SOUTH AFRICA'S GOLD MINING CRISIS: CHALLENGES FOR RESTRUCTURING

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PART 1: INTRODUCTION

Gold has long been the corner-stone of the South African economy. Gold and other minerals are by far the largest single source of foreign exchange. In 1990, gold alone contributed 31% of total exports, the total for minerals amounting to 48% of exports, and some 489 000 workers were employed. Yet today the gold industry is in a severe crisis. This crisis threatens to turn into a cataclysm unless the industry is appropriately restructured - in a process that will require the participation of all the parties concerned - the state, employers, and workers and their unions.

If the gold price does not increase to levels of around \$550 per ounce, gold mine production and employment is likely to fall drastically over the next four years. The following scenario provides an example of just how precipitously gold mine employment and production could decline:

Assume that gold recovers from the present band of \$350-370 an ounce to \$400 an ounce in 1995. Assume that the Reserve Bank maintains its commitment to a firm Rand-US\$ exchange rate. Assume that the exchange rate is maintained at its present value of \$1=R2,86. Assume - optimistically - that the annual increase in working costs per ton of ore milled is restrained to a (modest) annual increase of 10% per year.

These assumptions mean that the only mines still profitable in 1995 will be those which mined gold in 1990 at a cost of less than R22 275/kg. If this were to be the case - and using Chamber of Mines (1991:5) data - the following will result:

- Gold production will be reduced from the present 600 tons to less than 200 tons a year.
- Foreign exchange earned from gold will fall from R19 billion to R7.2 billion. This will throw the country into a severe balance of payments crisis.
- Mineworkers will be the worst hit, employment declining to only 130 000 jobs from about 450 000, but all sectors of the economy will be affected by the knock-on effects of mine closures and the cut in mineworkers' spending power.

In short, the above scenario represents an economic catastrophe for South Africa. If the assumptions on the stable exchange rate and a 10% annual increase in working costs hold true, then only a gold price rising steadily to around \$550 per ounce in 1995 will be able to sustain the gold mining industry at approximately its current size.

Of course no-one has a crystal ball which predicts what will happen to the price of gold a month from now, let alone in 1995. But what is clear is that the industry has entered a major profitability crisis and the need is for a major restructuring of the industry. While the gold mining industry has lurched into a profound crisis, when one looks at the approach of the government and employers, one cannot but be struck by the narrowness of their vision for the future of the industry. In the short-term, the government has to be persuaded to provide immediate relief so that the restructuring of the industry can take place in a rational manner before the resources of the industry are dissipated. In the longer-term, all parties in the industry have to address restructuring in at least five key areas:

1. The extremely poor wages, working and living conditions of the majority of gold miners.
2. The low productivity of the industry, which is integrally related to the poor conditions of service and lack of training experienced by miners.
3. Co-ordinated efforts to increase the demand for gold.
4. The downstream processing of gold products to create a gold beneficiation industry in South Africa.
5. The lack of incentives for investment in new goldmines and obstacles to exploration.

In PART 2 we will examine recent government views on the crisis and then analyse those of employers.

In PART 3 a mechanism of short-term assistance will be proposed so that the downscaling of the industry can proceed in a rational manner and breathing space provided to mines, workers and communities that are currently being destroyed.

In PART 4 we will address the five areas listed above where fundamental restructuring is required in the medium- and long-term to create a stable and sustainable industry.

PART 2: STATE AND EMPLOYER PERSPECTIVES

The Government's View of Gold Mining

The Government appointed the Marais Committee of Inquiry into the Position of Marginal Profit Mines at the end of 1989. Its report was made public in July 1990 and is today the reference point for government policy (Bartlett, 1992:10). Crucial to the committee's deliberations was their assumption about the future gold price. The committee projected that 'the gold price can be expected to show a moderate real increase in the nineties' (Marais, 1990:34).[1] It is possible that this assumption - which has already been proved seriously wrong - is the key reason for the government's lack of concern in the face of the drastic cut-backs taking place now in the gold industry.

The Marais Committee ignored the sharp decline in the price of gold that occurred during its deliberations, and which has persisted since the committee made its report public. Thus the economic crisis that the gold mining industry finds itself in is much worse than anticipated by the committee. Since the committee expected the price of gold to rise, they gave minimal consideration to the much tighter cost squeeze marginal mines were likely to face as a result of a decline in the gold price coupled with the inexorable rise in working costs. Of the 13 mines that the committee considered marginal (a profit to revenue ratio of less than 6%), a number have only survived by massive retrenchments and restricting production to high grade ores. Despite measures of this nature, some are still mining gold at a loss.

The committee's gold price assumptions led them to anticipate that several of the marginal mines would probably close in the five years to 1995. If all 13 mines closed, the committee estimated that it would lead to the loss of 77 600 jobs (Marais, 1990:38). This prediction has already been overtaken by reality. From 1987 to until early 1992, 130 000 workers lost their jobs on the gold mines. Indications are that there will be further substantial retrenchments in the course of 1992. And this has occurred when only one mine closure has been announced (Stilfontein). The downscaling that precedes actual mine closures affects all mines across the industry and is far more drastic than anticipated by the Marais committee. The 'knock on' effects of the cut-backs in gold mining are also manifesting themselves. In March 1991, six construction and engineering companies that supply the mines closed their branches in Welkom with a loss of 1 200 jobs. In May, Usko, a company for which the gold mines are an important market, retrenched 650 workers (*Sunday Times*, 07.04.91; *Business Day*, 29.05.91).[2]

The Marais Committee re-stated the long-standing state policy of limiting government assistance to marginal mines to particular cases and of requiring that aid should be 'in the national interest' and of a short-term nature only. While direct state assistance was permissible for the pumping of water, it was rejected in virtually all other cases. The committee believed that gold mines should not be singled out for special assistance but should operate in the context of an overall economic policy that promotes development. Such a policy would be focused on macro-economic variables, specifically interest rates, the exchange rate, general wage levels and tax rates. But no specific recommendations were made. In short, the committee had no vision of how the people and the sophisticated infrastructure of the mining areas that may be abandoned over the next five years could be put to alternative, productive uses.

