SAFETY IN MINES RESEARCH ADVISORY COMMITTEE (SIMRAC)

Final Report

Housing and occupational health and safety in the South African mining industry

Part 2

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EXECUTIVE SUMMARY

This study was commissioned to investigate the current housing situation of mineworkers, and establish whether there is any association between housing and health and safety at work. A further motivation for this study is that the Minister of Minerals and Energy has the power to regulate mine housing under the Mines Health and Safety Act 1996 and (in consultation with the Minister for Housing) under the Mineral and Petroleum Resources Development Act 2002. The study, therefore, also considers whether it is necessary for the Minister to regulate mine housing and, if so, why, and what type of regulation might be appropriate to the current housing situation in the industry.

The objectives of the study are:

- to review the literature concerning the history of mineworkers' housing in South Africa and concerning health and safety issues;

- to review the literature on the impact of housing on health and safety, with a special focus on South Africa or southern Africa;

- to review the statutory regulation of mineworkers' housing in South Africa;

- to review any voluntary regulations or collective bargaining agreements on mineworkers' housing in the industry;

- to estimate, by means of a telephone survey, the current numbers of mineworkers' dwellings and the trends in the location of mineworkers' housing both on and off mines, and to describe the types of housing situations that have prevailed in the industry since the gradual exodus of mineworkers from the hostels after the early 1990s;

- to conduct a pilot questionnaire survey of mineworkers (the KAP study) in different mines to ascertain details of their housing situation, especially with regard to its quality, the health and safety issues arising from it, and its impact on their work; and

- to conduct an inspection survey of a sample of mineworkers' residences to obtain an expert assessment of their quality to compare with responses from the mineworkers' questionnaire survey.

In the telephone survey, 102 underground mines from the Department of Mineral and Energy Affairs (DME) official list were selected to represent all commodities in the South African mining industry. The mines surveyed showed the following proportion of grade 2-8 employees with the housing situations outlined in table 1:

TABLE I ***Proportion of total labour in various types of housing arrangement***

Type of accommodation	Percent of mines reporting this type of accommodation	Percent of total mine labour (including contractors) staying in this accommodation
Single-sex hostels ("bachelor" accommodation)	66%	46%
Family hostel accommodation	45%	6%
Single flats on mine	21%	2%
Living out allowance from mine (fringe benefit for off-mine accommodation on the open market)	73%	31%
Bond repayment subsidy from mine	7%	<1%
Bond rate subsidy from mine	8%	<1%
Housing capital subsidy from mine	1%	1%
None of the above arrangements		13%
	TOTAL	100%

TABLE II ***Hostel room occupancy rates***

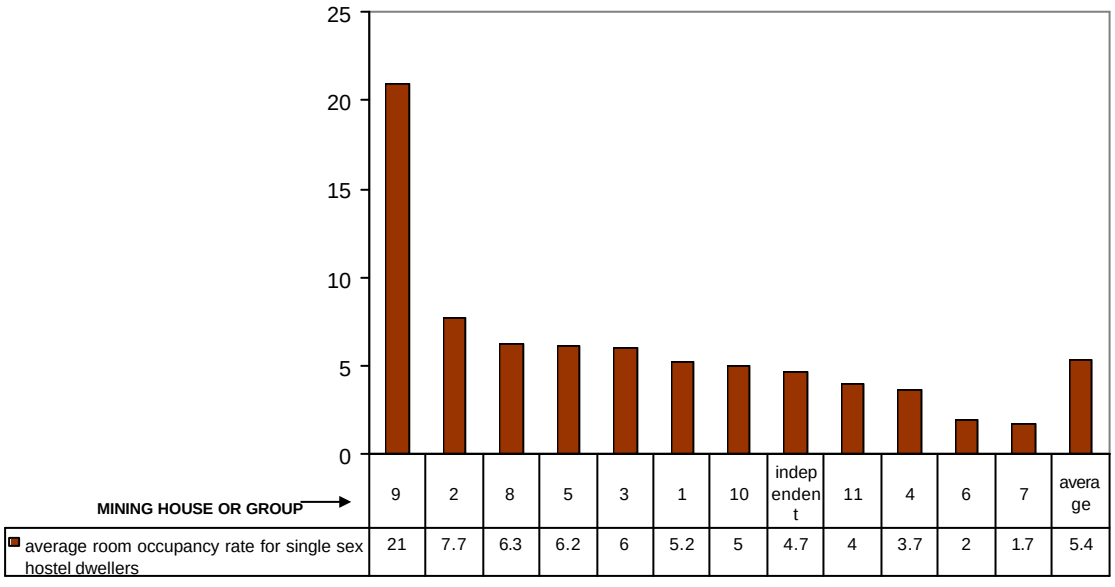
Number Of Employees Sharing A Hostel Room	Percentage Of All Single-Sex Hostel Dwellers In The Sample mines	Number Of Mines
2	6	15
3-4	12	11
5-6	16	6
7-8	65	14
9+	1	1
TOTAL	100%	-

The two most common arrangements were therefore single-sex hostel accommodation in shared rooms, and living out allowances, together accounting for 77 percent of the total labour force in the 102 mines. Although family accommodation exists on nearly half of these mines, it only accommodates 6 percent of the total labour force, and current or planned upgrades are generally not designed to address this shortfall.

The majority of "bachelor" (single-sex) hostel dwellers were living in rooms with 8 occupants (table II above). However, it should be noted that 34 percent of all shared hostel room occupants were in rooms with 6 or less occupants. This has relevance for the recommendations made at the end of this report on hostel occupancy standards.

There was no simple progression to lower room-occupancy rates for newer hostels. On the contrary, hostel dwellers in the oldest hostels were more likely to be sharing their rooms with two or three others, whereas workers living in hostels built in the middle vintages (1949 to 1961, and 1962 to 1977) were more likely to have higher room-occupancy rates. This suggests that institutional factors, such as variations in long-established housing policies and practices among different mining houses (see table III), may be as important in explaining the differential pace of housing improvement in hostels as inertia generated by economic considerations such as "sunk capital", which the hostels represent.

Table III. Hostel room occupancy rates, showing variation between different mining houses



MINING HOUSE OR GROUP →	9	2	8	5	3	1	10	independent	11	4	6	7	average
average room occupancy rate for single sex hostel dwellers	21	7.7	6.3	6.2	6	5.2	5	4.7	4	3.7	2	1.7	5.4

Two thirds of the contractors on the mines shared rooms with seven to ten other workers. Thus, as in all other matters, contractors are disadvantaged when it comes to room occupancy rates. Nearly one quarter of all contractors in hostels live at seven mines with the oldest hostel vintages, and more than one half live in four mines with hostels built in the period 1949-1961. Very few contractors live in the more modern hostels.

The process of housing people is complex and involves partnerships between many institutions, apart from the individual who is acquiring shelter. However, the telephone survey found that slightly more than half of the mines (employing one fifth of permanent workers and one quarter of contractors) were not involved in *any* partnerships. This leaves 48 mines that were. Thirty-eight of the latter, which employ about four fifths of permanent employees and three quarters of contract workers, were involved in partnerships with one or two institutions independent of the mine. A further nine mines, which employ over one quarter of all permanent workers and 16% of contractors, had partnerships with between three and five institutions. Generally, the larger the mine in employment terms, the larger the number of partnerships entered into. The partnerships are split evenly between State and parastatal organisations on the one hand (linking into the national RDP housing strategy), and private banking institutions on the other. However, it is striking that the mines have so many partnerships only with banks when such a small proportion of their workforces are actually involved in home-ownership schemes.

Table IV. Coverage of total permanent labour force by housing policies and agreements

Housing policy and collective bargaining agreements at mines	Percentage Of All Permanent Workers (102 survey mines) covered by these arrangements	Number Of Mines
Written housing policy	74	55
Collective bargaining agreement (CBA) with trade union representing grades 2-8 (or Patterson Band A)	70	45
Both written housing policy and CBA on housing	63	34
Neither written policy nor CBA	19	34

As mentioned, institutional factors affect the patterns of housing improvement in the industry. These include housing policies adopted by mining companies and collective bargaining developments in the field of housing. Sixty three percent of all permanent workers in the survey mines were working in mines which had both written housing policies, and collective bargaining agreements on housing with trade unions representing the lower grades (table IV), but there were still nearly one-fifth of the permanent labour force who were in mines which had neither.

The KAP study was carried out at five mines: gold, platinum, diamond, coal and manganese. Five hundred permanent underground mineworkers were selected, and these included employees in the different types of housing situations. The sample was not a representative sample.

In terms of housing, this was a highly mobile sample group, and the past pattern of moves confirms that an "exodus" from mine accommodation is underway. Half the entire sample said they had moved house at least once since starting work at the mine. Of these, half had made a move away from the mine, compared to 38% who had moved between one mine dwelling and another, and only 6% who had moved into mine accommodation from an off-mine dwelling.

Of those 156 employees in the sample who lived off the mine, 41% lived in backyard shacks, backyard brick buildings, or free-standing (informal) shacks. Fifty percent lived in a house or brick structure on its own stand. The residual groups were in local authority houses, self-built housing on local authority land, in flats in blocks of flats, or lodging in rooms in houses. *Thus, almost half of the employees in the group who lived off the mines were living in informal dwellings.*

About one quarter of the entire sample said that their housing impacted negatively on their safety at work, and this was disproportionately experienced by those who lived off the mine, whether with living-out allowances (34%) or participating in home ownership schemes (around 30%).

The main deficits in housing quality experienced by off-mine dwellers (especially those with living-out allowances) were in the following areas:

- quality of building materials affecting weatherproofing and security;
- basic bulk services (water, electricity, and sewerage);
- violence and insecurity in the informal dwellings;

- access to and quality of health services and transport; and
- perceived permanence of housing.

In contrast, the deficits experienced by hostel dwellers were:

- overcrowding;
- a lack of sleep, rest and privacy;
- violence and insecurity (a general problem for all hostel dwellers); and
- poor access to schools for their children.

Only about one fifth of the sample, both on mine and off mine, had a motor vehicle available to them at their dwelling. Buses (66%) and especially taxis (85%) were more frequently available nearby the dwelling. Living-out-allowance recipients had poorer access to both of these modes of public transport than their colleagues did, both on and off mine.

Nearly 30% of those living off the mine (57 employees) reported sleep problems when working night shifts. Sleep deficits could cause problems for safety at work, especially for night workers, who experience circadian energy and concentration deficits during their shifts in the first place. Employees living off mine were however only slightly more likely to report such sleep problems than their counterparts living on mine property (hostels and family accommodation). Heat, lack of acclimatisation to night work, and daytime noise were the main problems experienced by nightworkers whether they stayed on mine or off mine. Although problems with sleep quality applied to shiftworkers both on and off mine, they do not seem to have resulted in any noticeable excess of injuries on duty amongst nightworkers.

Twenty-two percent of all employees sampled had had an IOD (injury on duty) in the previous year. Those currently living on mine property (whether in single-sex shared hostel rooms, single rooms, or family accommodation on the mine) had a greater likelihood of this occurring (a one-in-four chance as opposed to a one-in-five chance for off-mine dwellers). Although gold miners living on mine property seem to have a consistently worse frequency and severity of injury compared to their colleagues off mine, there seems little point in investigating this further because of the confounding factors. The following were some of the confounders amongst those factors included in the questionnaire:

- **Education level of the employee:** The less educated groups had a higher average number of injuries.

- **Nationality:** Mozambican mineworkers had a higher average number of IODs in the past year.

- **Gross monthly income:** The lower-income groups had more severe IODs.

- **Disposable income:** Those with lower income after housing and bulk services costs had a higher average number of injuries.

- **Crowdedness of dwellings:** Those in more crowded dwellings had a higher average number of IODs.

Off-mine dwellers were only slightly more likely to report TB in their households[1] than mine dwellers. Its presence was much more frequently reported by those living in more crowded dwellings. However, disposable income (i.e. income net of housing costs and service charges) also seemed to be associated with reported TB in dwellings. It therefore seems that crowdedness and income might be associated with active TB in households, but not whether the person lived on or off the mine[2].

The housing inspection study was conducted by a mine housing expert at four of the mines included in the KAP study. The checklist survey of the 40 dwellings gives a picture not of the average housing standards, but of the range of housing standards. Therefore, this small survey confirms the findings of the KAP study and suggests that off-mine dwellers are more likely to have lower basic housing standards (which the literature showed are correlated to specific health problems). This applies particularly to those with living-out allowances, which are the majority of off-mine dwellers in the industry as a whole, and to the lower-graded employees with lower incomes and educational levels. Among these employees, shack dwellers are seriously disadvantaged by the low levels of basic essential services available to them.

In contrast, off-mine dwellers score better than on-mine dwellers in terms of privacy; ability to

[1] "Household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

[2] These findings are different from those in the nutrition part of this study, but they are not contradictory, as the housing study, due to its focus on housing conditions as a possible factor associated with TB, looks at reported presence of TB *in the household/dwelling of the respondent (including non-mineworkers*), whereas the nutrition study looked at *TB amongst respondents alone (all of whom were mineworkers).*

rest and sleep; personal and neighbourhood security; physical space; temperature in the dwelling in the two main seasons; and quality of and access to “non-essential" services and amenities, such as schools and private cooking facilities. The poorer ventilation is, however, a concern in off-mine dwellings.

This confirms the common-sense idea that mineworkers want to move out of mine housing because off-mine housing is less crowded and because it is perceived to provide more privacy in personal relationships, "peace and quiet", and undisturbed sleep. There is, thus, a trade off to be made between better bulk services or community amenities and personal freedom.

The survey gave several measurements of relative "crowdedness" of different types of housing. The most spacious type of dwelling using both physical space and privacy measures was the single mine-village dweller. Flats were the most crowded on both measures, with mine hostel rooms almost as bad. The informal free-standing shacks had an average space advantage over all the others (except the single mine-village occupant) on both measures. It is clear that moving out of the hostel gave a major space and privacy advantage, whether the mineworker was moving into a house or into an informal dwelling. This is reflected in the greater floor area available to those living off the mine as opposed to those living on the mine. It is also reflected in the greater area per person for owners (with a state housing grant or a bond) and for those living in informal housing, compared with those living in employer-owned or rented housing.

Overall housing quality was best among family groups with children (most of whom lived off the mine). They scored the highest (by a small margin) on bulk services and living conditions in the dwelling. They were also considerably less overcrowded in terms of area per occupant. A major deficit for families living on mines is the distance to the nearest school.

On the basis of the results, the study made the **recommendations** outlined below.

It is recommended that employers who have appreciable numbers of on- or off-mine employees engage the services of a housing expert who has experience of housing issues from a practical and current legislative perspective. Such a person should know about housing design options, tenure options, and the National Housing Act and National Housing Code, with the attendant details of the various forms of housing subsidy, including the public hostels redevelopment scheme.

In view of the slow process towards family housing on mines since the observations and recommendations of the Leon Commission in the mid-1990s, it is recommended that the DME again considers the Commission's recommendations on hostel overcrowding and family

housing for mineworkers. Such a recommendation could be implemented through regulation under the Mines Health and Safety Act of 1996. It might include the following clauses:

- A tripartite structure should be established between the State, the mining industry and representatives of employees to seek ways of improving the lot of workers who live on the mines, and to investigate housing and accommodation for workers and their families at mines.

- Mining houses should take a policy decision to move towards family housing over a period of time and, in the meantime, steps should be taken to improve existing hostels wherever it is “reasonably practicable" to do so.

- For mines with a remaining lifespan of ten years or more, the industry should, within five years, improve accommodation to the point where no more than four men are housed in a single room on any mine. (The figure of four could be debated in the light of the findings in the telephone survey - see table II above.) This figure could then be reduced in periods of five years (for example to one per room in ten years). This would happen concurrently with (and facilitated by) the "exodus" already occurring from the mine hostels.

- For mines with a lifespan of ten years or more, a minimum of a further 5% of the workforce should be housed in family housing each year. (This would mean that a minimum of 50% would be housed in family housing in ten years.)

It is recommended that a regulation under the Mineral and Petroleum Resources Act 2002 section 100(1)(a) be considered to set minimum standards for mineworkers' housing, whether on mine or off mine. The minimum standards in the National Housing Code are designed for sub-economic housing, and are therefore too low to guide this process. However, the agreement and MANTAG regulations referred to in the National Housing Code are relevant. In addition, the policy process currently underway to decide the future direction of the Public Sector Hostels Upgrading Programme under the Housing Act also provides possible minimum standards for housing, especially for hostel upgrading. The key design principles that should guide hostel redevelopment are (Smit, 2003):

- adequate living space and privacy;

- good quality communal space;

- optimal use of space;
- flexibility and adaptability;
- energy efficiency;
- greening;
- supporting sustainable livelihoods (for unemployed people or household members working at informal livelihoods);
- integration into the surrounding urban area; and
- contextual suitability (climate, site conditions, social use of space).

The eligibility of mineworkers for housing grants under the Housing Act and the National Housing Code should be reviewed, and the parties should consider whether a repeat "miners' immigration amnesty" is required to facilitate the uptake of better housing options by foreign mineworkers. In addition, the possibility of including mines in an expanded Public Sector Hostels Upgrading Programme should be explored as a means to access the State subsidy in an appropriate form.

The possibility should be explored of accessing State housing subsidies via partnerships between mines and provincial housing departments to link mine housing projects with provincial town planning and housing initiatives.

It is recommended that the Mines Health and Safety Council explores in more detail the housing situation for off-mine residents with living out allowances, including surface employees and contractors, as well as underground permanent employees. This could be done by means of a follow up study to this one, using a national probability sample of the entire population of mineworkers with living out allowances. The survey could incorporate a study of affordability issues for employees with regard to housing preferences to feed into the debates about planning and feasibility of large-scale mine housing schemes.

In addition, each mine should undertake a survey of their existing housing and hostel facilities and workers' needs, in conjunction with a joint housing committee at the mine.

Finally, with regard to the housing situation of foreign mineworkers, it is recommended that the

2% wage levy on foreign employees, promulgated in regulation form under the 2002 Immigration Act by the Department of Home Affairs, should be converted from general State revenue into a dedicated fund which can be used as capital towards adequate housing for foreign mineworkers with permanent resident status to live outside of the hostels.

It is recommended that the stakeholders in the mining industry consult recent research (Smith 2003) related to the Public Sector Hostels Redevelopment Programme of the Department of Housing. It contains recommendations for consultation processes, physical standards for housing, access to community amenities, and the cost assessments given, which include subsidy components under the National Housing Subsidy Scheme. A training package has been developed by Development Action Group (an NGO in Observatory, Cape Town) which could be useful in the design of training for mineworkers on housing programmes, and which is available from the Urban Sector Network (a parastatal organisation), based in Johannesburg. Although the Public Sector Hostels Redevelopment Programme is restricted to hostels owned by local authorities and "grey area hostels" (where ownership and responsibility are disputed), the research cited here has considerable relevance to the process of hostel redevelopment in the mining industry, and even to standards being discussed for new off-mine housing developments.

1. INTRODUCTION

1.1 MOTIVATION FOR THE STUDY

Since the early 1990s the mining industry has been through major restructuring, resulting in a decline in employment level in the gold industry, and an increase in employment in platinum (albeit from a lower base). Throughout the 1990s there was a gradual "exodus" from the mine hostels into various forms of housing in the surrounding areas, as a result of the introduction of monthly "living out allowances" and other housing-related benefits of employment in the industry. This trend is in keeping with the desire to decrease the numbers of mineworkers living in a hostel environment if possible, and to increase workers' take-home pay. It was also a key objective of mine managers to control costs and focus their activities on core production functions. Many mines wanted to divest from social necessities such as housing, especially after the demise of "influx control", and the wide-scale debate on national housing policy after the 1994 democratic elections, which focused on the future of hostel accommodation, as well as other issues.

As this exodus from the hostels has occurred, concerns have been expressed by both employers and trade unions about the quality of off-mine housing, as well as the standard of mine housing and hostels, with regard to mineworkers' health and safety. In particular, there is a concern that poor housing outside the hostel environment could affect mineworkers' productivity and safety in their jobs. This would be the case if housing in the areas surrounding mines were of poorer basic quality, bulk services fewer and worse, and if commuting and security problems in the residential areas outside the mines were worse than those for residents of hostels and other mine housing. This concern applied particularly to the lower-grade workers in the industry, who make up the vast majority of the total labour force, and who cannot generally afford high-quality housing. This study was therefore commissioned to investigate the current housing situation of mineworkers, and whether it is leading to adverse health and safety effects.

The Minister of Minerals and Energy has the power to regulate mine housing under the Mines Health and Safety Act 1996, and under the Mineral and Petroleum Resources Development Act 2002. The study will therefore also address itself to whether this is necessary and, if so why, and what type of regulation might be appropriate to the current housing situation in the industry.

1.2 STUDY OBJECTIVES

The study objectives, as discussed by the relevant SIMRAC committee, are:

1.2.1 to review the literature concerning the history of mineworkers' housing in South Africa and health and safety issues

1.2.2 to review the literature on the impact of housing on health and safety, with a special focus on South or Southern African experience;

1.2.3 to review the statutory regulation of mineworkers' housing in South Africa;

1.2.4 to review voluntary regulations, or collective bargaining agreements, on mineworkers' housing in the industry;

1.2.5 to estimate, by means of a survey, the current numbers and trends in the location of mineworkers' housing both on and off mines, and to describe the types of housing situations that have prevailed in the industry since the gradual exodus of mineworkers from the hostels from the early 1990s onwards;

1.2.6 to conduct a pilot questionnaire survey of mineworkers in different mines, to ascertain details of their housing situation, especially with regard to its quality, and health and safety issues arising from it, and their impact on their work.

1.2.7 to conduct an inspection survey of a sample of mineworkers' residences, to obtain an expert assessment of their quality, to compare with responses from the mineworkers' questionnaire survey.

1.2.8 to make recommendations to parties to the industry on whether and how housing could be regulated, and what (if any) standards might be appropriate in such regulation; and

1.2.9 to make recommendations to the Mines Health and Safety Council on useful future research to follow up the pilot study.

2. LITERATURE SEARCH

2.1 INTRODUCTION - HISTORICAL BACKGROUND

In 1889, at the very beginning of corporate mining enterprise, the Chamber of Mines questioned 55 mine managers about whether they thought the compound system would be advantageous. Sixty percent said no. However, in the 1890s, the refusal of the Boer government in the Transvaal and of white residents in Transvaal suburbs to countenance black locations near white suburbs convinced mine managers that compounds were the way to go (Allen, 1992). The first compounds were rectangular groups of wood and corrugated iron huts standing back to back in rows, sharing walls to reduce costs, with little ventilation and earth floors. Rooms accommodated between 20 and 50 people, who slept either on home-made wooden beds, or on the earth floor, which became muddy during rain storms when water leaked through the roofs. Lighting was by candle. There was no heating so mineworkers improvised their own fire buckets, which caused fumes. There was nowhere to dry clothes, and even washing facilities were not ubiquitous until after the South African war. The Chamber of Mines recommended in 1899 that every compound must have either a bath lined with cement or a shed with a cemented floor with drainage. The high incidence of death due to pneumonia, and meningitis and intestinal parasites led medical officers and government to make suggestions for the improvement of basic living conditions in the compounds (Allen, 1992).

In replying to complaints received about compound living conditions, the Secretary for Native Affairs, Mr. W. Windham, issued a memorandum concerning the results of inspections which his department had conducted at mines throughout the Transvaal in July 1904. He reported that movable bunks were being adopted at compounds so that regular disinfection could take place of all areas in the rooms, the bunks being scrubbed and dried in the open air. Iron flues were being added to the open stoves used by mineworkers for cooking to reduce the incidence of respiratory illnesses from indoor pollution, and impervious ("asphalt") floors were being installed to replace the existing universal mud floors, which could harbour TB germs from sputum, and were impossible to clean properly. The report mentions that change houses were being installed at some mines at the shaft head, and "natives" were receiving coffee there, and blankets for the walk from the shaft head to their compounds. "Primitive" sanitary arrangements were being replaced by latrines and urinals, and drainage of compounds was reported to be "good", with (usually cold) baths with running water "nearly universal". (Native Affairs Department: 1904). This seems to be the first governmental report in South Africa on mine housing conditions, showing the very first improvements from "absolute zero" in the harsh hostel

regime. It was followed by the Coloured Labourers Health Regulation Ordinance in 1905, which recommended, amongst other measures, that the compound rooms should have an abundance of fresh air through large air ventilators. However, when they were installed these ventilators created so much discomfort in cold Transvaal winters that mineworkers had to sleep together in unsanitary huddles to keep warm (Allen, 1992).

The African Mineworkers' Union (AMWU) issued a set of demands in June 1935 which included the abolition of the compound system. Labour shortages in the mines and increasing wage levels outside of the mines during the Second World War led to frequent labour stoppages, and eventually to the establishment by Smuts' government of the Witwatersrand Gold Mines Native Wages Commission (Lansdowne Commission).

The AMWU made a detailed written submission to the Commission on the compound system, which dealt with both single-sex and married quarters. It emphasised the overcrowding of rooms, the system of the central fire without chimney with drying clothes hanging from the tin roof, the lack of changing houses and washing facilities, the stifling heat in summer and the freezing cold in winter due to the lack of insulation, the infestation with insects interfering with sleep, and the unhealthy location of the compound rooms near dams and drains. AMWU demanded that the concrete bunks be replaced with metal bedsteads and mattresses, and that adequate electric lighting be provided, instead of the two small globes per room, too high and obscured by clothes hanging about. They wrote about the long distances between the compound rooms and the latrines (75 to 100 yards, despite the 1919 Health Act stipulation that they should be no more than 18 yards away). These distances caused people to use the veld as a toilet, a further unsanitary practice for which men were sometimes disciplined. The latrines were said to be mostly unlit and without paper, and without waterborne sewage, and caused the compound to be infested with flies.

