clear that the gold price in rand terms outperformed the gold price in US dollars. In real terms, the gold price in rands offers a very different picture. South Africa's inflation rate has surpassed that of other major Western gold producing countries (Figure 2.4), contributing to the greatest cumulative fall in the real gold price to occur in South Africa. It should be remembered that the dollar gold price should not be viewed in isolation as the dollar itself does not have a fixed value and fluctuates relative to other currencies.

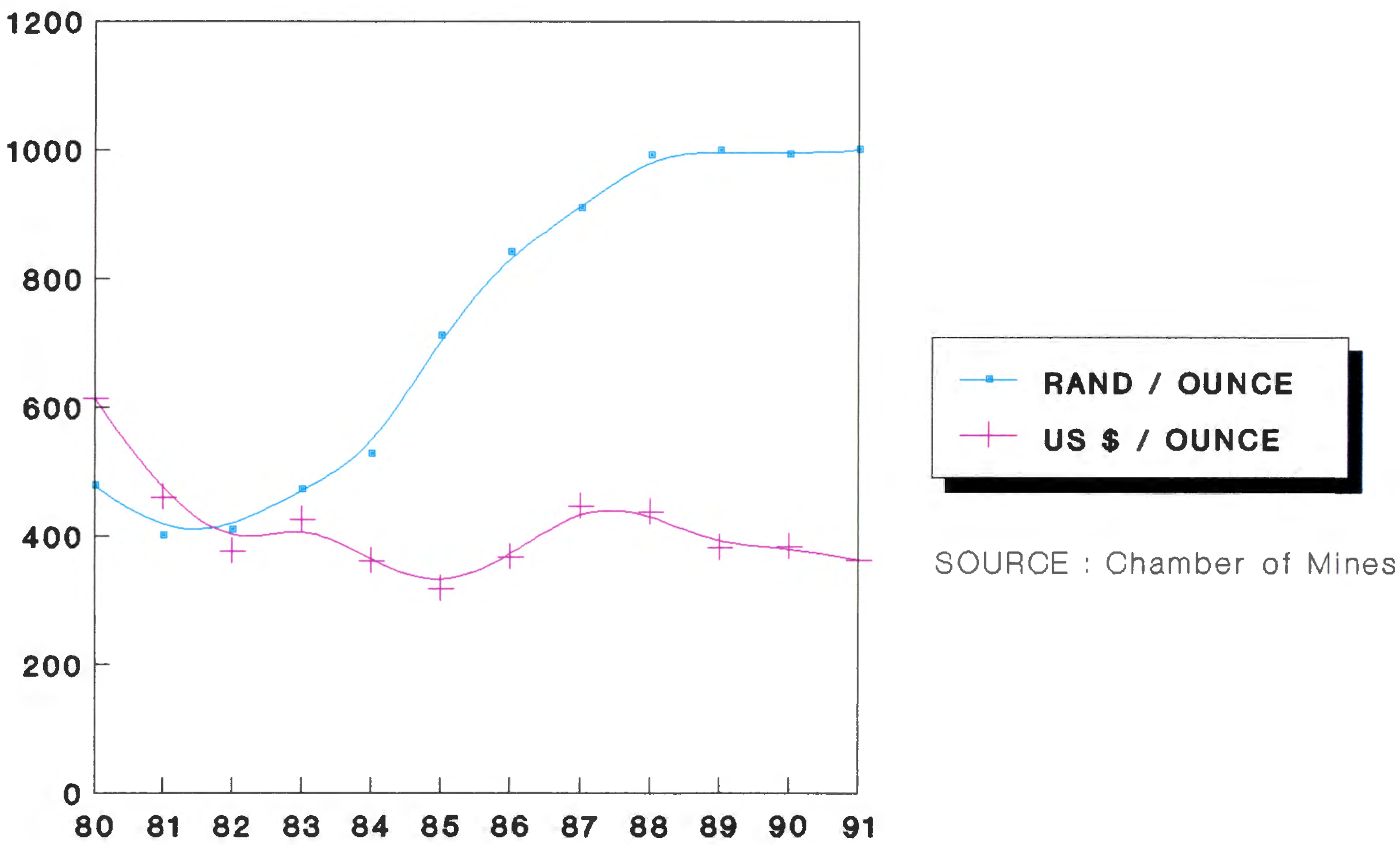

FIGURE 2.3 : Gold Price 1980 - 1991

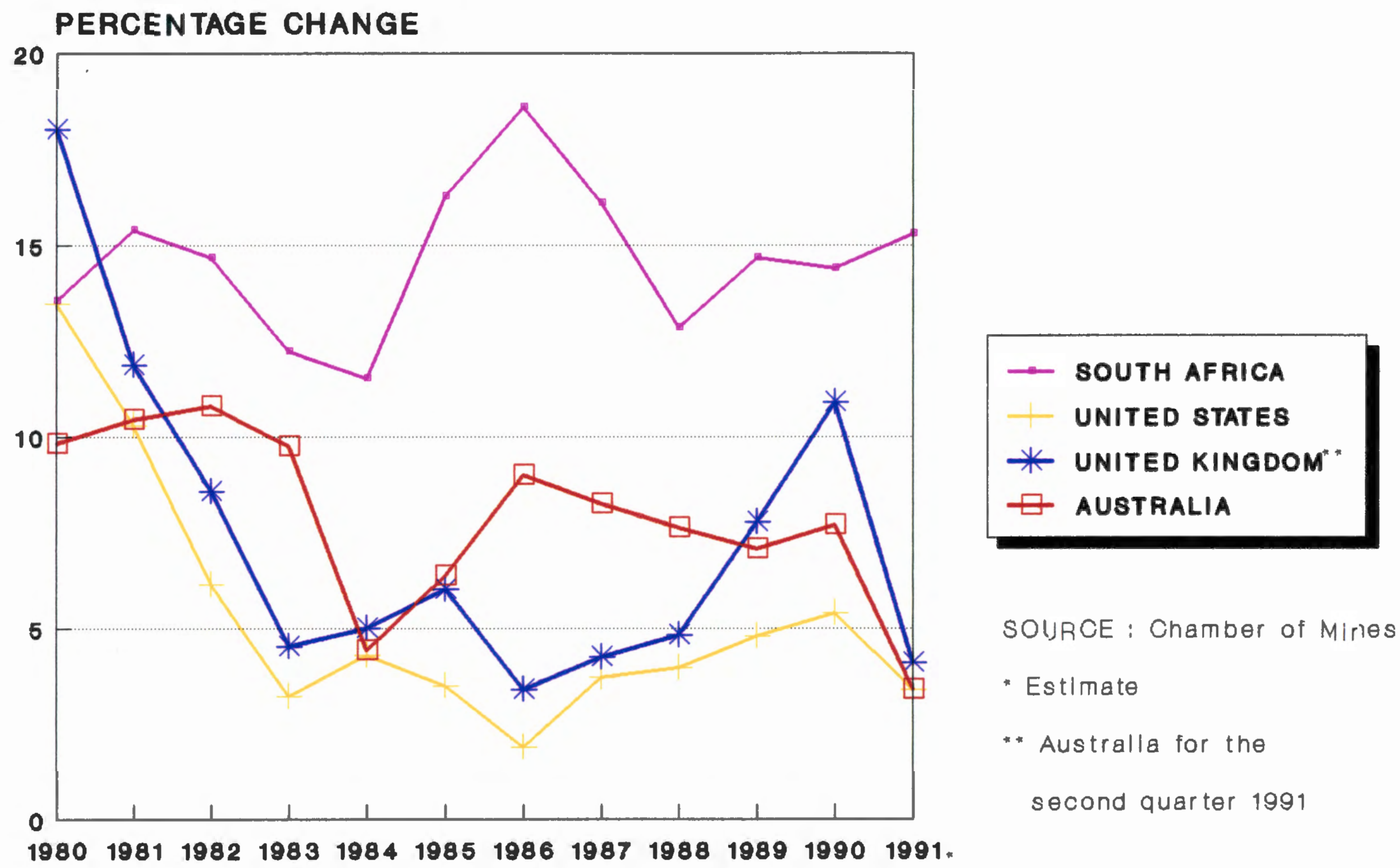

FIGURE 2.4 : Comparison of Inflation in South Africa to that in other Industrial Countries

The gold price normally rises in response to an easing of monetary policy. An improvement in the gold price renews confidence in the metal, dissuading producers from hedging future output. An improvement in the gold price, also usually restores investor interest.

A number of factors have contributed to the fall in the gold price recently. The global economic slowdown and the likelihood of recession, discouraged the purchase of gold. The high real interest rate and deflationary economic forces also affected the price. Unanticipated supplies from various countries such as Saudi Arabia and the USSR, upset the market. The level of forward sales by marginal producers to obtain a favourable gold price also increase supply.

Low prices, accompanied by increasing production costs and declining grades of mined ore, have resulted in the non-profitability of some gold mines. Several mines are regarded as marginal, which implies that they are threatened with closure should they not be able to decrease their working costs to below the current gold price. (Figure 2.5)