At regional and municipal level the lack of planning to deal with the gold mining crisis is even more pronounced. Most of the towns where the gold mines are located are largely dependent on gold mining for their survival. Yet none of the local authorities, with the recent exception of Welkom, have developed any meaningful plans about how they will deal with the crisis their residents already face or will shortly face. An example of the lack of thinking in this regard is provided by Virginia, one of the towns worst hit to date as a result of the retrenchments at Harmony gold mine. Over 4 500 workers have been retrenched, but the town council is spending millions on refurbishing their municipal offices!

The lack of a broader perspective in government thinking about the gold crisis, particularly the manner in which it will impact on labour, largely results from the ideology and practices of apartheid. In the case of the Marais Committee, the composition of the committee impeded a broader perspective emerging. The committee was dominated by government appointments and had representatives from the Departments of Finance, Mineral and Energy Affairs and the Reserve Bank, as well as from the Chamber of Mines. Representatives from trade unions were noticeably absent.

Employers' Perspectives - The Oversupply Argument

The dominant view amongst employers is that at present there is a world oversupply of gold which is keeping the price at low levels. For example, they point to the increase in new gold production between 1980 (959 tons) and 1990 (1 734 tons). Indeed, if account is taken of Eastern Bloc (380 tons) and scrap sales (441 tons), it is estimated that some 2 799 tons of gold came on to the market in 1990 (*Gold*, 1987; *Gold*, 1991; *Weekly Mail*, 28.03.91).

The corollary of the oversupply argument is that a cut back in production will cause the price of gold to rise. Thus, closure of mines like Stilfontein have been seen as a prerequisite for a turnaround in sentiment in the gold market. Certain government officials also share the oversupply perspective. For example, Chris Stals, governor of the Reserve Bank, was recently quoted as saying that there was an oversupply of gold in world markets and that 'we cannot artificially try to work against this trend' (*The Star*, 07.04.91).

The argument that mine production of gold needs to fall before the price will rise is by no means proven. But the narrow application of such a belief will do untold damage to the South African economy.

Firstly, South Africa, as one of the world's higher cost gold producers, will bear the brunt of any production cut backs. Given that 2 799 tons of gold were sold in 1990, a mere 5% cut in world supply would translate into 140 tons. This represents a quarter of total South African production. A cut back of this scale would have major repercussions for the South African economy. Aside from the foreign exchange problems it would cause, 200 000 workers would lose their jobs on the gold mines alone.

Secondly, a major weakness with the 'oversupply' argument is that it assumes gold is like any other commodity and neglects the reserves that have been stored by investors. Possible movements of these vast quantities of gold cannot be ignored. It is estimated that 35 000 tons of gold are held in monetary reserves alone. The amounts that could be released on to the market are equivalent to approximately 50 years of current world production. Thus, even if a large proportion of local production was to be closed down, it does not automatically follow that the amount of gold coming on to the market will decline substantially as dishoarding could maintain supply levels (*The Economist*, 19.07.86).

Nevertheless, there is value in conceptualising gold as a 'commodity'. This perspective focuses attention on the demand for gold. It also brings us to the third criticism of the 'oversupply' argument. Seeing gold purely as a store of value in the past meant that producers only paid lip service to the marketing of gold. The hide-bound view of 'gold as a store of value' discourages the promotion of gold outside the bullion markets and has led to the neglect of local investment in gold beneficiation and fabrication. But perhaps most important, it leads to the curious response to the crisis which sees the answer as the closing down of producers, rather than vigorous attempts to encourage demand and thus lift the price. Producers in most industries, when faced with a low price for a commodity, explore possible ways of increasing demand, rather than destroying their production facilities. The question of ways to increase the demand for gold will be discussed in Part 4.

PART 3: SHORT-TERM MEASURES TO ALLEVIATE THE CRISIS

While a marginal mine does not pay any tax directly,[3] the mine is nevertheless an important source of net revenue to the state and public authorities. We have identified five important sources of revenue:

A. Personal taxes paid by mine employees.
B. Value added tax (and formerly general sales tax) paid by mine employees when purchasing goods and services.
C. Regional service council levies on the wage bill.
D. Mine lease taxes.
E. Taxes paid by suppliers to the mines (GST and company tax) and by the employees of the suppliers (GST and personal tax).

Our estimates indicate that in 1990, while the gold mines only paid R896 million in direct taxes, the public coffers swelled by an additional R2 316 million through the taxes and levies generated from the personal taxes of mine employees and the taxes that flowed through the suppliers of the mining industry (Leger and Nicol, 1991:7).

If a marginal mine closes, the income from these sources of tax - the mineworkers and the mine suppliers - are lost. The amounts outlined above in Rands per kilogram represent a make or break difference for many mines. Based on 1990 data and the conditions pertaining under VAT, our estimate is as follows. If the government contributes to a marginal mine an amount of R4 900 per employee per year (equivalent to R4 000 per kilogram of gold produced) it will experience precisely the same loss of income which would be incurred if the mine were to be closed. The proposal is thus simply that the indirect and other taxes generated by the activities of a marginal mine be refunded so that the mine can remain a source of employment.