The AMWU submission on mineworkers' married quarters stated that many were nothing more than "tin towns" - built of zinc. In many cases, workers built their own homes, for which they paid rent. Building was not regulated and was haphazard and unhygienic. There were not enough married quarters (estimates in 1930 showed that only 1 474 out of 200 000 (0.7%) workers were housed in married locations. Children, adolescents, and adults had to sleep together in the two-room houses that were generally provided. The rooms were too small, had cement floors, no ceilings, and often no fireplaces. Sanitary and washing facilities were not adequate. The water supply was on a communal basis, and most mines considered one pump for about six houses sufficient, and many provided only one tap for upwards of 50 houses. Drainage was inadequate and led to stinking stagnant water. Most mines considered one latrine sufficient for a row of married mineworkers' houses. The AMWU submission stated:

> *the fact that they are forced by penury to live in crowded shacks in the municipal townships does not mean that our people are satisfied to live like animals in the mine locations (Allen, 1992).*

Although the Lansdowne Commission conceded the need for (limited) wage increases due to the impoverishment of the rural reserves and the resulting lack of rural subsidy to the mine wages, it did not make any recommendations on the issue of mine housing. The Commission's findings anyway failed to head off the growing militancy of mineworkers, and the ensuing 1946 national mineworkers' strike was defeated by force, and the AMWU smashed. This was the last emergence of large-scale trade unionism amongst African mineworkers until the formation of the National Union of Mineworkers in 1983, and the last truly national strike in the mines amongst African workers until 1987.

Mining industry housing policy was part of a wider strategy to secure and stabilise the ever-growing labour force in the face of increasing wages in competing manufacturing industry, and the continuing debasement and impoverishment of the rural reserves. Anglo-American achieved dominance of the industry with the establishment of the Orange Free State gold mines in the late 1940s and, because of post war labour shortages, its chairman, Ernest Oppenheimer, proposed that a small part of the regular black workforce on the Free State mines should be accommodated in family housing ("stabilised") in the new, low-cost and well-equipped mines. This could be done at less financial risk because it would not involve writing off "sunk capital" in existing mine hostels, but a new design of mine housing from the start (Jeeves, 1991: 14). However, James Gemmill, General Manager of the Chamber of Mines, submitted a study for the Tomlinson Commission (on the socio-economic development of "native areas" within the Union of South Africa, 1952) on the cost implications for the gold industry of family housing. He estimated that a single family housing unit would cost the industry more than four times the cost of housing a "bachelor" in the traditional single-sex hostel room. He based his calculation on the cost of a typical, government-built township three-room structure, but (unlike most township houses) equipped with running water, water-borne sewage system, and electricity. Gemmill's estimation was that family housing for the black workforce would add more than one third to the development cost of a new gold mine (Jeeves, 1991).

In the event, "grand apartheid" in the 1960s ensured that large-scale black family housing in mining areas was blocked by "influx control". The 1965 Bantu Labour Regulations (Department of Bantu Administration and Development 1965) in terms of the Bantu Trust and Land Act 1936 (Act no.18 of 1936) empowered Department officials to determine administratively which categories of African labourers and their families could reside in married quarters. If a compound manager ignored the ruling of the director he was guilty of an offence. Under this

regulation, which was ostensibly to prevent the "haphazard erection of private towns by the private sector" (Jooma, 1991:49), mines were granted a concession to provide family housing for a maximum of 3% of their South African black labour force in family housing, for essential services staff[3]. The Regulation also provided for "minimum requirements for accommodation and amenities" for "single quarters" (Schedule 32, Part II) and for "married quarters" (Schedule 32, part III). In both cases, the maximum number allowed to live in each quarter was 20. Regulations for single quarters included minimum physical standards for cubic airspace, lighting, "permanent cross-ventilation", water supply (1 drinking water point for 50 persons), ablutions, laundry, latrines, urinals, bunks, kitchen, food store-rooms, and heating. Most of these standards applied to both single and married quarters, the latter only differing from the former in that they had to have at least two living-rooms at least 84 square feet and 7 feet wide (e.g. 12 feet by 7). This regulation remained on the statute book until the abolition of influx control in 1986. The Chamber of Mines opposed the 3% rule, preferring more flexibility, and argued that it should not be enforced. However, a Chamber spokesperson said that even if the government had adopted a more flexible approach to the housing question prior to the abolition of influx control, the "lack of financial resources would have been a problem" (Jooma, 1991:49).

Some mines were allowed relaxations of the 3% rule, such as Rand Mines, for its open-cast mines. A platinum mine near Brits, which had no hostels because it was near a source of local labour, provided family accommodation for African workers. In the mid- 1970s, the regulation was relaxed for coal and diamond mines. By 1984, 4.4% of the colliery labour force was housed in family housing (Jooma, 1991:50). Experiments in stabilisation also occurred in some "border areas" near Bantustans, such as in Phalaborwa, where the Palabora Copper Mining Company (PMC) concluded an agreement in 1972 with the government Department of Bantu Administration and Development to take over responsibility for housing all its married workers who had not yet been provided Bantustan houses by the Department. The mine invested R2.5million in building family housing 10km from the mine, over the "border", a hostel for 400 workers, a community centre, and sports club. The family housing became the property of the Bantu Administration, but was leased indefinitely to PMC for its own use as rented accommodation for its married workers. If a worker died or was pensioned off, the family could keep the house for three months, during which PMC agreed to find alternative accommodation for them (Wilson, 1972).

Notwithstanding these isolated cases, stabilisation of the workforce was essentially dropped and replaced by increased emphasis on hiring foreign migrants as a way of maintaining the cheap

[3] In 1969-1970 an official circular sent out by a zealous Bantu Affairs Commissioner to the mines in the Klerksdorp area instructed mineworkers that children might no longer stay in married quarters, which illustrated the unreliability of even the miserly official permission for "stabilisation" (Wilson, 1972a:10).

labour policy for African labour[4], based on low and declining real wage levels for African workers[5], the compound system of housing, and "job reservation". Thus the provision of family housing at mines was postponed indefinitely, keeping it a marginal, "experimental" phenomenon. In its summary of the "Business and Labour" hearings of the Truth and Reconciliation Commission, the first report of the Commission in 1998 stated:

> *The shameful history of subhuman compound conditions, brutal suppression of striking workers, racist practices and meagre wages is central to understanding the origins and nature of apartheid. The failure of the Chamber of Mines to address this squarely and to grapple with its moral implications is regrettable and not constructive……The submission by the Anglo-American Corporation was an improvement on that of the Chamber of Mines. Anglo-American accepted that it could have been a better corporate citizen. It had the honesty to note that, despite many representations by Harry Oppenheimer to government about the need for a more stable workforce, the Corporation failed to provide even the limited amount of family accommodation allowed with the bounds of the law. …….(they) were allowed to provide married accommodation for 3 % of their African labour force, but failed to provide even this. They regard this as one of the "missed opportunities" and "acknowledge, with regret, that we did not sufficiently progress these and many other opportunities to oppose apartheid and hasten its demise". (TRC 1998: 34 & footnote).*

By the 1980s, major changes were beginning to alter the migrant labour system. Amongst other factors, these changes were the result of: the withdrawal of labour from Malawi and Mozambique in the mid-1970s and their replacement by South African workers (who reached about 60% in the early 1980s); the Wiehahn Commission report in the late 1970s which recommended that black workers (including those on the mines) should be incorporated into the industrial relations legislation; and the space created by the surge in gold prices in the 1980s due to the removal in the 1970s of the international price-fixing mechanism under the Bretton-Woods agreement. During the 1980s, the changes became more and more irresistible with the abolition of influx control in 1986, the demise of job reservation in the late 1980s, the rapid growth and success of the NUM's strategy for organising the industry after 1983, and the eventual collapse of the Nationalist Party's "total onslaught" strategy (Crush et al., 1991).

At a more general level, sociologists studying mine migrancy in the region have pointed out the shift during the 1980s from "oscillating migration" (Wilson, 1972b) to "inflexible migration" (Crush, 1991c & Crush and James, 1995) and "commuter migration" (Crush et al., 1991). Prior to the 1980s, oscillating migration was characterised by short contracts, between which mineworkers returned to their rural homes. Mine work was said to be a supplement to other

[4] In 1960, foreign migrants were around 55% of total labour in all mines, but this had risen to 75% by 1972 (Crush et al., 1991).

[5] Wilson showed that in the eighty years to 1972, real wages in the mining industry had actually declined (Wilson, 1972b).

economic activities such as agriculture, which essentially sustained mineworkers' families. There was said to be an element of choice, and workers tended to minimise their stay on the mines. Low skill levels, and high labour turnover in gold mining were manageable as long as the technology remained labour-intensive, and as long as the Chamber could do the political work in the region to ensure ever-expanding labour-supply areas. Periodic shortages of labour were overcome by a centralised and very extensive mine recruiting system throughout the region, starting with the development of transport routes and even hospitals and clinics to process workers before their arrival at the mine. (See Crush et al., 1991 for a detailed historical account.) This system was administered under the auspices of the Chamber of Mines via WNLA, which later became The Employment Bureau of Africa (TEBA). Centralised recruiting removed competition between individual mines for labour, thus allowing wages to be held down. This labour-sourcing strategy has been termed "heterogeneous sourcing". It also facilitated coherent political negotiations between the Chamber of Mines and the British government or post-colonial states over access to regional labour reserves, the realisation of economies of scale in labour administration, and the provision of transport and health services.

By the 1980s, this system of mine migrancy became less flexible from the point of view of the mineworker. In 1979, the mines instituted incentives to reduce the level of labour turnover, and ensure that workers returned more reliably to the mines after their contracts had expired. These took the form of Valid Re-engagement Certificates, stabilisation certificates, and leave certificates. In the 1980s TEBA also instituted a very sophisticated computer-based tagging and monitoring system for all migrants, which enabled mines to plan and control labour supply much more effectively[6] (Crush, 1991a). From the early 1980s, short contracts of employment were progressively phased out, to disappear almost entirely by 1985. By 1987, some 90% of workers were on one-year agreements, and required to return to the mine for their next contract a maximum of between four to six weeks later (Nattrass, 1991). Prior to the abolition of influx control, the novice recruitment rate was more or less stable at a low 10%, and the recruiting role of TEBA was replaced with other services, such as its centralised human resource database and labour monitoring system, a transport service for miners returning home, and a banking system to help families of migrants to draw on migrants' salaries at their place of residence. Most mines regarded the third renewal of an annual contract as equivalent to a permanent contract. These are the "career miners", with longer and longer service records in mining[7].

[6] By the late 1980s, Crush points out that TEBA had accumulated over eight million sets of fingerprint records of mineworkers. Bar-coded identity tags were used for mine access virtually throughout the industry by that time. The ultimate aim was to link the regional recruiting offices directly to the TEBA central databank.

[7] 64% of Anglo American employees had between five and ten years service by 1986, while the overall industry average was 33% by that year. (Crush, 1991b). Given the increasing unemployment and impoverishment of rural areas in the region since that time, it was likely that the average length of service would increase into the 1990s, with the general downscaling of the industry in that decade reinforcing the trend.

"Commuter migrants" from countries such as Lesotho and Botswana worked on "inflexible" annual contracts and travelled home on a monthly or even weekly basis. The combination of the establishment of permanent contracts with relatively low turnover and recruitment needs during the 1980s, the organisation of migrant mineworkers into a national union, the abolition of the "independent and non-independent homelands" in the 1990s, the removal of influx control, pass laws, and the Group Areas Act from the statute book, and the restructuring and downsizing of the gold industry in particular during the "globalisation" period of the 1990s have transformed labour relations in the mining industry:

> *Whereas previously the relationship between the mining company and its black employee was regulated by the long-established contract system, which was itself regulated by the government's apartheid policy, the relationship is increasingly being regulated by employer-trade union negotiations within a broad statutory framework which is apartheid-free insofar as industrial relations are concerned. The old mine labour contract will thus begin to look more like a standard contract of employment than one tailored for migrant workers who have an intermittent relationship with an employer (Jooma, 1991).*

However, it is important to realise that although "oscillating migrancy", and "inflexible migrancy" seemed at the beginning of the 1990s to be a linear trend, the 1990s have shown that another factor regarding contracts - subcontracting - has re-emerged in the industry significantly for the first time since the 1920s. Essentially untrammelled by new labour law after 1994, this has created everywhere in South Africa the phenomenon of the "triangular employment relationship", the third corner being contractors and labour brokers. At the time of writing, between one fifth and one quarter (and rising) of the labour force in the mining industry is now not employed by mine owners, but much more insecurely and intermittently by contractors and third-party labour brokers. This calls into question a simple characterisation of the migrant labour regime as "inflexible" rather than "oscillating". Perhaps it is more accurate to say that since the 1990s, the mine labour force has been split between an "inflexible core" and a growing "oscillating" minority of contractors. This too has implications for mine housing development, complicating it enormously because of the lack of reliable documentation of the contract labour force.

Three major groups of career migrant mineworkers were thus identifiable by the early 1990s (Crush et al., 1991). The first group is the small but important proportion of the workforce who are highly skilled and experienced workers, and who were undoubtedly the target group for family housing on the mines, and subsidies for family housing near mine property. These are the people in whom the mines have invested in terms of skills, wages and benefits which means that the costs of replacing them is high.

The second group are the "commuter migrants", who are foreigners based in rural areas close

to the mining areas, mainly from Lesotho, and also workers from the previous "Bantustan" or homeland rural ghettos within a day or so's travelling distance from a mine. These are what remain of several previous attempts to replace foreign and migrant labour with urban labour close to the mines. The first abortive attempt was in the late 1970s. The second took place in the late 1980s, and had some successes, as growing unemployment in the urban and peri-urban South African communities overcame their traditional reluctance to take low-paid work in the mines, which they had hitherto regarded an employment of last resort. By 1990, collieries in Northern KwaZulu-Natal and the Eastern Transvaal (Witbank) relied partly on local commuter labour, especially from KwaZulu-Natal and what was then Lebowa. At Utrecht, Rand Mines closed down their hostel because over half the labour force became commuters (Jooma, 1991). Free State gold mines had employees who commuted from Lesotho, and large peri-urban areas such as Botshabelo. These rural and peri-urban or semi-rural areas generally had no alternative employment opportunities other than the mines. However, there was no success in attracting urban labour from Gauteng onto the Reef mines, because of the relatively low pay[8] and the danger of mine work.

The third group of mineworkers are the foreigners from more distant countries such as Mozambique, unable to commute, and generally without permanent residence rights in South Africa. Many of them return again and again to the same mine. They also possess high levels of job-specific skill. Some are contractors, working for third-party labour brokers at wages lower than the industry minima, working on a piecework basis, and with none of the fringe benefits (provident funds, health benefits, housing benefits) negotiated at industry or company level between the NUM and mining companies. At the beginning of the 1990s they looked likely to remain in the hostels. Foreign workers were amongst the most skilled and with long-service of the entire mining labour force[9], and they were used disproportionately in the most dangerous and unpleasant of the gold mines.

This three-fold division within the labour force took different proportions in different product groups. For example, coal and diamond mines were much more mechanised than gold mines, so the first group (stabilised workers) would be a larger proportion of a smaller workforce. Also, "commuter" migrancy sustained a blow when downscaling after 1990 fell disproportionately upon Lesotho mineworkers. Nevertheless, broadly, a three- way division of the mine labour force has arisen, and this determines and is determined by housing strategies at mine level.

[8] In 1991, category 1 mineworkers in the gold industry earned between R329 and R385, and in the coal industry between R278 and R370, compared to R911 in the motor industry and R924 in the toiletries industry (Jooma, 1991).

[9] In 1985, only 30% of South African mineworkers in Anglo-American mines were at grade 8 (the most skilled production worker), compared to 70% of foreign labour (Crush, 1991b).

With the demise of the legislated, apartheid-based labour system in the industry, the paternalistic system of labour relations inherent in the migrant workers' contract (work in return for housing and food) has been increasingly replaced with a collective bargaining and "market-oriented" system in an era of cost-cutting in the industry, in which workers would increasingly have to pay for their housing, whether on or off the mine (James, 1991a). The factors which have sustained the migrant labour system in the region since the 1994 elections have, therefore, been the mine employers' perceptions of the costs of family housing on or off the mines, the availability, cost and zoning of land (whether on mine property, local authority land, township land, private land or central government land), the availability and affordability of housing for mineworkers, the question of responsibility for and cost of infrastructure provision (water, electricity, sewerage etc), the preferences of migrants between on-mine housing, off-mine housing, or housing in their areas of origin (Jooma, 1991), and the issue of political stability in the foreign labour-sending areas. The last of these is reflected in the continuance of the wage remittance agreements between mines and governments of the labour-sending areas, particularly Mozambique and Lesotho. For employers, the issue of the relative costs of maintaining and perhaps upgrading the single-sex hostels compared to establishing family housing on a large scale has been the major consideration. For mineworkers, the issue of security of employment and housing, the balance of preferences between investing in housing near the mine as opposed to in the area of origin, and affordability have been the key issues. These factors have determined the fate of housing initiatives at company level to the present.

2.2 CONTRACTORS AND FOREIGN MINEWORKERS IN THE 1990S

As mentioned, the contract labour force has grown in the past decade to between one fifth and one quarter of the entire labour force in the industry. It is important to note that the increase in female employment in the industry, for example, is taking place as contract labour and not establishment, the latter having dropped over the past decade. The increasing use of contract labour complicates the situation with mine housing, since these workers generally are not covered by collective bargaining agreements over either wages or housing benefits.

TABLE 2.2.1 Growth in contract labour force in the mining industry to 2002

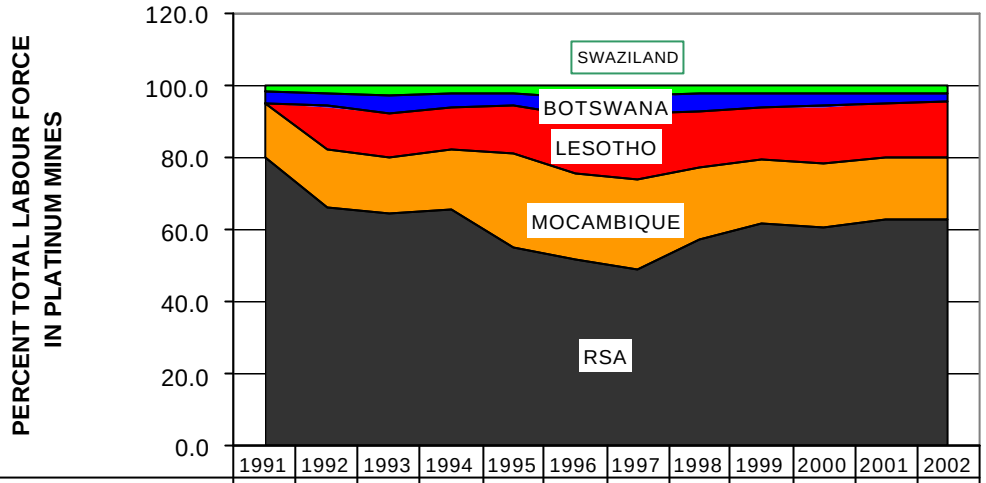
	1997	1998	1999	2000	2001	2002
Female Contractors	310	535	422	459	565	1208
Female Establishment	12734	11403	10305	9931	9960	10238
Male Contractors	40845	41242	43397	51181	61524	74453
Male Establishment	499248	413510	382183	355979	335293	327188

Source: Department of Minerals and Energy, February 2003

Despite commentary to the effect that foreign labour in the mining industry was no longer necessary to the industry after 1990[10], the policy of "heterogeneous sourcing" of labour has continued. According to data from TEBA, foreign labour continues to be an important part of the labour force in the three most important mineral groups, gold, platinum, and coal, especially labour from Lesotho and Mozambique. This is most obvious in the gold industry, where TEBA recruited labour was 71% of the DME official total for 2002. However, the TEBA data for platinum (39% of the DME total) and especially coal (6% of the DME total) should be treated with caution, as the TEBA profile of labour-sending countries in these industry sectors may not be representative of the entire labour force[11]. Nevertheless, it is clear that foreign labour is still

[10] "The persistence of South Africa's colonial labour empire is now in a real sense completely discretionary. Probably for the first time profitable gold mining could continue without any labour from outside the country" (Crush, 1991b).

[11] TEBA data, though the best we have on foreign mineworkers, has been inundated with problems related to the new immigration regime (since 2002). The figures cited here are correct only for Chamber mines which use TEBA to procure foreign labour. The figures for South Africans are additionally suspect because most mines source large volumes of South African employees from the gate or their own initiatives excluding TEBA. TEBA estimates that 5% should be added to the figures cited here for foreign mineworkers in gold and coal, and 7.5% for Platinum Group Metals to include total foreigners on mines (including contractors and non-Chamber mines) (Personal Communication, Madhu Vythilingam, Chamber of Mines, October 27, 2003).



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SWAZILAND	1.6	1.8	2.4	2.0	2.1	3.2	2.9	2.4	2.1	2.0	1.8	1.8
BOTSWANA	3.0	4.1	5.0	4.1	3.3	5.1	5.0	4.9	4.0	3.6	3.0	2.7
LESOTHO	0.0	11.7	12.7	11.7	13.4	16.3	18.3	15.1	14.4	15.8	15.3	15.4
MOCAMBIQUE	15.4	15.9	15.3	16.7	26.0	23.4	24.8	20.3	17.8	17.6	17.2	17.4
RSA	80.0	66.5	64.6	65.5	55.2	52.0	49.0	57.3	61.7	60.9	62.7	62.6

Source: The Employment Bureau of Africa (TEBA) 2003.

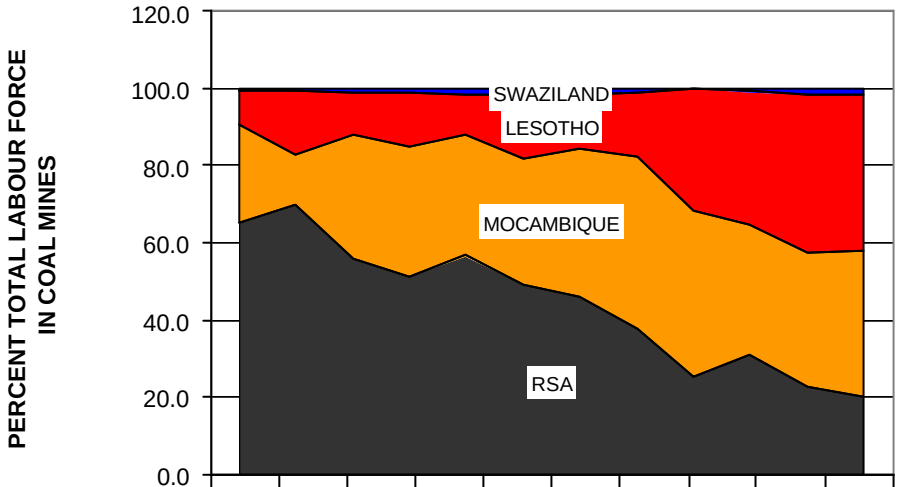
FIGURE A ***Gold industry 1991-2002. Percentage of permanent TEBA-recruited labour force by labour sending country (TEBA supplied 71% of the DME official total labour in the industry in 2002).***

very important in the mining industry, and just as labour contracting does, it complicates the housing question for mineworkers, as access to housing is affected by nationality and legal status.

After 1994, the NUM called for a once-off immigration amnesty for all foreign mineworkers. In response, the South African government granted an amnesty but linked it to an earlier decision taken in 1994 to allow foreign mineworkers with over ten years' residence to vote in the 1994 election (Crush and Williams, 1999). In October 1995, the South African government announced the "miners' amnesty", which exempted miners from the requirement of having to have a permanent residence permit in terms of s28 of the Aliens Control Amendment Act of 1995. To qualify for the amnesty, miners had to prove that they had been working on South African mines since before 1986 (i.e. for a minimum of ten years) and had voted in the 1994 elections. Acceptable forms of proof included a temporary voters' card and proof from an employer (supplied in most cases by TEBA), an affidavit from a leading figure in the applicant's

community, or a letter from the NUM (if the applicant was a member). There was a second amnesty (the "SADC amnesty") announced in June 1996, which ran from June to November 1996. It applied to people throughout the region, and was not confined to any particular economic sector, as the "mines' amnesty" had been. Applicants had to prove that a) they had been living in South Africa for at least five years; b) that they were engaged in productive economic activity in the formal or informal sector, or were in a relationship with a South African partner or spouse, or had dependent children born or lawfully living in South Africa; and
c) they had not committed a criminal offence.