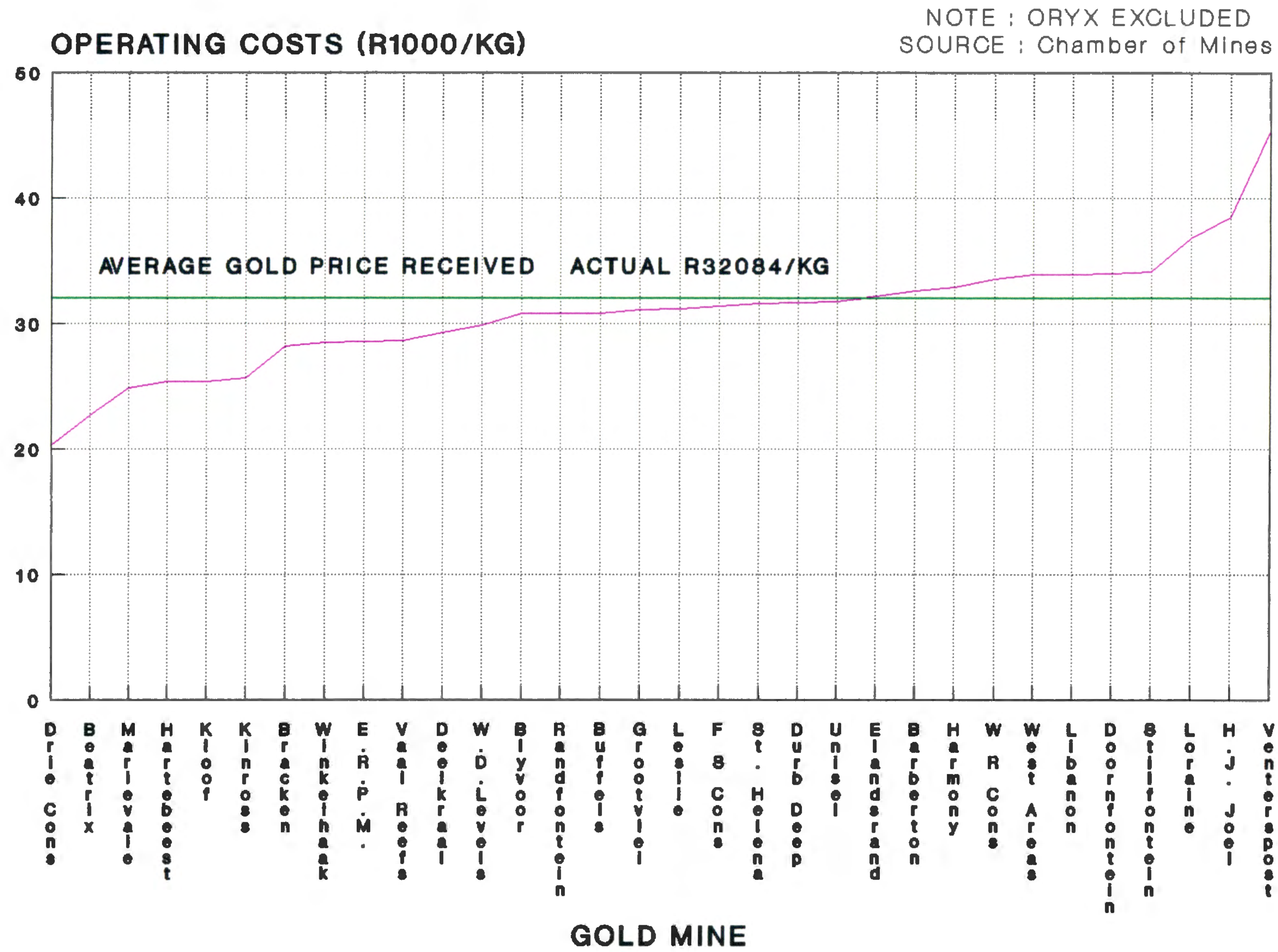

FIGURE 2.5 : Operating Costs (incl Capex) of the Major Gold Mines - 1991

The gold mining industry is the biggest purchaser of steel, electricity and engineering services. These industries are suffering as gold mines curtail development and engineering projects, and reduce their contract purchases and services. (Carte 1991:6) At least 81 companies, who are members of the Steel and Engineering Industries Federation of SA (Seifsa) and supply the mines in the Free State Goldfields area, have closed in the past eighteen months.

2.3 MICRO-ECONOMIC FACTORS

The mining industry is heavily dependent on black labour who are recruited from within South Africa and neighbouring states. Labour costs account for roughly 50% of total working costs. (Maude 1991:2 (no1); Vorster 1991:7 (no 4)) (Figure 2.6)

The mining industry traditionally accepted far greater responsibility for certain social and other costs related to the black worker than most employers in other sectors of the economy.

Isolated and sporadic incidences of inter-racial and inter-tribal conflict occur in the work place, causing work stoppages and

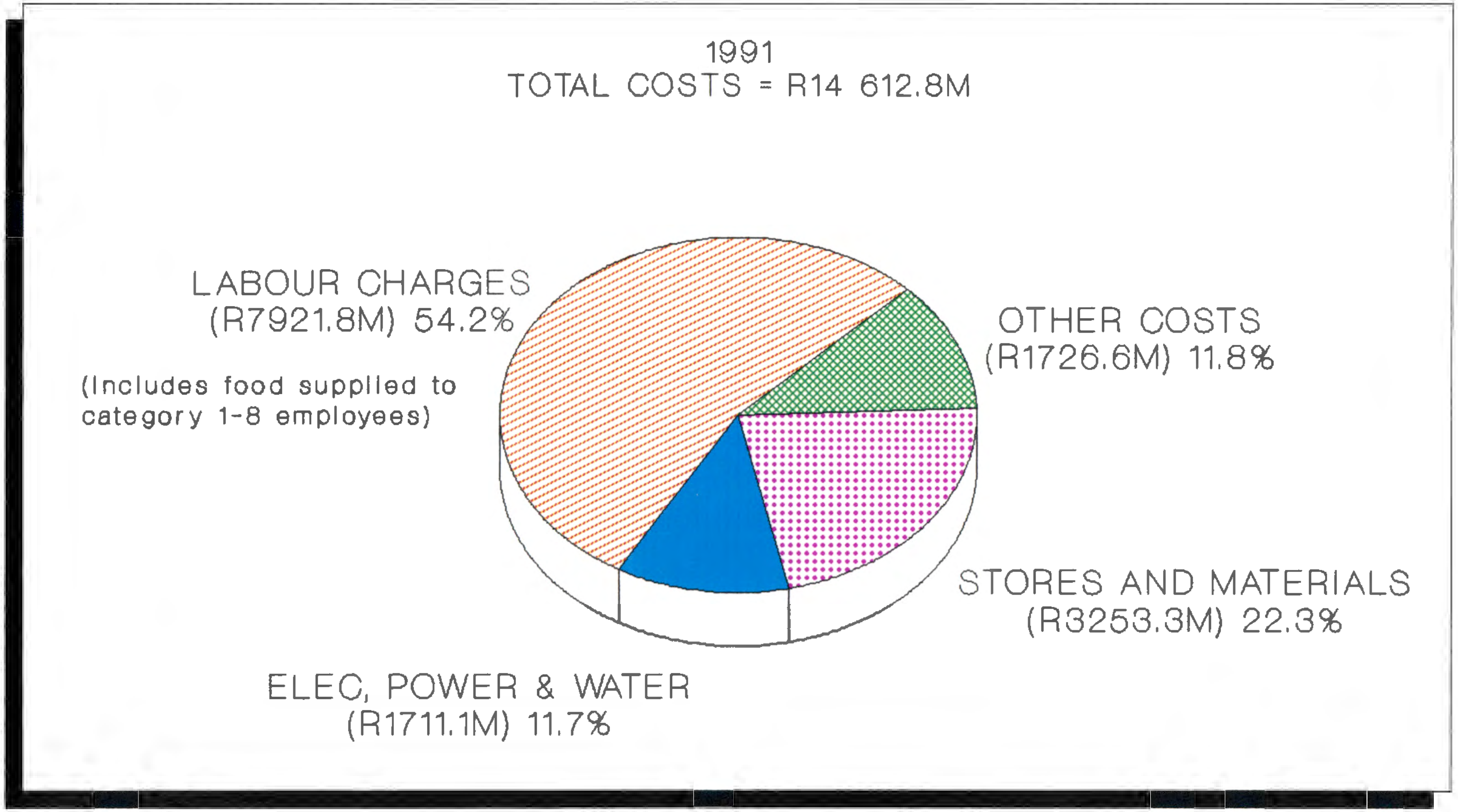

FIGURE 2.6 : Components of Working Costs

SOURCE : Chamber of Mines

production losses. Inter-racial tension between unions is a serious threat, which could influence progress in this industry.

Racial discrimination is progressively being removed and discriminatory practices are being actively investigated.

A steering committee has been given a mandate to elect representatives to investigate the problems facing the mining industry. Employers, union leaders and government representatives have agreed to co-operate in order to ensure the future of the mining industry. Among the issues to be investigated includes the following: conditions of employment; acceptable standards of health, welfare and safety; methods to extend the life of mines and retrenchments.

2.4 SUPPLY

South Africa produced 35% of the global output of gold in 1990 as opposed to 70% in 1980 in the Western world. This is partly as a result of an unpublicised gold rush which, due to a *new heap leaching process coupled with new technology, increased production in the rest of the Western world. (Maude 1991:5(no1)

South African gold reserves are six times those of Russia's and ten times as much as those of either the US, Canada or Australia.

The African countries such as Ghana, Tanzania and Zimbabwe are expected to play an important role in the supply of gold in the near future. (Hawkins 1990: 117)

2.5 DEMAND

Physical demand for gold, especially for jewellery manufacture and industrial uses, is expected to increase in the future. (Kyriacou 1991:5) Confident producers could buy back future forward positions, effectively increasing demand on the spot market. Investment interest could also be rekindled should the gold price improve.

* Heap leaching process: material is laid to a thickness of six metres in alternatively fine and coarse beds and treated with water at intervals, during which oxidation occurs. (Hawkins 1990:118)

The World Gold Council promotes gold consumption in the major markets of the USA, Far East and Europe. The success of this council's efforts is apparent in the continued demand for gold in the jewellery industry. To boost gold's share of the jewellery market, the World Gold Council has launched a Goldmark in 60 countries. This symbol will be used as part of the advertising campaign to promote the sale of gold jewellery. (Anon 1991 : 38) (no 7).

2.6 ROLE OF THE CHAMBER OF MINES OF SOUTH AFRICA

The Chamber of Mines is a voluntary association of independent mining houses, companies and mines whose primary objectives are to promote and protect the interests of the South African mining industry.

For the past one hundred years, this association has represented its members where joint action is economically beneficial. The Chamber undertakes a large variety of advisory and service functions on behalf of its members and the industry, which can most cost-effectively and efficiently be handled on a co-operative basis.

The Corporate Services Division provides members with the following services: Human Resources, Financial, Information and Auditing amongst others. Funds are administered on behalf of the Pension Funds and Medical Aid Society.

The Chamber negotiates with the representative mining unions on wages and other conditions of employment on behalf of its members. (Chamber of Mines 1990:2-40)

2.7 A GLOBAL GOLD MINING PERSPECTIVE

The International Labor Organization (I.L.O.) is an international forum where mine workers, employers and governments meet on an equal footing to discuss problems of common interest. Matters discussed at the meeting in Geneva, Switzerland include conditions of work (and related legal protection); new work processes and technology (and their effects on employment and training requirements); and the need for employment and social policies to cope with these developments. This is a clear indication that the expectations and fears of mine workers are universal, irrespective of where the mine is situated. (Miller 1990:9)

Most mines internationally, as in South Africa, are still managed in the traditional management style where management takes the decisions and the employees obey orders. Canadian mine managements have been encouraged to become people-orientated with extensive individualised development and training to suit the values and priorities of the company concerned. It has been emphasised that executives need to be sincere in their dedication to employees. (Anderson 1990:7)

Australia is experiencing similar problems to those experienced in South Africa where mines are being closed as a result of their uncompetitiveness. The surface ore bodies are almost depleted and they will need to mine deeper than in the past. During the gold boom, they were not in the forefront of advanced technology or metallurgy and will need to implement modern techniques in order to remain competitive. (Anon 1991 : 10) (no 8).

2.8 MECHANISATION

Trackless mining, utilised on several mines, is considered to be an important breakthrough for the future of mining.

Deep level mining as well as high rock pressures and temperatures make exceptionally great demands on the equipment used. Technical advancement is an ongoing development process in the mining industry and South African mining engineers are regarded as the best in the world. (Maude 1991:10) (no1)

Advanced seismic techniques and sophisticated computer programmes have revolutionised the design of mining layouts, the prediction and control of rockbursts and the support of excavations. Custom-designed computer programmes optimise mine ventilation and refrigeration systems. (Vorster 1991:6) (no4)

2.9 SUMMARY AND CONCLUSIONS

Mining is interrelated with five sectors of the economy: households, businesses, financial institutions, the government as well as the foreign sector. Mining outputs do not feed into the inputs of the rest of the South African economy because the bulk of the minerals produced are exported.

A number of factors have contributed to a fall in the gold price. The global economic slowdown and the likelihood of recession, discourages gold purchases. High interest rates and a ravaging inflation rate have contributed to the non-competitiveness of the South African gold mining industry.

Gold production is influenced by the gold price, the availability of payable gold ore deposits, the high cost of deep level mining and the mine policy of varying the ore grade in relation to the expected profit margin.