Non-quantified advantages of this proposal include, firstly, the prevention of the cascade effects a mine's closure has on the suppliers who provide it with inputs. The profitability and economies of scale of these enterprises are threatened as their sales fall. Secondly, demands on state funds such as the Unemployment Insurance Fund will be limited as retrenchments will be fewer. Thirdly, workers will keep their jobs.

When a mine closes, not only does the state lose the above amounts of tax, but it may have to contribute to pumping costs to prevent other mines in the region from flooding. This, for example, will be the case for the Stilfontein Gold Mine which provides an instructive example. Stilfontein was closed by Gengold, although, as its managing director said 'it was not "mined out" ... It had a large, coherent body of reef which could profitably have been mined at the real gold price of five years ago'.[4] Press reports have put pumping costs for the mine at R1 million per month, that is R12 million for a year. It is not known what proportion the government will contribute to these, but let us assume the government pays half, that is R6 million. Stilfontein's closure will result in some 2 500 retrenchments. According to our estimates, the closure will result in a total tax loss to the government of about R14.7 million per year. Taking these two figures together, the mine's closure will cost the state an effective R20.7 million. Would it not have been preferable to explore the possibility of supporting the mine to the extent of R14.7 million per year? If this support resulted in a viable operation, the support for the mine would represent no net cost to the government. Instead, the present situation will result in a R20.7 million loss to the fiscus.

In summary, the mining industry has suddenly been hit by a major crisis that calls for its restructuring. The necessary changes, in such a vast and complex industry, cannot take place overnight and they need careful planning and wide participation if they are to be sustainable. Tax pay-backs, during a defined adjustment period, are a sensible way of easing and, indeed, promoting this transition.

The merits of this proposal include:

1. No net fiscal costs to the state at a time where expectations for social and economic development are growing.
2. The cushioning of the crisis in gold mining so that the downscaling of the industry can proceed at a restrained pace.
3. The maintenance of a significant number of jobs that will otherwise be lost (in both the mine and in its chain of suppliers).
4. The maintenance of the viability and economies of scale of suppliers of inputs to gold mines, for example in electricity, food and engineering.
5. The prevention of a sudden decline in the country's most important source of foreign exchange earnings.
6. The opportunity to plan the use of the highly developed infrastructure of the mine and mining communities for alternative economic projects.
7. The opportunity to re-train mineworkers to perform other jobs once the mine closes.

The exact details of how support for marginal mines through tax pay-backs should be implemented would need to be established through consultation with all the parties concerned. This action can clearly be justified in the national interest if it is tied to a planning process and a specific adjustment period.

PART 4: FIVE AREAS FOR LONG-TERM RESTRUCTURING

Low Wages and Poor Living and Working Conditions of Gold Miners

In the medium- and longer-term, the industry has to be restructured to bring local working costs into line with competitors in other parts of the world. For this to be achieved, the participation of workers and trade unions will be crucial. But workers' participation in the mining industry will require a fundamental change in the attitude of mine management and the government to black workers. Current managerial and supervisory approaches - all too often deeply permeated with racist views - see workers as simply another factor of production whose cost has to be minimised wherever possible. This view has to be transformed to one where workers are properly trained and can participate in production on equal terms. Workers must be seen, not as a cost, but as a valued resource whose skills, creativity and expertise are vital to successful mining operations.

If an altered role is to be played by workers in the future, the social framework within which workers work and live has to be tackled. Specifically, the inadequacies of the remuneration and working and living conditions of workers have to be resolved. If these issues are not adequately addressed, they will remain sources of formal conflict and informal resistance which will prevent technological and social innovations from succeeding in the workplace. There are five areas that require urgent attention:

- ***Wages and Poverty***

Black mineworkers' wages are far below wages paid in manufacturing, although they are higher than those paid in agriculture. In all the other major mining countries of the world where trade unions are active, mining wages are above manufacturing wages. This is because of the hard and dangerous work miners do underground. The average wage on the mines is R845 per month compared to R1 043 per month in manufacturing.[5]

The wages of most gold miners are regulated by the Chamber of Mines. Chamber wages are related to job grade: from grade 1 (lowest) to grade 8 (highest). Eighty eight percent of black workers work in grades 1 to 4, the so-called unskilled jobs. Grades 5 to 8 are called semi-skilled.

The 1991/2 minimum underground wage - for grade 1 - varies from as low as R448 to R572 per month, depending on the mining house (R413 to R517 for surface). These minima can be compared to the median wage for grade 1 in manufacturing industry (the lowest unskilled grade) of R898 per month.[6] BMW pays the highest minimum wage in South Africa of R1 485 per month. The Steel and Engineering Industrial Council set a minimum wage of R896.91 per month for 1991/92. Eskom, where workers also live in compounds, have a minimum wage of R1 008 per month.

The largest number of miners work in grade 4. Their wages are also below the manufacturing industry equivalent of R1 289 in 1991.[7] Anglo American gold mines pay R837, the highest grade 4 wage.

In addition to being lower than manufacturing wages, black mineworkers' wages fall well below poverty datum lines. Poverty datum lines do not represent a living wage but claim to provide 'a modest low-level standard of living'. Unisa's 1991 poverty datum line is R873 per month (August 1991).