Mineworkers from foreign countries could apply for immigration amnesty under either the “miners' amnesty” or the SADC amnesty. Department of Home Affairs data on the process estimated that around 64% and 81% of Lesotho mineworkers and 32% and 62% of Mozambiquan mineworkers were eligible for the "miners' amnesty" (ten years) and the SADC amnesty (five years) respectively. In the event, 55 % of eligible Lesotho mineworkers and 38% of eligible Mozambiquan mineworkers applied for the "miners' amnesty", and the refusal rate for these people was very low, due to the excellent database available from TEBA for documentation of the applications. The SADC documentation process was much more



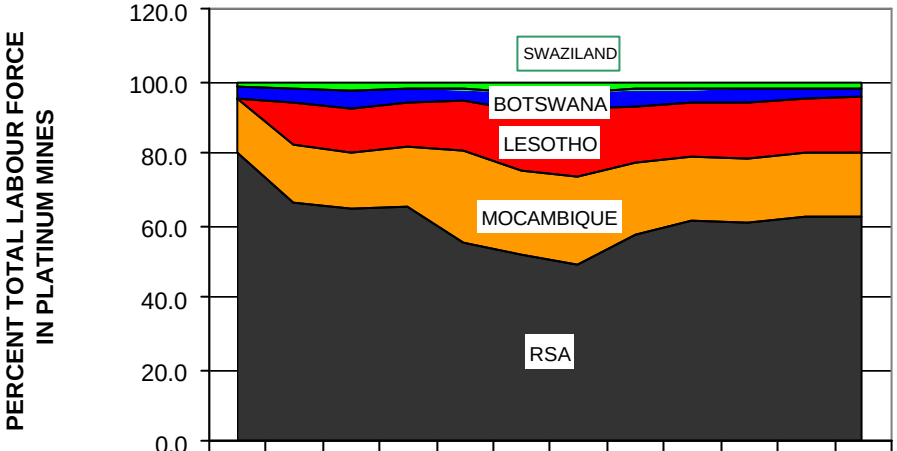
	yr 1991	yr 1992	yr 1993	yr 1995	yr 1996	yr 1997	yr 1998	yr 1999	yr 2001	yr 2002
SWAZILAND	0.5	0.3	1.0	1.8	1.7	1.4	1.2	0.1	1.3	1.6
LESOTHO	8.6	16.9	11.0	10.0	16.5	14.2	16.3	31.5	40.9	40.4
MOCAMBIQUE	25.5	12.8	32.3	31.5	32.5	38.3	44.5	42.8	35.2	37.4
RSA	65.4	70.0	55.7	56.7	49.3	46.1	38.0	25.6	22.7	20.5

Source: The Employment Bureau of Africa (TEBA) 2003

FIGURE B ***Coal industry 1991-2002. Percentage of permanent TEBA-supplied labour force by labour sending country (TEBA supplied only 6% of the official average total labour for coal for 2002)***

problematic, with a low application rate and high rejection rate. The reasons for the unexpectedly low application rates from mineworkers are not completely clear, but there were problems with knowledge of eligibility, and there were administrative problems in the provincial offices of the Department of Home Affairs. There were also misunderstandings, such as the perception that eligibility was tied to NUM membership (Crush and Williams 1999).

A survey conducted by the South African Migration Project of mineworkers from Mozambique[12] showed that those who expressed interest in obtaining permanent residence under the amnesty had mainly short-term motives and advantages in mind, such as gaining the right to buy on hire purchase, looking for other work if they lost their jobs in the mines, avoiding compulsory deferred payment via the Mozambiquan authorities, and avoiding harassment, arrest and summary deportation by the South African authorities. Almost all of them said they would bring their families with them, but also said that they would maintain a home base in Mozambique,



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
SWAZILAND	1.6	1.8	2.4	2.0	2.1	3.2	2.9	2.4	2.1	2.0	1.8	1.8
BOTSWANA	3.0	4.1	5.0	4.1	3.3	5.1	5.0	4.9	4.0	3.6	3.0	2.7
LESOTHO	0.0	11.7	12.7	11.7	13.4	16.3	18.3	15.1	14.4	15.8	15.3	15.4
MOCAMBIQUE	15.4	15.9	15.3	16.7	26.0	23.4	24.8	20.3	17.8	17.6	17.2	17.4
RSA	80.0	66.5	64.6	65.5	55.2	52.0	49.0	57.3	61.7	60.9	62.7	62.6

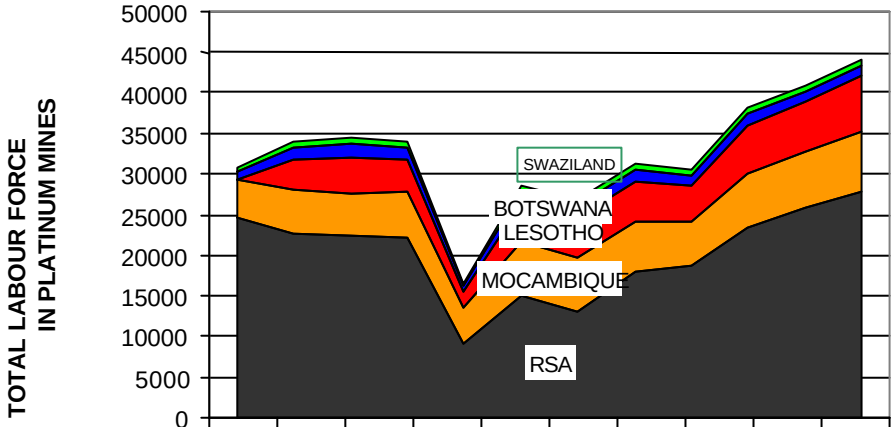
Source: The Employment Bureau of Africa (TEBA) 2003

FIGURE C ***Platinum industry 1991-2002. Percentage of permanent TEBA-supplied labour force by labour sending country. (TEBA supplied 39% of the official DME average total labour for 2002).***

[12] A total of 495 mineworkers and 197 of their spouses participated in the survey in Mozambique in 1996 (Crush and Williams, 1999).

because that is where their family lived. Only 40% had spoken to their families about moving to South Africa, and of these just over half said their families were prepared to come. Most said they would leave their assets in Mozambique, in the care of parents or brothers (Crush and Williams: 1999). Ninety-one percent said they would keep their Mozambiquan nationality. Most said that land was difficult to acquire in South Africa, that they experienced hostility from South Africans, and that they did not want to abandon what they had spent years on building up in their home country.

A similar survey of Lesotho mineworkers[13] showed that about half of the families of eligible mineworkers were prepared to move to South Africa, but the majority of these would maintain a home in Lesotho. Only about one third said they would cut their ties with Lesotho. In contrast to their families, only about 20% of mineworkers said they wanted to move to South Africa, of whom about half said they wanted South African citizenship. In total, only 6% wanted to become South African citizens and leave their home country altogether; 3% would try and get



	yr 1991	yr 1992	yr 1993	yr 1995	yr 1996	yr 1997	yr 1998	yr 1999	yr 2001	yr 2002
SWAZILAND	483	614	837	348	909	783	746	636	723	807
BOTSWANA	924	1386	1713	537	1461	1341	1517	1223	1242	1182
LESOTHO	1	3977	4388	2203	4663	4900	4700	4393	6249	6807
MOCAMBIQUE	4748	5383	5284	4266	6706	6627	6345	5423	7035	7682
RSA	24608	22545	22316	9071	14866	13111	17875	18789	25630	27620

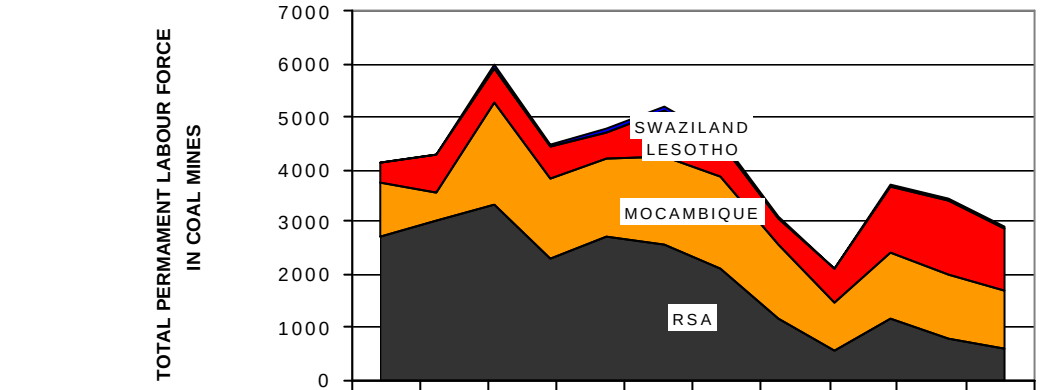
Source: The Employment Bureau of Africa, personal communication, 2003

FIGURE D ***TEBA-supplied employment in platinum industry in South Africa 1991-2002 by sending country (39% of DME total for 2002).***

[13] South African Migration Project survey 1996, including 493 mineworkers and 127 of their spouses in Lesotho (Crush and Williams, 1999).

South Africa citizenship and retain their Lesotho citizenship as well; and 9% would reside permanently in South Africa without taking up South African citizenship. The remaining 80-or-so-percent would maintain their status as migrant workers with citizenship and residence in Lesotho (Crush and Williams, 1999).

These questions of nationality and migrant status are important to an understanding of the process of mineworkers' housing development, because of the continuing sourcing of labour from these countries by the mining industry after the 1994 elections. For example, individual access to a housing subsidy under the South Africa Housing Act requires permanent residence status. Therefore, to the extent that large scale mineworkers' housing initiatives depend on financial participation by the Housing Department amongst other role-players, the eligibility for participation by foreign mineworkers in such initiatives is questionable. The issue of how mine housing articulates with national housing policy hinges partly on this matter.



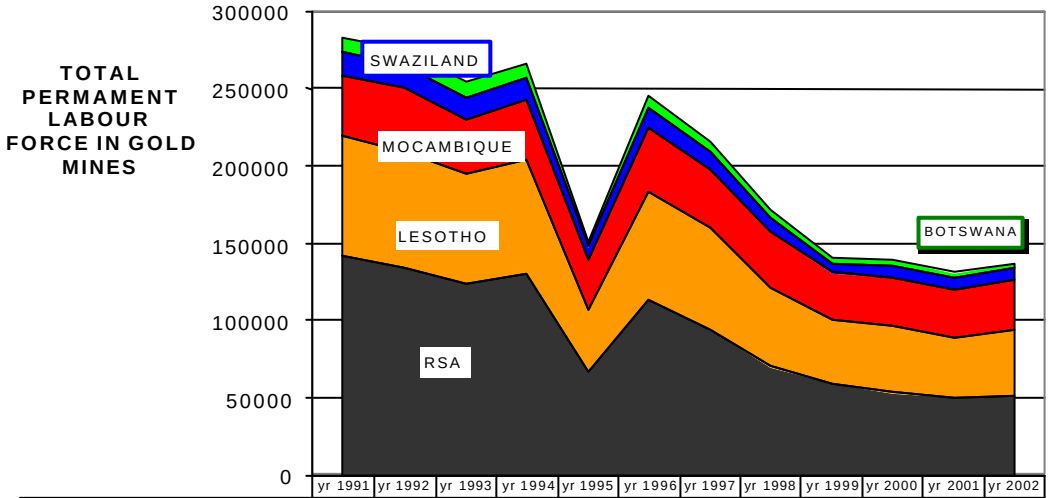
	yr 1991	yr 1992	yr 1993	yr 1995	yr 1996	yr 1997	yr 1998	yr 1999	yr 2001	yr 2002
SWAZILAND	21	12	60	84	86	66	38	2	45	47
LESOTHO	354	726	658	479	859	651	504	670	1399	1176
MOCAMBIQUE	1056	550	1930	1508	1690	1753	1380	910	1204	1089
RSA	2705	3006	3324	2712	2563	2111	1179	545	776	598

Source: The Employment Bureau of Africa, personal communication, 2003.

FIGURE E ***TEBA-supplied employment in the coal industry South Africa 1991-2003, by country of origin (only 6% of DME total 2002)***

Furthermore, against clear opposition from COSATU and the NUM, The 2002 Immigration Act also enables the perpetuation of the traditional "mine migrancy" arrangement with foreign countries by empowering the Department of Home Affairs to issue "corporate permits" to corporations to employ foreigners who "conduct work" for them (it is notable that the Act does not stipulate that the foreign workers must be employees, which allows the possibility that a mine could request permits for contractors employed by third parties (Department of Home Affairs South Africa 2002:s21)). The Department can limit the numbers of foreigners granted permits under these terms, and the Minister of Labour is empowered to require the South African government to enter into remittance agreements with foreign countries so that the

corporate permit holder deducts these remittances from salaries (Department of Home Affairs, 2002: s21.4). On the other hand, Regulations under the Immigration Act 2002 (Government Gazette No. 24952, 21 February 2003) impose a levy on mines at 2% of taxable remuneration of foreign workers, which goes into general government revenue as an undedicated tax. This is supposed to act as an additional disincentive to employers to hire foreign workers, and there is currently a debate proceeding as to whether the imposition of this levy by the Minister of Home Affairs was *ultra vires*, determination of which lies in whether the levy is really a tax, which would prevent it being issued by regulation instead of statute. So far, there has been no constitutional challenge to the levy from employers or other stakeholders. The entire strategy of government with regard to foreign workers, and especially foreign mineworkers is fraught with contradiction. If foreign mineworkers hold a work permit under the 2002 Immigration Act for 5 years, they can apply for a permanent residence permit in terms of the 2003 Regulations (Annexure Form No. 24 - see Schedule A of the Regulations), but to do this they need an offer of permanent employment, and certification under the Act by the employer's Chartered Accountant, and the Department of Labour. However, part of the problem for foreign mineworkers is that many of them work on temporary contracts for third parties (subcontractors) for many consecutive years, sometimes moving between one mine and another. Recently, some mineworkers who gained an immigration amnesty in the 1990's are now applying to have their permanent resident status rescinded because tax laws increase the amount of tax they have to pay in South Africa as permanent residents (in addition to any remittances they may be



	yr 1991	yr 1992	yr 1993	yr 1994	yr 1995	yr 1996	yr 1997	yr 1998	yr 1999	yr 2000	yr 2001	yr 2002
BOTSWANA	10323	9921	9551	9122	3839	8064	7186	5684	4143	3991	3520	3026
SWAZILAND	15521	14604	13874	13682	7742	12909	10969	8696	5717	7178	6912	7575
MOCAMBIQUE	38458	40774	36384	39141	32650	41467	38025	35858	30636	30699	30926	32913
LESOTHO	77266	75503	69799	73844	40198	70521	66095	51442	40899	43354	39912	41109
RSA	141998	133760	124607	130213	66842	112724	93735	70220	59405	53749	49671	52244

Source: The Employment Bureau of Africa, personal communication 2003

FIGURE F ***Total employment in gold industry South Africa 1991-2002, by labour sending country (71% of DME average total for 2002)***

making to their home country under other arrangements)[14]. Government policy therefore veers between discouraging and encouraging continued foreign migration to mines, leaving foreign mineworkers in limbo. From the point of view of this study, their right to housing remains indeterminate and unresolved. As things stand they are unlikely to ever gain access to state housing capital grants, or mine housing schemes which draw on these subsidies. They therefore do not participate easily in the "exodus" from the hostels, and if they do, they gravitate towards informal and inadequate housing situations.

These policy and legislative approaches raise big problems around the rights of foreign mineworkers with regard to housing in South Africa. The only positive recommendation this study can make is that the 2% wage levy on foreigners should be converted from general revenue into a dedicated fund which can be used as capital towards adequate housing for foreign mineworkers with permanent resident status to live outside of the hostels.

2.3 THE POLICY FRAMEWORK FOR MINE HOUSING IN THE 1990s AND INTO THE 21ST CENTURY

2.3.1 The Leon Commission of inquiry into health and safety in mines

During the 1987 national strike led by the NUM, the demand to dismantle the compound system again emerged as a central strategic platform of the union (Crush et al., 1991), 52 years after it had first been articulated by the African Mine Workers Union[15]. This caused some problems for the NUM after the unbanning of the ANC and other banned political organisations in 1990. The violence between the IFP-aligned hostel populations and ANC-aligned radical township youth escalated into civil war in the Witwatersrand townships, fuelled by state security forces intent on sabotaging the Codesa talks and the impending national democratic elections (TRC 1998). In the terror unleashed by reactionary forces of all kinds in the period 1990-1994, mine hostel

[14] Personal communication 5th September 2003, with Mr. V. Esselaar at the Chamber of Mines. Early in 2003, the Department of Labour entered into a "Labour Agreement" with its Mozambique counterpart which included an item on remittances.

[15] Encouraged by the experience of taking over control of hostels during the strike at some mines, the NUM also mounted a campaign for families of mineworkers to occupy the hostels. This was, however, not very successful.

dwellers were drawn into the maelstrom of political violence. The competition between Natal taxi operators and the Witwatersrand taxi operators for commuting mine-hostel clienteles became violent and caught up in the ANC-IFP township war (Minnaar 1995). Furthermore, although the mines' policy of ethnic separation of mineworkers in the hostels had been officially abandoned in the 1970s, some mine companies continued to recruit ethnically for particular hostels, and some mine managements still appointed “indunas” or tribal headmen to hostel or liaison committees, thereby entrenching aspects of tribalism (Minnaar, 1995). This split in the workforce was then exploited in the political battle between the IFP and the NUM, the former declaring itself opposed to strikes and stayaways, calling on Zulus to dissociate themselves from the initiatives of the NUM in industrial disputes at the mines. Violent clashes occurred between Zulu- and Xhosa- speaking miners in the Northern Natal coal mines at Durnacol and Hlobane. There were also "ethnic clashes" between Xhosa and Basotho miners in 1991 at Wildebeestfontein North and Bafokeng North hostels of Impala Platinum's Bafokeng mine in what was then Bophuthatswana, in which 19 miners were killed, and 26 injured. In 1992, 76 miners were killed and 180 injured at President Steyn Gold Mine in Welkom, where firearms were used in the clashes for the first time. During these clashes mine managers implemented compulsory "cooling off" periods during which those miners who had not fled the violence were sent home. The NUM called for inquiries and disciplinary action against the perpetrators, and unconditional reinstatement of those who had fled or been sent home. Anglo-American requested the Goldstone Commission to investigate the mine violence, which continued into the elections sporadically. There was a further investigation into mine violence in the East Rand hostels by the Myburgh Commission in the mid-1990s (for details of this violent period in the mine hostels, see Minnaar 1995.)

In the light of this extremely complex and violent political conflict, with its overtones of ethnic manipulation by political forces, the NUM's strategic call for the closure of the hostels was seen at times by hostel residents as a ploy to destroy the IFP's power base in the hostels (Minnaar, 1995). The NUM saw the need to develop its housing policy, and spell out its approach to transformation of the hostel system. In pursuit of this goal during the 1990s, the union set up a housing unit, which issued extremely detailed and well-worked out guidelines for negotiators at mine level on housing schemes (NUM, 1994), and a model housing agreement (NUM, 1996a). The main elements of the NUM housing strategy, which influenced all COSATU policy statements and positions on migrancy, hostels, immigration law, and worker housing, were put forward by NUM's Housing Coordinator, Sue Moorhead, in 1995 (Moorhead, 1995). The NUM recognised that the demand to dismantle the migrant labour system and move towards a conventional mining labour force with true separation of living and working spaces was going to be a long process, and involved dealing with the "culture of circulatory migration", the massive provision of resources in terms of bulk supply of services and community facilities, the projected

life span of a particular mine and the economic viability of a mine or mine town (Moorhead, 1995). The NUM housing policy has not been changed in essence since its adoption, and was in line with the RDP and the National Housing Subsidy Scheme then being hammered out by the Housing Department. Its main points are set out below (Moorhead, 1995).

- Mines must ensure that there is a wide range of flexible, low-cost housing options, including single or family accommodation.

- Wages must be restructured so that they are "decent living wages", and the costs of accommodation, food and transport must be included ("clean wage").

- Until this level of wages is achieved, employers should provide a housing allowance, in the form of an equal amount across the board for all workers (i.e. it should not be differentiated according to wage levels). This allowance should be enough to cover the cost of a bond repayment or rent on a "decent house".

- Mines should upgrade or convert hostels into decent single and/or family accommodation.

- There must be a choice of tenure options open to mineworkers (renting, individual ownership, social ownership and tenancy etc).

- There must be effective participation of workers in all aspects of housing decisions, including the housing-delivery process.

- Hostels must be democratised, with joint decision-making on the running of the hostels.

In addition, the NUM began building housing committees at each mine, which would investigate existing housing provision, and make specific locally relevant proposals for housing development in each case[16]. To help this process, the union proposed that each mine should undertake a survey of existing housing and hostel facilities and workers' needs, in conjunction with the housing committee. The following questions should be included in the surveys:

- whether workers want family or single accommodation;

[16] The NUM document "housing materials", issued by the housing unit, was very helpful in explaining various housing finance models (bond subsidies, rate subsidies, capital subsidies, living out allowances etc) and assessing these for affordability for mineworkers (See NUM, 1994.)

- what their preferences with respect to tenure are (rental, individually-owned, or social housing);
- whether workers intend settling permanently or temporarily in the area near the mine;
- what workers can afford to pay;
- whether workers' priority is housing in their place of origin and what their needs there would be; and
- what form community facilities need to take.

Social housing was regarded by the NUM housing unit as worth exploring. There were essentially two models. The first of these was community ownership/rental where the land and housing are owned and controlled by the community and rented to individuals. The second was, limited individual ownership in a community housing context (with rent-to-buy schemes falling into this category). In both cases, a community-based housing institution is formed to access subsidy and loan funds and individuals become members of the association or trust. This model has had some success for employed persons in urban areas such as Johannesburg, and is also being developed in the mining industry in several projects.

The NUM policy has influenced collective bargaining over housing matters throughout the 1990s and beyond.

Attempts were made to force the pace of hostel upgrading and family housing provision at the mines by the Leon Commission of Inquiry into Health and Safety in the Mining Industry in 1994/5, and the resulting Mines Health and Safety Act 1996. The Leon Commission highlighted the link between hostels and poor health, citing overcrowding, the lack of ventilation causing the spread of infectious disease (such as TB), the lack of normal family life contributing to the spread of HIV-related diseases, and the psychological stresses and strains involved. It recorded the views of Professor Francis Wilson[17] that the arrival of the NUM in the industry had introduced a new priority, family life and housing, into the collective bargaining system, which up till then had been strictly limited by apartheid legislation. However, in Wilson's assessment, this

[17] Professor Francis Wilson of the University of Cape Town Economics Department, who in the early 1970s had published the most important economic analysis up till that time of the migrant labour system in the mines, and the growth of segregated hostels as a way of containing black mineworkers throughout the entire South African economy during the "grand apartheid" era. (See Wilson 1972a, and Wilson 1972b.)

had not been a priority for the industry, and the result had been watered down to "commuter migrancy" (Leon Commission, 1995). The Leon Commission addressed itself to the question of what should be done about the hostels. It responded in the following ways to the evidence it had heard:

> *In considering the evidence the Commission realises that the question of hostels/compounds is an exceedingly complex one for which there is no immediate solution. Conditions vary from mine to mine but the system is essentially an unnatural one. Those giving evidence acknowledged that the system could not be abolished overnight without bringing the mining industry to a grinding halt, and that about 50% of current residents in hostels would still opt for single male accommodation. Moreover there were some mines with a very limited life span at which it would be financially impossible to upgrade their hostels. What was important was that a significant step should be taken in suggesting that housing at mines become part of the Reconstruction and Development Programme. (Leon Commission 1995:13)*
>
> *The Commission accepts without reservation the opinion that the migrant labour system on the scale at which it operates in the mining industry is socially unsatisfactory and a serious multi-factorial adverse influence on the well-being of workers, their families, and society as a whole. (Leon Commission 1995: 58)*
>
> *The mining industry has in recent years adopted a policy of labour stabilisation. This system gives experienced miners the automatic right to return to their previous jobs provided they return within a specified time. It does not change the fundamentals of the migrant labour system. More time exposed to the adverse circumstances of living and working on the mines will mean for many a greater chance of acquiring overt disease……the fundamental fault which underlies the migrant labour system, namely the dislocation of the family unit, is not changed or ameliorated by labour stabilisation. (Leon Commission, 1995: 60).*

In view of the importance of improved living conditions to ensure the well-being of the labour force, the Commission made the following recommendations:

1. That the mining houses take a policy decision to move towards family housing over a period of time, and that in the meantime steps be taken to upgrade existing hostels wherever it is "reasonably practicable" to do so.

2. That a tripartite structure should be established between the State, the mining industry and representatives of employees to seek ways and means of improving the lot of workers who live on the mines, and to investigate the whole question of housing and accommodation for workers and their families at mines, with due regard for the continued viability of communities thus established[18].

[18] The latter point refers to initiatives that should be taken to avoid the "ghost town" phenomenon where mining towns do not develop other industrial bases, so that when the mine closes, there is no work for retrenched miners, and they cannot sell their houses. *"I grew up in Bloemfontein and Kroonstad and remember very clearly when those mines were opening up in the boom era of the late 1950s. Everyone said the Welkom mines were going to last only 20*

3. That for mines with a remaining life of ten years or more the industry improves, within five years, accommodation to the point at which no more than eight men are housed in a single room on any mine.

4. *If provision were made to offer five percent of the workforce family housing each year for the next decade (arriving at 50% in ten years) on mines having a life of 10 years or more, this would be a major step forward as it would enable the hostel accommodation to be improved to provide more space, more privacy, and better ventilation. (Leon Commission 1995: 59)*

5. *It would not be unreasonable to suggest that consideration be given to the provision of married accommodation to be made available on new mines for 50% of the workforce. (Leon Commission 1995: 59)*

In the ensuing debate on the provisions of the Mines Health and Safety Bill in the Parliamentary Portfolio Committee on Minerals and Energy, the issue of the proposed ministerial powers to regulate "standards of housing and nutrition of employees who are accommodated at a mine" (contained in clause 99(1)(p) of the Bill) was debated. The Chamber of Mines put forward its view on this and other matters in a document entitled "Comments by Mining Industry Employers on the Mine Health and Safety Bill", which was circulated to the members of the Portfolio Committee on Mineral and Energy Affairs of the National Assembly. In this document, the Chamber gave various arguments as to why clause 99(1)(p) should be excised from the draft Bill. These were essentially twofold: firstly that ministerial regulation under the Mines Health and Safety Act was not the right forum to deal with the Leon Commission of Inquiry recommendations for minimum standards for housing and feeding workers. Secondly, the Chamber expressed its preference for this to be negotiated in bipartite collective bargaining between the employers and employees to avoid legal standards and clear time frames entering the equation. The document asserted that in any event the Leon Commission was mistaken in suggesting a connection between hostel accommodation and occupational health:

> *No currently valid scientific link has been established between hostel accommodation and occupational health……..a narrow prescriptive limit of 8 people per room lacks any observable scientific basis; in the absence of contextualisation in terms of available floor space, cubic air space and ventilation factors it was clear that such an undefined, prescriptive recommendation could not be justified. Until is has been shown that current hostel accommodation arrangements had a significant*

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years - at a fixed gold price then of $34. They planned to establish secondary industries to avoid ghost towns developing. The mines have lasted 20 years longer than anticipated and there are still no secondary industries. I believe this is a criminal indictment." (Jourdan 1995: 199).

effect on occupational health, there were no grounds for the Commission's recommendations in respect of hostel accommodation and family housing. (Quoted in Lewis & Jeebhay, 1996: 442).