The industry is heavily dependent on black labour. Sporadic incidences of inter-tribal conflict and strikes cause work stoppages, with a subsequent loss in production.

Gold is being promoted internationally to stimulate demand and thus improve the gold price.

Due to the high rock pressures and temperatures underground, as well as the depth of the ore, mechanisation is considered to be expensive and not in the best interests of the new South Africa.

CHAPTER 3

CHALLENGES FACING THE GOLD MINING INDUSTRY

3.1 INTRODUCTION

The future competitiveness of the South African gold mining industry depends on the country's ability to curb inflation. An inflationary climate creates an upward pressure on the cost of services, supplies and salaries which all contribute significantly to overall working costs.

The consequences of sustained inflationary pressure on operating margins are intensified when they coincide with an extended period of stagnation in revenue caused by a poor gold price. Should the working revenue remain at their present levels, due to a stagnant gold price, the profitability and also the future of the gold mining industry are going to be influenced by the ability of the Government and the Reserve Bank to implement effective anti-inflationary policies.

Investment, to replace or increase our gold reserves, is needed if mining is to continue playing an important role as employer and foreign exchange earner. (Figure 3.1) The trend of declining

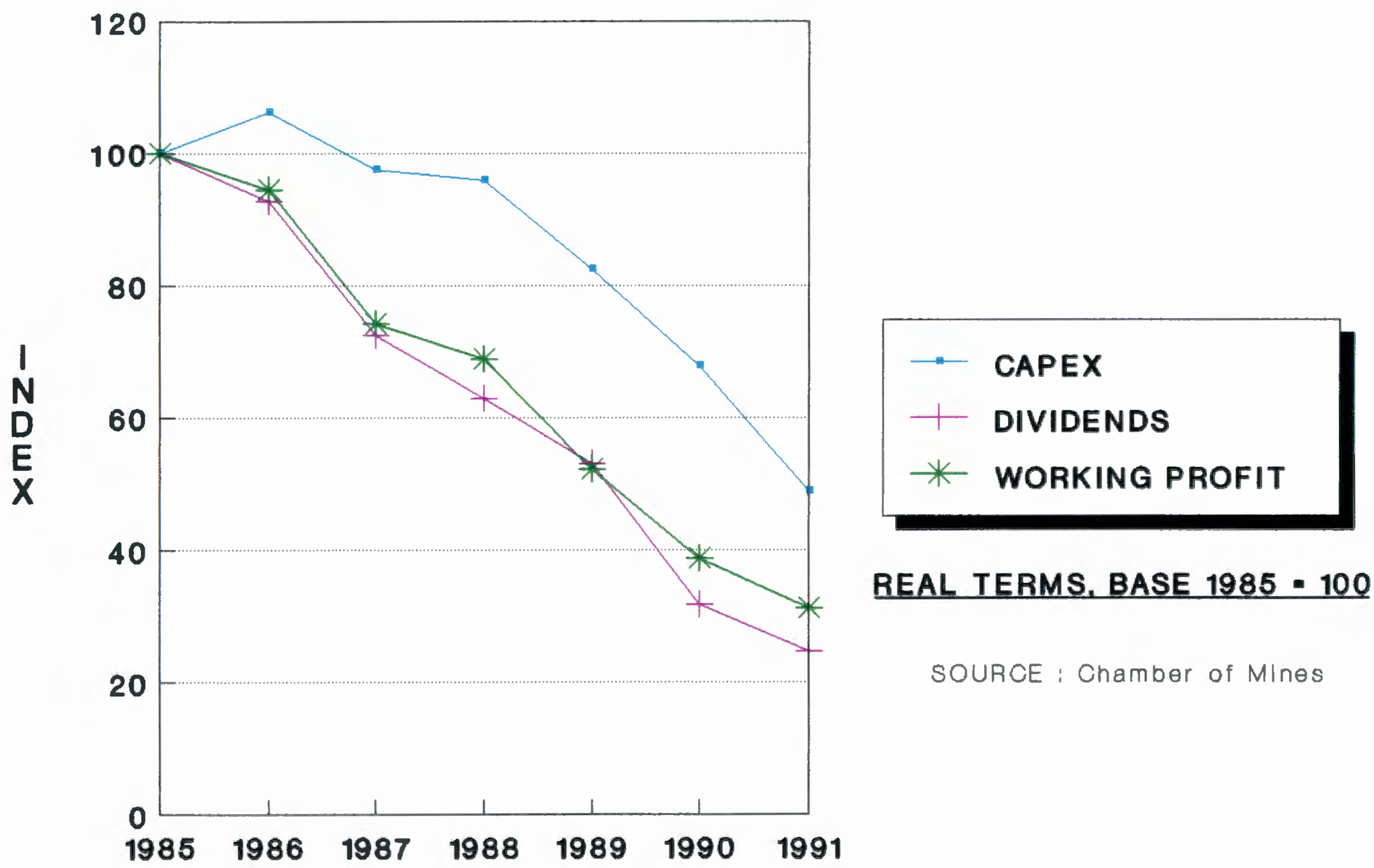

FIGURE 3.1 : Capital Expenditure, Dividends and Working Profit after Taxation Gold Mines, Members of The Chamber

annual capital expenditure investments needs to be reversed. The government could play an important role in stimulating investment by creating a more favourable tax policy applicable to the gold mining industry.

3.2 CHALLENGES AND OPPORTUNITIES

Gold mines in the Genmin Group are regarded as profit-orientated businesses. Employees and shareholders are an important part of managing the mines profitably in order to ensure long-term survival. With the mines dependent on the gold price, it becomes imperative that costs are contained or decreased in order to prevent the erosion of profits and in so doing ensure long-term survival. This causes major problems but also creates enormous opportunities. The industry is challenged to encourage advancements in the metallurgy, geology, technology, exploration and human resources fields.

Political and socio-economic factors have contributed to South African mines becoming one of the highest-cost gold producers in the world. The profitability of the industry has deteriorated to its lowest level in real terms since the 1960's. Rising costs have eroded the margin between working revenue and working costs.

Although the industry's average working costs showed a slight decline during 1991 yet working costs continue to accelerate faster than the growth in working revenue (figure 3.2). The gold mines are to be congratulated on their performance, during 1991, to curb expenditure despite an increase in the rate of inflation. (Table 3.1)

Due to the unique underground environment which displays enormous rock pressures and temperatures, mining demands an innovative and multi-disciplinary approach. Technological progress has evolutionised techniques on the new mines. (Chamber of Mines 1990:9)

The grade of ore has a comparatively uniform distribution over a wide range. The amount of gold per unit quantity of ore thus varies in all mines from high to low values. If the gold price increases or working costs decrease, ore previously considered unpayable becomes worth mining. A small rise in the costs causes a considerable reduction in the volume of payable ore reserves. With a constant low gold price, improvements in grade becomes a priority in the industry. (Wilson 1972:15)

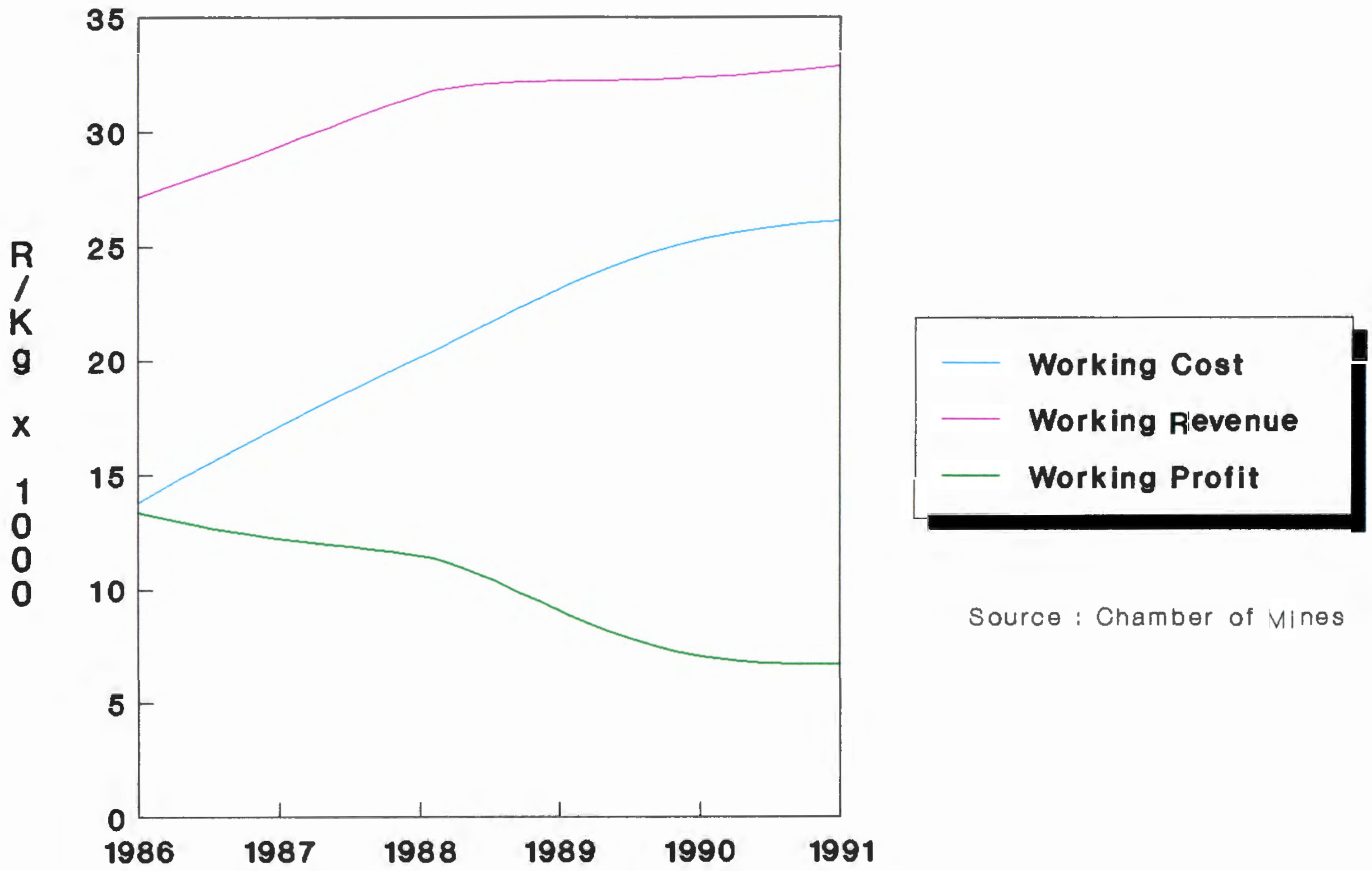

FIGURE 3.2 : WORKING COST, WORKING REVENUE AND WORKING PROFIT PER KILOGRAM

TABLE 3.1 COMPARISON OF OPERATING RESULTS OF PRODUCING GOLD MINES

JANUARY - DECEMBER		1989	1990	1991
1. Tons milled (millions)		113,69	111,18	107,35
2. Kilograms of gold produced:				
(i) Gold mines		569 883,4	565 653,7	562 023,0
(ii) Other mining production		36 372,1	37 045,3	35 917,7
(iii) Total (i) and (ii)		606 255,5	602 699,0	597 940,7
3. Grade (g/ton)		4,99	5,05	5,20
4. Cost per ton milled	R	116,67	130,34	136,05
5. Working cost per kilogram	R	23 340	25 733	26 136
6. Working revenue	R million	18 256,9	18 109,4	18 405,7
7. Total profit	R million	5 448,6	4 218,8	4 041,9
8. Est. taxation & State's share of profits	R million	1 533,9	896,5	957,2
9. Capital Expenditure	R million	2 629,5	2 475,2	2 056,3
10. Dividends	R million	2 129,4	1 455,8	1 303,9
11. Average value of gold per ounce received				
by mines - Rand/ounce		995,83	992,39	995,28
- US$/ounce		380,53	383,74	358,73