The University of Port Elizabeth poverty datum line is R1 000 per month (Sept 1991). The Pennington township survey says an average black family in Soweto needs R1 199 per month for 'a very modest standard of living, a shade over the bread line' (March 1991). In 1986 the Human Sciences Research Council said that a family of five in Pretoria needed at least R1 257 per month to cover living costs. Today this would mean a wage of R2 839 per month.

Unlike black workers, whites on the mines earn more than whites in industry. The average wage for whites in gold mining is R4 253 per month. For whites in manufacturing it is R3 552.[8]

The Chamber is not moving towards a living wage on the mines. The Chamber's wage policy up to 1990 kept wages in line with inflation and market forces - mine wages follow manufacturing wages but at a lower level. As shown in Figure 1, the buying power of the official Chamber minimum wage underground has not risen since 1975. The buying power of the grade 4 wage underground has increased, but very slowly.

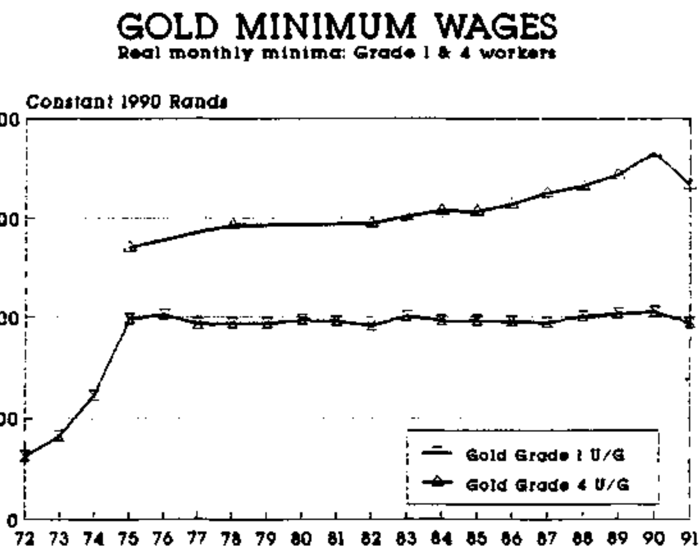


Figure 1

In 1989 the NUM National Congress adopted a three-year wage policy. The policy includes a demand for a national minimum wage in the mining industry and for all mining houses to pay the same wage for each grade. Black mine wages are so low that the NUM is not demanding a living wage. In view of the crisis in the gold mining industry, in 1991 the NUM suspended its wage policy on the gold mines and accepted wage increases some 10% below the inflation rate. If improved wages are to be obtained, a commitment to restructuring the industry will be required.

- ***Safety and Health***

Over 68 000 miners have died in accidents since 1900 and more than one million have been permanently disabled, by far the greatest proportion of these deaths having occurred in the gold mines. Even today, mining remains an extremely hazardous occupation. In 1991 alone 461 gold mineworkers died in accidents. This is approximately equivalent to one worker dying and 13 being seriously injured for each ton of gold that is mined. A mineworker who spends 20 years working underground risks one chance in 30 of being killed and a 50% chance of being permanently disabled. No improvement in the fatality rate has been achieved over the past five years.

The incidence of occupational diseases in the gold mines is increasing (Leger, 1992). A major factor is the stabilisation of the workforce since the mid-1970s. Before 1975 most black miners spent relatively short periods of their working lives on the mines. But the economic recession, overcrowding of the bantustans and the prolonged drought closed off opportunities for employment in manufacturing. Increasingly workers have returned after each contract, spending longer and longer periods in mine employment, even though they have remained migrant workers.

The result of stabilisation is that the average length of employment of the workforce is increasing steadily. Prior to stabilisation only a small proportion of workers worked long enough underground to develop occupational diseases. But because a large proportion of workers are now working for 20 years or more, diseases caused by dust, radiation or noise are much more likely. Tuberculosis rates have also escalated on many mines in recent years.

Despite the claims about a non-racial 'new South Africa', compensation payments for black miners remain discriminatory. For example, while white miners are awarded R50 410 in compensation for pneumoconiosis in the second degree, black miners are only awarded R3 695.

Safety and health has always been a prime concern of the National Union of Mineworkers. The focus of the union's efforts is to negotiate safety and health agreements in which management recognise elected safety stewards. The NUM has met great resistance from mine managements as improved working conditions cost money and reduce profits. The recent passing of the Minerals Act by the government, with the support of the mining houses, has further 'deregulated' mining legislation to reduce the powers of the Government Mining Engineer to monitor mine safety (Bachman et al, 1989).

- ***Housing and Migrant Labour***

The Chamber's gold mines employ some 400 000 migrant workers who live in single-sex compounds. Workers spend much of their working lives away from their families. This is one of the worst aspects of mine management policies.

The NUM has put forward the demand that every miner should be able to choose to live with his family in proper accommodation near to the mine he works on. Since some workers may not wish to bring their families to live permanently on the mines, the union also demands that hostels be upgraded and that there should be adequate facilities for visits by wives and families.

The mining houses state that they expect at least four out of every ten mineworkers to remain migrant workers in the future. No mining group intends building a family house near the mines for every worker. The Anglo gold division has only 2 000 black mineworkers in their house ownership scheme. Genmin, in 1989, had 350 out of 147 000 employees living in houses they had bought (Husemayer, 1989). Amcoal, in 1990, still had no home ownership scheme for black workers.[9] Clearly mine management, despite its 'wish' to move away from the migrant labour system, is not providing family housing on a mass scale. Only 8 000 new houses per year - for white and black workers - are presently being built (Chamber of Mines, 1990). At this rate it will take 60 years to build houses for all black mineworkers.