In essence, the Chamber's argument consisted of the following parts:

1. The brief of the Leon Commission is "occupational health" narrowly conceived.

2. Therefore, with regard to hostels, the only issue of relevance to the Commission is "do the hostels cause disease?", and in particular, “do they facilitate the spread of communicable diseases?”

3. The Commission did not prove that reducing the room occupancy rate to eight would reduce the prevalence of communicable diseases, and therefore there is no basis for their recommendation on room occupancy. It would need to be backed up by "scientific" evidence, linking a composite index of room occupancy, floor space, cubic air space and ventilation to communicable disease outcomes.

4. Until this is done, the Chamber repudiates any attempt to regulate room occupancy.

However, the problem of communicable disease is but one of the flaws in the compound system of labour, as evidenced by the writings of hostel dwellers (e.g. Chimeloane's novel of 1998), documentary films such as "The colour of gold" and "gold widows"[19] (Edkins, et al., 1992), sociological research into hostel life (Ramphele, 1993), ethnographic research into sexual politics engendered by the migrant labour system in the mining industry (Moodie & Ndashe, 1991 and 1994), reports from mine employee assistance centres (Molapo, 1995:[20]), and the disastrous AIDS pandemic amongst mineworkers.

The Chamber's submission to the Parliamentary Portfolio Committee on the Mines Health and Safety Bill also grated against the certain provisions of the South African Constitution 1994:

Human Dignity: Everyone has inherent dignity and the right to have their dignity respected and protected. (Constitution, 1996)

[19] In "the colour of gold" the residents of the compound next to shaft 4 of President Steyn Mine freely talk about compound life and their despair as people; in "Gold widows", women in Lesotho talk about their experiences of survival without subsistence or men, waiting for remittances, looking after children, and dealing with the failure of rural subsistence agriculture and its replacement with urban poverty in Maseru and in South Africa.

[20] Molapo presents the six most frequent problems with which mineworkers present to the EAP at Western Deep Levels. They feature prominently "sexual depression, familial, marital, stress/anxiety, alcohol, depression, psychosoma, post-traumatic stress disorder, drug abuse", and so on. These are all conditions which are either caused by compound life, or exacerbated by the lack of strong social, community, and familial support, which is its hallmark.

Privacy: Everyone has the right to privacy…….(Constitution, 1996)

Housing: Everyone has the right to have access to adequate housing. The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of this right (Constitution, 1996)

The Reconstruction and Development Programme (RDP), the political programme of the African National Congress in terms of which the Constitution was drafted, also contains detail on housing and the issue of hostels:

Housing Standards: As a minimum, all housing must provide protection from weather, a durable structure, and reasonable living space and privacy. A house must include sanitary facilities, storm-water drainage, a household energy supply (whether linked to grid electricity supply or derived from other sources, such as solar energy), and convenient access to clean water. Moreover, it must provide for secure tenure in a variety of forms. Upgrading of existing housing must be accomplished with these minimum standards in mind.

Community organisations and other stakeholders must establish minimum basic standards for housing types, construction, planning and development, for both units and communities. Legislation must also be introduced to establish appropriate housing construction standards, although such standards should not preclude more detailed provisions negotiated at local level.

Hostels: Hostels must be transformed, upgraded and integrated within a policy framework that recognises the numerous interest groups in and around hostels and provides a range of housing options, including both family units and single people. The transformation of hostels must not deny any individuals or households access to the cities, including workers who maintain a rural base, families who desire integration into the city, and women with no security. Policies must address integration of hostels into communities, their safety and privacy (especially for women and children), and the various family living arrangements in hostels. Migrant labour, a consequence of past recruitment policies, will persist in the immediate future. Some housing types should be developed to cater for migrant workers and for those who engage in circular migration between city and countryside... (RDP, 1994).

2.3.2 The Mineral And Petroleum Resources And Development Act and the Broad-Based Socio-Economic Empowerment Charter For The South African Mining Industry

In pursuance of the policy environment so far outlined, the Mineral and Petroleum Resources Development Act, 2002 (DME 2002d, assented 10 October 2002) requires the Minister of Minerals and Energy to consult with the Minister of Housing, and develop (by 2007) a housing and living conditions standard for the minerals industry (DME 2002d: s100 (1)(a)). It also mandates the Minister to develop a broad-based socio-economic charter "that will set the framework, targets and timetable for effecting the entry of historically disadvantaged South

Africans into the mining industry, and allow such South Africans to benefit from the exploitation of mining and mineral resources" (DME 2000d: s 100 (2)(a)). The stakeholders in the industry subsequently agreed to the broad-based socio-economic empowerment charter for the South African mining industry, section 4.5 of which states:

> *Housing and living conditions: stakeholders, on consultation with the Mine Health and Safety Council, the Department of Housing and Organised Labour, undertake to:*
>
> - *Establish measures for improving the standard of housing including the upgrading of hostels, conversion of hostels to family units and the promotion of home ownership options for mine employees; and*
> - *Establish measures for improving of nutrition of mine employees. (DME, 2002b: 4)*

Annexure A of this charter contains a "scorecard" according to which mining companies will be assessed with regard to socio-economic empowerment, and which will influence judgements by government under the Mineral and Petroleum Resources Development Act about the conversion of "old order mineral rights" into new rights within a five-year conversion window period, whilst recognising the ten-year period. The scorecard contains the following item on housing:

> *for company-provided housing, has the mine, in consultation with stakeholders established measures for improving the standard of housing, including the upgrading of the hostels, conversion of hostels to family units and promoted home ownership options for mine employees? Companies will be required to indicate what they have done to improve housing and show a plan to progress the issue over time and is implementing the plan? [sic] (DME 2002b).*

2.3.3 The Truth and Reconciliation Commission Final Report 2003

The final report of the Truth and Reconciliation Report in 2003 (TRC, 2003) reviews the earlier report of 1998 (TRC, 1998). It notes that the TRC Reparation and Rehabilitation Committee (RRC) approached organised business and individual business leaders with the aim of encouraging them to contribute to the President's Fund. Business leaders referred to the Business Trust as their preferred vehicle for honouring business' responsibility to the victims of apartheid. In the event, the Trust has amassed a "paltry" (TRC 2003) R800 million in the fund. The TRC, aside from its discussion of individual reparations, therefore restated its original proposals for ways in which business could generate funds for this broader project of reparation and restitution, as follows:

- a wealth tax;
- a once-off levy on corporate or private income;
- each company listed on the JSE to make a once-off donation of 1% of its market capitalisation;

- a retrospective surcharge on corporate profits extending back to a date to be suggested; and
- a surcharge of golden handshakes given to senior public servants since 1990.

In the light of the continuing lack of settlement of the issue of corporate reparations, and the requirements of the Mineral Resources Development Act and the broad-based socio-economic empowerment charter for the mining industry, it is pertinent to ask whether a central national fund for financing housing development for mineworkers as a whole might not be the appropriate way for the industry to discharge its obligations under the Truth and Reconciliation Act.

2.4 MINE HOUSING STRATEGIES SINCE THE MID-1980s

2.4.1 Preferences of mineworkers

From the mid-1980s mines have commissioned surveys to attempt to determine their workforce's preferences for housing. Anglo-American polled 172 406 of its labour force in 1986, 47% of the married South African workers said they would settle with their families on or near the mine within five years, compared with 44% of the single South Africans, and 29% of the foreign mineworkers. Of 63 823 workers who said they would settle, 64% of the married South Africans, 70% of the single South Africans, and 41% of the foreigners said that settlement would be permanent. Anglo-American concluded that they had a target group of 53 338 married South Africans living in single-sex hostels - 14% of the entire workforce. Of these, almost half wanted to settle permanently in the mining area, and 80% wanted to own their own home. This survey was the basis for the design of the Anglo home ownership scheme that ran from 1986 to 1989, which was not successful because it was not affordable for the vast majority of the target group. In June 1988, only 407 (0.24% of the entire black labour force at Anglo) owned their own homes under the scheme, with another 392 signed up (a total of 0.47% of the black labour force). There was no finance or other support for those who could not afford the bond under the scheme, but who wanted to build informal housing. Only the higher skill and better paid levels participated (Crush and James, 1991).

The NUM conducted a housing survey amongst its membership in 1990, which looked at affordability of home ownership schemes amongst a sample of 250 workers. It concluded that only 8% of the African labour force could afford an unsubsidised house, which rose to only 14% if the mine subsidy were granted. Eighty-six percent of the entire membership were therefore excluded from the home ownership schemes that existed at the time. The NUM concluded that the home ownership schemes put forward by the mines in the late 1980s were only designed to divide the higher grade workers from the lower, and create an elite amongst the workers, which situation could be relied upon to divide the union (James, 1991b).

In the late 1980s, JCI gold mining company, which included Western Areas, Randfontein Estates, and H. J. Joel mine (a much smaller, newer mine in the Free State) developed a housing programme which comprised a Home Bond Subsidy Scheme (HBSS), and a Home Rent Subsidy Scheme (HRSS or living out allowance). In an attitude survey conducted amongst the company's workforce in 1988, around 20% of the workforce said they intended to participate in the HBSS, and of the remaining 80%, nearly four fifths said they would prefer to

stay in the hostel rather than leave the mine and rent housing in a township or other urban area. The rationale which half of them gave for not wanting to participate in the scheme was that they already had a house in the homelands, or in their country of origin (Swaziland, Mozambique, Lesotho). A further 16% said that they were planning to build in their area of origin. Other reasons were that they preferred farm life or had livestock in the rural areas, could not afford the scheme, were not ready/not married, were foreigners and so were excluded (from both the HBSS and the HRSS), or did not trust the scheme. This was similar to the findings of the NUM survey discussed above, which found that roughly 40% of the sample did not want to bring their families to live with them on the mine, because of the violence at that time in the townships, their concern for cattle and land rights in their rural areas of origin, the fact that they would not be able to afford urban housing large enough to settle their entire family, and the high cost of living in the urban areas.

In the event, only 3.08% of the JCI labour force participated in the HBSS by 1991, the largest proportion being 5% at Joel mine (Hunter, 1991). Both the low participation in the bond scheme and the rent scheme were due to unaffordability, as even the rent subsidy was considerably lower than the cost of rent, food and transport in the township areas around the mines. Many of the workers who took up the HRSS option were squatting in nearby informal settlements, and could not get further financial assistance to improve their dwellings. However, from the early 1990s both Anglo and JCI began to provide financial assistance to workers who wanted to initiate very basic informal houses that were capable of being upgraded over time. At the same time, they began to re-evaluate their home owners' schemes in the early 1990s, as interest rates were rising rapidly, whilst workers' contributions to the bond payments remained static. They thus retreated somewhat from offering direct finance and housing provision to "facilitating" workers' attempts to satisfy their own housing needs, by approaching the State to release land for settlement near mines, lending money to local authorities to buy land to provide cheap housing stands, assisting to remove red tape preventing the establishment of new townships, and providing bridging funds to encourage building societies to participate more in employee housing (Hunter, 1991).

Overall, the early 1986 Anglo survey demonstrated a high expectation and willingness of workers in the corporation to settle with or without their families in the mine area. However, as mine housing subsidy schemes were designed by mine managements without any real input from workers' representatives[21] (Hunter, 1991), later surveys elicited a much more cautious

[21] This was due partly to lack of agreement between the NUM and the employers about centralised bargaining. The NUM wanted to maximise the benefits of collective bargaining over housing for its membership by attempting to bargain at Chamber level. However, housing policy remained the exclusive domain of the mining houses, some of which did not recognise the NUM. As a result, the NUM was not involved at mine level in the discussions over housing during the late 1980s/early 1990s.

approach to participation in these schemes on the grounds of affordability, eligibility, and other reservations.

2.4.2 Models of mine housing delivery in the late 1980s and early 1990s

There were three main models of off-mine housing that the mines were developing in the early 1990s. The first of these was the "*township model*", where black mineworkers settled in owner-occupied houses in established or new black townships close to the mines. Around half of the housing units in the newly established township of Thabong outside Welkom in the Free State were ear-marked initially for Anglo and Gencor employees - in a block called "Sir Ernest Oppenheimer Park" - to house workers from seven surrounding mines. Other similar projects were established by Anglo-American at Kutlwanong near Odendaalsrus and Kanana near Klerksdorp for the Vaal Reefs Mine (Crush and James, 1991).

The second model was the "*company town*" model, used where mines were distant from existing townships, and where mines instead created new townships. An example was the "Wedela" settlement, originally built on mine property in the 1970s. Here, Anglo American constructed some 360 rental units, infrastructure, recreation facilities, and a technical high school. In 1986, Anglo bought up farm land around Wedela and applied to have the area proclaimed a "black township". By mid-1988, Wedela contained about 640 completed housing units and 2 300 residents. Anglo undertook to play the role of "black local authority" for two years while development took place, and appointed and trained councillors (presumably ex-mine employees) to take over these functions. It also put up a R10 million interest-free loan to the new local authority. Most of the houses up to 1988 were in the price range R40 000 to R80 000, too expensive for most mineworkers, so the final phase of the development from mid-1989 contained around 700 standardised block houses built and licensed through the SA Housing Trust. Owner-built housing was, however, precluded by Anglo's requirement to use only registered builders, to require prior approval for bond subsidies, and to prohibit workers from building their own shelter (Crush and James, 1991).

The third model was "*self-help housing*". Rand Mines led the way with this more flexible model, in which eventually hostel residents would be charged rent, and workers living off the mines would be given a "wage adjustment" to compensate them for the increased costs of buying, renting, or building their own homes off the mine. This model eventually became the "living out allowance" model of the later 1990s up to the present. Where employment at mines required compound residence, many mineworkers established their families in townships near the mines, but continued to retain bed space in the hostels.

2.4.3 Recent developments in mine housing

For all these forms of housing, no universal standards were adopted by the mining companies. Projects delivered different standards of housing according to company policy and practices. Recently, several mining companies are considering new large-scale low-cost housing programmes for their workforce, and new standards are emerging. This section looks briefly at two examples of such programmes.

The first is Xstrata SA Ltd. The Group Accommodation Survey report of 2002 stresses that with a combination of the R12 700 housing subsidy from the Department of Housing, and a living-out-allowance of R1 200 per month, most mineworkers in the company would be eligible, and could acquire property to the value of R85 000, inclusive of the stand. Depending on the price of the stand, a house of between 50 and 60 square metres could be built. The cost of services, however, are not included in this calculation. The Group Accommodation Survey, having assessed the relative costs of this option to the company compared to continuing with hostel accommodation, recommends this option as the way to go, with the maximum flexibility as to where mineworkers could acquire their property, as most already know where they want to live. Xstrata has designed a four-hour training package for mineworkers wishing to buy property[22].

The second example is the proposal from the Anglo-Platinum Shared Services Unit for a Group Low Cost Housing Programme under its Affordable Housing Project Charter. The platinum industry is expanding rapidly in the North-West Province, and the discovery and development of an entirely new mineable deposit in the next five years may double the labour force. The industry is experiencing difficulty in attracting skilled labour and is developing a low-cost housing programme as a way to do so. The various companies have developed a forum for co-operation and information sharing on this matter, and have been liaising with the provincial housing department and government on the issue. The proposal of the Anglo-Platinum Shared Services Unit is that the company should build 1 400 low-cost housing units each of 35 square metres for its labour force, at a total cost of R109 million. Two tenure options are proposed: ownership, and rent-to-buy. The unit calculates that employees will have to pay R793 per month under the Housing Bond Subsidy Scheme, or R657 per month under the rent-to-buy scheme (the latter being 20% more than they currently receive under the living-out-allowance benefit). These costs and figures do not depend on government subsidy, although the Unit suggests that employees with a salary of less than R3 500 per month will be considered for a

[22] Personal communication with Xstrata management

basic subsidy of R7 000 under the Housing Act, which could be used to pay the legal fees (R1 694) and the deposit on the dwelling. Under these conditions, the entire capital is estimated to be repaid at market interest rates in 15 years[23].

2.5 STATE MASS HOUSING POLICY AND DELIVERY POST-1994

2.5.1 Delivery and critiques

State policy on housing since 1994 has been guided by relatively fundamental and straightforward standards for housing to achieve basic requirements, both in terms of process and minimum standards. The physical standards adopted by the Housing Act 1997 and the subsequent National Housing Code are minimalist and pragmatic, designed to kick-start the national housing subsidy system. The extent to which government has succeeded in delivering on these basic physical and process standards for housing and infrastructure has become sharply contested, both by academic commentators (Wilson, et al., 2001; Donaldson & Marais, 2002; Bond, 2000a; Bond, 2000; Bond, 2002), and by communities and trade union organisations taking action.

The State housing subsidy is a capital subsidy. The National Norms and Standards for state subsidy define the maximum capital amount for municipal services to the dwelling, (maximum capital subsidy R7 500[24], available to those in the lowest income category). The maximum subsidy for the "top structure" (for the lowest income group) is R8 500. The minimum standards to be met by subsidised housing are (SA Department of Housing, 2000: 120):

- land acquisition and township establishment;
- water: single metered standpipe per erf;
- sanitation: VIP per erf (ventilated pit latrine);
- roads: access to erf with graded road;

[23] Affordable housing project charter for ASSU group properties, Anglo-Platinum. 2002-11-07

[24] These figures have since been adjusted upwards in the 2003 budget in line with the increase in the total subsidy to around R22 000 for income category R0 - R1 500 p.m., and R7 000 for income category R2 501 - R3 500.

- storm water: lined open channels;
- street lighting: highmast security lighting (subject to conditions); and
- top structure = 30 square metres (gross floor area).

Minimal additional subsidy can be accessed for special and difficult geophysical conditions (quality of soil).

The most common subsidy is the project-linked subsidy, which is allocated to developers who undertake new construction or in situ upgrade projects with the amount of subsidy determined by the number of qualifying beneficiaries in each of four subsidy income bands (Wilson et al., 2001). This form of subsidy has generally delivered a very basic shelter, a plot of around 250 square metres with secure tenure, and a combination of infrastructure services. Surveys of housing project beneficiaries disclose dissatisfaction with aspects of the housing process, particularly with the lack of amenities, costs, and adequacy of information, but many people have commented on positive improvements in their lives that the subsidy provided, such as taps, sanitation and, most importantly, a feeling of ownership and security (Wilson et al., 2001).

A number of important policy gaps have been identified with the state housing subsidy scheme to date (Wilson et al 2001: 354-355). These gaps are described briefly below:

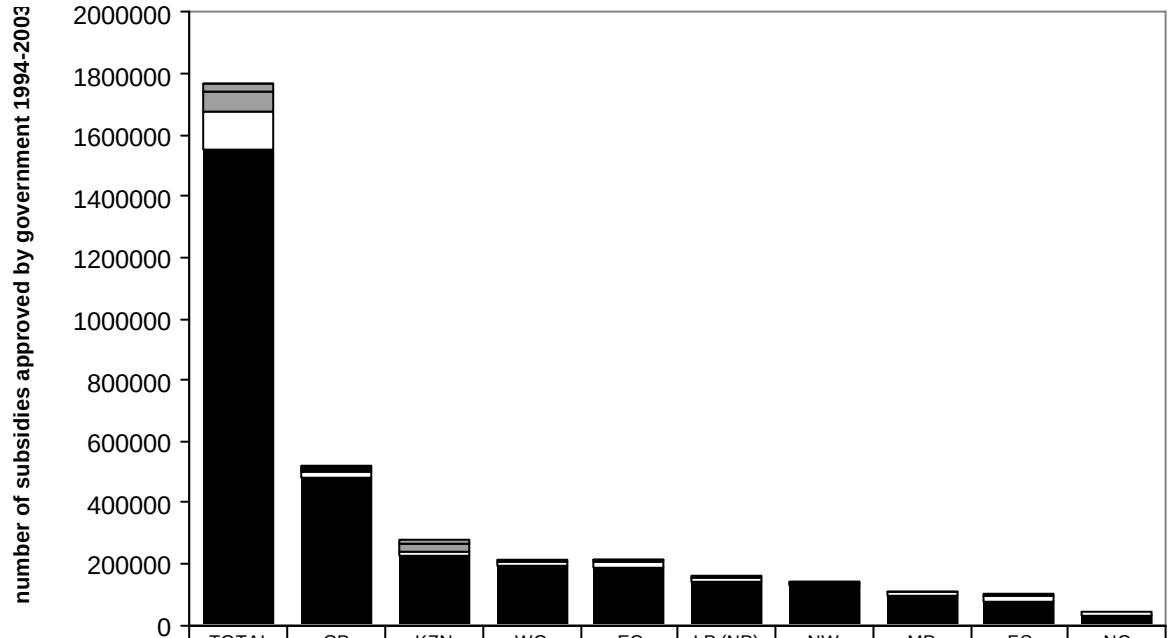
- The overwhelming emphasis given to rapid delivery obscures other aspects such as gender equality, the formalisation of tenure in informal settlements, and the greater promotion of community processes and of people-centred development in the housing sector.
- There is insufficient protection against "downward raiding" of low-income subsidy beneficiaries by higher income groups.
- The issue of land access for the poor has been overlooked.
- Rental housing has been overlooked.
- The programme has so far been driven by developers who build houses on cheap, uncontested land far from jobs and social services, and this reinforces peripheral, low-density forms of housing which are not coordinated with infrastructure development

programmes.

? There is a lack of effective monitoring of the schemes, which is important for integrating them into formal financial markets.

? There is a need for clear and unambiguous housing policies for non-citizens of South Africa, and that the South Africa government should be proactive about this.

Several of these points are very relevant to the possible articulation of mine housing policies with the state subsidy scheme. This question of linking state housing policy with mine housing policy is a key issue for the future of mine housing.



	TOTAL	GP	KZN	WC	EC	LP (NP)	NW	MP	FS	NC
RELOCATION	3608	2067	79	0	964	2	220	263	8	5
INSTITUTIONAL	24196	4940	11503	203	2200	0	4350	100	900	0
CONSOLIDATION	68254	10222	24434	8528	7566	3375	3403	2500	7658	568
INDIVIDUAL	123398	21536	11960	10278	17623	13330	7435	13901	18867	8468
PROJECT LINKED	1550632	478229	226132	192571	184933	143044	125518	92905	76206	31094

Source: Government Department of Housing, personal communication 2003.

FIGURE G Subsidy roll-out by Housing Department, by province and type of subsidy

2.5.2 Critiques of the National Housing Subsidy scheme standards

As seen above, unaided, the subsidy scheme does not include water-borne sewerage, but rather ventilated improved pit latrines. These rely on the soil on the site of the latrine to filter out contaminants from the water system, and treatment works for dealing with sludge off-site. Contamination of water supplies is virtually guaranteed, and there is no treatment of this (Bond, 2000). Biological contaminants include bacteria and viruses, which are consequent risks to human health. Chemical contaminants include nitrates and phosphates, which damage ecosystems through growth of algae. There are also risks to infants, especially through the consumption of nutrified water. It is not possible to control this kind of contamination in high-density, low-income urban settlements.

Good water drainage systems are also important from a health point of view, and their absence exacerbates flooding. Open drains carry excessive sediment into the receiving water body, and are dangerous for children who can be swept into rivers. They also facilitate erosion near the channels, which causes damage to houses.

Inadequate water supply and sanitation leads especially to an increase in communicable diseases, which may be water-borne (spread through water supply), water-washed (lack of water for personal and food hygiene) and water-based. Non-communicable diseases can also be spread through toxins accumulating in water supplies. Inadequate sanitation can result in the spread of intestinal helminths through contact or ingestion of soil contaminated by human faeces. Since the transmission of many of the above diseases depends on access of human wastes to water or people's mouths, the chain of transmission can be broken by safe disposal of excreta, personal and domestic hygiene, improving water quality and preventing recontamination of water supplies (Sanders and Groenewald, in Bond 2000a).

Distance to the water source is also very important for health. The primary risk factors for infant diarrhoeal disease, which is responsible for almost 25% of deaths amongst black and coloured children of up to four years, are absences of an inside tap, a flush toilet in the home, a refuse receptacle, and electricity, as well as low household income, and lower than standard five maternal education (Bond 2000a).

Connection of homes to electricity has large and obvious net health benefits (taking into account the environmental deficits associated with the way electricity is produced). The most important of these are the decrease in indoor household air pollution from coal and wood fires, and the improvement in the general environmental conditions because of a reduction in fuel wood collection.

These factors need to be included in any assessment of the quality of housing.

2.5.3 Other sources of standards for housing

In addition to the minimum standards for subsidised housing under the Housing Act 1997, The National Housing Code contains further information on housing standards, linking the National Building Regulations to affordable housing programmes. These standards also apply, and a municipality can be persuaded that a building complies in one of several ways, as follows:

- compliance with the "deemed to satisfy" rules of the South African Bureau of Standards document SABS 0400: the Application of the Building Regulations;

- a certificate issued by the Board of Agreement SA, that is:
  - a MANTAG certificate (conventional, or formal building methods) or
  - an Agreement Certificate (for unconventional building methods); or

- a "rational design" prepared by a competent person.

MANTAG standards relate to acceptable health and safety criteria for houses and outbuildings, non-residential schools and primary health care centres, with a view to cost minimisation for local authority use. Agreement certification is increasingly the most common technical certification for housing supplied under the National Housing Programme. It involves compliance with technical standards for non-standardised building and construction projects (such as those produced using labour intensive technologies) through a process of objective assessment by an independent organisation with more than 30 years experience. Agrement South Africa is such an organisation which is most commonly used by suppliers of housing to the national housing programme (see www.agrement.co.za) "Rational designs" are normally presented in relation to the structural strength and stability of a dwelling, but can also cover resistance to rainwater penetration, damp proofing, fire protection, lighting and ventilation, and drainage. The Housing Code mentions that the Department of Housing insists that the competent person with regard to a building applying for subsidy must identify those aspects of the work that are the subject of rational design, inspect for compliance with the rational design, and assume full professional responsibility for the subsequent performance of the subjects covered by the rational design (SA Department of Housing 2000: section 3, appendix 2).

