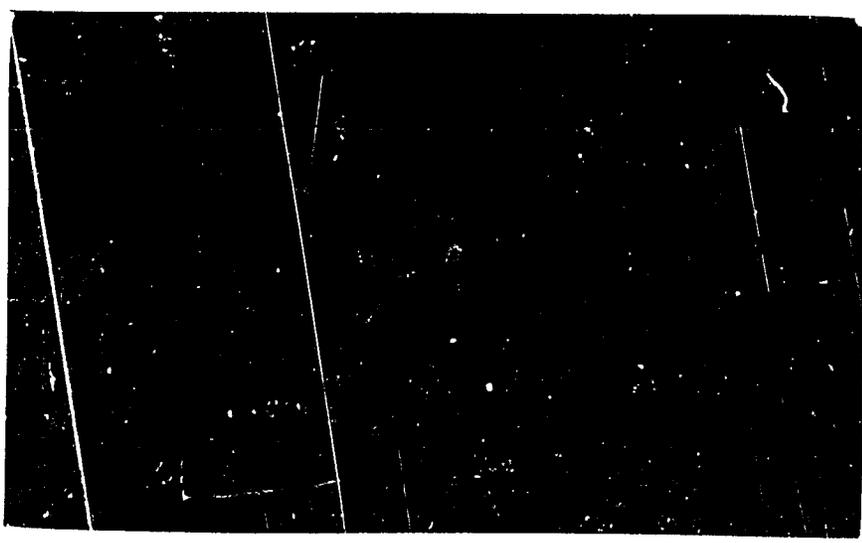
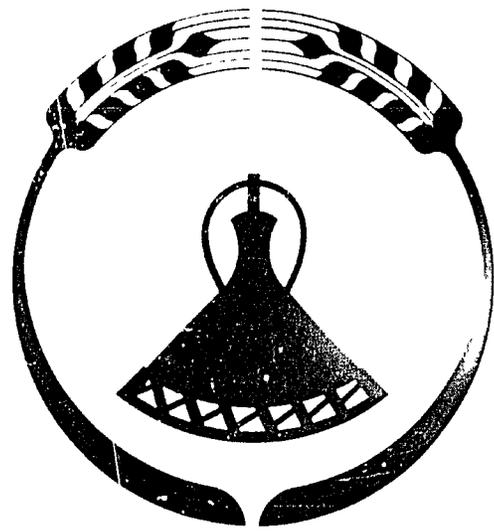


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# LESOTHO AGRICULTURAL SECTOR ANALYSIS PROJECT

Ministry of Agriculture  
Kingdom of Lesotho  
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THE FUTURE OF BASOTHO MIGRATION  
TO THE REPUBLIC OF SOUTH AFRICA

Research Report No. 4  
Lesotho Agricultural Sector Analysis Project

by

Jerry Eckert and Ron Wykstra

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THE FUTURE OF BASOTHO MIGRATION  
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by

Jerry Eckert and Ron Wykstra<sup>1</sup>

Employment Migration:  
A Fundamental Component of Lesotho's Economy

Labor migration to South Africa has been a historical dimension of Lesotho's economy since the gold mines opened on the Witwatersrand in the last decades of the 19th century. Since then Basotho have turned with increasing frequency to various occupations in the Republic for employment and incomes. Times series data are generally unavailable covering all migration, however, relatively good data exist showing Basotho participation in mining. These are summarized stressing the postwar period in Table 1. Basotho miners have risen steadily in total numbers, as a percent of the total mine work force and, more importantly, as a percent of foreign mine workers. These trends are especially evident since 1955.

Table 1. Historical Basotho Involvement in Mine Employment in RSA\*

Year or Period	Lesotho Migrants in Mines (000)	Chamber of Mines Total (000)	Basotho as % of Total (%)	Foreign Workers (000)	Basotho as % of Foreign Workers (%)
1906	2.1	81	2.6	62.5	3.4
1916	17.3	219	12.7	111.2	15.6
1926	22.1	203	10.9	119.1	18.5
1936	46.1	318	14.5	152.3	30.3
1945-49	37.0	305.6	12.1	185.9	19.9
1950-54	33.6	302.9	11.1	191.9	17.5
1955-59	45.2	346.0	13.1	226.7	19.9
1960-64	55.8	399.8	14.0	250.5	22.3
1965-69	63.1	379.6	16.6	251.8	25.1
1970-74	76.8	397.8	19.3	308.0	24.9
1975-78	88.8	397.3	22.3	206.6	43.0

Sources: Years prior to 1975 from Wilson, 1976.  
1975-1978, unpublished data from Chamber of Mines.