The provision of housing for miners is likely to prove a difficult issue. On the one hand, the cost of providing very cheap family housing for all black mineworkers on the gold and coal mines was estimated at R8 billion in 1989. On the other hand, because of the low levels of mine wages, most black miners simply cannot afford economic rentals or repayments on a house.

Up to now a major obstacle to mine housing development has been the government's refusal to finance infrastructure (eg roads, sewage, lights and water). The government has also refused to allow mine owners to use pre-tax revenue (as is usual for other capital expenditures) to meet town infrastructure or housing costs (Crush, 1989).

Many workers are leaving the hostels and are finding places to stay with their families. One solution for these workers is to pay a 'living-out allowance'. But then there is the question of those workers who remain behind in the hostels. They also deserve proper accommodation and the ability to provide housing for their families.

The elements of a solution include:

- Basic wages must be increased sufficiently to allow workers to choose where to live. At the moment the wages are too low to allow workers to move to urban areas with their families.
- Continued free hostel accommodation for workers who choose to stay in hostels while they work. Hostels must be upgraded so that workers may live in humane conditions.
- Home loans for all workers to build houses where they choose.

- ***Hours of Work***

Miners work an 11 shift fortnight which means that every second week they have to work a full shift on Saturday. The official normal working hours per 11 shift fortnight are 96 hours (8 hours 44 minutes per shift) on the gold mines and 92 hours (8 hours 22 minutes) on the collieries. In practice, the working day varies considerably depending on travelling and waiting times. A NUM study of a marginal mine in 1990 revealed that 70% of workers spent between nine and ten hours underground per shift and 26% worked for longer than ten hours underground (NUM, 1990:5). Furthermore, due to the low gold price many managements have encouraged workers to work their 'free' Saturday shifts.

Hours of work for mineworkers in Europe, North America and Australia are between 35 and 40 hours per week. In Germany, the maximum length of a shift for manual workers underground is seven hours. In South Africa a shorter working week - at the most 40 hours - is essential for three reasons. Firstly, as a way of reducing exhaustion of workers as a first step to improving productivity. The English Factory Acts of the nineteenth century and the work of industrial engineers such as Frederick Taylor long ago established the productivity improvements that could be achieved through a shortened working week. Secondly, to minimise the total time during which miners are exposed to unhealthy conditions underground. Thirdly, to give miners adequate leisure time for spending with their families, recreation and continuing education.

- ***Racial Discrimination, Class Differentiation and Control***

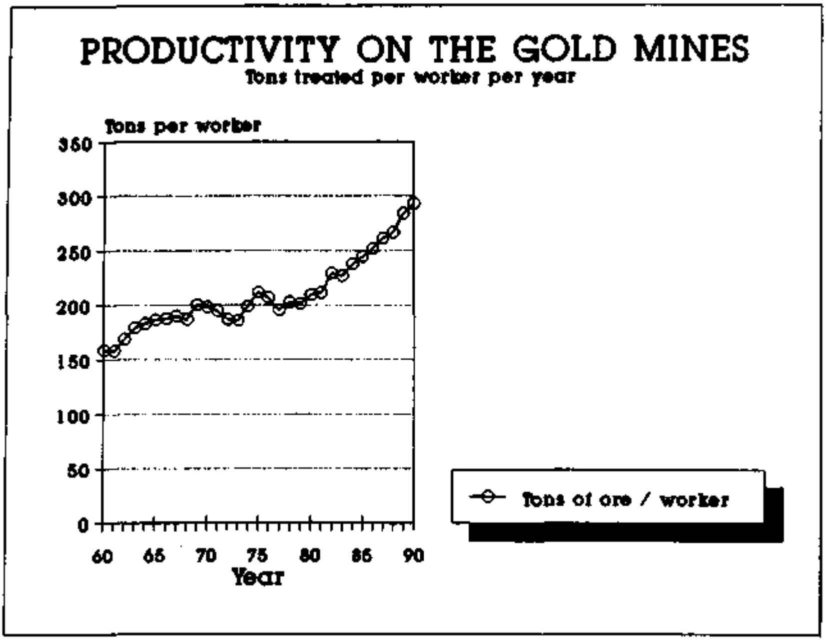
In 1987 the mining industry was the last industry in which statutory job reservation was abolished. The intensely hierarchical management structure and the reactionary attitudes of white supervisors have resulted in black miners experiencing racial discrimination in a particularly profound manner. Workers give dozens of examples of how they are discriminated against, whether it be in respect of accommodation, queuing for cages, ablution facilities, rest breaks, protective equipment, cap lamps, acclimatisation, security checks, assaults, abusive language and workers' compensation.

In 1990 workers engaged in numerous work stoppages in order to draw discrimination to management's attention. But beneath current discriminatory practices lie the more intractable structures of class domination. Even the ranks of white supervisors are highly stratified with 'union men' (including blasting certificate holders), officials and senior management, each enjoying different facilities and privileges. Worker demands that discrimination be removed face the challenge of these class hierarchies as well.

Related to issues of race and class, is the central issue of control. In the regimented structure of managerial supervision, workers have a minimal degree of control over their working and living conditions. Mine management have tightly curtailed the right of workers to organise, (NUM, 1988) and have refused even to negotiate key workplace issues such as safety and health. If the work experience of black miners is to change from one of repression and exploitation, then democratic structures which give workers meaningful control over their working lives and the way in which the industry is run have to be created.