As well as the basic minimum standards listed above, the Housing Code thus incorporates

standards for structural design, materials and components, dimensions, site and site preparation, foundations, concrete and cement, floors, damp proof courses, and membranes, walls, roofs, doors, glazing, lighting and ventilation, drainage and sanitation, storm water, environmental efficiency, and thermal efficiency.

2.5.4 The public sector hostels re-development programme

This programme is discussed in the National Housing Code, and is part of the National Subsidy Scheme under the Housing Act 1997. The Housing Department is currently engaged in a process of consultation with stakeholders over the future of this programme, and research has been conducted on hostel redevelopment under the umbrella of the Urban Sector Network (Smith, 2003). Although the Public Sector Hostels Redevelopment Programme is restricted to hostels owned by local authorities and "grey area hostels" where ownership and responsibility are disputed, the research has considerable relevance to the process of hostel redevelopment in the mining industry, and even to standards being discussed for new off-mine housing developments. It is recommended that the stakeholders in the mining industry consult this research for process recommendations, physical standards for housing, access to community amenities, and the cost assessments given, which include subsidy components under the National Housing Subsidy Scheme. A training package has been developed by Development Action Group (Observatory, Cape Town) which could be useful in the design of training for mineworkers on housing programmes, and which is available from the Urban Sector Network, based in Johannesburg.

3. METHODOLOGY

3.1 THE TELEPHONE SURVEY OF MINE MANAGERS

3.1.1 Study design

This is a descriptive cross-sectional study. It gives a situation analysis of mineworkers' housing for underground mines in South Africa, of all mineral groups. It looks at the types of housing schemes and benefits available to mineworkers, the numbers of employees who have taken up the various options off- or on-mine, and characteristics of mineworkers housing that have a bearing upon their health or safety. The study used a questionnaire (see appendix D), administered telephonically to mine managers who were designated by the General Manager or CEO of the mine as the person most responsible for mine housing issues.

3.1.2 Sample selection and size

The Department of Minerals and Energy (DME) official list of all mines in South Africa (as in the six- monthly report of December 2001) was used as the sample frame of all mines in the country. From this very large list (which includes both operating and closed mines, all minerals, all technologies whether open cast, underground, undersea, etc), 114 mines were selected which were exclusively currently mines operating underground, because the resources committed to this research were insufficient to extend the sampling to surface operations as well. In the light of this, the author made the decision to include only underground employees, because of the generally higher frequency of injuries and occupational illness in underground work. Further research could look at housing issues for surface mining operations as well, should resources be made available.

From the DME group of 114 currently operating underground mines, the sample finally came down to 102 mines, after non-operating mines were eliminated, and after it was discovered that Anglogold was unwilling to give any but an overall group response to the questionnaire, rather than a mine-level response, which the survey design required. Therefore, although Anglogold participated in one interview to cover all its operating mines, the information from this interview could not be used as there were too many problems in reconciling group data with the

questionnaire, and standardising its interpretation with that of all the other companies, which granted interviews at mine level. Thus the final sample of 102 mines represents all current, officially operating underground mines in South Africa, with the exception of Anglogold mines, and those few which were untraceable from the DME list. The omission of Anglogold was unfortunate, as the company is an influential employer in the industry and, therefore, its mine-level practices and policies regarding housing are an important part of the overall mine-housing picture. Nevertheless, the sample of 102 mines reported here contained around 88% of the total employment in underground operations in the officially registered industry as a whole (including both contractors and permanent or company labour).

3.1.3 Data production and analysis

The telephone survey was conducted by Markdata Strategic Research Solutions, using a questionnaire developed by Fafo Institute for Applied Social Science. The data were analysed using SPSS.

The questionnaire collected data on employee numbers (both permanent and contractors) at each mine, but the figures given by the respondents were very different from the official figures in the DME half-yearly summary of employment at December 31, 2001. Only 26% of the survey respondents gave figures for total mine labour that were within 80% - 120% of the official figure. Since the differences were too large to be accounted for by real changes in employment levels at mines during the first half of 2002, the official figures were used in this report. Other questions asked the respondents about the proportion of employees, for example, who were living in single-sex hostel accommodation on the mine, and the percentages were used to calculate estimates of actual numbers based on the official figures for employment.

3.1.4 Ethical and legal considerations

Mines participated in the survey on the strict understanding of confidentiality. Thus the names of participating managers and mines are not mentioned. The project had the approval of the Ethics Committee of the University of the Witwatersrand for Research with Human Subjects.

3.2 THE KNOWLEDGE, ATTITUDE AND PERCEPTIONS STUDY

3.2.1 Study design

This is a cross-sectional descriptive study, in which a questionnaire (see appendix E) was administered face-to-face by enumerators at five mines.

3.2.2 Sample selection and size

The sample of employees was a non-probability convenience sample, taken from five mines, being gold, platinum, diamond, coal, and manganese. Owing to logistical difficulties, and incomplete information about the workforce in several of the mines, it was impossible to construct a probability sample. In selecting or rejecting candidates for interview, however, the enumerators were working to a set of guidelines that they should only accept underground permanent employees of the mine, preferably below team leader in grade, and should include particular combinations of five main types of housing situation: single-sex shared hostel rooms; "single quarters" (employees living on mine property but having their own room); mine family accommodation; employees living off-mine with living out allowances; and employees who are buying their own houses with mine bond subsidies. The sampling grid used (Table 3.2.2.1) was designed to include employees in the different sorts of housing situation in proportion to their numbers at the mine. This meant that employees above the team leader grade had to be included, or some types of housing situation (such as owner-occupiers with mine bond subsidies) would be excluded. In the event, deviations were necessary from these precise numbers because of logistical difficulties during the fieldwork phase, and the final sample was 432 mineworkers.

TABLE 3.2.2.1 Knowledge, attitudes and perceptions survey of mineworkers: sampling frame: total 500 employees

Recnum*	Mine	Single-sex accommodation at mine hostel, in shared rooms	Long stay family accommodation at the mine (in hostel, or in mine village etc	Workers in single flats on mine - not sharing with anyone	"Living out allowance" and renting or buying off the mine	Bond subsidy and buying their own house off the mine	TOTAL
172	Gold	33	20	100 (pay rent to the mine)	25	0	**178**
509	Diamond	0	20 (rented from local council - previously upgraded hostel)	0	0	33	**53**
555	Platinum	33	20	0	25	33	**111**
2326	Manganese	0	20	0	25	0	**45**
3998	Coal	34	20	0	25	34	**113**
	TOTAL	**100**	**100**	**100**	**100**	**100**	**500**

* 172 = Gold mine; 509 = Diamond; 555 = Platinum; 2326 = Manganese mine; 3998 = Coal mine

The results of the survey are presented as cross-tabulations of the variables, and no inferential statistics are used. This is because the sample is not a representative sample of the industry as a whole, but is the entire sample frame of underground mines in the country (minus Anglogold, as discussed above). Thus no hypotheses are tested: the results stand by themselves as a "snap shot" of mines which employ around 88% of the underground labour force in South Africa. Many of the cross-tabulations however, contain proportions of employees in different sub-groupings, so that judgements can be made about how important or relevant the findings are for the 102 mines as a whole.

3.2.3 Measurements

The questionnaire (see appendix E) gave some measurement of the average quality of housing available to different groups of mineworkers in the sample, especially those in mine housing and those living off-mine. It also allowed some comparisons of workplace injury frequency and severity between these groups, and also the frequency with which respondents reported an impression about occurrence of TB in their households or dwellings. The questionnaire contained the following main items, many of which have to do with types of housing arrangements:

- financial housing benefits;
- tenure options (renting, owing, or living in mine housing);

- location of housing (on or off mine, and different types of each);
- preferences of the employee with respect to his or her housing;
- family circumstances with regard to housing, and reasons for attitudes towards family housing;
- housing history while working at the mine (movements on or off the mine);
- access, attitudes and knowledge of national housing subsidy eligibility;
- perceptions of housing and job security, and promotion prospects at work;
- preferences for tenure options and desired location (mine area, rural home, or other) for investment by the employee in his or her housing;
- income and expenditure: housing costs, and bulk services costs vs. monthly income;
- the physical nature and standards of the dwelling;
- persons per room and overcrowding;
- the nature and quality of bulk essential and communication services provided to the dwelling;
- access at the dwelling to community amenities;
- experience of serious crime at the dwelling;
- the effect of the employees situation on health and safety at work, and reasons for the answers given;
- demographic information about the employee and his work history, including shiftwork and sleep patterns, nationality and residence rights, rural home, injuries at work (IODs);
- commuting times and methods; and
- exposure to active TB at home.

3.2.4 Data production and analysis

The data was produced by enumerators for Markdata Strategic Research Solutions at the five mines, and was analysed by Fafo using SPSS. As discussed above, only descriptive analysis was conducted because this was not a probability sample.

3.2.5 Ethical and legal considerations

Mines and employees participated in the study under conditions of strict confidentiality. The completed questionnaires were seen only by Markdata staff. Unfortunately, none of the mines arranged the interviews in work time, so these had to take place in the workers' own time. This however, did not affect the completeness and quality of the data, although it did considerably increase the time required to produce the database. The project had the approval of the Ethics Committee for Research on Human Subjects (medical) of the University of the Witwatersrand.

3.3 THE HOUSING INSPECTION SURVEY

3.3.1 Study design

Like the other two surveys, this was a cross-sectional physical survey of a limited number of mineworkers' residences. The survey was conducted by mine housing experts at Decti Financial Services, at four of the mines included in the knowledge, attitudes and perceptions study (gold, platinum, diamond, manganese). The fifth mine (coal) could not be included because of a protracted industrial dispute at the planned time of the survey. The inspectors used a "checklist" of items to inspect at each dwelling, and were accompanied by the occupier(s), who conducted the inspectors around the dwelling, and answered some questions on their ratings of certain aspects, or on characteristics which could not be visually assessed, such as community amenities, or ventilation of the house or hostel room. The checklist is given in appendix F. Photographs (with no persons visible) were taken of certain aspects of the dwellings inspected to provide a visual record.

3.3.2 Sample selection and size[25]

Ten dwellings from each of the four mines were inspected (a total of 40 employees), with a view to gaining as much variety as possible of types of housing occupied by employees at the lower end of the wage scale at the mines[26]. The inspectors were asked to include "unmarried" (i.e. single-sex) hostel rooms, family hostel accommodation, and mine villages, as well as rented housing and owner-occupied housing where the employee was receiving a bond subsidy, a living out allowance, or no housing benefit at all from the mine. Sample employees from the platinum and manganese mines were more likely to be living off the mine than their counterparts in the two gold mines and the diamond mine[27].

This sampling strategy therefore gives a picture of the range of housing (linked to income) available to mineworkers, and not a picture of the average housing standard for the majority of the workforce. However, since the majority of the workforce at mines is in the lower-income brackets, it can be inferred that the cheaper and lower-quality off-mine housing depicted here is a measure of the average housing quality for off-mine housing for the workforce as a whole. Similarly, since we know that lower-income employees living off the mines are the least likely to be receiving a bond subsidy (because of the cost), we can assume that the lower income groups living off the mines are those receiving a living out allowance. A small number of employees had received a state housing grant (RDP housing grant) for their dwelling, and these are also likely to be the lower income group, as the upper-monthly income limit for receipt of such a grant (from 1st April 2002) stands at R3 500. It was significantly raised recently.

Thirty-nine out of the 40 employees were men, and the one female employee was an ancillary worker on the surface. Their grades and occupations varied from Patterson Band C, or grades 8-12 down to Patterson Grade A or grades 5-7[28]. One third were 25-39 years of age, about one-half were 40 to 50 years of age, and one fifth were 51-58 years of age. Younger employees were marginally more likely to be living off the mine, but those older than 50 were much more likely to be living on mine premises (in hostels or mine villages)[29].

The most obvious sample difference between those living on and off the mine is in the

[25] Please note that all of the charts and tables referred to in this section are to be found in Appendix C.

[26] For an indication of the variety of dwellings, tenure, land ownership, location, and financial arrangements, see Tables 33-38.

[27] Table 37.

[28] See Table 31 for list of grades and occupations of the employees who participated in the inspections.

[29] See Table 32.

composition of their households. Households with children were much more likely to be living off the mine than on the mine, when compared with all other household compositions, including those where the mineworker is cohabiting with a female partner in the absence of children in the dwelling[30].

The living-out-allowance was the most widely received benefit for those in the sample living off the mine. About one half of those living off the mine were receiving it, while almost one third had a monthly bond subsidy, and 12.5% had no housing benefit at all. Twelve-and-a-half percent of those living on mine premises also had a living out allowance[31]. With regard to the type of "top structures" sampled, about four fifths of those living off the mines were in houses, while about 8% were in flats, and 12.5% were living in free-standing informal dwellings (no-one lived in a backyard shack). Tenure options amongst those living off mines were divided between owner-occupiers without RDP grants (half of them), owners with "RDP" grants (12.5%), renting (16.7%), and rent-free employer-owned housing. Informal tenure was held by 4.2% of those living off the mine.

3.3.3 Measurements

With each inspection, the inspector was accompanied by the occupant of the dwelling, and answered a number of "checklist" questions about the dwelling and his or her own assessment of certain aspects. The "checklist" also included certain questions where the inspector was required to give expert perceptions of some of these aspects, and others.

The full "checklist" is appended to this report (see appendix F). It contains five main batteries of questions on housing quality, which are as follows:

1. **Bulk services inventory**: (Bulk services delivery at dwelling: score out of 30). This includes items for existence, standard and reliability of supply of water, electricity, sewerage disposal, refuse removal, storm water drainage, security (at the dwelling itself, and in the neighbourhood), access by road, street lighting, and also the location with respect to the dwelling of the toilet and water supply, the type of sewerage disposal system (flush toilet vs. pit latrine), and the type of water supply (hot vs. cold water only). The scores for all these items were then summed to give an index. The lowest score attainable was zero, the highest 30.

[30] See Table 33.

[31] Table 34 - but note the numbers were small here.

2. **Employee satisfaction with bulk services**: (Employee rating of bulk services). Employees were asked to rate each of the services listed above on a four-point scale: very dissatisfied (0); dissatisfied (1); satisfied (2); very satisfied (3). The ratings were then summed to give an index, with the most satisfied gaining the highest score (maximum 27).

3. **Living conditions assessment**: (Living conditions: score out of 24). The employee was asked to rate the following: thermal comfort (in summer and winter), waterproofing in the rainy season, smoke and fumes from cooking appliance used, risk of shock, fire or fume/gas from cooking appliance, ability to sleep in the dwelling, and how crowded the dwelling is. The inspector rated cleanliness and general hygiene, and ventilation of the dwelling. An index was constructed from the sum of scores on all these items, with a high score meaning a higher standard.

4. **Access to community amenities**: (Distance from dwelling to community amenities: score out of 14.) The respondent was asked to assess the distance from his dwelling to a range of community amenities, and these were coded as less than 1 km, between 1 and 5km, and greater than 5km. These were then given a score, with a greater distance being given a lower score. The scores for the items were then summed to give a composite measure (maximum score 14) of proximity to the following group of services: shops, doctor, hospital, chemist, public transport stop, school, public sports field.

5. **Employee rating of community amenities**: (Satisfaction with community amenities: score out of 14.) Employees were asked to rate, on a four-point scale (0-3), their degree of satisfaction with the community amenities listed in 4 above; a composite measure was then made from the sum of their responses, with the most satisfied having the highest score (maximum 21).

These summary scores were then used for comparisons of means, and also recoded into grouped scores for purposes of analysis by cross-tabulation. They constitute an important part of the outcome measures for the inspection checklists, but there are other outcome measures as well, such as floor area of the dwelling, persons per room, floor area per person, and so on (which are the most objective measures).

Some of the questions in the checklist allow comparison between the inspector's rating of an item and that of the employee. Generally, where this was possible (as in their ratings of the adequacy of the space for the household and the quality of basic facilities and equipment such

as cooking facilities), there was reasonable concurrence between the two assessments, which encourages confidence in the ratings given by both[32].

3.3.4 Data analysis

Data from the checklists completed by the inspectors was captured and analysed in SPSS.

3.3.5 Ethical and legal considerations

Strict confidentiality was assured so that neither the mine, employee nor the dwelling could be identified by anyone other than the research team. Photographs did not include any people. The project was approved by the Ethics Committee for Research on Human Subjects (medical) of the University of the Witwatersrand.

[32] See Tables 40 and 47.

4. RESULTS AND DISCUSSION

4.1 THE TELEPHONE SURVEY OF MINE MANAGERS – RESULTS[33]

4.1.1 Characteristics of the respondents and survey mines

The large majority of respondents were human resource managers or their deputies[34], because in most cases the mine manager recommended the human resource department as the most knowledgeable and involved in mine housing issues. The next most common respondents were the General Manager himself (nine cases), the Financial Manager (five), the Accountant (three), and the Community Service Superintendent (three). No-one was designated as a specialist in housing issues alone. At mine level, therefore, housing issues are not regarded as a management specialism.

The mines were producing all types and groups of minerals mined in South Africa, and thus were mainly coal (32), gold (30), platinum (11), diamond (10) and chrome (8)[35]. Sixty-eight of the mines were in the total mine labour size ranges 251 to 5 000, but 15 of them had less than 250 workers (permanent and subcontractors), whilst 19 had between 5 001 and 28 833 employees[36]. Geographically, the mines were considerably concentrated in three provinces: Mpumalanga (38), the North-West province (15 mines) and Gauteng (13 mines)[37].

The extent of subcontracted labour at these mines was substantial, showing the importance of including contractors in any discussion of mine-housing issues. The average subcontracting rate for these mines (contractors as percent of total labour at the mine) was 26.4%, whilst the median was 16%. Around one third of mines did not have any contractors, but about one tenth of them had from 80 to 100% of their labour force subcontracted. About 30% of mines had

[33] Please note that the charts and tables referred to in this section are to be found in Appendix A.

[34] See Table 1.

[35] Chart 1.

[36] Chart 2.

[37] Chart 3.

between 20 and 80% of their labour force subcontracted[38]. About one tenth of mines were small mines (total labour 250-500) with no contractors, but almost the same amount (9%) were medium-sized mines (1 001 to 5 000 total labour) with between 20 and 40% of the labour force subcontracted[39]. About one quarter of all contractors, and one seventh of the total labour force at the 102 mines were in mines where contractors constituted from 20 to 40% of the entire labour force[40]. The degree of subcontracting was much higher amongst mines where the NUM was not mentioned as a recognised union for grade 2-8 employees (mean=51.5% subcontracted, median=55.9%), than for mines where the NUM was recognised as a negotiating partner for collective bargaining purposes (median subcontracting rate=13%, mean=22%)[41]. Besides the single nickel mine (which had the highest subcontracting rate of 56%), coal, gold and platinum used contract labour the most[42].

4.1.2 Mineworker housing arrangements

The survey asked questions about the proportion of grade 2-8 employees who have the following housing situations[43]:

- single-sex hostel accommodation on the mine (two thirds of mines reported this arrangement, and 46% of total mine labour were in single-sex hostels);
- family hostel accommodation on the mine (45% of mines, but only 6% of total mine labour);
- single flats on the mine (21% of mines, 2% of total mine labour);
- living out allowance (subsidy for housing off mine) (73% of mines, 31% of total mine labour);
- bond repayment subsidy to buy a house off the mine (7% of mines, <1% of total mine labour);

[38] Chart 4.

[39] Table 2.

[40] Chart 5.

[41] Chart 6.

[42] Chart 7.

[43] See Chart 8.

- bond rate subsidy (interest rate pegged at subsidised level for workers buying their own house off the mine) (8% of mines, <1% of total mine labour);

- housing capital subsidy (a payment towards a deposit on a house for a worker buying a house off the mine) (1% of mines, <1% of total mine labour); and

- 13% of total mine labour had none of the above arrangements and, thus, must be living off their respective mines with no company housing subsidy).

By far the most common housing arrangement for underground mineworkers in the 102 mines were single-sex-hostels (on mine) and living out allowances (off mine), which together covered 77% of all labour (including contractors and permanent labour). A further 13% had no special arrangement either for housing provision or housing financial benefit. The large majority of both single-sex hostel dwellers and living-out-allowance beneficiaries were in gold and platinum mines[44]. Single-sex hostels at gold mines accommodated one third of total mine labour in the 102 survey mines, and at platinum mines they accommodated 11% of all labour in the survey[45]. Living-out-allowance beneficiaries at gold mines were 13% of all the labour surveyed, and at platinum mines were 11% of all labour. Single-sex hostel dwellers were most geographically concentrated[46] in the North-West province (16% of all labour in 102 survey mines), and in Gauteng (15%).living-out-allowance beneficiaries were also concentrated in the North-West Province (12% of total labour in 102 mines), Gauteng (6%), and also Mpumalanga (6%). The housing issue on underground mines in South Africa is therefore considerably concentrated amongst workers at gold and platinum mines, in the North-West Province and Gauteng.

There is considerable variation in housing arrangements between different mining houses[47]. A mining house is defined here as a company that owns three or more operating mines. All others are regarded as "independent mines". For the sake of confidentiality, the mining houses are numbered anonymously in this report. The variation between them emphasises the importance of policy, practices, and strategy at head-office level in corporations in determining the outcome of mine housing issues, within the overall pattern of dominance by the twin strategies of single-sex hostel accommodation in shared rooms on the one hand, and living out allowances as the main form of off-mine housing on the other. For example, the variation in average percentage with bond repayment subsidies is from 12.6% of grade 2-8 in mining house 8, to zero percent in

[44] Chart 9.

[45] Charts 9 & 12.

[46] Charts 10 & 13.

[47] Chart 11.

mining houses 2,9,7,1,10,4,11 and 6. Independent mines had an average of 4.6% of grade 2-8 employees with this form of off-mine housing benefit.

There is even greater variation between the different minerals[48]. Diamond mines had a much larger variety of housing options in place than gold mines, while coal and chrome mines had by far the largest proportion of employees with living out allowances. Shale, feldspar and nickel mines had almost everyone without any form of housing provision or financial benefit, resembling the manufacturing sector much more than the traditional mining pattern of migrant labour and hostel accommodation. These operations presumably employ locally sourced labour whose housing is assumed to be already established when they are hired. The variation in housing arrangements is similarly wide between different provinces[49]. A mineworker in Gauteng has a very high chance of being accommodated in a single-sex shared hostel room, whereas the widest variety of arrangements is found in Limpopo. Living out allowances are most widely used in KwaZulu-Natal and Mpumalanga, as was expected as these are the provinces where coal mines are concentrated.

Trade union membership also had an impact on the type of housing situation a mineworker had. The majority of mines (61) were organised by the National Union of Mineworkers for collective bargaining purposes between management and grades 2-8. However, there were seven mines at which these grades were organised into other unions. NUM members were less likely than other union members to be living in single-sex hostel accommodation at the mine or receiving a monthly rent subsidy (living out allowance), but more likely to be in family hostel accommodation, single flats at mines, or receiving bond repayment subsidies. This somewhat reflects the policy of the NUM for the past ten years or so, to campaign for upgrading of hostels, and alternatives to single-sex hostel accommodation in the form of family accommodation or home ownership[50].

[48] Chart 12.

[49] Chart 13.

[50] Chart 14.