Source: Chamber of Mines Quarterly Analysis of Working Results

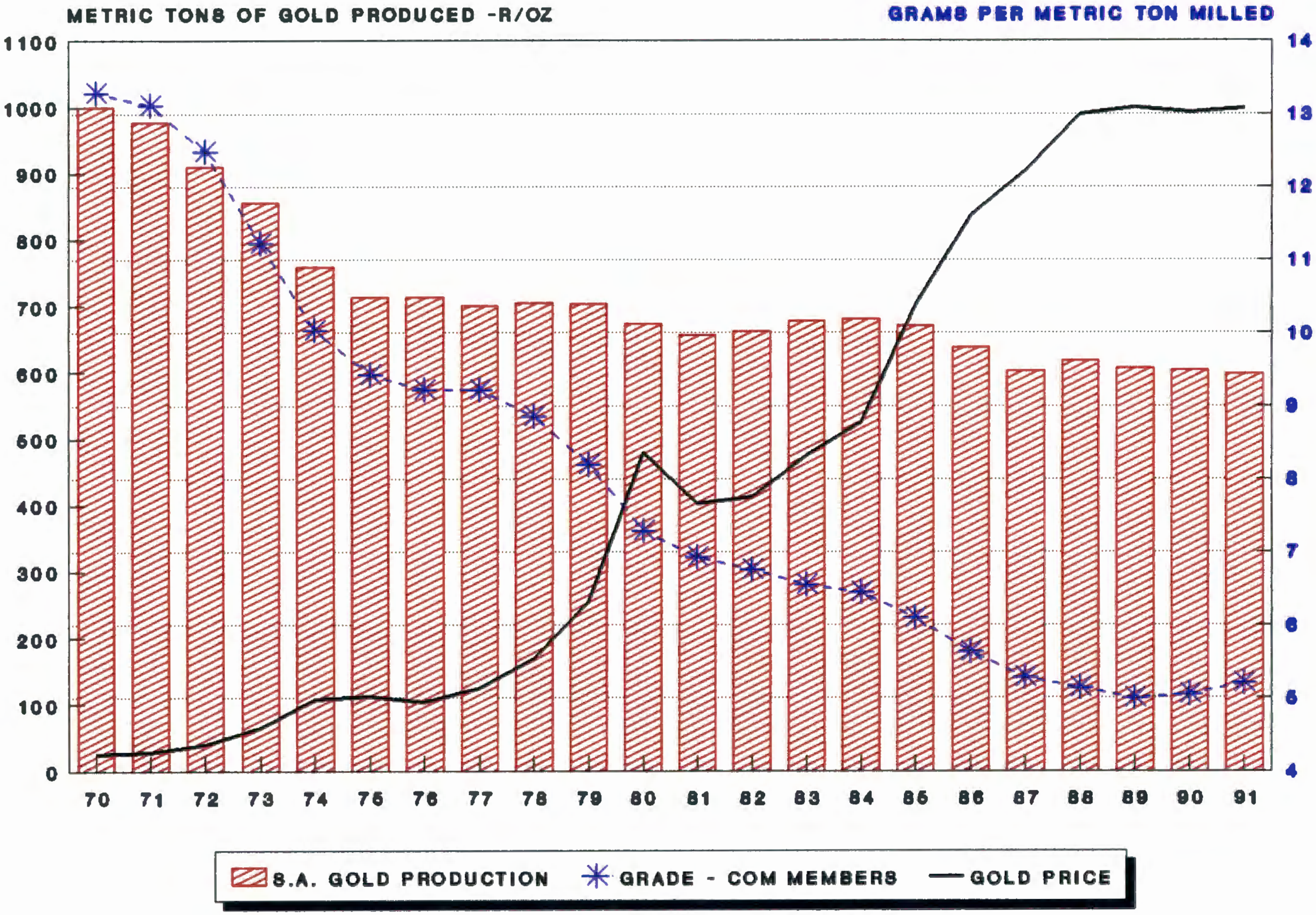

FIGURE 3.3 : Grade of Ore

SOURCE : Chamber of Mines

Figure 3.3 indicates the improvement in the grade of ore milled during 1991.

If the gold price does not improve, production will decline and many jobs in mining and the support industries will be lost. Increased grades, lower costs, reduced capex and worker participation to increase productivity are current methods the mines employ to remain profitable.

Due to the high labour costs, mine management is investigating progressive systems, involving workers, which emphasise communication, team involvement and problem-solving. Government officials, union representatives and mining executives have met to discuss the future of the industry.

Possible actions which management need to evaluate are: mechanisation; participative techniques to encourage employee involvement and accountability; and the education of employees to become better skilled.

Employees need to be included in decisions which affect their working lives. Various performance-related schemes need to be evaluated for implementation, including incentive bonuses, employee share participation schemes, etc. Employees must therefore, be able to share in the wealth of the company.

Workers forming part of a productivity-based agreement should perceive the advantage of employment and social stability in their environment.

Inflexibility at the negotiating table, in the past, has resulted in retrenchments, mass unemployment and the closure of companies which were no longer profitable.

Whereas negotiations over employment conditions in the past were coupled with distrust and militancy, it appears that a more realistic approach has emerged from the mining trade unions.

The National Union of Mineworkers (NUM) and its mother body, the Congress of South African Trade Unions (COSATU), who have in the past resisted any agreement containing productivity and company profitability, (Anon 1991:4)(no9) accepted in 1991 an agreement based on a 5% pay increase with bonuses of up to 15%, depending on employee performance and company profitability at Anglo American's Ergo mine. (Vorster 1991:3) (no5)

3.3 SUMMARY AND CONCLUSIONS

The major challenge in this industry is to remain competitive whilst bowing to the demands and expectations of the workers. (Urbani 1992:1) Various factors account for the high production costs, with labour constituting almost 50% thereof. The options available are to mechanise or alternatively, to utilise the labour more effectively. Inflation is also one of the most important problems and the most serious, facing the gold mining industry. More attention needs to be given to address this problem. (Robinson 1987 : 26).

South Africa has recognised these challenges and are noted worldwide for the advances made in various areas of mining technology. Difficult mining conditions and the need to create employment, has impacted negatively on the concept of mechanisation. Empowerment of the worker to make him accountable for his productivity has become an essential consideration to ensure survival of this industry.

CHAPTER 4

LITERATURE REVIEW

4.1 INTRODUCTION

Much has been documented on the concepts of multi-skilling, team work, cost containment and the traditional mining environment.

Due to the present socio-political changes and economic problems which South Africa faces, many journals, magazines and newspapers are quoting leading economists and personnel practitioners on proposed solutions for the survival of the gold mining industry.

The low gold price has ensured that the gold mining industry, worldwide, seeks methods to produce gold more profitably in order to maintain its competitiveness and survival.

4.2 LABOUR CONTROL

Before the workers came to work on the mines, they were farmers who produced what they needed for their own survival. Due to an increase in the population, land became scarce and the land wars began. The mines needed labour, so the British government imposed taxes (hut, poll and labour taxes) which the black farmer could not afford to pay. He thus went to work, temporarily, in the towns, on the mines and for white farmers in order to pay his taxes. Soon the mines became deeper and bigger and more labour was needed. The only option for the black farmer was either to lose his land or to become a migrant worker.

Many whites from other countries were also recruited to work in the gold mines, but they and their families were housed by the mines. Salaries of black workers were too low to support their families and houses were not available for them. They were housed in compounds and pass laws prohibited migrant workers from settling with their families in the towns. This was ideal for the mine owners because it was cheaper to feed and house one worker than to support a whole family in town. (Crush 1989:337)

Labour control was enforced as a maximum wage for all mining companies was introduced. Black workers were thus immobile and no free market existed for their labour. This kept black wages low for many years. (Callinicos 1980 : 32-60; Wilson 1972:4)

Migrant workers, all over the world, spend many months away from their rural families, often developing second families in the urban areas. Rural families thus develop into single parent units. (Power 1979 : 34). The traditional family unit has been disrupted resulting in an instability of the workforce. (Randall 1972: 96) There has been suggestions of nationalising this industry should there be a change in government. (Harris 1990: 47) The African National Congress believes that the migrant labour system and compound living contributed to apartheid and will therefore abolish these practices. (Harris 1990 : 52).

The process of change from life as a peasant to that of the industrial worker, as well as the change in environment, is further complicated by the change from a traditional tribal, to a western individualistic way of life. (Backer 1973: 135)

4.3 EMPOWERMENT OF THE WORKERS

Lack of commitment and loyalty towards the company on the part of the workers has been exacerbated by the historical treatment by management of unskilled workers on the mines. To improve profitability, demands a major attitude change from both management and workers. Management needs to have a holistic approach to the worker in order to produce optimal productivity and thus increase profitability. (Project Free Enterprise 1989 : 26; Manning 1988:59).

Management needs to realise that all employees have potential, and it is their task to create a climate which encourages intrinsic motivation of the employee to become innovative, productive and supportive of company objectives. (Cotter 1991 : 3).

Much has been documented on the excellent results achieved, once employees have been involved in the decisions affecting their working life. (Ball 1989 : 70). The Kerr mine in Canada was changed from bankruptcy to solvency, with increased profitability, once the workers were given the opportunity to participate and implement their own ideas. (Anon 1991 : 67)(No4). Pamour mine in Canada improved profitability by listening to their workers and implementing a scheduled maintenance plan which resulted in higher throughput of tonnes of ore. (Anon 1991:41)(no3).

Toyota instituted worker involvement as part of its management philosophy. Every employee has the right to offer intelligent and useful inputs whilst senior management is committed to involve the workers. The management of Toyota define productivity as an "attitude of mind" and have instituted processes for total worker involvement. (Dewar 1990 : 245).

Volkswagen, SA has recognised the importance of worker empowerment, with a policy based on equality, trust and respect. Management and the worker have a shared vision where both strive for the same goal. This has paid dividends within the production area and in all sectors of this company. (Smith 1990 : 223).

Super-performing companies involve employees as it is unanimously agreed amongst them, that company objectives are sooner and more effectively achieved this way, than with a more bureaucratic management style. (Ball 1989 : 65). When managing large groups of blacks, participation is considered possible, and their contributions can be regarded as valid and relevant.

With the West German system of co-determination, the worker representatives engage with managers on a range of labour, personnel, administrative and welfare issues through worker councils and worker directors. (Robinson 1990 : 49).

Koopman (1987:130) turned Cashbuild around because he was a leader with a vision, who was able to regenerate an organisation by restructuring its operations. Performance was improved remarkably by empowering workers, thus gaining their support and involvement. Workers and management were striving towards a common goal. Nasser also found that the degree of cohesiveness between management and the workforce determines efficiency and productivity. (Project Free Enterprise 1989 : 24).