\*Note : Refers to mines affiliated to Chamber of Mines only.

<sup>1</sup>Respectively associate professor of agricultural economics and professor of economics, Colorado State University.

While mining is the principle destination of Basotho migrants, large numbers also migrate to other occupations. Two recent estimates relate mine employment to the total. Wilson (1976) estimates that in 1973, forty-two percent of Lesotho's total migrant work force was employed in occupations other than with Chamber of Mines affiliates.<sup>1</sup> van der Wiel finds that in 1975, 81 percent of all Basotho migrants were employed in mining,<sup>2</sup> a dramatic increase from the 50 percent recorded for 1966. During the postwar period, there has been a gradual increase in the percentage of Basotho male labor force involved in migration from some 35-40 percent in the 1950s to an estimated 65 percent for 1976. As the result of these factors employment migration has become a common factor of Basotho life and a significant component of the economy.

These long-term developments have occurred as a result of mutually reinforcing needs. Several studies suggest that the BLS countries have long been considered labor reserves in the southern African context (Wilson, 1976; Clarke, 1977; Woods, 1978). Colin Murray has gone so far as to suggest that this status was engineered historically by South Africa as a matter of policy to meet labor needs in underground mining (Murray, 1976). Certainly migration offered many comparative benefits to the individual Mosotho. Faced with an absence of domestic employment opportunities, low and variable agricultural production, and a growing dependency on the Republic of South Africa for food and basic consumer items, the Basotho have increasingly relied upon income from migrant employment.

Table 2 depicts changes in the importance of migrant remittances since Lesotho gained independence in 1966. The single factor most directly influencing change during this period has been the dramatic increase in mine wages which occurred from 1972 to 1976.<sup>3</sup> As a matter of policy the South African mine industry sought to more nearly equalize mining and industrial wages. One of their principal motivations was to attract South African workers in order to lessen their dependence on imported labor, which had approached 80 percent of the Black work force in gold mining by 1972 (World Bank, 1978). The effect on Lesotho was to raise migrant remittances to a level of significance never before experienced. Remittances surpassed agriculture as the largest

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<sup>1</sup>Includes agriculture, household service, commerce, manufacturing and also mines not drawing on Chamber of Mines employment channels.

<sup>2</sup>Includes all mines whether or not affiliated with Chamber of Mines.

<sup>3</sup>Minimum earnings per shift have increased from the R0.50 prevailing 1/1/73, to R0.72 by 1/12/73, to R1.20 on 1/6/74, to R1.60 on 1/12/74, to R2.20 on 1/6/75 (van der Wiel, 1977, p. 69). This was followed by much smaller increases to R2.50 on 1/6/76 and subsequently to R2.80 by 1/6/78.

sector of the economy in 1974/75. In 1975/76 remittances actually exceeded Gross Domestic Product, accounting for 53.8 percent of total income available to Lesotho. In the absence of comparable growth in domestic production, net imports rose from R37 million in 1972 to R165 million in 1976 as consumption habits adjusted to new income levels (LASA, 1978).

Since 1976 mine wages have not increased in real terms. Consequently the relative importance of remittances to Lesotho has declined somewhat. However, the latest data available point out that remittances still provide nearly half of new income generated for Lesotho each year.

Table 2. Relationship between Migrant Remittances and National Income in Lesotho (values in thousand Rand, current prices)

Year	GDP	Net Remittances	GNI	Remittances as Percent of GNI
66/67-68/69	42,245	10,046	52,291	19.2
72/74	71,480	29,683	101,163	29.3
74/75	78,490	59,860	138,350	43.3
75/76	77,390	89,970	167,360	53.8
76/77	104,790	102,660	207,450	49.5
77/78	139,350	117,420	255,770	45.9

Source: R.A. Wykstra, 1979

Another perspective is provided by examining the proportion of the male labor force involved in migration. The 1976 Census of Population enumerated 321,027 males between the ages of 15 and 64. Using participation rates from the Second Five Year Plan one derives a male labor force (defined as economically active population) of 273,400 individuals. Of these 178,000 (or 65%) were estimated as being involved in migration (van der Wiel, 1977). Less than 100,000 males were employed by the domestic economy.