Low Productivity, Training and Work Organisation

It is generally argued that productivity improvements in the gold mining industry have been minimal. However, while it is acknowledged that output per worker in the industry is low, it can be seen from Figure 2 that productivity has improved substantially in recent years. Despite the severe cuts in the number of jobs, there has been a rise in the tonnage of ore milled. Tonnage milled rose by 3.3% between 1986 and 1990 in spite of an employment cut of 14%.



Rather than simply focusing on workers and productivity, the issue needs to be examined more broadly. Serious consideration must be given to why technological innovations have failed in so many cases. The millions of rands poured into the Chamber of Mines Research Organisation's (COMRO) programmes have produced limited results.

Major obstacles to the success of COMRO research were its aims and organisation. Many projects were explicitly undertaken to displace workers, rather than to provide improved conditions and shorter working hours alongside improved productivity. This did not provide a basis for encouraging the workforce to facilitate such initiatives. Workers have never been included in directing research, another factor which deepens worker suspicions of new technologies. The gruelling conditions of the underground workplace mean that innovations which require extra preparation - either to facilitate production or safety - such as the stope drilling rig developed in the late-1960s, were soon abandoned (Wilson and Miller, 1973). Much of the research was carried out in the 'ivory tower' campus of the Research Organisation. As many research reports were kept confidential, there was often not even the pressure of publication to test the findings of researchers through public debate.

If productivity in the medium- and long-term is to be improved substantially, technological innovation as well as innovations in the organisation of the workplace are going to be vital. But little progress is likely until workers and their organisations participate meaningfully in the research and development process. A necessary condition for this to occur is that agreements between managements and workers be entered into which provide for security of employment when labour displacing technologies are introduced.

- ***Training and work organisation***

The mines need to develop a far broader commitment to skills training for black workers. This requires that mineworkers' problems with basic education be addressed. It is a fact that a minimum level of basic education is needed as a platform before further training is possible. Many members of NUM have been denied the possibility of training because of the apartheid education system or the flawed education systems in the frontline states. The mines have trained them to speak and respond to Fanakalo, a language that absolutely bars technical training. We need a training system that provides these workers with a real way forward.

The industry already has extensive experience in the design and application of modular training courses for artisans and miners. A modular system of literacy courses must be developed which would allow for flexibility and clear possibilities for progression. These literacy modules should link with modules for training within a system of clear career paths. There should be paid time off for literacy studies and agreement on target dates for workers to achieve the first two levels of literacy:

Level One: mother tongue literacy and number recognition; Level Two: beginner's English and basic numeracy.

Such a system would obviously gain if it involved other sectors of industry and linked into the national education system.

The issue of literacy is one that the mining industry ought to have attended to years ago. A literate workforce can be trained to higher levels of skill and higher levels of earnings. Adult literacy is also one of the building blocks of a democratic and participative society.

A new training system, linked to a fair grading system, can lead on to new patterns of work organisation that break down the intense hierarchy of labour on the mines. A nationally regulated training system can ensure that workers' existing skills are recognised and that all qualifications are recognised in all mines and even outside the mining industry. This is clearly desirable in an industry based on a wasting resource. Many workers who begin their careers in the mines may end their working lives in other industries, when the mines have closed. Training should be broad-based so that minimal re-training is needed to equip a trained mineworker for productive work in another branch of industry.

Co-ordinated Efforts to Increase the Demand for Gold

Sanctions pressures effectively impeded Chamber of Mines' efforts in the early 1980s to continue marketing gold and Krugerrands through its subsidiary, Intergold. As a result of these pressures, the Chamber was the prime mover behind the founding of the World Gold Council (WGC) in 1987. The WGC, based in Geneva, is concerned with promoting gold for use in jewellery, industry and investment.

Participating gold producers contribute \$2.50 per ounce of gold mined and a voluntary premium of 50c per ounce. This means that South African producers must contribute of the order of \$55-66 million each year to the WGC, that is R155-185 million. Two aspects of these contributions should be reconsidered. Firstly, the contributions represent a sizeable loss of foreign exchange. In planning for the post-sanctions period, the disadvantages of having the activities of WGC distant from the producers become more acute. While certain expenses will inevitably be incurred overseas in marketing gold, many of the activities associated with gold promotion, for example the production and printing of promotional literature and research into the industrial uses of gold, could be located in South Africa. This would result in job creation in South Africa, savings in foreign exchange, and the deepening of gold research expertise within the country rather than abroad.

Secondly, consideration should be given to increasing gold promotional activities substantially. The major market for gold is jewellery fabrication, which finds a ready analogy with the marketing efforts of De Beers. Many authorities appear to be in agreement that there is much scope for expanding the size of the jewellery market. In 1989 the WGC's jewellery marketing totalled approximately \$50 million while gold jewellery fabrication worldwide amounted to 1 800 tons which had an intrinsic gold content of approximately \$20 billion. Thus jewellery marketing represented approximately 0.2% of the total value of gold sold for jewellery fabrication. In comparison De Beers spent \$130 million on their world-wide consumer advertising campaigns in relation to Central Selling Organisation sales of \$4 billion. This means that De Beers spent 3,3% of the value of diamond sales on marketing, sixteen times more, in relative terms than was the case for gold marketing (*Business Day*, 03.05.91).