Bakhshi (1991:11), who has worked amongst the multi-racial, multi-cultural and multi-religious people of India, has identified that their social and economic problems are similar to those experienced in South Africa. He believes that only South Africans, through their strengths and past failures, are able to create a model for South Africa. He advocates that, by creating a sense of belonging amongst employees and increasing their self-worth and self image, it could lead to greater profitability and make us more competitive in world markets.

Iscor introduced a Performance Management System which integrates the management of the mining and services departments, placing emphasis on worker-participation, quality assurance, communication, ergonomics, performance measurements and smaller work teams. They regard this system as a change in attitude combined with a defined strategic plan of the process for the improvement of performance. (Deetlefs 1989 : 210).

4.4 WORKING ENVIRONMENT

The working environment also contributes to productivity. An earning environment increases productivity, innovation and promotes teamwork. (Bardwick 1991 : 11). A results-orientated environment, leading to a multiplied return on human and material resources, has been identified by Schaffer. (1991 : 148).

Nemeth (1991: 86) claims that outward signs such as mission statements, new slogans or even the dismantling of the executive cafeteria, will not improve profitability. Management needs to make a realistic assessment of the dynamic environment within which the company operates. Employees are then challenged to make their best contribution for the company and their own benefit.

A public utility company increased productivity by creating a results-orientated environment. This led to greater job satisfaction, mutual respect, better relationships among levels and a multiplied return on the organisation's human and material resources. (Schaffer 1991 : 148).

Within a highly competitive steel industry, American Steel and Wire has shown excellent profits within a short space of time by removing status and discrimination, and involving employees in all areas. The corporate culture thus created has led to high productivity, as each employee now shares in the prosperity of the company. (Oswald 1991:81). According to Schuster (1991:9), the Japanese have a major competitive advantage, as a result of the closeness and co-operation between managers and employees. The status which develops within a hierarchy is de-emphasised as opposed to the highly status-conscious environment of the mining industry.

4.5 JOB ENRICHMENT

Three critical psychological states of mind which determine a person's motivation in the job situation, have been identified by Hackman as meaningfulness, responsibility and knowledge of results. It is maintained that when these conditions are present, the worker becomes internally motivated with a resultant increase in job satisfaction, high quality work and low absenteeism and turnover. (Hackman 1989 : 420).

Job enrichment or multi-skilling occurs where the job is changed and enriched through horizontal loading (job enlargement or increased lateral responsibility) and vertical loading (increased authority for decision-making within the job). Job enrichment began with the pioneering work of Hertzberg, and was intended to increase motivation and worker satisfaction with a resultant improvement in productivity. (Hertzberg 1968 : 53). The failure of this concept within companies is largely due to the lack of involvement of the worker in the decision-making process. (Burke 1982 : 253). Palabora Mining Company initiated a panel in 1972 who identified job enrichment and participative management as the direction for the future of mining. (Thomas 1973 : 121).

New Celebration mine, Australia, remains competitive by ensuring that operators are well trained. This promotes optimum efficiency and decreased maintenance costs due to correct handling of machinery. (Anon 1991 : 32) (no1)

The Ashanti gold mine in Ghana, classed as the world's richest gold mine, has implemented multi-skilled teams. The teams decide on the number of workers needed for a specific task, while workers who are not needed, are employed elsewhere. Labour has been reduced by 30% with maximum utilisation of personnel and no absenteeism. Stope productivity has risen by 44% and development productivity by 200%. The traditional Christmas bonus has also been replaced by a bonus-scheme based on gold output. Each team is paid a set price for each ton moved. (Suttill 1991 : 160).

A mining house in South Africa has held intensive discussions on increasing the flexibility of the skills of their mine employees. They have initiated multi-skilling, but the test mines are still involved in its conceptional design, planning and the first phases of its application. Meaningful information is not readily available, as few companies in South Africa have introduced the concept long enough for results to be significant.

4.6 TEAM WORK

Composite teams are becoming popular as they have proved to contribute to profitability, increased productivity and improvements in the quality of work life. (Barkman 1987 : 58). Individual problems which affect the achievement of team goals, are dealt with by the team. The team is motivated by easily-understood, meaningful reward systems. A workplace structure which complements and re-inforces the group effort in achieving production targets, is put in place.

Team members are involved in their own planning, scheduling, co-ordination and control of their work. The quality of work life is dramatically enhanced with greater variety and autonomy, increased feedback, increased participation, fostering of team work, greater use of skills, knowledge and experience and improved opportunities to increase earnings.

It has been reported that this approach produces a high-performance team that rates well on all measures of employee satisfaction, absenteeism, turnover, industrial relations, safety and commitment. (Lee 1990:26)

Employee commitment was strengthened with improved morale once the team approach was introduced on Savmore Colliery.

Composite team members on an Anglo American mine experienced increased job satisfaction with the result that their previous remuneration almost doubled. The management of this mine found the advantages of this approach to be: increased performance by means of increased motivation of the workforce, self-motivated employees facilitating supervision, simplified manpower planning, reduced absenteeism, improved communications and positive management - employee relations.

Functional flexibility, as defined by a major mining house, incorporates multi-skilling and composite teams. The advantages claimed, once this approach has been introduced include:

- reduction of employee costs
- greater flexibility in response to technological change
- improvement of industrial relations
- extension of the contribution of employees through empowerment

- increased opportunities for employee participation, learning and growth
- improved productivity
- improved safety
- greater flexibility in meeting fluctuating production demands
- increased effectiveness in dealing with skills shortages
- increased rewards to employees and management ability to afford such increases
- improved quality of production
- increased job satisfaction through job enrichment
- minimised waste
- leaner organisations with fewer layers of managers and supervisors
- improved working relationships
- increased involvement and better status of employees
- increased organisational efficiency
- commitment to shared goals
- greater responsibility for task completion resulting in an improved sense of achievement
- increased marketability of employees
- increased self esteem
- decreased absenteeism and turnover rates.

Although the advantages of this approach appear impressive, some experts caution that it is unlikely to prove a panacea for all corporate ills. (Kizilos 1990:55)

4.7 COMMUNICATION

Informal, open communication has been found to lead to more innovation, learning and the promotion of better relations between people of various ethnic backgrounds. For the top-performing companies, communication is the most important aspect of the relationship between management and the employee. (Ball 1989:155) Creating the opportunities for communication and interaction is imperative for the success of any programmes to improve profitability and make the company more competitive. (Manning 1988:197; Thomas 1973:120)

For cross-cultural communication to be meaningful, it is imperative that the basics of the other culture be studied in order to overcome ignorance and make communication more effective. (Knotts 1991 : 12; Davidson 1991 : 1). It has been proven that communication affects bottomline results. (Daniel 1989 : 34). Giliomee (1989: 64) believes the first step for management to take, is to improve communication to individuals and trade unions.

Upward and downward communication is more efficient if the span of control is not too wide. Managers within flatter structures, ie. organisations with fewer levels, have been shown to experience greater job satisfaction. (Dessler 1986 : 187).

4.8 REMUNERATION

Rowland (1987: 51) emphasises the need to tie compensation to productivity within a well-designed plan. The link between performance and reward should be realistic in order for the reward to act as a motivator. (Human & Hofmeyr 1985: 115) Within a teamwork structure, management needs to be aware that because employees are remunerated for individual performance, this system could undermine the team performance. Thus the rewards should be supportive of the team and not encourage competitive behaviour within the team. In order to remain competitive despite the high costs of labour, a company, investigated by Bratkovich, redesigned their remuneration structure to tighten the link between pay and performance. Operating profit was used as one of the criteria to measure performance. Individual effort for outstanding performance was rewarded with additional compensation or company shares. Individuals were constantly aware of the company's goals and the fact that their efforts impacted on profitability. Long term, this company was able to improve profitability with a more committed workforce. (Bratkovich 1989 : 86).

Employee Share Ownership Plans (ESOPs), have grown in popularity since 1974 when it was first introduced. Positive results have been obtained from research performed by Rosen and Quarrey (1987:132) on the impact of the introduction of ESOPs on company performance. They have proven that workers have gained financially, the companies concerned have grown faster and found that productivity was enhanced. ESOPs, combined with a worker participation programme, was found to be the most effective way of improving profitability, although Maller (1989:354) questions whether ESOP's are able to motivate or evoke employee loyalty. By making employees shareholders in the company, they also need opportunities to share their ideas and to participate in decisions affecting their working life. Companies in South Africa have introduced ESOPs with or without worker involvement. Some companies, which have introduced this scheme, feel it is too early to assess the implications (Fletcher 1991 : 11) and others foresee great advantages. (Haumant 1991 : 5). This scheme is rapidly finding favour in the USA and Britain, and within South Africa. Giliomee

(1989:67) regards this scheme as a means of redistribution to gain stability and growth within our industries.

4.9 COST MANAGEMENT

Hollp's input and output approach is based on the Japanese model of achievement. One's job is viewed as a link in a chain from suppliers to customers. Unwanted inputs and outputs are eliminated to improve productivity and methods are changed or modified in order to to become more effective. This transformation concept ensures the elimination of waste, improves quality and thus increases efficiency. Constant attention given to improvement and development ensures that the company remains competitive. (Hollp 1989 : 63).

The implementation of a materials handling system in the shaft of the Holt-McDermott mine allows greater flexibility and has led to increased productivity. (Anon 1991 : 47)(no2). They are ahead of production targets and are to install further equipment to improve the ton of ore crushed. Gold is also only stripped four times a week instead of seven in order to save energy and reagent consumption.

The David Bell mine has become a low-cost producer by controlling waste, optimising usage of contracts and negotiating more beneficial prices from suppliers. Cost management and efficiency has become a priority at this mine. (Anderson 1991 : 17).

As cyanidation has received negative responses from the environmentally-conscious, an autoclaving technique for the extraction of gold from refractory gold ores, has been developed. This is a simpler, more effective method, and because it works quicker, it could contribute to a cost saving. (Anderson 1991 : 16). Hydrogen peroxide as a liquid oxidant has been proven on Canadian mines, to optimise the gold extraction and prevent cyanide losses for high-oxygen- and high-cyanide-consuming ores. (Anon 1991:37) (no6). Extraction of gold utilising bacteria, the Biox process, was invented on a Genmin mine for use on refractory gold ores.

4.10 *MECHANISATION AND AUTOMATION*

The Carol Lake operation in Australia has improved productivity at the mine by purchasing new equipment. Improved reliability and extra equipment to cope with the increased production resulting from better drilling methods, have contributed to the increase in productivity. (Whiteway 1991 : 18). Maintenance costs are expected to decrease as a result of the higher capacity trucks being able to transport higher volumes. This operation is an open cast mine which operates totally differently to South African mines.

Canadian mines are also under extreme pressure for survival due to the low dollar gold price. They might also need to close unprofitable mines. The labour costs account for approximately 46% of the total costs at the Doyon mine. Environmental laws have lead to expenditure by enforcing legislation on the treatment of high volumes of waste rock, which contributes to the erosion of profits at this mine. The structure of the ore bodies results in the high volume of waste rock which necessitates expensive machinery. (Whiteway 1991 : 41)

Lucky Friday mine, in Idaho, has shifted from being the highest to being one of the lowest cash-cost producers in America. Physical conditions are challenging, with rock bursts a continuous hazard. As the mine deepened, management constantly developed new methods to improve safety and productivity underground. Mechanisation and a specialised performance-appraisal system has contributed to the success of this mine. (Phelps 1991 : 19).