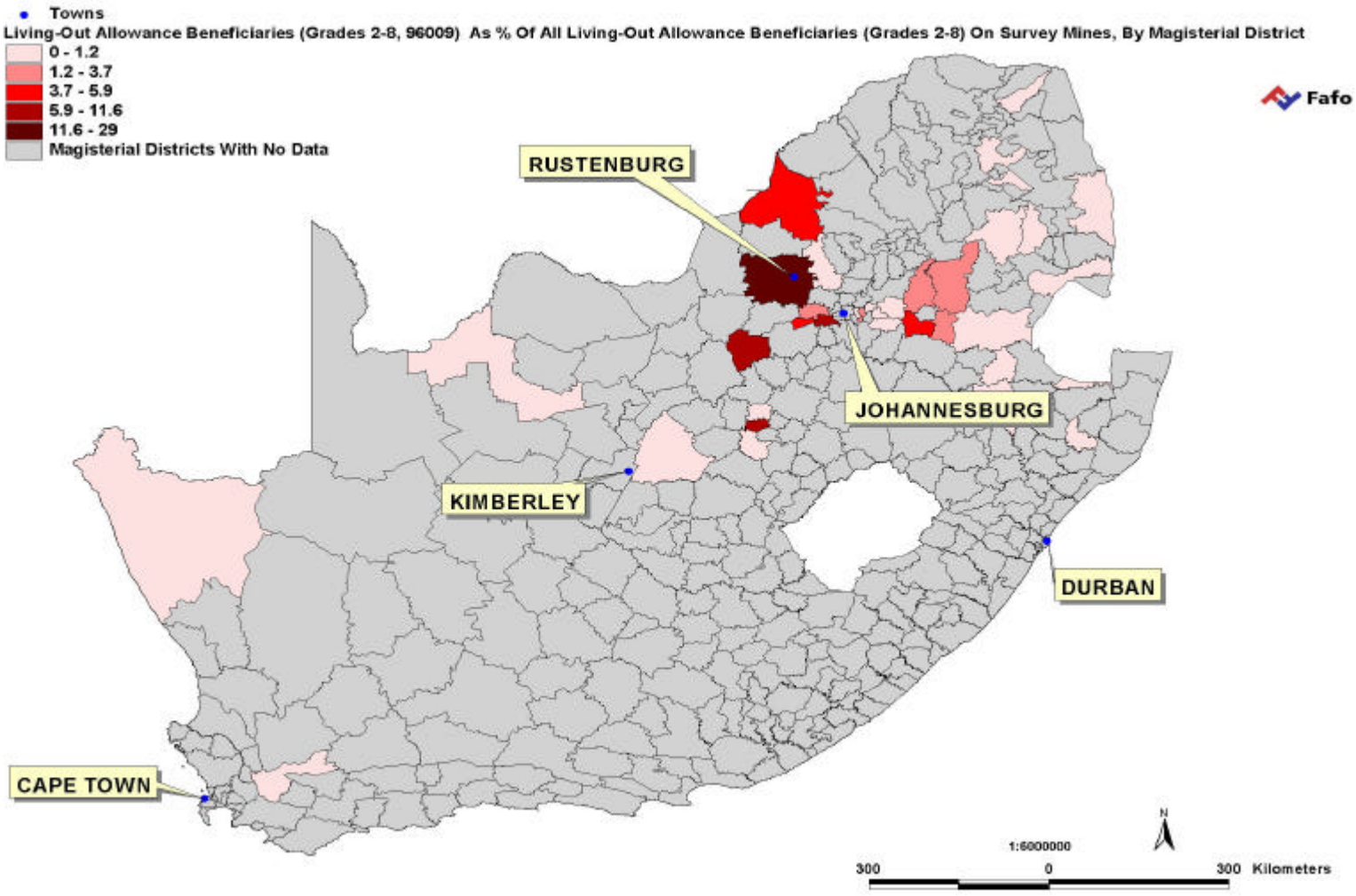


FIGURE H: Living-out allowance beneficiaries as a percentage of all living-out allowance beneficiaries by magisterial district

4.1.3 Hostel vintages, room occupancy rates, and upgrading

Forty-seven mines out of the 102 survey mines in the survey had hostels and were able to give information on the age of these. Six percent of all single-sex hostel dwellers (in 15 mines) were in rooms shared with only one other worker; 12% share with two or three others (11 mines); 16% share with four or five others (6 mines); 65% share with six or seven others (14 mines); and 1% share with more than eight co-workers (1 mine)[51]. One fifth of all single-sex hostel dwellers were in hostels of the vintage 1884-1948, nearly one third in hostels of the vintage 1949-1961, about 40% in hostels of the vintage 1962-1977; and 7% in hostels of the vintage 1978-2000. There had thus been little investment in new housing stock since the demise of the apartheid era. Change has occurred since 1994 by means of upgrading and alteration rather than by the construction of new buildings

Thirty nine mines reported that a total of 28 096 contractors stay in their mine hostels, which was just above one half of all contractors at the 102 mines surveyed[52]. One quarter of these lived in separate hostels from the permanent workforce, while the majority lived in the same hostels as company labour. Two thirds of the contractors on the mines shared rooms with seven to ten other workers. Thus, as in all other matters, contractors are disadvantaged when it comes to room occupancy rates. Nearly one quarter of all contractors in hostels live at seven mines with the oldest hostel vintages, and more than one half live in four mines with hostels built in the period 1949-1961. Very few contractors live in the more modern hostels[53].

There was no simple progression to lower room-occupancy rates for newer hostels. On the contrary, hostel dwellers in the oldest hostels were more likely to be sharing their rooms with two or three others, whereas workers living in hostels built in the middle vintages (1949 to 1961, and 1962 to 1977) were more likely to have higher room-occupancy rates. All the most recent hostel upgrades for all hostel vintages were completed after 1980, and the vast majority in the year 2000 or after[54]. Most of the very small proportion of all workers living in single flats on mines are in hostels on seven mines of the vintage 1949-1961. The recent upgrading of housing on these mines thus gave rise to the innovation of single-flat accommodation to replace older demolished or converted mine hostel accommodation. Similarly, the creation of family accommodation on mines is recent as well, and is not dependent on the vintage of the hostel

[51] Charts 16 & 17.

[52] Table 3.

[53] Charts 18, 19 & 20.

[54] Tables 4 and 5.

but rather on how recent upgrading has been[55].

There were large variations in room occupancy rates and target rates for current upgrades, between different mining houses or groups, which suggests again that institutional factors and group policies play an important role in the standard and development of mine housing[56]. Current and target room occupancy rates for single-sex hostels varied considerably between mining groups for both company labour and contractors, as did the number of rooms allocated to families in long-stay family hostels (but note the small number of cases in some of the mining houses).

There were 39 mines where upgrades were in progress at the time of the survey. Thirty one of these upgrades were intended to improve the **quality** of single-sex hostel accommodation, at mines which currently accommodate nearly 90% of all single-sex hostel dwellers[57]. According to the respondents to the questionnaire, only 4% of single-sex hostel dwellers currently work on mines where the current upgrades have individual flats (unshared rooms) as their target standard[58]. A further 12% live on mines where the target standard is for workers to share rooms with only one or two co-workers. However, nearly half of all hostel dwellers will be sharing with three other co-workers when the current upgrades are complete, and 15% will have to share with 15 other workers. Only 3.6% of current single-sex hostel dwellers live on mines where current upgrades will convert hostels to family units, and there were only 6 630 single flat occupants, and 19 198 family-unit occupants on mines. The pace of change to privacy and family housing at mines has therefore been very slow, and is not envisaged as speeding up very much, since the large majority of the upgrades do not have any putative completion date, and there are still a number of mines not currently conducting or planning upgrades.

As well as occupancy rates, the survey gave some insight into the strategies adopted by mines on what types of mine and off-mine housing they are encouraging by means of current upgrades or those planned for the future[59]. Thirty five percent of permanent workers live on 11 mines where current or future upgrades are intended to increase the **number** of single-sex communal hostel dwellings. A similar proportion are living on 12 mines where the upgrades will inaugurate the provision of single flats, whilst about one fifth of all permanent workers are on mines where there are already single flats, and where current or future upgrades are designed

[55] Tables 7 & 6 respectively .

[56] Chart 23 & Table 8.

[57] Chart 24.

[58] Table 9.

[59] See Charts 25 to 27 for the findings presented in this paragraph.

to increase this. An almost identical proportion lives on mines where current or future upgrades will increase the amount of family accommodation. However, the survey did not request quantity targets for these changes, so it was impossible to examine what proportion of permanent workers would benefit from these strategies. The data suggests, however, that only a small proportion of mineworkers will benefit from the move towards privacy and family accommodation.

4.1.4 Future housing strategies

Respondents gave their views on how they perceived the mine's overall future strategies for physical housing provision by the mine, and financial benefits[60]. Four different future strategies were distinguished:

a) the mine will provide housing and financial benefits [choice];

b) the mine will provide neither housing nor benefits [de-link jobs and housing completely];

c) the mine will provide housing but not financial benefits [keep mine housing only];

d) the mine will provide financial benefits but no housing [subsidise workforce to live off mine in the wider property market].

The impacts of these future scenarios were then modelled by looking at the proportion of workers in each of four different types of housing situation (single-sex communal hostel dwellers, family hostel dwellers, single-flat holders at mines, and workers receiving a living-out-allowance or rent subsidy) who would be affected by them[61].

The results show that about half the workers in all four housing situations are living in mines which intend in the future to provide both housing and financial benefits. However, at the other end of the scale, 17% of single-sex hostel dwellers, 27% of family hostel dwellers, 35% of single-flat holders, and 21% of beneficiaries of rent subsidies are currently living on mines which intend to divest themselves of all responsibilities for housing.

The future strategy of relying on the open housing market and/or government subsidy to house

[60] Chart 15.

[61] See Charts 28 to 36 inclusive for the findings in this and the next paragraphs.

the workforce mostly affects mineworkers in Gauteng, the most urban of all provinces. In contrast, Free State mines (where 13% of all single-sex hostel dwellers live) will continue their policy of focusing on housing provision rather than financial benefits, whereas those in Mpumalanga (currently 20% of rent-subsidy beneficiaries) intend to amplify their current focus on living out allowances and eliminate physical housing provision. Aside from these provincial patterns, future scenarios in other provinces will have only marginal effects on current housing patterns. These findings suggest a strong rural-urban difference in mine policy regarding the future of housing, influenced perhaps by the viability and availability of housing in the open market for mineworkers, as well as other factors.

The predominant strategy for single-sex hostel accommodation is to downscale it in the future. Only around one tenth of the present single-sex hostel population will see this form of housing stock increase at their current mine in the rural province of Limpopo, and a further 4% in the North-West Province, whereas about half of the entire population of single-sex hostel dwellers are situated on mines in the Free State and Gauteng, where this form of housing will be downscaled[62].

Broadly, these findings suggest that there is no consistent plan for mine housing across all 102 mines in the survey. Future strategies vary, and there is no overall strategy being pursued by the industry with regard to whether, or what type of provision (investment in housing stock, or housing subsidies for employees) there will be in the future. Most future strategies outlined involve reductions in current housing arrangements which will affect significant minorities of current housing of mine workers whether this is on or off mine, rented or bought. Nevertheless, there is also continuity in the sense that future strategies reflect the current mix the mines have evolved between on- and off- mine accommodation, and the limited investments that have already been made in single-flat accommodation and family housing on mines. There is a strong difference between mines in the conurbations in Gauteng, which are much more inclined to divest from housing altogether, and those in rural provinces such as North-West Province and Mpumalanga, who intend to continue with their mix of mine housing, and the living-out-allowance for those living off the mine.

[62] Chart 38.

4.1.5 Relationship between mine employment change and housing strategies

Change in employment levels at mines is the result of a range of factors, from financial failure or success, technology change, changes in operational or market strategy, unbundling or change in financial structure (such as company acquisition strategies on an international level), and sudden changes in international mineral markets and relative prices.

One third of total labour (permanent and contractors) in the 102 mines surveyed were at 30 mines which had increased employment levels over the five years prior to the survey.

TABLE 4.1.5.1 Average mine size by future housing strategy of mines and employment trend

Future combination of housing provision and housing benefits	Permanent employees		
	Median	Mean	N
Mine will provide housing but not financial benefits	731	5708	6
Mine will provide housing and financial benefits	2484	5136	26
Mine will provide financial benefits but not housing	496	1390	27
Mine will provide neither housing nor benefits	263	1206	43
Total	**524**	**2521**	**102**

In contrast, 5.7% were in 25 smaller mines in which employment had remained stable, whilst the majority (61%) were in 47 mines which had downscaled employment.

We might expect that mines with expanding employment might have different future housing strategies from mines that had been losing jobs in the past five years. For example, mines which have been growing employment might be expected to increase either physical housing provision or financial housing benefits, or both. In contrast, mines that have been losing jobs might be more likely to cut back on one or both of these.

The survey did not find any obvious trend of this sort, however. There seems to be no discernible relationship between changes in employment levels at mines over the past five years, and future plans for housing provision[63]. In particular, whether a mine is losing or gaining jobs did not seem to affect future plans for the mix between mine housing, off-mine housing subsidy, or housing divestment.

[63] Table 10, which is represented graphically in Charts 39 to 44.

Table 4.2.5.1 above shows that future strategies for mine housing are related to current mine size. The largest mines have future housing plans which only include providing mine housing. The next group down in size intends to provide mine housing and financial benefits for off-mine residents. The smaller mines plan to provide either financial benefits for off-mine residents alone, or neither mine housing nor financial benefits. This suggests that the smaller the mine is, the more likely that it intends divesting itself of housing stock in the future.

4.1.6 Transport

About three quarters of mineworkers who live off the mine premises with living out allowances (the great majority of off-mine residents) receive transport assistance of some kind from their employer. The smaller copper, diamond, shale, zinc and coal mines give these benefits to almost all of their workers, whereas about one quarter of chrome and platinum workers, and one third of gold workers living off the mine do not receive transport assistance[64]; those who do receive assistance are concentrated in the Free State, Gauteng, North-West Province, and Limpopo[65]. The great majority of transport assistance is a free bus or taxi at the beginning and end of shifts[66]. Considering the importance of efficient commuting for productivity of employees living off mines, and also the large number of shiftworkers in the mining industry, it is surprising that as many as one quarter of them did not receive any transport benefits from their employers.

4.1.7 Housing development partnerships

Housing people is a complex process and involves many institutions of our society, apart from the individual who is acquiring shelter. Traditionally, the mining industry has limited its involvement in these institutions to its relationship with national governments, which provided the economic, legal and international underpinnings of the South African migrant labour regime. In this way the industry maintained a "hermetically sealed", paternalistic housing system with few if any other partners. However, since 1994, partnerships for housing are national policy. This policy has also been increasingly pursued by the mining industry since 1994.

The survey asked respondents to describe and count the housing development partnerships that their mines were involved in. Fifty four of the 102 mines (employing one fifth of permanent

[64] Chart 45.

[65] Chart 46.

[66] Chart 47.

workers and one quarter of contractors in the survey mines) were not involved in any such partnerships. This leaves 48 mines that were. Thirty-eight of the latter, which employ about four fifths of permanent employees and three quarters of contract workers, were involved in partnerships with one or two institutions independent of the mine, and a further nine mines, which employ over one quarter of all permanent workers and 16% of contractors, had partnerships with between three and five institutions. Generally, the larger the mine in employment terms, the larger the number of partnerships entered into. However, about one fifth of all permanent workers and one quarter of all contractors were in mines with no partnerships[67]. Sole partnerships existed at mines which employed about one third of single-sex hostel dwellers, a quarter of family hostel dwellers, and one third of living-out-allowance beneficiaries[68].

The rough pattern of partners for mines was as follows[69]:

- metro councils – 4;
- municipal councils - 16 (in all provinces except Western Cape and Limpopo);
- rural councils - 8 (North-West Province and Limpopo);
- national housing department - 9 (North-West Province, Limpopo, Mpumalanga);
- other government agencies - 3 (North-West Province);
- NGOs - 2 (North-West Province);
- charities - 1 (North-West Province);
- private housing trust or association (social housing trust) - 4 (North-West Province and Mpumalanga); and
- private-sector housing finance schemes (mainly banks) – 35.

[67] Table 11.

[68] Table 12.

[69] Tables 13 to 15.

Others not previously mentioned, including:

- national housing finance advisory council (parastatal) – 1;
- Chamber Of Mines/ Mineworkers' Provident Fund – 5; and
- National Housing Forum – 1.

The clearest message that comes from this analysis is that the large majority of workers are on mines which pursue housing development partnerships with other institutions. Secondly, the partnerships are split pretty evenly between State and parastatal organisations on the one hand (linking into the national RDP housing strategy), and private banking institutions on the other. However, it is striking that the mines have so many partnerships with banks when such a small proportion of their workforces are actually involved in home-ownership schemes. Furthermore, to address the housing issue on mines comprehensively, the smaller mines (which employ the minority of workers) should also form partnerships to pursue the objectives of the national housing strategy.

Whether a mine has partnerships for housing development is linked to its preferred strategy for the future of mine housing[70]. Fifteen percent of all permanent workers and 19% of all contractors are on mines that have no partnerships and intend to divest themselves of all responsibility for physical and financial housing support. Their lack of partnership strategies reflects their long-term preference for non-involvement in the future. This means that opportunities are being lost, especially in the most urban province of Gauteng (where mineworkers are still considerably concentrated), to enter into partnerships for mineworkers' housing with the metropolitan authorities.

4.1.8 Mine industrial organisation and housing outcomes

Seventy-four percent of all permanent workers covered by the survey were in 55 mines that had written housing policies[71]. However, less than half of all mines (45 mines employing 70% of all workers in the survey) had collective bargaining agreements on housing issues[72]. Thirty-four of

[70] Table 16.

[71] Table 18. All respondent mines were asked to send their housing policies, but only 5 complied (plus the NUM). Only two of these went beyond rules and regulations for access of employees to mine housing, and dealt with planned future housing provision in detail, and these cases are discussed in detail in section 2.4.3.

[72] Table 19.

the larger mines employing 63% of all permanent workers in the survey had both, whereas 34 smaller mines employing 19% of all workers in the survey had neither[73]. Organisational matters also affect the degree of variation in housing arrangements[74]. Chamber mines have a higher proportion of their workforces in single-sex shared hostel rooms than non-Chamber mines. Where collective bargaining is the norm on mines, employees have more housing options, both for types of mine housing, and types of off-mine housing. The same is true of mines which have a written housing policy, or a collective bargaining agreement with the trade union representing grades 2-8, or a standing housing committee at the mine, or trade union representation on the committee, or housing development partnerships of one sort or another.

The vast majority of mineworkers in the various forms of on-mine and off-mine housing situations work on the 57 mines where there is a standing housing committee of some sort or another, but at 56 of the mines with these committees, between a quarter and one third of single-sex hostel dwellers, family hostel dwellers, single-flat occupants, and living-out-allowance beneficiaries do not have any representation on them, because the committees are unilateral management committees[75]. In addition, the large majority of single-sex hostel dwellers, family hostel dwellers, and beneficiaries of rent subsidies (living-out allowances) work on mines where workers do not elect full-time housing representatives to deal with housing issues. This situation is reversed, however, for workers in single flats and getting bond subsidies, about two thirds of whom work on mines where workers do elect full-time housing representatives. Thus, the small number of better-paid and long-service workers are those who have most developed the right to representation on housing issues. In contrast, the majority of lower-paid and less-skilled mineworkers do not have adequate representation in formal structures dealing with mine housing.

These findings suggest that, as with partnerships, there is room for much more progress in democratising the development of mine housing by creating structures for the representation of mineworkers specifically on housing issues, specifically.

4.1.9 Mine canteens

Sixty mines, that employed 86.8% of all single-sex hostel dwellers and 63.5% of all rent-subsidy beneficiaries, had mass catering canteens. This left 42 mines that did not, which employed only

[73] Tables 20 and 21.

[74] Chart 48.

[75] Table 17.

13.2% of single-sex hostel dwellers, and 36.5% of rent-subsidy beneficiaries[76]. The majority of these were in the North-West province, where 12.6% of all single-sex hostel dwellers and 22.7% of all workers with rent subsidies worked at five mines which do not have a canteen[77].

The vast majority of both permanent and contract workers are permitted to take food underground on their shift[78], leaving only 6% of permanent workers and 2.3% of contractors who are not. The most significant prohibition applies to about 11 500 workers at two platinum mines, in contrast with nine other platinum mines employing 76 741 workers who are not prohibited from taking food underground. In some mines, liquid food supplement is given to a total of around 5 000 mineworkers, although they are not permitted to take solid food underground. The main reason for the prohibition where it is enforced is "hygiene"[79]. Respondents reported that 80.9% of all permanent workers and about 70% of contractors at 84 mines were provided with food by the mine to take underground, but this may refer to liquid food supplement only[80].

Ninety-four mines responded as to whether they had special underground eating areas at the mine. Sixty-six of them, that employed 63.8 and 80.5% of permanent and contract workers respectively, responded that they had such areas, leaving 28 mines employing about one third of permanent workers that did not[81]. The vast majority of the latter employees were in gold and platinum mines in the Free State and North-West province[82].

Although 92.7% of all permanent workers at 95 mines that responded reported they had underground mid-shift meal breaks as required by law[83], 7.1% of permanent mineworkers, and 11.9% of contractors in 95 of the survey mines were working in gold mines where they had no meal break during the underground shift[84], mainly in the Free State and Gauteng[85]. The mean duration of the meal break for all mines in the survey was 30 minutes, which applies across the board in the industry, and suggests that the industry as a whole receives a special dispensation

[76] Table 22 gives their distribution by mineral

[77] Table 23.

[78] Table 24.

[79] Table 25.

[80] Table 26.

[81] Table 27.

[82] Table 28.

[83] Table 29.

[84] Table 30.

[85] Table 30.

from the Department of Labour to reduce the statutory meal break from one hour to 30 minutes on application, in terms of the Basic Conditions of Employment Act 1997, which requires an agreement in writing[86].

4.1.10 Conclusion

4.1.10.1 Housing is not a specialist managerial function in these mines. Thus there seem to be few real housing experts at mines who are focussed on this issue, and have executive responsibility to develop housing.

4.1.10.2 Subcontracting is important at mines, providing a significant minority of the entire workforce, who live in considerable numbers both on mines and off them. On-mine housing for contractors is more crowded for contractors than for permanent workers. Contractors cannot be ignored in the debate about how to develop housing for mineworkers just because they work under a different type of contract than do permanent workers.

4.1.10.3 At the end of the 1980s, the vast majority of mineworkers lived in single-sex hostel accommodation in shared rooms. Since the early 1990s, this arrangement has been split in two: the single-sex hostel continues for about half of the labour force, with living out allowances (subsidies for rented accommodation off the mine) being the only other significant option in terms of coverage. On-mine housing intended to promote privacy and family life on mines is of little significance almost ten years into the new democratic dispensation, and 30 years after it was discussed in the mining industry in the early 1970s. Social housing in the form of housing associations or trusts controlled by residents is similarly of little significance so far in terms of the number of people who live in them. For both the main options, that exist for most mineworkers (hostels and rent subsidies), the most important employers are gold and platinum mines in the North-West Province, Gauteng, and the coal and other mines in Mpumalanga. It is here where any further innovations in mine-housing arrangements will most impact on the labour force as a whole.

4.1.10.4 Within this overall pattern of current on-mine and off-mine housing arrangements, the key factors influencing the degree of choice which workers have, and the balance between on-mine and off-mine housing are as follows:

- **the mining house** and its policies;

[86] Charts 49 & 50.

- **the mineral mined** [gold mines have a rather narrow range of options, coal and chrome favour the rent subsidies, while shale/feldspar/nickel have either never invested in housing, or have divested from it]; and

- **the province**: mineworkers in Gauteng are more likely than others to be living in single-sex shared hostel rooms; there is more variety of choices in Limpopo province; and Mpumalanga workers are more likely to be receiving rent subsidies for off-mine housing.

4.1.10.5 The age of hostels (vintage) does not explain the current mix of housing options on mines. Upgrading has been crucial in determining this. Thus it is not the case that mines whose hostels were built earlier in the history of the industry have a more restricted set of on-mine housing options, or have higher current and target room occupancy rates than newer mines. This suggests that policy-related, institutional, situational and organisational factors have been more important than simple economic factors relating to "sunk capital" in determining the extent and nature of the upgrading of housing stock.

4.1.10.6 Employment trends in mines over the past five years are also not an explanation of the mix of current housing arrangements. Mines which have been increasing employment do not have a wider range of options for on- and off- mine housing, or for renting/buying off mine, or higher room-occupancy standards and targets. Again, policy and institutional factors have a stronger impact do purely straight economic or financial factors that cause mine downscaling or upscaling of employment.

4.1.10.7 Current mine size does, however, seem to influence future plans for housing at the mines. The smaller mines have plans to either give financial benefits only, or to divest from all forms of housing support, whether in housing stock or housing benefits. Only the largest mines expressed plans to invest in housing stock.

4.1.10.8 The vast majority of hostel dwellers at mines still live without privacy or day-to-day family life, and in the absence of a dramatic change or intervention, targets for current or future planned upgrades of hostels will not make much difference to this. The situation is even worse for contractors than for permanent workers in this regard. Upgrading exercises still mainly focus on single-sex shared hostel rooms, but in the absence of outside intervention or radical change in policy, the progress envisaged has been and will be far too slow to change the limited choice for most mineworkers of either crowded single-sex accommodation on mines or minimally and individually-

subsidised private sector renting off the mine. The data from this survey suggests that the industry, if left to itself, will not solve the problem of achieving anything other than a small living-out-allowance (small compared to the cost of housing).

4.1.10.9 There is no consistent future plan for the whole industry regarding the mix of on- and off-mine housing and renting/buying off mine. The biggest move towards divestment in housing stock and finance is occurring in the Gauteng conurbations, where presumably the housing market and government subsidy systems are most fluid and have the most capacity to absorb people. In the more rural mining provinces, few mines are considering disinvestment in housing altogether, but rather emphasise subsidised private-sector renting in Mpumalanga, and all forms of on-mine and off-mine housing in the North-West Province and Free State. Thus, future mine housing strategies largely have the effect of continuing with "more of the same" as in the past ten years. Any real movement towards self-sufficiency of housing for mineworkers, family life, and privacy will require large-scale outside intervention from government, to enable a very large injection of financial capital into the housing market for mineworkers, through long-term partnerships with stakeholders, including government, provincial housing authorities, banks, the mines, and the mineworkers themselves.

4.1.10.10 Such an injection of funds is also the only way to realise the possibilities for development and diversity that partnerships around mineworkers' housing might create. The survey showed that housing development partnerships with outside institutions have been fostered by mines employing the majority of the labour force, but that they disproportionately involve banks rather than either government, parastatal or social housing trusts, given the almost negligible number of mineworkers who are buying houses off their mines. These partnerships are also confined to the larger mines that employ the largest proportion of the workforce, but exclude the smaller mines. Partnerships with government, in particular, at all levels and social housing arrangements are essential if the desired diversity of forms of housing stock and finance are to be achieved.

4.1.10.11 Generally, this survey demonstrates that the fuller the expression given to workers' preferences through mine-level housing structures and organisation, the more varied are the housing options available to the workforce. These structures and organisational features include trade union representation for grades 2-8 in NUM, a standing housing committee at the mine with trade union representation, election of full-time housing representatives for grades 2-8, and housing development partnerships with outside organisations. Though a majority of mineworkers work on

mines which have at least some of these organisational features, a significant minority do not. This, plus the lack of finance for moves towards a more varied and better quality of housing in the industry, is contributing to making progress on mine-housing issues very slow.