Downstream Processing of Gold Products

Jewellery manufacture is a labour intensive, lucrative industry. While South Africa is the world's major gold producer, in 1990 only 5 tons of gold were fabricated locally into carat jewellery. This represents less than 1% of local gold production and only 0.25% of world jewellery fabrication. However, it should be noted that in 1990 local jewellery manufacture more than doubled, largely in response to the removal of a 20% ad valorem duty on gold jewellery.

An eloquent case for the development of a substantial jewellery manufacturing industry in South Africa has been made by Mintek (Mintek, 1990). The potential for a local industry is demonstrated by its rapid development in the east Asian countries. From a minimal base involving the manufacture of a total of six tons in 1983 in Taiwan, Singapore, Hong Kong and South Korea combined, jewellery production reached 185 tons in 1988! Value added to South African gold through its manufacture into jewellery in Italy and Japan in 1988 amounted to R11.3 billion, that is about two thirds the total revenue earned by the gold mining industry in that year.

The Mintek report proposes a target of 100 tons of production per year by the year 2000. This would represent only 7% of world production. If 88% of production were exported, this could generate foreign exchange earnings of R3.8 billion. Of course, it should also be remembered that South Africa is a major supplier of diamonds and platinum, as well as a variety of precious and semi-precious stones. Thus the country has a real comparative advantage in respect of jewellery manufacture. Yet it is ironic that, given the diversification of the mining groups into a wide range of enterprises, local jewellery manufacture has not been developed. With the removal of the ad valorem duty on gold jewellery, the time appears ripe to reconsider the position.

Lack of Incentives for Investment in New Gold Mines

The Marais Committee and stockbrokers agree that if investment conditions are favourable and certain technical problems of mining safely at great depths can be solved, up to 15 new gold mines may be established in the coming ten years. These would absorb some R28 billion in investment capital and employ between 60 000 and 160 000 workers (depending on the assumptions made about the price of gold) (Marais, 1990:55).

Political and geological uncertainties combined with the difficulties of mining at great depth and a volatile gold price make mine owners demand a high rate of return on their investment in new gold mines. A new gold mine in South Africa is deep and very expensive. Some R2-3 billion is required to develop a new shaft. There can be a delay of five to ten years before any gold is mined. Profits are delayed still longer. In the light of present conditions, capital expenditure on existing mines has been slashed and major new projects have been shelved.

But it is clear that it is not only the gold price that will hold back the development of new mines. Several other structural issues need to be addressed.

- ***Exploration***

Exploration for new mineral deposits is vital to secure the future of the mining industry. South Africa has estimated gold reserves of some 40 000 tons - that is 57 years of production at current rates of mining. These amount to two thirds of the world's estimated gold reserves.[10] 23 000 tons of gold are in reserves in existing gold mines. 17 000 tons are in new areas.

Some 30 companies are active in South African gold exploration (Chadwick, 1991). The present system of mineral rights, which promotes their fragmentation and sterilisation, seriously impedes the efficient exploration and use of South African mineral resources (Kruger et al, 1991). Mining houses keep their exploration data strictly secret and they are able to prevent people from exploring for ore deposits on land where they hold mineral rights. The whole system of mineral rights needs to be overhauled.

- ***Ownership structures***

The mining house system has enabled the growth and operation of South Africa's vast mining industry. But the poor performance of the economy in the last 20 years, under the increasing dominance of these conglomerates, raises questions about their future. They have used their vast mineral profits to take over firms in every branch of manufacturing industry and the finance sector. They control the bulk of private industry and have acted as a brake on its further development. In mining, their huge success has hidden the inefficiencies that are embedded in them and the basic unsoundness of mineral extraction policies. The mining houses have become financial empires which look first to their own interests and last to the national interest of South Africa.

The inadequacies of the mining houses are well illustrated in the current crisis in gold mining. The downscaling of this key industry has enormous implications for the whole country. The industry is likely to have shrunk by one quarter between 1989 and 1992. Yet the mining houses and the Chamber of Mines treat this national catastrophe as a series of small problems best dealt with mine-by-mine. Although the industry has all the infrastructure, all the committees and a common Chamber in place to address the decline of the industry in a co-ordinated way - they choose to tackle the crisis piecemeal.

The national interest calls for all mining operations to be co-ordinated. There should be national plans for the wise use of mineral resources in the long-term. A new structure of ownership and control needs to be developed that will incorporate worker participation and state involvement and promote the development of the minerals sector for the benefit of the people as a whole.

- ***Taxation***

South African gold mining taxation is immensely complicated. Unlike in most mining countries, the mineral and tax laws treat each mine as an isolated unit, irrespective of whether several mines are owned by one company. All capital expenditure can be written off immediately against current or future profits (unlike in other enterprises, where assets are depreciated over a number of years). But the state places restrictions on the capital expenditure that can be offset against tax. In particular, the profits of an existing mine cannot all be used to finance the development of a new mining venture. This makes sure that the government gets a share of the profits of every profitable mine. It prevents a mining company from sinking all of its profits into more and more mines, and deferring indefinitely the payment of tax. This restriction on the use of the surplus produced by profitable mines is known as 'ring fencing'. The mining houses want ring fencing abolished. They acknowledge that the government would lose out on tax revenues immediately, but in the long-term, they argue, the state would gain as the tax base widened to include more mines.