4.11 SUMMARY AND CONCLUSIONS

From the literature, it is apparent that the mining industry worldwide is considering innovative ways of decreasing the high labour costs with a concomitant increase in performance. Companies which have implemented a participative management system with worker empowerment, have been successful in improving profitability. In order to achieve similar results in the mining industry, a system suited to the level of the worker and environment, needs to be implemented.

By offering workers higher wages due to union pressure, promoting blacks on a token basis or by trying to placate trade unions at the expense of white workers, will not result in higher productivity and profitability. (Giliomee 1989 : 67).

The success of mechanisation, as experienced in other countries, would be difficult to achieve here, due to our present political climate, environmental conditions and increasing unemployment. The mining industry has no option but to implement a worker-involvement programme in order to remain competitive and to ensure the future of the industry.

CHAPTER 5

A PROPOSED HUMAN RESOURCE MANAGEMENT MODEL: THE ORYX MODEL

5.1 INTRODUCTION

Oryx, a gold mine in the Gengold stable, is situated in the Orange Free State Goldfields. Mine management, within the present economic climate and with the gold price at its current low level, critically evaluated their options for increased utilisation of all resources in order to maximise profitability.

Their options were:

a) Reduction in costs

b) Mechanisation

c) Total flexibility of resources

a) <u>Costs</u>

Reducing costs are only successful to a point and then becomes counter-productive. This option was rejected by the mine.

b) <u>Mechanisation</u>

This option was rejected as unsuitable for the Oryx mine as it would be too expensive to implement and suitable equipment was not readily available. Within the present political climate this option would not be in the best interests of South Africa.

c) <u>Total flexibility</u>

This concept embraces the flexibility of mining methods, financial resources and the effective utilisation of human resources.

As labour constitutes roughly 50% of the working cost on the mine, it was identified that employees are a major determinant of a company's competitiveness. The implementation of multi-tasking ensures the flattening of the hierarchial structure and the extra skills acquired benefit the company and the employee.

Mine management was determined to introduce a system which would ensure that the utilisation of employees would be more flexible and thus become optimal. Four models considered were the American, Canadian, Japanese and West German models. It was felt that the Japanese and West German models are driven by different value systems to those relating to South African people. The model most suited to the peculiarities of the South African mining industry, is the American model as practiced on the Barrick mines in the USA.

The South African approach as exercised by Oryx management, ensures flexibility by utilising team-work and multi-tasking.

Strategies which would contribute to a more profitable production of gold, include:

- standardisation of the conditions of service
- integration of service departments into work teams
- removal of restrictions

- union commitment
- task training and multi-tasking
- team work.

5.2 TRADITIONAL ORGANISATIONAL STRUCTURE

5.2.1 INTRODUCTION

The traditional structure negotiated by the Chamber with the unions and associations, on behalf of its members, is applicable to all employees employed on member mines. These conditions of service do not encourage pay for performance and neither does it allow the flexible utilisation of human resources through, for example, multi-tasking. In addition, a concept such as team-work cannot be considered, since the work-force on "Chamber-mines" are divided into strictly defined categories through an allocation of occupation agreements with the unions.

5.2.2 MANAGEMENT STYLE

Management, predominantly white, utilises an autocratic style, in which the majority of workers, largely unskilled, merely obey orders. Workers have little or no say on the job, whilst union leaders remain their main mouthpiece. Unions tend to misuse this trust to further their political aims rather than to represent the worker. All employees receive remuneration subject to their job grading which is not performance-related. There is, accordingly, no incentive to become more productive in order to increase quality of life.

5.2.3 SALARIES

Different conditions of service apply for officials, union men, staff and non-staff employees. Grading systems, linked to prescribed minimum salaries, exist for officials, staff and non-staff employees, whilst standard rates without grading are applicable to union men.

Very little emphasis is placed on market and merit-orientated remuneration. Actual salaries are mostly based on seniority and qualifications.

5.2.4 CONDITIONS OF SERVICE

The Chamber of Mines conditions of service apply to all participating mines. These conditions are restrictive and are not conducive to Oryx's model of flexibility and teamwork.

Therefore new conditions of employment had to be developed and introduced to enable the mine to achieve its objectives.

The conditions, as enforced by the Chamber, apply for the various job categories, with little scope for individual modifications.

5.2.5 MULTI-TASKING

Pilot projects are in operation on various mines to test the feasibility of multi-skilling within the gold mining industry. Functional flexibility, multi-skilling plus composite teams, has been instituted on test mines without the approval of the union. Documentation on the results that are achieved, is not freely available.

5.2.6 PERFORMANCE RATING

No adequate performance-rating system exists on the mines.

5.2.7 UNION RECOGNITION

Closed shop agreements are in place on most mines where certain employees must become members of unions.

All negotiations regarding wage increases, conditions of service, fringe benefits etc. are done through the Chamber of Mines separately, with each individual recognised union or union grouping (e.g. Officials' Associations, CMU, etc.).

5.3 EMPLOYEE FLEXIBILITY

5.3.1 INTRODUCTION

From previous chapters, it is obvious that profitability is the major challenge facing South African gold producers amidst a relatively low gold price and high inflation rate. Profitability improvement is influenced by cost containment and increased productivity.

On opening the Oryx mine, which will only be in full production in 1993, the manager, Mr Brian Fort, initiated a mining version of flexible management to meet this challenge. The system created in-house has three components:

- Mining flexibility which address issues such as face availability, shifts and shift times to optimise production, etc.

- Financial flexibility which addresses issues such as dividend policy, windfall profits, materials handling effectiveness, etc.

- Employee flexibility which addresses improved utilisation of human resources.

It is important to note that this system is still in its infancy. Only one year of an implementation strategy, which is planned over four to five years, has been completed.

Only the employee flexibility component forms part of this research essay.

The fundamental concept underlying this system is that it is essentially value-driven and that ownership takes place from the lowest level.

Because the system is dynamic, proposed changes can be implemented without losing control. Remuneration is based on performance, with broad categories of employees and no rigid gradings and salary scales. In order to encourage higher productivity, teamwork, accompanied by task-training or multi-tasking, forms a fundamental part of the system. Multi-tasking or job enrichment, creating a more fulfilling position, thus has positive ramifications for South Africa. Task training results in a better-educated employee with a higher disposable income and better future prospects, who could perceive a career in mining as attractive and fulfilling.

Oryx believe that this system currently attracts, and in the future will ensure, a more responsible, ambitious worker who has self-confidence and is more efficient because he perceives the system to be fair and performance-related. (This has been borne out by the recruitment drive towards the building-up of the labour force before the commencement of full production.)

Restructuring of human resources encompasses:

- work teams of all employees associated with production, who take full responsibility for its production effort

- selected employees trained to perform tasks previously performed by specialists.

To enable the mine to implement flexible utilisation of employees, certain restrictions needed to be abolished. Restrictions, relating to the Chamber labour agreements, in particular the closed shop and allocation of occupations agreement, did not promote flexibility as proposed for Oryx mine. Oryx was thus excluded from the Chamber labour agreements which enables the mine to negotiate its own labour agreements at mine level.

By integrating service departments into work teams, hierarchial levels are reduced resulting in improved efficiency. Multi-tasking ensures reduction in employee numbers, improved productivity and positively influences employee attitudes.

Training needs to equip employees with additional skills are being identified. Training modules have been developed for essential tasks.

This model is unique in the gold mining industry as it offers a combination of all the issues which various mines are investigating:

- standard conditions of service
- equitable remuneration structures
- job enrichment due to multi-tasking
- negotiating strategies
- smaller, skilled workforces

- maximation of training efforts
- reduced stratification
- composite teams
- union commitment
- improved communication.

Only employees able to converse in English and who possess the skills and physical requirements for the envisaged positions, are recruited. On engagement, all employees enter into a uniform agreement of service with the company.

5.3.2 ADVANTAGES

a) This system facilitates team performance and the teamwork-concept by recognising increased productivity from the group.

b) Promotion is merit-based, and any employee can occupy any position, provided he has the skills and abilities, which will occur through multi-tasking, to perform the job.

c) The dynamic structure ensures the possibility of implementing any further changes needed to improve the system.

d) As this system was designed and created in-house, it has the commitment of management to succeed. As this system was negotiated with the unions and employees, it therefore also has their commitment.

e) Human Resources has become the mine's greatest asset in its fight against becoming uncompetitive. The ingenuity and potential of each employee determines his own career path. Employees thus participate in their own future. It is believed that this issue will result in greater worker satisfaction and a sense of belonging.

f) Multi-skilling ensures a saving in labour costs as fewer people are employed. More effective utilisation of labour and increased efficiency results.

g) Job satisfaction becomes possible because all employees are involved in their own career path. Ambitious workers are afforded the opportunity to obtain status and be remunerated according to their individual performance.

h) The organisational structure is flatter with fewer hierarchial levels. Activities are divided into three main groups: technical services, production and resources. It is thus less cumbersome in comparison to the traditional grouping of departments and therefore all activities are goal-orientated in order to achieve maximum profitability.

i) It is possible to create a more skilled and more productive labour force with this system in operation.

j) The mine language will be English, and only employees conversant in English are recruited. Productivity and safety should increase because the employees will be literate and no language barrier will exist.

k) Additional training for multi-tasking will increase the self-esteem of employees and at the same time increase the pool of expertise in South Africa. It will also facilitate the introduction of equal opportunities for all.

i) As employees have already seen an increase in remuneration viz-à-vis other mines, it will reinforce the success of this system.

5.3.3 DISADVANTAGES

a) The cost implications of standardising conditions of service and remuneration, is a drawback.

b) Effective training is essential for effective teamwork.

c) It represents a major departure from tradition.

d) Resistance to change is a negative factor if commitment is not obtained.

e) Unions may resist change as the introduction of this model will result in fewer opportunities.

f) Mines that implement this system will no longer be part of the industry's collective bargaining process. Therefore the mine stands alone. There is no Chamber to hide behind when the going gets tough.

5.3.4 HIERARCHY

The present hierarchy, with as few levels as possible, was adopted in order to facilitate practices of employment equity and to integrate service functions into line functions; thereby creating production-orientated teams instead of separate departments.

Only four categories of employees form part of the proposed hierarchy ie. management, middle management, skilled and semi-skilled.

Subject to managerial ability, qualifications, experience and the ability to cope with more responsibilities, any employee can be appointed to higher levels in the hierarchy.

5.3.5 REMUNERATION STRUCTURE

5.3.5.1 INTRODUCTION

In order to ensure the long term success of the system and to improve management credibility, the remuneration structure is designed to be fair and market-related. Negotiations between management and the unions have been and will continue to be conducted fairly and honestly. Once in full production, increases will be determined by Oryx's financial performance.

For this system to be free of criticism by the unions and associations and to ensure parity amongst employees in order to eliminate dissatisfaction, all conditions of service have been standardised. (This is also essential for teamwork to be effective.)

The implications of this decision entail:

- a uniform wage curve with a uniform slope
- the value of fringe benefits being linked to the relative position of the job
- the fact that the wage curve and remuneration remain market-related.

The following important characteristics of the structure are highlighted:

- simplicity
- support for the mine hiearchy
- differentiation that occurs only on policy-making, implementation and execution
- jobs that are ranked rather than graded
- facilitate multi-tasking
- few categories
- possible conversion to an eventual inclusive wage.