4.2 THE KNOWLEDGE, ATTITUDES AND PERCEPTIONS SURVEY – RESULTS[87]

4.2.1 Demographic and other characteristics of the sample of employees[88]

4.2.2. **Housing characteristics**

About a quarter of the employees were from the platinum mine, a further quarter from the two gold mines, about one fifth from the diamond mine, 14% from the coal mine, and one tenth from the manganese mine. About two thirds lived on mine property in hostels (compared with only about 50% who wanted this), and in family accommodation at hostels or mine villages, and the other third in off-mine property (compared with nearly 50% who wanted this arrangement) in various arrangements in townships, informal settlements, flats, and houses. Twenty-five percent of the sample lived in shared single-sex hostel rooms, and a further 16% lived in single rooms in on-mine property, while 22% lived in on-mine family accommodation. Thirty-six percent lived off mine property, about one fifth of the entire sample having living out allowances from their employers.

This is highly mobile sample group from the point of view of housing, and the past pattern of moves suggests that an "exodus" from mine accommodation is underway. Two-hundred-and twenty-one employees, or half the entire sample, said they had moved house at least once since starting work at the mine, and half of these had made a move away from the mine, compared to 38% who had moved between one mine dwelling and another, and only 6% who had moved into mine accommodation from an off-mine dwelling. Only six employees (2.7%) moved from one off-mine dwelling to another in that period, suggesting that when a move is made off the

[87] Please note that the charts and tables referred to in this section are to be found in Appendix B.

[88] See Table 51 for data summarised here in the text.

mine, it is more permanent than other moves. In addition, of the 92 employees who said they were planning a house move in the next 6 months, about 40% said this would be to mine accommodation (either from mine or off-mine accommodation, and it is not possible from the survey to say what proportions of those planning to move live in mine or off-mine accommodation at present) compared to 60% who said it would be to off-mine accommodation (from both off and on mine).

Of those 156 employees in the sample living off the mine, 41% lived in backyard shacks, backyard brick buildings, or free-standing (informal) shacks. Fifty percent lived in a house or brick structure on its own stand. The residual groups were in local authority houses, self-built housing on local authority land, in flats in blocks of flats, or lodging in rooms in houses. Thus almost half of employees in the group living off the mines were living in informal dwellings. These will, of course, be from the lower paid group.

Tenure options exercised by the sample employees were divided between tenancy for about three quarters of the sample (including tenancy on mine property, whether paid for through a notional wage sacrifice or by a deduction from wages) and ownership (the latter being exercised by the remaining quarter of the sample). Rough quartiles for expenditure by employees on housing costs (rent, or bond costs) were up to R25 per month for the lowest quartile, R150 for the next, and R697+ for the top quartile.

There was limited experience of government housing subsidies in the sample, and also considerable confusion about who is eligible for a grant, and how to access it. Of the 157 employees out of the 432 who thought they had a right to an RDP housing grant, only about 6% (9 people) had actually been granted one, while a further 20% (29 people) had actually applied for one. The RDP housing grant therefore plays a negligible role in housing mineworkers in this sample.

4.2.2.2 **Migrancy**

The sample was largely made up of migrants either from South Africa or other countries, who had visited their rural homes relatively infrequently in the past year. Eighty-two percent of the employees in the sample were South African nationals. Basotho workers were next, at 10%, Mozambiquans at around 5%, the rest being from Swaziland, Botswana, and Zimbabwe. Roughly the same proportions held for those migrant employees who answered that they had a rural home that they regularly visited (357 of the 432 employees, or 82% of the sample). Only about 4%

of these were "weekenders" - or had visited their rural homes away from the mine more than twice a month in the past year. About a third visited once a month or twice every six weeks. Over half only visited home once every two months or less; nearly a quarter only visited home once or twice in the year.

Given this pattern of migrancy, it was not surprising that over half of the entire sample said that their priority for investing in housing was to put money aside to build up their rural homes, and 258 of the sample (about 60%) said that they already owned a house in their rural home area. For South African workers, one result of this is that they are disqualified from gaining any individual subsidy from the national housing programme. Forty percent of the entire sample said that they intended to retire in the rural area where they were raised. Only about 14% said that the priority was to invest in housing near where they were working. This has important implications for affordability of homes for mineworkers off the mine, and also for how much they might be prepared to spend on housing when they move off the mine. This, in turn, has implications for the standard of housing that they achieve. It is nevertheless interesting that one quarter of the foreign employees had permanent residence in South Africa, which technically qualifies them for a housing programme subsidy.

4.2.2.3 Age and job grade

These employees were up to 36 years old in the youngest quartile, and from 50 to 63 years old in the oldest. Age affects the type of choices that employees make about housing, as older people will likely be more stable, whilst younger people are more likely to experiment with housing options and move around more often, unless they have families staying with them, especially children. About half of the entire sample lived with their families when they were working at the mine.

About one fifth of the sample were grade 5 or below, and a further 8% were Patterson band A. Thus, almost a third were lower-grade workers. Nearly one tenth said they did not know their job grade, and it is likely that a good proportion of these were also lower grade staff. About one fifth were grades 6-8 (the latter being team leader level), and about 28% were Patterson band B and C. Because of the need to include bond-subsidy holders, and those living in mine family accommodation, the sample therefore has a reasonably even spread of the job grades from the low to middle range in the industry.

Nearly all the sample were permanent workers on open-ended contracts, with only

2.5% being contractors, and only 1.6 on fixed-term contracts of employment.

4.2.2 Housing conditions and safety at work[89]

The key question in this research was motivated by a concern in the industry that housing conditions for mineworkers were deteriorating as workers move out of mine housing. The survey therefore asked respondents about their perceptions of how their housing impacted on their ability to work safely. About one quarter of the entire sample said that their housing impacted negatively on their safety at work, and this was disproportionately experienced by those living off the mine, whether with living-out allowances (34%) or participating in home ownership schemes (around 30%). A similar percentage of employees living on mines in single-sex shared hostel rooms also felt that their work safety was threatened by their housing conditions. Other forms of mine housing (single quarters and family housing) had fewer people who thought the same way.

The reasons given by respondents for their answers to this question were informative, and varied according to the housing situation of the employee. For hostel dwellers, the main concerns were the difficulty of sleeping and resting because of the noise, and the issue of violence and personal security. For a further 15% of the shared hostel-room dwellers, the issue of health and living standards at the hostels were of concern. For those participating in home-ownership schemes, the overwhelming concerns were to do with commuting, the availability of transport, and punctuality at work (65% - being late for work was seen as something that could impact on safety for these employees). Violence and security around their dwelling was also a concern (15%) but clearly of less importance. The main concerns for those living off the mine and receiving a living-out-allowance were violence and security, and transportation issues. These two concerns were expressed with equal frequency. Security was an extremely frequent (85.7%) concern for dwellers of free-standing shacks in informal housing areas, but less so for backyard shack dwellers (25% gave this reason as a reason for reduced security at work), and brick house dwellers. Other than this, transport issues were given by everyone off mine as a problem for their work safety, possibly because of fatigue due to long days including commuting time, and because a lack of punctuality affected the safety of the teams. This finding is consistent with results from concurrent SIMRAC project SIM 02-05-02 on factors affecting driver alertness.

4.2.3 Housing standards[90]

Housing standards were analysed according to the five main types of housing: three on mine, two off mine with different tenure options. This allows consistent comparison between housing standards on and off mine, with nuances between in each category.

The stability of housing is an important element of quality, from a psychological point of view. Nearly one third of respondents answered that they thought that they could lose their current dwelling within the next two years for a variety of reasons, including non-payment of rent, a lack of sense of rights to their housing (for the majority who were tenants), and the problem of tied housing when they were not confident that they would keep their jobs beyond two years. Those living in mine family accommodation and living off mines with living out allowances were the most likely (about one third) to regard their housing as temporary, whereas those in shared hostel rooms were the least likely (about one quarter). Stability of housing is not guaranteed therefore, but more to be relied upon than stability of other types of housing, both on and off mine. Clearly, worries about having to move house frequently causes anxiety and stress (as well as financial expense) which could impact on safety at work.

The materials used for walls and roofs of dwellings reveal a great deal about their quality - tin roofs were universal in hostels (causing insulation problems both in summer and winter), and they were also very common in dwellings of employees with living out allowances. Concrete roofs (cement blocks) had been used in about one fifth of mine family housing. Walls were made of brick for about three quarters of hostel dwellings and family accommodation on mines and the great majority of homes of employees with bond subsidies. This type of wall was more scarce amongst those living off mines with living out allowances (about half). Corrugated iron or zinc was used as wall material for 42% of their houses, possibly causing problems for weather proofing and insulation.

Just over a quarter of dwellings for these workers did not have separate kitchens. There is an obvious reason for this shared hostel rooms (although about one third of them did have), but only about half of those with living out allowances had kitchens. This means that cooking takes place in living areas, causing problems with domestic safety and possibly indoor pollution from fumes from fuel other than electricity.

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[89] See Charts 76 – 78.

[90] See Tables 52 - 56 for the data on which this description is based.

Respondents were asked about overcrowding, as this leads to psychological problems due to lack of privacy, and also problems related to airborne diseases, especially TB. The issue of TB prevalence in these dwellings is dealt with later. Respondents were classified into two halves of the sample (50% percentiles): those in less-crowded dwellings had room occupancy rates (not including kitchens and bathrooms, but only bedrooms and lounge or dining areas) of between less than one to one-and-a-half persons per room. The most crowded group had from 1.5 to 16 persons per room (the latter an extreme outlier, although many workers were living with from around three to eight persons per room). About two thirds of mine family housing dwellings were not crowded on this measure, whereas nearly 90% of hostel rooms were. About 52% of living-out-allowance recipients were living in "overcrowded" dwellings, using this measure. Clearly, though, overcrowding is a major problem for all single-sex hostel dwellers.

4.2.4 Bulk service delivery to dwellings

Employees with living out allowances had a severe deficit in housing standards with regard to their water supply. Only just over a quarter of them had piped water inside the dwelling, while a third had piped water from outside taps in the yard, and a further quarter were using public taps some distance from the dwelling. For 2.3% water had to be collected from water carriers or tankers. Water pressure was a problem for over one tenth of both mine and off-mine dwellers of all types, with little difference between on- and off-mine dwellers. More than one third of both shared hostel room dwellers and living-out-allowance recipients had only cold running water available to them, so there was no difference there between on and off-mine housing. However those with living out allowances had had more problems in the past six months with the reliability of the water supply, and around one quarter of them felt that they could experience a cut-off of water due to non-payment of charges in the next six months. This group also had a much lower connection rate to electricity than their colleagues in all other forms of housing. Although 90% of the entire sample was connected, nearly 40% of living-out-allowance recipients were not. If they were connected, they were much more likely than their colleagues to have prepaid meters, and one quarter of those who had this type of connection reported that they had had to leave the meter empty for more than 24 hours in the past months due to cost and economising. They were also much more frequently concerned about electricity cut-offs due to non-payment - more than a quarter felt this could happen to them in the next six months, and this also applied to about one fifth of home owners with bond subsidies.

Ninety percent of the sample used electricity for cooking but, again, only 62% of living-out-allowance recipients did; instead they mainly used paraffin (33%), which causes well-known

indoor pollution and respiratory problems, as well as dampness. Over one quarter of these people had no form of energy for indoor heating, and 15% used paraffin for that as well. Only 47% of them had any form of electrical heating. Candles, which cause domestic fires, (23%) were their preferred form of lighting if they were not connected to electricity, with a further 11% using paraffin lamps.

Those with living out allowances also suffered a considerable deficit with regard to sewerage. Indoor flush toilets were scarce (about one fifth had them), a quarter had outside flush toilets, while nearly 40% had pit latrines without the recommended ventilation pipes, and 2.3% were still using bucket toilets with off-site collection and disposal. Half of them shared their toilets with other households. These employees had garbage disposal problems as well. One third had no formal method of garbage disposal available to them. Street lighting was also more scarce for them than for any other group (over half had none near their dwelling), and storm water drainage did not exist for over 60% of them . This problem also affected 40% of home owners. Just less than one third of the entire sample had no storm water drainage, which causes dampness in walls, and the development of ponds which breed insects such as mosquitoes that can transmit malaria in some areas, as well as other organisms.

Both hostel dwellers and living-out-allowance recipients experienced a deficit in communication due to lack of telephones or cellphones at their dwelling. Only about one fifth of the sample, both on- and off-mine, had a motor vehicle available to them at their dwelling.

4.2.5 Community amenities

Only 2.5% of the sample had a train stop within 20 minutes walk, but buses (66%) and especially taxis (85%) were more frequently available within the same distance. Nevertheless, living-out-allowance recipients had poorer access to both of these modes of public transport than their colleagues both on and off mine. Schools were more accessible for off-mine dwellers (about three quarters of them had primary schools within a 30-minute walk, and almost 70% a high school) For on-mine dwellers, however, 50% had primary schools within 30-minute walk and only 27% had high schools within that distance.

Access to medical services (clinic or hospital) was considerably better for mine residents than for off-mine residents - only about three quarters of the latter had these services within a 30 minute walk. Shops selling basic foodstuffs were within walking distance for all residents, but slightly less frequently for off-mine dwellers.

In terms of a sense of security at the dwelling (how safe respondents felt), about 40% said they did not feel safe, or felt very unsafe (about 10%). Generally, those off mine felt somewhat less secure, although the differences were not enormous. At the other end of the scale, 25% said they felt "very safe", and a third of all respondents felt "safe".

Compared to mine dwellers, off-mine dwellers (especially living-out-allowance recipients) were considerably less likely to report satisfaction with either fire services, ambulance services, and health services in their community. They were much less likely to have tarred roads to their dwelling, and much more likely to report that the district where they lived was dusty. About one quarter of them reported that their employer provided transport when they need to commute to and from work.

Finally, mine-family-accommodation residents, along with living-out-allowance recipients and home owners, were more likely to report that they had some "say" in housing issues, compared with hostel dwellers. Thus, the deficit in services discussed here is offset slightly by a sense of empowerment living off mine with respect to housing matters for those living off the mine.

4.2.6 Shiftwork, sleep, and injuries on duty[91] (IOD)

Just over half of the entire sample only worked day shifts, but about 16% usually worked nine or more night shifts per month (5.6% were permanent night shift workers). For the 44% of the sample who worked at least some night shifts each month, nearly 30% (57 employees) reported sleep problems when working night shifts. Sleep deficits could cause problems for safety at work, especially for shiftworkers, who experience circadian energy and concentration deficits during their shifts in the first place. Employees living off mine were slightly more likely to report such sleep problems than their counterparts living in on-mine property (hostels and family accommodation). Heat, lack of acclimatisation to night work, and daytime noise were the main problems experienced by shiftworkers whether they stayed on mine or off mine.

Although problems with sleep quality applied to shiftworkers both on and off mine, they do not seem to have resulted in any noticeable excess of injuries on duty amongst shiftworkers[92]. There was no trend towards a greater-than-expected frequency of reporting of IODs as the number of night shifts worked per month increased. The actual incidence of IODs in the past year was very much as would have been expected if night work had no impact. Thus although sleep deficits were common amongst these night workers and were slightly elevated for workers

[91] Tables 57 – 58.

[92] Table 57.

living off the mines, they did not become visible as increased injuries on duty for those working more night shifts.

4.2.7 Crime and security at the dwelling and affecting the household[93]

Exposure to serious crime causes trauma, symptoms of anxiety, depression and futility, build up of stress, and other psychological problems that disturb sleep and relationships, all of which can affect safety and health at work. Amongst the 432 employees in the sample, a quarter of their households had been affected by burglary or face-to-face robbery in the past year, 18 (4.2%) had someone in their household who had been seriously assaulted, six murders had occurred of members of employees' households, and six rapes. Seventy percent of employees reported that none of these problems had directly affected members of their household. Robbery was particularly a problem amongst those living off the mine with living out allowances, whereas serious assault, rape, and murder all had a greater reported risk for those living on mine - in hostels or in mine family accommodation. This, to some extent, bears out the reputation that hostels have for being violent environments, although it must be remembered that the numbers of employees who had experienced these violent crimes were small because of the small sample size, and this renders the comparison of percentages between on and off mine less meaningful. Nevertheless, there was a 10% raised chance that employees' dwellings on mine had been affected by at least one of these crimes in the past year, compared to those living off the mine.

4.2.8 Relationship between injuries on duty (IODs) and housing type[94]

Four measures of injury frequency and severity were used. They were:

1. the proportion of employees who had had at least one IOD in the past year;

2. the average (mean) number of injuries employees had in the past year;

3. the mean total number of shifts lost due to IODs in the past year; and

[93] Chart 79. "Household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

[94] Tables 60 - 67, and Charts 80 - 81.

4. the mean severity of IODs in the past year, given by the number of shifts lost per IOD.

Twenty-two percent of all employees sampled had had an IOD in the previous year. The average number of IODs experienced by the entire sample was 0.4 per employee, while the average number of shifts lost was 9.9 per employee, and the average severity for those 97 injuries that occurred was 35.8 shifts lost per injury. Those currently living on mine property (whether in single-sex shared hostel rooms, single rooms, or family accommodation on the mine) had a raised likelihood of this occurring (a one-in-four chance as opposed to a one-in-five chance for off-mine dwellers). They also had a 25% higher average number of injuries per employee, and a higher average number of shifts lost per employee, and a higher average severity in terms of lost shifts for those IODs, which did occur. Those living in single-sex hostels in shared rooms were the most likely to have had at least one injury in the past year, and their injuries were considerably more severe than those of mineworkers who had living out allowances, although less severe than those of mineworkers living in other types of mine property (single quarters and family accommodation on mine). However, since the main employee populations at mines are those in single-sex hostels and with living out allowances, the comparison between these two groups is the most important in terms of overall impact.

These results are not confounded by the pattern of movements between dwellings in the year before the survey. Of those who had moved home since they started work at the mine, 28% moved either from mine housing to off-mine dwellings, or between different off-mine dwellings. Only 3.2% moved from off-mine to mine dwellings. Thus the general pattern is for movements to take place away from mine property, and so any error in the frequency and severity measures for on- and off-mine dwellers due to movements between mine and off-mine property would have worked in the direction of accentuating the findings above (i.e. would have worsened the IOD record of on-mine dwellers).

The following variables had no impact on the incidence, frequency, or severity of IODs :

- night shifts worked per month;
- whether the employee stayed with his or her family or not ;
- the employee's perception of security at the dwelling, and the incidence reported of various serious crimes affecting people in the dwelling (burglary, assault, rape, murder);
- perception of either housing or employment security beyond two years ahead;

- age of employee; and

- total commuting time each working day (no detectable fatigue effect due to very long total working day including travelling, irrespective of mode of transport or type of housing (on or off the mine).

However, some variables that were included in the questionnaire were associated with one or more of the incidence, frequency and severity measures for IODs. The most important of these was mineral: employees at platinum and gold mines were considerably more likely to have had an IOD than those at coal, diamond, and manganese mines (in that order). The other variables that seemed to be associated with IOD measures are described below[95].

- **Education level of the employee**: The less educated groups have a higher average number of injuries. This was consistent with the findings on the relationship between the housing situation and IOD frequency and severity, as those housing types with the worst IOD record (mine housing in general and single-sex hostel rooms in particular) contained least educated workers: ie, 65% of single-sex hostel dwellers had either no or only incomplete primary education.

- **Nationality:** (Mozambiquan mineworkers had a higher average number of IODs in the past year). Again, this was consistent with the findings above. Mozambiquans were disproportionately concentrated in hostels; nearly half of them were housed in shared single-sex hostel rooms, and 90% in mine housing of various kinds, compared with only around a quarter of South African workers in the sample in single-sex hostel rooms, and 58% in mine housing in general. (However, there were only 21 Mozambiquan workers in the sample, so caution with these figures is advised).

- **Gross monthly income**: The lower-income groups had more severe IODs (both in terms of average total shifts lost, and in terms of average shifts lost per injury). This is also strongly consistent with the association between IOD measures and mine housing in general and hostels in particular; 76% of the lowest-income quartile lived in mine housing, and 43% in single-sex shared rooms.

[95] Some of these, for example income and education level, are of course not independent of each other, but since the employees were not proportionately sampled, it is not meaningful to investigate the statistically precise effect on IOD measures of particular variables independent of each other

- **Disposable income**: Those with lower-income after housing and bulk services costs had a higher average number of injuries. Again, consistent with the findings on mine housing and IODs : 78% of the lowest-disposable-income quartile (i.e. gross income less housing and bulk services expenses) were living on mine property, although they were more evenly spread between the different types of mine housing than the low-gross-income group.

- **Crowdedness of dwellings**: Those in more crowded dwellings had a higher average number of IODs.

As mentioned above, mineral strongly affected the incidence of IODs . This is as expected as national injury statistics from the industry show a long-term stable pattern of frequency and severity of injuries between the different branches of the industry according to mineral, and this was reported upon in the Leon Commission of Inquiry into health and safety in mines in 1996. Platinum, gold and coal mine employees reported at least one IOD in the past year considerably more frequently (28.7, 26.5, and 22.6% respectively) than their colleagues in diamond or manganese mines (14 and 13% respectively). They also had a higher number of IODs per employee than the other mines.

However, for gold and platinum mines, the injury incidence was still considerably worse for single-sex hostel dwellers than for employees with living out allowances[96]. Furthermore, for gold mines, the mean number of injuries per sampled employee, mean shifts per employee lost due to IODs , and mean shifts lost per IOD were all worse for hostel dwellers than for those with living out allowances. However, this pattern was reversed for platinum mines, where it seemed to be more dangerous to live off the mine, and also for coal, diamonds and manganese.

These findings suggest that mineral group was more important than housing situation for determining the frequency and severity of IODs.

4.2.9 TB, overcrowding of dwellings, and income[97]

Nine percent of the entire sample reported that they had at least one person in their household who was currently ill with TB (active TB), which could, of course, be the respondent, himself or herself. The analysis here assumes for the moment that this was based on objective knowledge

[96] Table 66.

[97] Charts 82 – 88 and Tables 68 and 69. "Household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

rather than unconfirmed suspicion. Off-mine dwellers were only slightly more likely to report TB in their households[98] than mine dwellers. Its presence was much more frequently reported by those living in more crowded dwellings[99].

Since both crowdedness of dwelling and income are normally associated with TB, these factors were investigated as well. It was certainly the case that those in more crowded dwellings had an elevated risk of having TB in their dwellings[100]. However, crowdedness does not explain the similar frequency with which "TB in the dwelling" was reported by those living in shared male hostel rooms, and those living off the mine with living out allowances, because the latter group had much lower crowdedness indicators than the former (shared hostel rooms had mean 4.18 persons per room, median 3;living-out-allowance recipients had mean 1.45 persons per room, median 1). There were therefore other factors boosting the TB rate beyond the "crowdedness effect" in off-mine dwellings where employees had living out allowances. One such factor amongst those investigated here may be income, especially disposable income available for nutrition needs. Others could be the presence of HIV, and/or silicosis, which were not investigated here, but which are important determining factors for TB.

Income was correlated with type of dwelling in that both single-sex hostel dwellers and living-out-allowance recipients had lower income levels than all their other colleagues in other types of housing. This is consistent with the higher TB prevalences in these types of dwelling. The same applies, importantly, to "disposable income" (gross income including bonuses and regular overtime pay, less housing costs (rent and bond) and bulk services costs). Employees with TB in their households also had lower mean and median gross incomes than employees who did not report household TB. The same applied to employees who were living with their families (a total of 211 people, amongst whom 18 had TB in their households).

These findings suggest a complex interaction between three main factors in determining the likelihood that employees had at least one active TB case in their household or dwelling. These factors are crowdedness (which affected single-sex hostel dwellers the worst) and income level (amongst all the types of housing, hostel dwellers and those with living out allowances had the lowest incomes). Together, these factors are probably capable of explaining the pattern of TB revealed in the survey, especially its concentration amongst hostel dwellers and recipients of

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[98] "Household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

[99] These findings are different from those in the nutrition part of this study, but they are not contradictory, as the housing study, due to its focus on housing conditions as a possible factor associated with TB, looks at reported presence of TB *in the household/dwelling of the respondent (including non-mineworkers*), whereas the nutrition study looked at *TB amongst respondents alone (all of whom were mineworkers).*

[100] Chart 84. "Household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

living out allowances. However, a more rigorous examination of this question would have to wait for a survey based on true probability sampling.

4.2.10 Conclusion

4.2.10.1 The sample was highly mobile in the sense that a high proportion of mineworkers had moved home since they had started work at the mine, and the great majority of the moves were away from the mine. These employees had participated in an exodus away from the hostels at the mines where they work. If they intend to move house again in the near future, the moves planned will continue the exodus.

Most of these employees had rural homes, which they visit regularly, but infrequently, and a few of them were "weekenders". More than half owned property in the rural area of origin, and this explains why the national housing subsidy system had played a very small part in their housing trajectory off mine. It also explains why very few of them perceived investment in housing near the mine as a priority. Despite their rural ties, half of these employees lived within family units when they are at the mine, whether on or off the mine.

4.2.10.2 The National Housing Subsidy scheme may have to be revisited if it is to become more relevant to mineworkers. Any review should consider how to incorporate foreign mineworkers who do not currently have permanent residence, and also those mineworkers who own property in their areas of origin within South Africa.

4.2.10.3 The telephone survey showed that by far the largest groups of employees in the industry with regard to housing are the single-sex hostel dwellers, and those receiving living out allowances and living off the mine, whether as property owners or renting, or in informal housing. The conclusions here focus, therefore, on these groups and the comparison between them with regard to health and safety.

About one third of both groups – single-sex-hostel dwellers and workers with living-out-allowance - perceived their housing situation as contributing to safety problems in their work. For hostel dwellers, the main concerns in this regard were difficulties with sleep and rest, violence and personal security and, to a lesser extent, general living conditions in the hostels. For living-out-allowance beneficiaries, the main problems were violence and security in the informal dwellings, and transport and commuting problems. The telephone survey found that a significant minority (about 25%) of employees living off the mines received no transport assistance from their employers. The KAP survey found also that public transport was relatively

inaccessible for employees living off the mines. The issue of transport for off-mine dwellers should therefore be looked at with a view to improvements in both assistance from employers and accessibility to transport.