In the 1990/91 budget, the government partially lifted ring fencing. It has agreed that 25% of the tax base of an existing mine can be used to write off a new mine's development costs in cases where both mines are the property of the same taxpayer

(*Business Day*, 15.03.91). In a further concession, the government stated that the tax shield of one type of mining operation can be used for another. So part of the taxes of a platinum or diamond mine can be used to develop a new gold mine (*Business Day*, 20.03.90). The lifting of ring-fencing now, at the present price of gold, would probably have no influence on the opening of new gold mines. But this policy has clearly stood in the way of gold mine investment in the past (Koel, 1990).

In 1991, the tax rate of gold mines was lowered significantly. This follows the government's adoption of the recommendations of the Marais Technical Committee on Mining Taxation. Lower tax means a higher rate of profit from gold mining and hence a bigger incentive to invest in new mines. The government hopes that this will lead to the development of many new gold mines which, in the longer term, will contribute more tax and increase mining employment. It also expects that a lower tax rate will induce the mines to be more cost-conscious. The tax reduction is, however, structured in a way which gives most of the benefits to rich mines. The inducement to mine marginal ore on all mines is 'reduced fairly substantially' (Marais, 1990:167). Some marginal mines will now pay tax, while the wealthy mines, such as Driefontein, Kloof, Vaal Reefs, Kinross and Hartebeestfontein will pay less (Brown, 1991/92). While this tax burden may have only a slight effect on the amount of gold produced, it will make marginal shafts on all mines less profitable and promote their closure. Such shafts employ proportionately more workers, whose jobs are now additionally threatened. The employment effects of the new tax formula have never been taken into account by the promoters of this reform. The reform means that the gold resources of South Africa will be managed to give prime importance to mining company profits, rather than to the interests of workers.

A review of taxation policies on the mines is needed, both to promote new investment and to ease, rather than exacerbate, the effects of declining profitability on marginal mining operations.

PART 5: DISCUSSION

This paper was initially written as a background paper for the June 1991 Summit on the Future of the Mining Industry . This gathering convened by the NUM and the Chamber of Mines was attended by about 80 people representing the government, non-Chamber mining corporations and all unions in the mining industry. All the suggestions made in this paper, together with those made by other parties, were referred to a 'Summit Steering Committee' under the chairmanship of Frederick van Zyl Slabbert. Four working groups were established to consider the different proposals. These covered the co-ordination of mine closures and the downscaling of operations; prolonging the lives of mines as long as possible; the protection of acceptable standards of health, welfare and safety of employees; and the training and retraining of retrenched miners and assistance to communities affected by mine closures and downscaling.

It is premature to evaluate what the summit process has achieved. Reports from the working groups have yet to be tabled at the time of writing (March 1992). 1991 also marked the intensification of a process of rationalisation and cost cutting by mine managements. This has succeeded in maintaining costs well below the inflation rate. Good results in the last quarter of 1991 were assisted by tax paybacks due to the introduction of VAT. One estimate indicates a cost increase of only one per cent per ounce of gold produced in 1991 (Martin & Co, 1992:13). All trade unions accepted very low basic wage increases in 1991 with the possibility of additional earnings from two different types of bonus schemes at certain mining houses. No payouts have been made from the 'Gold Price Bonus' scheme which required a trigger gold price of R1 070 per ounce. Payments have varied under the 'Performance Bonus' scheme where payments are related to cost cutting and indices of efficency at mine level. This innovative wage settlement was welcomed by employers generally. The bonus schemes have come under criticism from the membership of the NUM because they are experienced as undermining the wage policy and worker solidarity.

None of the measures to tackle the crisis in the mining industry, however, address the fundamental viability of gold mining in South Africa. They largely appear to be short-term cost cutting measures which cannot be replicated in the longer-term. If the gold price does not rise and the gold mining industry is to remain viable, South Africa's gold will have to be mined at a significantly lower real cost. The elements of a solution will require a state sensitive to the needs of the industry, employers commitment to the marketing and beneficiation of gold, improved working and living conditions for miners as part of an initiative to upgrade the productivity and skills of the labour force, technological advances in ore-breaking, and a fiscal environment which will encourage new gold mine investments.

NOTES

1. A similar proposition was accepted by the Melamet Commission in August 1990. In evaluating proposals to assist ERPM, the commission assumed 'a gold price of R30 000 for the remainder of 1990, R34 000 for 1991, R42 200 for 1992 and thereafter increasing with the South African inflation rate' (*Report of the Commission of Enquiry into State assistance to the East Rand Proprietary Mines Ltd*, RP 99/1990, p43).
2. The stores purchased by members of the Chamber of Mines amounted to R9.1 billion in 1989, an increase of only 7% on the year before because of 'cut-backs on unprofitable operations' (*Sunday Times*, 18.11.90).
3. Some marginal mines will have been brought into a tax-paying situation by the new tax formula announced in the 1991 budget. This reduces the 'tax tunnel' from 6% to 5%.
4. The real price of gold in 1986 would have been equivalent to R46 591! (*Financial Times Survey: South Africa*, May 1991).
5. CSS P0200 13 February 1991 - manufacturing figure, September 1990; mining figure calculated from Chamber of Mines and CSS sources. CSS no longer gives a racial breakdown of employment in the mining sector.
6. P-E Consulting Salary Survey, September 1990, adjusted for inflation at 15%.
7. P-E Survey September 1990, adjusted for inflation.
8. CSS P0200 13 February 1991 - manufacturing figure, September 1990; mining figure calculated from Chamber of Mines statistics for 1990.
9. NUM - Amcoal meeting on housing, 29 January 1990.
10. Economic Geology Unit, Wits University, cited in Lloyd Pengilly 'The outlook for SA gold production', Martin & Co (6 March 1990).

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