5.3.5.2 NEW REMUNERATION CURVE

Present occupations were grouped into the following categories:

a)	Managerial	:	policy-making positions
b)	Middle-management	:	policy interpretation positions
c)	Skilled	:	policy execution through specialised skills normally acquired as part of a qualification
d)	Semi-skilled	:	policy execution through skills that can be acquired at the mine

One target position, representative of the type of work performed in the category, was identified. All positions of that category were ranked relative to the target position, with this position relating to the 50th percentile salary for that category. It was thus used as the guideline for salaries of other employees in that category. The target position will also be utilised for continuous market remuneration analysis.

Actual salaries depends on the ranking of the position, individual performance, multi-tasking status of the position, and any general increase which may have been granted as a result of collective bargaining.

No maximum salaries are prescribed but a six-monthly audit has been introduced to determine possible discrepancies such as bracket-creep, market-related salaries etc.

The remuneration structure is easily understandable and was thus simple to implement and maintain. Rigid salary scales do not exist, making allowances for exceptional individual performance to be rewarded. New occupations resulting from job enrichment will fit into the new structure with ease. The structure will also accommodate an inclusive wage, once this concept is introduced.

5.3.6 CONDITIONS OF EMPLOYMENT

5.3.6.1 INTRODUCTION

To facilitate the introduction of teamwork, it was realised that standardisation of the present conditions of employment was essential. Guidelines in respect of performance pay and multi-tasking were needed to allow flexibility of labour.

5.3.6.2 <u>WORKING HOURS</u>

All employees are required to work 96 hours per fortnight, divided into shifts; with the times as per the requirements of the mine.

5.3.6.3 <u>OVERTIME</u>

An employee working outside shift time and/or on his day off is compensated on condition that such overtime was authorised. Time off in lieu of compensation is to be authorised by management and the time allowed is calculated using the formula for calculation of overtime payments.

5.3.6.4 <u>LEAVE</u>

A new leave schedule has been designed using a line of best fit. Additional criteria include a minimum of 14 days to be taken per year; the fact that leave falls due one calender year after engagement date; that leave may be accumulated; that unpaid leave, if authorised, may be applied for; and that leave in excess of 14 days may be paid out.

5.3.6.5 **HOLIDAY LEAVE ALLOWANCE**

All employees qualify for a 100% holiday leave allowance, payable when an employee takes annual leave.

5.3.6.6 **SICK LEAVE**

All employees qualify for 42 days sick leave per year.

5.3.6.7 **RETIREMENT FUNDS**

All present employees are to retain membership of the fund which they currently support. All new employees are obliged to join one of the three funds available, which depends on the position of the employee.

Representation will be made to the funds to open membership to all. This will enable employees to exercise their choice.

5.3.6.8 **MEDICAL FUND**

The Medical fund is to maintain the status quo until investigation into a more equitable service is completed.

5.3.7 **MULTI-TASKING**

5.3.7.1 **INTRODUCTION**

Multi-tasking as defined by Oryx mine, means to train an employee for additional tasks in order to achieve increased productivity within the production team. It ensures that the employee is equipped with the correct skills which can be utilised daily for the benefit of his team and the mine.

This should not be confused with Multi-skilling which equips the employee with an additional craft. Multi-skilling equips an employee for both necessary and unnecessary tasks. This can lead to frustration and unnecessary high training costs.

Oryx opted for multi-tasking, which would ultimately result in improved profitability, for two reasons:

a) <u>Cost containment</u>

In the development phase, Oryx decided to introduce a system which would result in lower employee costs whilst effectively improving productivity. Multi-tasking was considered to be the only effective option in order to achieve this objective.

b) <u>Downtime</u>

It has been proven that, on most mines, downtime which results in lost production, is usually due to breakdowns which could have been prevented if production team members were equipped with the necessary skills to effect minor repairs to equipment. Downtime should be restricted to the minimum if increased production is to be maintained.

The mine first determined its requirements. From this, only the essential skills needed to effectively sustain the production process, were established. Multi-tasking should not negatively impact on safety, production or maintenance standards; therefore a modular training programme was developed for the selected tasks. The principle behind this was that the company must derive real benefits from each position and enriched employee.

5.3.7.2 IMPLEMENTATION

When multi-tasking was introduced, it was decided to commence with artisans, miners and metallurgical plant operators. Although most resistance was expected from this level of employees, multi-tasking these employees would ensure the biggest contribution to cost containment.

Once this phase is completed, further positions will be identified.

When selecting employees from the ranks of stopers, developers, artisans and plant operators to undergo multi-task training, the following preconditions were considered:

- good safety record

- positive attitude and work performance
- clean disciplinary record
- seniority

A modular programme was developed to facilitate training for the selected tasks, the emphasis on the correct number of skills to ensure minimum downtime and the most productive utilisation of employees. Training time varies for each module.

Financial compensation was based on the savings incurred as a direct result of the position being subject to multi-tasking, the successful completion of the required task training and the successful placement in a position where the additional skills are utilised to the advantage of the mine.

5.3.7.3 RESULTS ACHIEVED

After the introduction of the initial phase, the results achieved are as follows:

a) Reduction in employee numbers

Skilled artisan positions were reduced by 32 percent. (Table 5.1)

The largest saving occurred underground and in the metallurgical plant where fewer specialists are now required. (Tables 5.2 and 5.3)

b) <u>Productivity</u>

It appears that multi-tasking will meet the expectations regarding productivity. In addition, it appears that multi-tasking has had a positive influence on employee attitudes.

TABLE 5.1

MINE PERFORMANCE - TOTAL EMPLOYEE COST SAVING

Category	Employee Strength			Remuneration cost/month		
	Planned	Actual	Variance	Planned	Actual	Variance
Whites	316	261	55	999 192	825 282	173 910
Blacks	2 431	1 893	538	1 925 352	1 499 256	426 096
Total	2 747	2 154	593	2 924 544	2 324 538	600 006

TABLE 5.2

MINE PERFORMANCE - COMPARISON OF METALLURGICAL PLANT PERSONNEL

COMPARISON AREA	ORYX	BEATRIX	ST HELENA
Metallurgical staff	106	142	165
Engineering staff	14	53	51
Technical specialists	6	6	12
Total	126	201	228
Tonnage per month	120 000	175 000	200 000
Kilogram gold per month	900	1 100	1 300
Kiligram gold per employee	7,1	5,5	5,7

TABLE 5.3

MINE PERFORMANCE - REVISED ENGINEERING EMPLOYEE FORECAST

Category	Traditional mine	Original forecast	New forecast
Underground	53	43	28
Surface and workshops	38	42	32
Metallurgical plant	26	18	10
Total	117	103	70

5.3.8 **PERFORMANCE PAY**

(To be implemented shortly)

In order to create a culture in which employees are proud of their achievements and quality of work, thereby contributing to the productivity and thus effectiveness of the mine, it is essential to reward individual and team performance. Short-term as well as long-term performance should be recognised and rewarded. Hopefully this will also create individualism and an awareness of individual liberties which will also be to the benefit of South Africa.

The ultimate reward will be a share-ownership scheme to reward team effort.

The proposals for the introduction of performance pay are as follows:

a) Work teams will be rated as below average, average or above average according to the predetermined objectives set for the teams.

b) All participating members will receive the same rating as the team.

c) Teams will indicate which members should receive a different rating to that of the team, in order to assess the individual's performance.

5.3.9 UNION RECOGNITION

No closed shop agreement is in operation; instead all employees have freedom of association. The four job categories serve as bargaining units and all unions are required to prove 20% membership in any category before gaining recognition.

All recognised unions as well as representatives of non-unionised employees, negotiate with management around one table. (The negotiated recognition agreements are to provide for the resolution of disputes to minimise the occurrence of industrial action.)

5.3.10 IMPLEMENTATION STRATEGY

The following strategy was used to introduce the new dispensation:

3.3.10.1 PRESENTATION TO UNIONS/ASSOCIATIONS

A presentation was made to all recognised unions/associations on the mine to facilitate understanding of Oryx's objectives. The agenda for negotiations and the commencement date was discussed at this stage.

5.3.10.2 NEGOTIATIONS WITH UNIONS/ASSOCIATIONS

At the negotiations, it was imperative that commitment to the agenda and important issues be obtained. Agreement was reached on the new conditions of service, remuneration curve and fringe benefits, salaries based on individual and team performance and the concept of multi-tasking.

5.3.10.3 IMPLEMENTATION

The mine is introducing the changes gradually to the traditional structure, which it had to adopt initially to use as a starting point.

Once the remuneration agreement was concluded, all employees were briefed on the standard conditions of service in a face-to-face situation. Special emphasis was placed on ensuring that supervisors understood the details and principles involved in the new conditions of service. New agreements of service were concluded with existing employees who were part of the initial traditional structure.

5.3.10.4 **MEASURING EFFECTIVENESS**

The importance of being able to measure the results obtained through teamwork and multi-tasking, should not be underestimated. From these results, management is able to assess whether the system is contributing to improved profitability. Once these results are communicated to supervisors and team members, commitment of these employees, is strengthened if it is linked to remuneration.

In order to provide an objective evaluation of the system, the following is evaluated:

- Employee costs per unit of production. This must decrease if the system is functioning according to the set objectives.

- Employee costs as a percentage of total costs. Again a decrease should be possible.

- Decrease in total employee numbers.

The following ratios give the mine an indication of its profitability and productivity thus enabling Oryx mine to compare its results with other gold mines in the Genmin Group.

(i) Ratios for comparison with group mines

a) Grammes of gold produced per employee

b) Centares per total employee

c) Ratio employees / cost

d) Ratio employees / distributable income

(ii) Comparison with objectives (Flexible Management)

a) Maximum profitability (real growth)

- Total flexibility (mining, financial and human resources)
- Distributable income
- Grammes of gold produced per employee
- Increase in working cost as compared to rate of inflation

b) Financial and effectiveness ratios applicable to gold mines.

5.4 SUMMARY AND CONCLUSIONS

Oryx mine critically evaluated their options which would increase the utilisation of all resources and thus maximise profitability. A system was designed which would ensure the effective utilisation of human resources and that would recognise the need to ensure flexibility of mining methods and financial resources as well. Team-work and multi-tasking are the foundations which make this system unique in this industry. This system is also dynamic and changes can be implemented without loss of control.

Conditions of employment have been standardised whereby remuneration is based on performance. Promotion is merit-based and each employee determines his own career path. There are fewer hierarchial levels and activities are grouped into three sections: technical services, production and resources.

Creating a skilled and more productive workforce is the objective, with multi-tasking and team-work expected to contribute to the success of this system.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

For a gold mine to remain competitive and ensure long term survival, given a low gold price, it needs to overcome the ravages of inflation and meet the challenges of the changing political situation in South Africa. Their problem is thus to contain costs while revitalising the industry at the same time. To maintain profitability with low reserves within a continuing recession is the toughest challenge they now face.

There are various ways of keeping our ageing industry viable. Not all options are suited to South African conditions. Mechanisation has been found to be expensive, and equipment is also not readily available. In the present economic and political climate, it is not in the best interests of the industry to consider this option.

Reducing costs is only successful to a point and then becomes counter-productive. Many mines have retrenched employees to counteract the low gold price and decrease costs. This has led to instability in the industry with a consequent loss of skills and credibility. Industries supplying the mining industry have also been affected with retrenchments and liquidations due to decreased or non-existent markets.