4.2.10.4 Employees living in off-mine premises had considerably worse living standards in terms of building materials for their dwellings, basic bulk services (water, electricity, sewerage), health and emergency services, and permanence of their housing situation.

In contrast, single-sex hostel dwellers suffered from overcrowding of the hostel rooms, lack of access to schools for their children, and lack of "say" in their housing situation.

This confirms that the "exodus" from the hostels in the 1990s has exposed mineworkers to a drop in physical housing standards which could have health consequences, in return for an improvement in privacy and family life, less overcrowding (which benefits also have health consequences), and less exposure to violent crime. This is a strong reason for improving the management and financing of the "exodus" from the hostels to ensure better living standards for mineworkers living in the communities surrounding the mines, through better partnerships and institutional cooperation. Given the circumstances of these migrant workers, and the situation in the open housing market, the simple expedient of the "living out allowance" paid to individual mineworkers is not enough to prevent a potentially serious fall in basic living standards as mineworkers move out of hostels, which might not be compensated for by the reduction in overcrowding and increase in autonomy.

4.2.10.5 With regard to injuries on duty, those living off the mines have a better record than those living on mine property, but there are too many confounding factors to ascribe causality to this association. The association varies according to whether measures of injury frequency or severity are used, and factors such as mineral group, and education level, grade, and income of the employee play an important part in the patterns of injury. Although gold miners living on mine property seem to have a consistently worse frequency and severity of injury compared to their colleagues off mine, there seems little point to investigating this further because of the confounding factors.

4.2.10.6 There is little difference in the (high) frequency with which respondents reported

active TB in their household[101], when hostel dwellers are compared with living-out-allowance beneficiaries. The frequency in both cases was 15%, assuming that the assessments of the employees about TB in their households are reasonably accurate. With reference only to the variables investigated here, reported active TB in the household was associated with overcrowding, and low gross and disposable income levels, with the latter perhaps playing the greatest role amongst these[102].

4.2.10.7 In summary, the main deficits in housing experienced by off-mine dwellers (especially those with living out allowances) were in the following areas:

- quality of building materials affecting weatherproofing and security;
- basic bulk services (water, electricity, and sewerage);
- violence and insecurity in the informal dwellings;
- access and quality of health services and transport; and
- perceived permanence of housing.

In contrast, amongst the factors investigated here, the deficits experienced by hostel dwellers were:

- overcrowding;
- a lack of sleep, rest and privacy;
- violence and insecurity - a general problem for all hostel dwellers; and
- poor access to schools for their children.

These differences did not result in clear differences between hostel dwellers and living-out-allowance recipients with regard to the two main outcome variables investigated here: namely, the frequency with which respondents reported active TB

[101] "Household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

[102] HIV and silicosis, other important factors, were not researched

in the household[103], and injury frequencies and severity, except for injuries amongst gold miners, where confounding factors could not be excluded. However, to prevent the deficits in housing quality experienced by mineworkers living off the mines, which resulted in problems that could affect health, safety and productivity at work, better management of the exodus from the hostels is needed.

4.3 THE HOUSING INSPECTION SURVEY – RESULTS[104]

4.3.1 Mean scores for summary housing quality measures

Mean scores for bulk services, living conditions in dwellings, distance from and quality of community amenities are charted for various characteristics of the 40 dwellings that were inspected[105]. Housing on employer-owned land scored highest on all measures except the employee ratings of community amenities, although even this only scored 62.5% of the maximum possible accumulated score for all measures (400%). Land ownership by the employee scored the next overall best total, but had the lowest score for living conditions in the dwelling. Government-owned land (or local authority) was next, with land owned by private developers scoring the lowest on all four measures put together. Dwellings on land owned by private developers lost most of their points because of the very low average living conditions index for the dwelling[106]. Dwellings on government land lost out because of the long distances from the dwellings to important community amenities[107]. Notwithstanding these variations, housing on mine premises scored the best on these outcome measures. This result is not surprising, since mine housing was originally conceived for the purpose of convenience and economies of scale in the provision of bulk services to dwellings and community amenities. However, the scores were also affected by the diluting effects of grade, age, and income which were discussed above.

Chart 55 shows a major jump in housing quality score for Patterson band C, compared to the

[103] As before, "household" here means "people staying in your dwelling", and "dwelling" includes "hostel room".

[104] Please note that the charts and tables referred to in this section are to be found in Appendix C.

[105] Charts 54 - 58. The higher the composite bar in the chart, the better are the scores in the various component measures.

[106] Note, however, that there were only two dwellings in this category. There were no appreciable differences in mean ages of the land-ownership groups.

[107] Note however, that there was only one such dwelling.

other grades; C-band employees scored on average 75% of the maximum score possible, whereas all other grades scored around 50% more or less equally. This was despite the fact that the two Patterson band C employees were considerably younger than Patterson band A, B, and grade 8-12 employees (i.e. in their late 40s on average instead of their early 40s), all of whom scored less on housing quality. Clearly, age alone does not grant better housing conditions. Grades 8-12 scored rather badly on bulk services to the dwelling, which gave them the overall worst score, although all other indicators were similar for all grades below Patterson band C[108]. Patterson band A scored badly because of their relatively long distances from community amenities.

Scores on housing quality indicators varied significantly with housing tenure option, with informal tenure scoring very badly on all except employee ratings for community amenities, and therefore scoring only about 25% of the possible maximum, compared to around 68% for rented accommodation. The four employees who rented were considerably older than their colleagues (mean age of 49 years, compared to mean age of 43 or below for all others) but, besides this, age differences were small. Employer-owned housing scored second best (after rented) overall, but it is important to notice that this type of housing scored no better than the other types (except informal) for living conditions inside the dwelling. The three employees who owned their own dwellings with RDP housing grants scored second worst on all indicators, but significantly higher than those who had informal tenure. The low scores for RDP were the result of the distance from community amenities. These employees were significantly younger than their colleagues (a mean age of 34 years).

Overall, there was little difference in housing quality composite scores between on-mine housing and off-mine housing, with both scoring slightly above 50% of maximum possible score for all four indicators. Off-mine housing scored better than on-mine housing on living conditions inside the dwelling, whereas mine housing made up on access and quality of community amenities, and bulk services. This confirms the common-sense idea that mineworkers want to move out of mine housing because it is perceived as less overcrowded, provides for more privacy in personal relationships, "peace and quiet", and the ability to sleep etc[109]. There is thus a trade off to be made between bulk services, community amenities and personal freedom. However, the main explanations for the higher overall score for on-mine housing compared to off-mine housing were the much higher score for community amenities in the mine villages, and the very low score on every index for the sole informal free-standing shack amongst the

[108] Note, however, that there was only one Patterson Band C respondent.

[109] The inspectors concurred that "accommodation" (meaning space, and crowdedness) was more suitable off the mine (Table 47).

sampled dwellings[110].

4.3.2 General comparison between on- and off-mine housing for the four indexes

The last four rows of table 50 shows that, overall, off-mine housing scores about equally with on-mine housing for satisfaction with community amenities, but better for distance from community amenities. A greater proportion of off-mine dwellers were in the best group for living conditions and facilities at the dwelling, and the same goes for bulk services. As mentioned, off-mine housing had more of the "best and worst" of conditions, with mine accommodation being more consistently mediocre for all measures.

4.3.3 Comparison between on- and off-mine housing for "essential services"

A closer look at the difference between on-mine housing and off-mine housing[111] gives us a better idea of exactly how a move out of the hostel might affect the employee and his cohabitants. Of the employees who live off the mine 3.8% had no water, while about one fifth of them had either no, or an intermittent, electricity supply. Four point two percent had their electricity supply outside of the dwelling. Furthermore, almost one third had no reliable refuse-collection system. All of these compare with 100% supply of water and electricity in the dwelling for workers on the mine. Furthermore, nearly one third of off-mine dwellings had pit latrine toilets as opposed to water-borne sewage systems, and one third of toilets were outdoors for off-mine dwellers.

Scores were calculated for each dwelling on essential bulk services from a health point of view. Essential services here were: a) location and reliability of water supply, b) electricity supply, and c) the type and location of toilet for the dwelling.

Charts 73 to 75 show how scores on these essential services vary between different categories

[110] See Chart 58.

[111] Table 45.

of employee. Overall, off-mine dwellings were very slightly better than on-mine ones[112]. Rented housing gave the best scores of all the tenure options, with informal tenure scoring very poorly. Government-land-ownership or local-authority land ownership gave the highest score of the various land ownership possibilities. Households with children had the best scores compared to other types of households (including male hostel households). Bond-subsidy holders had a considerably better score than living-out-allowance recipients (Chart 74), and mine village dwellings and flats also scored the best, compared to mine hostels, and especially shacks. Dwellings of diamond mine employees scored higher than the dwellings of employees in the other mines (10% higher than platinum, which had the worst score), and older employees in the higher grades scored better than younger ones and lower-graded employees.

Charts 69 to 72 explore some of the inter-relationships between these findings. Family households with children of employees at all sampled grades scored the same as single men living in hostels for grades 5-12, and slightly better for Patterson Bands A and B[113]. Whatever their household composition, those living in houses, or flats, or a mine village scored better for these essential services than those in mine hostels, but informal-shack dwellers scored very badly[114], much worse than all the other dwellers, and regardless of household composition. Rented dwellings scored highest for these services, regardless of housing composition[115].

These findings demonstrate most clearly the severe deficit that shack dwellers have with regard to basic essential services like water, power, and sewerage. This difference is far greater than any other difference explored here. Living-out-allowance beneficiaries also had relatively poor basic essential services. The findings are of concern, particularly, because shacks and those with living-out-allowances are the most common housing arrangements in the industry as a whole (the latter as evidenced by the telephone survey in Part 1), other than the traditional option of single-sex shared male hostel rooms.

The picture gets more even, however, when the other (less "essential" from the point of view of health) bulk services are considered. Only 25% of mine dwellings (compared with 62% of off-mine dwellings) had water supplies in rooms, the rest having communal ablutions. However, hot water was rarer for off-mine dwellings (only 45% had this amenity). Mine housing scored better on storm water drainage and street lighting, but worse on security, both at the dwelling and in the neighbourhood), and access by road. It is these "non-essential" services which keep

[112] Chart 75.

[113] Chart 69.

[114] Charts 71, 72 & 74.

[115] Chart 72.

the scores of off-mine housing from going much lower.

Employee rating of bulk services revealed a similar pattern to the above. Employees at off-mine accommodation rated the following services and conditions worse than their colleagues in mine accommodation rated them (given in order from worst-rated to best-rated)[116]:

- access roads;
- water supply;
- electricity supply;
- refuse removal;
- sewerage disposal;
- waterproofing in wet weather;
- storm water drainage;
- ventilation of dwelling; and
- street lighting;

However, off-mine dwellers rated the following better than on-mine dwellers did:

- security at the dwelling;
- neighbourhood security;
- comfort (heat) in winter;
- comfort (heat) in summer;
- cooking facilities, equipment, control of fumes and smoke, and risk of accident from cooking;

[116] Table 48.

- ability to rest and sleep; and

- crowdedness.

Generally, employees living in off-mine housing expressed greater dissatisfaction than to those living in mine accommodation. However, it was not possible to probe the reasons for this beyond the assessments listed in this section. The general pattern for composite measures of bulk services and living conditions at the dwelling was for there to be a wider spread of good and bad conditions for off-mine dwellers, with hostels holding the "middle of the road" average position.

4.3.4 Physical measures of housing quality - space constraints and overcrowding

The inspectors were asked to record the numbers of persons living in each dwelling, the area of the top structure in square metres, and the number of rooms. From this data, two measures - area per person (m^2) and persons per room - were calculated for each dwelling. They do not necessarily completely correlate, as some dwellings had small areas, but fewer people and so, in some cases, dwellings with smaller areas per person also had very few occupants, or relatively more rooms per area. Bar graphs of these two measures of "crowdedness" were drawn up for the major variables: employee grade, employer housing subsidy, type of dwelling, location of dwelling, tenure option, and land ownership[117].

As expected, the two lowest grade bands of employee (grades 5-7 and Patterson band A) had the smallest area per occupant, only 63% of the area per person for Patterson band C employees. Grades 5-7 also had the largest number of persons per room (3+ per room, compared with 1+ for Patterson bands B & C). This comparison was not linear with the age of the employee, as although grades 5-7 were by far the youngest group, Patterson band A was of the same average age as bands B and C, and grades 8-12.

A monthly bond subsidy increased the area per person by 20%, and having a living-out-allowance increased it a further 27%.

The most spacious of all the dwellings on both measures was the single mine village dweller.

[117] See Charts 59 - 63.

Flats were the most crowded on both measures, with mine hostel rooms almost exactly as bad. The informal freestanding shacks had an average space advantage over all the others (except the single mine village occupant) on both measures. It is clear that moving out of the hostel gave a major space and privacy advantage, therefore, whether into a house or an informal dwelling. This is reflected in the better space available on both measures to those living off the mine as opposed to on the mine, and the higher area per person for owners (with an RDP grant or a bond) and informal housing, compared with employer-owned or rented housing.

These findings confirm the findings with respect to housing quality composite measures in the previous section. The main difference between on- and off-mine housing therefore seems to be the distinct gains which off-mine housing has with respect to space and crowdedness. Thus a move out of the hostel means better space availability, less convenient access to community amenities, and worse basic essential services.

4.3.5 Household composition, and conditions for families including children

Households were grouped in one of five ways; adult males only (single-sex hostel, sharing living space); adult men and women staying together; adult male(s) and child(ren) only (there was one case); men, women and children together; and living alone. This section concentrates on housing for families with children, most of whom lived off the mine. The majority were home owners with living out allowances or monthly bond subsidies (a total of ten), with only three of them living in employer housing[118]. A further four such families lived in mine housing with no subsidy (mine village).

Overall housing quality was slightly improved for family groups with children (most of whom lived off the mine). They scored the highest on bulk services and living conditions in the dwelling[119]. They were also considerably less overcrowded in terms of area per occupant.[120] The three families living on mine property but separately from the hostel dwellers scored less than their peers off mine on all indicators except quality of community amenities, (and scored less even than single males on mine for bulk services and distance to community amenities)[121].

[118] Table 41.

[119] Chart 64 (it should be noted that this score was only just over 50 percent of the total 400 points available, so the housing quality was mediocre at best)

[120] Chart 67.

[121] Table 42.

Families living off the mine scored better than those on mine property for bulk services, and living conditions in the dwelling, and distance from community amenities, only scoring less on the quality of those amenities and services[122]. A major deficit for families living on mines is the distance to the nearest school[123].

Housing conditions for families varied according to mineral group. Family housing (whether on or off the mine) was more spacious than single-sex hostel rooms for all minerals except diamonds, but manganese employees had the highest area per occupant for family housing[124]. Against the general picture, the diamond mine male hostel was more spacious than family housing on average[125]. Families of employees working in the platinum mine scored best overall because of their better access to and quality of community amenities. They were almost identical to families of gold mine employees for bulk services and living conditions in the dwelling.

Predictably, housing standards varied a lot with employee grade. Patterson band C, and to a lesser extent B, had considerably better overall conditions than their colleagues at the lower grades 5-12, and Patterson band A[126]. The difference in overall conditions in band C compared to all lower bands was significant.

4.3.6 Conclusion

4.3.6.1 The checklist survey of the 40 dwellings gives a picture not of the average housing standards, but of the range of housing standards on the four mines included. The data gained from it show that off-mine dwellers sacrifice very definitely on basic essential (health-related) bulk services, which include water, electricity, and sewerage. Therefore, this small survey confirms the same finding in the KAP study in 5.2, and suggests that off-mine dwellers are likely to be at more of a health risk with regard to the specific problems that arise from deficiency in these basics. This applies particularly to those with living-out-allowances, which are the majority of off-mine dwellers in the industry as a whole, and also the lower-graded employees with

[122] Table 42.

[123] Table 49.

[124] Chart 68.

[125] Chart 68.

[126] Chart 65.

lower incomes and educational levels. Amongst these employees, shack dwellers are seriously disadvantaged by the level of basic essential services available to them.

4.3.6.2 In contrast, off-mine dwellers gain over on-mine dwellers in terms of privacy, ability to rest and sleep, personal and neighbourhood security, physical space and crowdedness, temperature in the dwelling in the two main seasons, and quality and access to “non-essential" services and amenities, such as schools, and private cooking facilities. The deficit in ventilation is, however, a concern in off-mine dwellings.

4.3.6.3 It is clear that decisions by both employers and employees regarding housing are made in the context of a general and inexorable exodus from the hostels. This exodus is driven by the desire of employees to establish family households and to access the necessary community amenities and privacy that this requires. In doing so, employees take on a significantly greater health risk for themselves and their families with regard to the quality of water, power, and sewerage. This is nevertheless a rational calculation in the sense that once the move off the mine is accomplished, the health problems are more gradual in their effects, and employees and their families can work towards their improvement in the context of overall development initiatives and improvements in their income, if these materialise.

5. RECOMMENDATIONS

5.1 RECOMMENDATIONS TO STAKEHOLDERS

5.1.1 Recommendations to employers

5.1.1.1 **Housing Management**

It is clear that the simple incentive of providing a living-out-allowance and abandoning employees thereafter to the open housing market is not sufficient management of the exodus from the hostels. The following recommendations are designed to create better structures and expertise for managing the process in the long term.

It is recommended that employers who have appreciable numbers of on- or off-mine employees engage the services of a housing expert who has experience of housing issues from a practical and current legislative perspective. Such a person should know about housing design options, tenure options, and the National Housing Act and the National Housing Code, with the attendant details of the various forms of housing subsidy, including the public hostels redevelopment scheme. The housing expert engaged at a mine would therefore:

- be able to commission meaningful situation analyses of employee housing and needs;

- be able to develop partnerships with other mines in the area or region, financial institutions, and national provincial and local government agencies, to create viable and effective financial vehicles, and tenure and management options for housing mineworkers off mine, or redeveloping hostels for improvement;

- be able to negotiate collective bargaining agreements on housing with unions, in line with long-term strategies adopted to solve the low-income housing problem for mineworkers, and to bridge the "housing gap" for these workers in a sustainable way;

? be able to assist in creating and servicing representative structures amongst the workforce that specialise in key housing issues and negotiating hostel redevelopment and off-mine housing programmes (these would include full-time housing representatives, housing committees, hostel management committees, and so on); and

? be able to produce accurate and simple summaries of mineworkers' rights and obligations with regard to housing contained in collective bargaining agreements, and national legislation.

5.1.2 Recommendations to government

5.1.2.1 Minimum standards for mine housing

In view of the negligibly slow process towards family housing on mines since the observations and recommendations of the Leon Commission in the mid-1990s, it is recommended that the DME considers a recommendation to the Minister of Minerals and Energy on hostel overcrowding and family housing for mineworkers. Such a recommendation could be implemented through regulation under the Mine Health and Safety Act. It might include the following clauses:

1. That the mining houses take a policy decision to move towards family housing over a period of time, and that in the meantime steps be taken to upgrade existing hostels wherever it is 'reasonably practicable" to do so.

2. That a tripartite structure should be established between the State, the mining industry and representatives of employees to seek ways and means of improving the lot of workers who live on the mines, and to investigate the whole question of housing and accommodation for workers and their families at mines, with due regard for the continued viability of communities thus established.

3. That for mines with a remaining life of ten years or more the industry improves, within five years, accommodation to the point at which no more than eight men are housed in a single room on any mine (the figure of eight could be debated in the light of the findings in the telephone survey). This figure could then be reduced in periods after five years (for example to four

per room in ten years).

4. For mines having a life of ten years or more, a minimum of a further 5% of the workforce should be housed in family housing each year (making a minimum of 50% housing in family housing in ten years). The Leon Commission recommendation to this effect referred only to mine family housing, but this is no longer relevant since any new regulation would occur in a context where an "exodus" from mine housing is already taking place due to push and pull factors, and some mines are already phasing out hostels and mine housing altogether. However, the regulation could refer to either mine housing or off-mine housing, as long as minimum standards for family accommodation could also be regulated. Such standards would effectively impose a financial cost of family housing on mines, either in the form of mine villages or their upgrading, or in the form of investments in off-mine housing projects in partnerships with other institutions. Cross-subsidies from larger mines to smaller ones could then be organised within mining houses, or amongst the whole industry through a centralised industry fund.

5. For new mines, a minimum of 50% of housing of mineworkers (whether on or off mine) should be family housing.

6. Any new hostels built for single males should house a maximum of two persons in one hostel room.

5.1.2.2 **Minimum physical housing standards**

It is recommended that a regulation under the Mineral and Petroleum Resources Development Act 2002 [S.100 (1)(a)] be promulgated to set minimum standards for mineworkers' housing, whether on or off mine. The MANTAG regulations referred to in the Department of Housing National Housing Code are a starting point, as are the Agrement rules of procedure and specification for building. The standards for the Housing Subsidy Scheme are too low, as they are designed for sub-economic housing. In addition, the policy process currently underway to decide the future direction of the Public Sector Hostels Upgrading Programme under the Housing Act also provides possible minimum standards for housing, especially for hostel upgrading. The key design principles that should guide hostel redevelopment are (Smit, 2003):

- adequate living space and privacy;
- good quality communal space;
- optimal use of space;
- flexibility and adaptability;
- energy efficiency;
- greening;
- supporting sustainable livelihoods (for unemployed people or household members working at informal livelihoods);
- integration into the surrounding urban area; and
- contextual suitability (climate, site conditions, social use of space)

The Urban Sector Network has been establishing proposed standards for hostels upgraded within the Public Sector Hostels Upgrading Programme, on the basis of practical experience with particular hostel upgrading processes in the "grey-sector" and public-sector hostels. Table 5.1.2.2.1 gives minimum recommended floor area requirements for different types of upgraded hostel units, coming from pilot hostel

TABLE 5.1.2.2.1 Minimum sizes for units in hostel upgrading (within financial constraints of national housing subsidy scheme)

Description of minimum unit	**Area**
Single-person room with shared bathroom and kitchen (4 units sharing a bathroom and kitchen)	12 sq. metres
Single-person room with private bathroom and shared kitchen (4 units sharing a kitchen)	15 sq. metres
Family unit for small family with two habitable rooms and a shared bathroom (2 units sharing a bathroom)	20 sq. metres
Family unit for small family with two habitable rooms and private bathroom	25 sq. metres

(Source: Smith 2003: 20).

upgrading schemes in the Western Cape Province after year 2000. These schemes utilised the National Housing Subsidy Scheme allocations, topped up by financial participation from corporate owners of the hostels, resulting in quite high quality finishes to the dwellings.

A further consideration for standard-setting in this field is specification of the labour-intensivity of the building process, as there is great emphasis on labour-intensive building techniques as a means of generating skills and jobs amongst communities, which could include the communities which are dependent on mineworkers' incomes for survival.

5.1.2.3 Intra-governmental collaboration

In view of the continuing use of "heterogeneous sourcing" of labour by the mining industry since the early 1990s, and the large proportion of foreign mineworkers, the DME can consider inter-departmental collaboration with the Department of Home Affairs, Department of Labour (which is engaged in processes leading towards labour agreements with other countries in the region, especially Mozambique), and the Housing Department to assess the situation of foreign mineworkers' rights to housing and housing subsidies and assistance while they work in South Africa. In particular, the question needs to be discussed of whether another "immigration amnesty" is required to follow the one granted in 1996, which was only partially taken up by foreign mineworkers, if this will improve the housing prospects for these workers. The tax status of these workers in South Africa should be reviewed in the light of the overall policy thrust with respect to their continued participation in the South African economy. Government could consider converting the 2% wage levy for foreign mineworkers (Immigration Act Regulations 2003) from general revenue to a jointly administered fund (perhaps between the Housing department and the mining industry) to provide a source of capital for adequate off mine housing for foreign mineworkers.

The eligibility of mineworkers for housing grants under the Housing Act and the National Housing Code should be reviewed, and the possibilities explored of including mines in an expanded Public Sector Hostel Upgrading Programme as a means to access the State subsidy in an appropriate form.

The possibility should be explored of accessing State housing subsidies via partnerships between mines and provincial housing departments to link mine housing projects with provincial town planning and housing initiatives.

5.1.3 Recommendations to SIMRAC/MHSC for further research

5.1.3.1 **National Survey of Living Conditions for Mineworkers living outside of mine housing**

It is recommended that this study be rolled out to a much larger sample of mineworkers living outside of mine property, using a probability sample. Since the largest number of mineworkers off mine property are receiving living out allowances, and these are the lowest-income employees living off mine, this group should form the focus of a larger study. The objective would be to establish a baseline measurement of living conditions, housing type, and housing quality for this large group of mineworkers with a representative sampling technique. More detail could be included on affordability of housing, and costs. This baseline measurement could then be used to measure progress towards the requirements of the Mineral and Petroleum Resources Development Act 2002 over a five-year and ten-year period.

5.1.3.2 **Case Studies of innovative initiatives for hostel upgrades, and off-mine housing provision**

Despite the deficits in housing quality and services experienced by many off-mine residents in the industry, as outlined in this report, there are also some innovative approaches towards solving the "housing gap" for lower-income mineworkers, and developing more sustainable types of housing, with better standards, through partnerships with various stakeholders for financing, managing, and maintaining housing. It is recommended that case studies be undertaken of key initiatives in this field, such as in the platinum industry, to assess their impact and effectiveness towards mineworkers' health and safety. These assessment studies could be pursued using a variety of quantitative and qualitative methods.

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7. APPENDICES (ATTACHED)

7.1 APPENDIX A: CHARTS AND TABLES FOR TELEPHONE SURVEY

7.2 APPENDIX B: CHARTS AND TABLES FOR KAP STUDY

7.3 APPENDIX C: HOUSING INSPECTION SURVEY CHARTS AND TABLES

7.4 APPENDIX D: TELEPHONE SURVEY QUESTIONNAIRE

7.5 APPENDIX E: KAP QUESTIONNAIRE

7.6 APPENDIX F: HOUSING INSPECTION QUESTIONNAIRE