The only viable option within the present economic and political situation is to acknowledge that employees are the most important asset and need to be more effectively utilised.

Dissatisfaction with the existing methods of work design is prevalent amongst both management and employees. Socio-political changes within South Africa have increased worker expectations regarding the manner in which they should be managed and rewarded for their contribution. Effective utilisation of human resources, coupled with mining and financial flexibility, will ensure that the industry with entrenched systems remains competitive for long-term survival.

Staffing levels, through multi-tasking, are reduced, which results in a potential increase in profitability. By improving communication regarding results achieved, worker attitudes are positively affected which in turn leads to commitment and loyalty to the system.

Oryx mine introduced a system which would allow more flexibility of employee utilisation. Taking cognisance of the environment and the need to improve profitability, it was felt that team work and multi-tasking would contribute to the success of the system. A strategy was devised with the intent of producing gold profitably. This included standardisation of conditions of service, elimination of artificial divisions amongst employees, union commitment to support the system, composite teams and the introduction of multi-tasking for all services required such as recruitment, costing and performance evaluation.

The current production figures indicate that the mine has achieved a 30% increase on the results which would have been realised had they remained within the traditional structure.

6.2 RECOMMENDATIONS

It is essential that the mine utilise precommunicated, measurable performance criteria. In order to encourage team work, these should be supportive of the company's goals without enhancing competitive behaviour within the team. Reward should be linked to performance to ensure that mediocre performers are not carried by the outstanding achievers.

Management needs to constantly be aware that a climate of empowerment produces positive results. Employees demand the commitment of management to sustain a participative environment. Motivation through involvement could mean the difference between success and mere survival. Management also needs to initiate a programme which encourages a sense of belonging and thereby enhance each employee's self-worth and self-image.

Communication with employees is essential in order for management to inform everyone regarding the achievement of company goals. Non-disclosure of production targets could negate the progress achieved. Employees need to know about goals, objectives and plans. Contributions to the planning process should be encouraged and informal discussions with management should be activated. Employees need to know that their performance contributes to the success or demise of the mine.

Management should be aware that people have untapped potential and can thus expand beyond their limitations. It is up to management to determine the manner in which this source of energy and ability will be channelled. It is required from management to ensure that the goals of the employee are the same as those of the company.

In order to ensure a stable workforce, it is essential to address the problem of housing. Converting the hostels into flats, as well as housing families in town, could contribute to the success of the system in operation on the mine. Removing discrimination in the work place is not enough. Each worker should be given the option of whether he wishes to stay with his family or board in single quarters. The conditions of employment should result in a more sophisticated employee who will demand that he receive equal treatment to that previously enjoyed by his white colleagues. Tokenism in any form will be recognised and will jeopardise the future of the system.

Once employees have completed the multi-tasking programme, they will become more employable. Their value to any employer will be enhanced and the mine will need to instil ownership in these employees in order to maintain their services and skills. The opportunity to grow in skills and accomplishments to facilitate development and increase one's value, is a progressive step for the mining industry and essential for the organisation of the future.

Some researchers are in favour whilst others are opposed to job-enrichment or multi-skilling. It has been proven that it is only effective when it forms part of a concerted effort within the whole organisation. Coupled with improvements such as better pay, improved staffing and more attention to goal-setting, the implementation should be more effective. (Dessler 1986 : 259). It must also be kept in mind that multi-skilling has a greater chance of success when implemented in an organisational culture which emphasises participation and delegation. (Burke 1982 : 255). Oryx chose the multi-tasking route as opposed to multi-skilling. It is debatable whether other test mines are confusing one concept with the other as each defines his own system differently. The idea of Oryx mine to initiate multi-tasking makes sense because it does not upset the craft unions, it is more cost-effective and only the essential tasks to maintain a composite team are included in the training programme.

Oryx mine has initiated a progressive system which breaks with mining tradition. This system should be viewed as only the beginning of a long road to involve employees in the reshaping of the relationship between them and mine management.

This approach facilitates the creation of a lean and flat organisation with the capacity to adapt rapidly to changing circumstances. It can even be seen as giving a company a competitive edge, both internally and externally particularly when facing intense international competition.

The training of team leaders to function within the new organisational climate should receive extra attention. They should participate in planning objectives and in adopting the management style as a new way of life.

Management should be aware that intimidation and inter-tribal or inter-racial conflict could still occur within the production teams. By managing more informally, this could allow executive management the opportunity to liaise with the employees at the coal-face and thus diffuse any impending conflict before it erupts.

Attitudes need to change. The system will not function effectively if the employees and management are not committed to creating and maintaining the change. This system needs someone who will champion it and is committed to its success.

Teams should be involved in setting their objectives and understand that only outstanding performance will be rewarded. Performance-orientated behaviour should be encouraged by rewarding performance and not attendance.

Theoretically the system appears to be fair and just; it seems possible for any employee who has the ability, to progress to mine manager status. However, due to fewer opportunities having been available to the black employee, in the past, he is at a definite disadvantage when competing with his white colleagues for any position. (Charoux 1986:85) He needs to be equipped emotionally to cope with the added responsibility. A mentorship-programme should be implemented to enable management to identify potential within the lower levels and then nurture these employees to fulfil later positions. (Human & Hofmeyr 1985:63)

Management needs to address the "Resistance to change" issue when considering these concepts for an established mine where the traditional mining structure is entrenched.

From the Conference for a Democratic South Africa (Codesa) there has been agreement on:

- An undivided, democratic, non-racial S.A;
- The fact that race and colour will no longer be a criterion in either the constitution or the legislation of the future;
- A Bill of fundamental rights;
- An independent court system.

This is only the beginning for setting the stage for the new South Africa. Decisions taken at Codesa will impact on the socio-political and economic environment of South Africa. Threats and issues such as:

- a non-racial government
- socialism
- nationalisation
- social programmes including housing, education and health
- expectations of the people
- abolished apartheid
- power
- personal freedom

will impact on the mining environment. Seen against this background, it is felt that the proposed model should be adapted for the unique working circumstances surrounding each gold mine to afford them the opportunity of long-term survival. Although this is a new dynamic approach within a conservative culture, it has the ability to fulfil the expectations and aspirations of the workers of tomorrow within the environment of the new South Africa.

CHAPTER 7

IMPLEMENTATION

7.1 INTRODUCTION

The concepts underlying flexibility of human resources are the current trends in the workplace. There are indications that these concepts will be applied more widely because of the ensuing advantages.

The implications of applying these concepts within the gold mining industry are significant. Introducing these apparently simple concepts is extremely difficult and complex within a traditionally-managed mining environment. Flexible management is a strategy which will change the present mining culture, including:

- management style
- organisation structure
- remuneration and reward
- manpower planning
- training
- recruitment
- industrial relations
- work design.

This system is only for the pro-active manager. Mining tradition and its negative environment remain stumbling blocks in the achievement of each mine's own unique objectives. For the management of the mines who wish to continue producing gold profitably, however there remains no other alternative but to consider the concepts mentioned.

7.2 POINTS OF INTEREST

From the literature and the first phase of the Oryx model, the following interesting points should be noted, before attempting to effectively introduce a restructuring programme.

7.2.1 TEAM WORK

a) Employee commitment and support

It is vitally important that the commitment and support of all employees be gained when introducing team work. Communication regarding the problems, alternatives and possible solutions which face the mining industry, contributes to employee commitment.

The following factors may contribute to a decrease in performance, support and commitment once composite teams have been introduced:

- Lack of involvement and support from management in identifying and solving administrative and other external problems affecting composite team members.

- Too rapid introduction of the concept could affect training resources adversely.

- Demotivation of the team members resulting from delays in bonus payments.

- Bonus payments which are included with the basic salary. Bonus payments should be paid at a different time to wages in order to become more visible. This avoids the repatriation of a percentage of the bonus pay.

b) <u>Union commitment and support</u>

Because a composite team is a new concept for the unions, it is imperative to conduct negotiations with openness and honesty.

The concept requires formal discussion with union leaders to prevent resistance.

c) Standardised conditions of service

Different conditions of employment or different categories of employees within a composite team would not promote harmony nor would it create team loyalty.

Conditions of service should be kept as simple as possible to maximise understanding.

d) Communication

A mine needs to standardise the conversational medium because all members of the team must be able to understand one another if they are to function as a team.

Oryx chose English, and all recruits must have command of this language.

Current employees not able to converse in the chosen language, could attend a language training programme which has provided positive results.

7.2.2 MULTI-TASKING

a) Determining tasks

Tasks that are essential for the production of gold should be identified before embarking on the process. The production tasks necessary to maintain the production process, include some additional skills to promote effective team work. The tasks which are more difficult to implement include those previously performed by service departments, such as recruitment, administration and costing, as well as those tasks requiring specialised knowledge, such as, welding, fitting, electrical, rigging, surveying etc.

b) <u>Allocation of tasks</u>

Once teams are formed, members who should undergo additional skills-training can then be identified. The additional skills required can be taught faster to employees who perform specialised tasks already. Positive results are achieved sooner by utilising skilled employees for multi-tasking.

Tasks, previously performed by service departments, can gradually be introduced to the team.

c) <u>Training</u>

Each newly introduced task requires a training module. The present training centres might not be equipped to cope with the new style and skills that need to be taught.

Multi-tasking must be managed correctly so that only selected candidates undergo training. This combats the frustration experienced by trained employees who cannot immediately be placed in positions where they can practice their new skill.

d) Remuneration

As the objective of this system is cost containment, savings obtained through multi-tasking could be shared amongst the shareholders, employees and the government. Reward systems should be perceived as meaningful by employees.

Additional compensation should only be paid to an employee who has successfully completed multi-tasking training and is being effectively utilised in a multi-tasked position.

7.2.3 GENERAL

a) Training

Insufficient training has been noted as the most important barrier to the successful implementation of this approach. The training of supervisors is critical because the nature of supervision changes fairly significantly.

b) <u>Communication</u>

Effective communication and employee participation with the design and implementation of the system, are essential. Savmore Colliery, who has also introduced a multi-disciplined approach, recommend to those wishing to introduce such a system, to ensure total communication between management and employees.

Consultation with all employee levels in all areas should be ongoing. Lack of commitment due to insufficient communication was found at lower levels.

Procedures need to be introduced in order to facilitate upward communication and to ensure regular feedback on the performance of the team.

c) <u>Remuneration</u>

Remuneration of these employees require in-depth discussions and planning sessions. The removal of existing work practices, which potentially divide the work force, requires re-evaluation, before initiating an employee- flexibility approach.

d) <u>Industrial Relations</u>

It is emphasised that national union resistance could be a barrier to the successful implementation of this approach.

Existing I.R. procedures may need reviewing and new participative worker - management forums will have to be initiated.

e) <u>Community Services</u>

Due to the change in the organisational culture which this approach initiates, freedom of choice in housing, medical services and other community services needs to be addressed. Employees could demand participation in the formulation of a policy for the community services which affect them.

It should be remembered that these concepts are in their infancy in South African companies. Although this approach, or modifications of it, is essential to ensure the future of the gold mining industry, it is impossible to produce a blue-print of the most effective method of implementation, as significant results are not readily available.

Each mine considering implementing this approach will need to assess it's own working environment before creating it's own model adapted to it's own unique circumstances.

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