Finally, one must examine the contribution of migrant remittances to Lesotho's economic growth. In real per capita terms GDP has risen only R5.00 since independence in 1966. At the same time, per capita Gross National Income (GDP + remittances) increased by R35.85.<sup>1</sup> Eighty-six percent of Lesotho's real economic growth in the first 12 years of independence came from migrant remittances.

From those various measures it is obvious that Lesotho is, today, very heavily dependent on migrant employment. A dependency of this magnitude creates a vulnerability which should be of serious concern. Migration opportunities for Basotho are likely to change substantially

<sup>1</sup>At independence (1966) real per capita GDP and GNI were R41.43 and R49.36, respectively. For the fiscal year 1977/78 comparable figures are estimated at R46.42 and R85.21.

during the next two decades. When they do, the economic foundation of Lesotho will transform radically. The primary thrust of this paper is an analysis of factors affecting the future of Basotho migration, a prediction of the magnitude and timing of changes that may be expected and finally some thoughts about the impacts of these developments on the Basotho nation and its individual households.

### Determinants of a Changing Future

These migration issues are of critical importance to the Government of Lesotho, and those concerned with planning of domestic employment creation. These questions have received increasing attention since the mine disturbances in 1974 sent some 15,000 miners home for a period of time, and raised the spectre of a sudden and possibly more permanent repatriation. Unfortunately, the future of the foreign worker in South Africa is subject to a number of economic, political, social and other influences, and to date neither the South African Government nor the employing agencies have committed themselves publicly to an explicit policy. Consequently, conjecture and controversy often substitute for fact in the planning of labor supplying nations and in the analysis of interested scholars.

Because of the uncertainties facing all southern Africa, it is important to present explicitly the assumptions underlying our analysis:

1. We assume that whatever political changes must inevitably occur in South Africa will be achieved largely as the result of stable legal and political processes with a minimum of disruption in the economy. This assumption is made to provide the stability necessary for the long term views and predictions made below.
2. We assume that South Africa recognizes the economic interdependencies associated with migrant employment at present levels and is aware of the disruptions that major supplying nations would experience if migrant jobs were significantly reduced. Several RSA spokesmen have asserted that the Republic does recognize the economic needs of the labor supplying nations and has no present or foreseeable intention of phasing out migrant workers completely. At the same time, it must be recognized that historical relationships are closest with the BLS countries and that migrant openings for citizens of other nations might be more variable in the long run, reflecting changes in relationships between the countries involved.
3. We further presume continuation of the present situation in which the supplying states are not organized into a negotiating bloc and only infrequently contact each other at the inter-governmental level on migration issues. At present recruitment and employment in the mines are handled by the Chamber of Mines, a non-governmental organization, which reflects the

needs for labor as developed and expressed by each of their individual members. In short, while the demand for foreign labor is highly organized, the supply remains atomistic, with thousands of individuals each acting on their own.

4. Finally, it is assumed that the migrant job market is controlled largely by the employers as variously organized, but that the government of South Africa has at least some indirect influence when necessary over employment policy decisions taken by these agencies. More directly stated it is assumed that the number of openings (at least for Basotho) and the wages paid are almost entirely determined in the Republic based on the various influences prevailing there.

Following directly from the fourth assumption, three remaining sets of factors determine the migration prospects for Lesotho. They are:

1. The state of South Africa's own unemployment problem.
2. The general state of the South African economy and its prospects for employment creation.
3. Specific conditions in gold mining and collieries, the two largest employers of Basotho.

#### South Africa's Unemployment Problem

Concern for unemployment in the Republic of South Africa is a recent development. As late as the early 1970s most economic planners ignored the issue under the assumption that, if anything, a scarcity of labor prevailed. This view was supported by the 1970 census in which a very low rate of unemployment was reported. Since then the census methodology has been shown to contain serious classification errors which vastly understated the number of unemployed (Loots, 1977).

An awareness that unemployment might be significant and a troublesome policy issue dates from 1976-77. In those years and subsequently a substantial volume of research was begun to provide estimates of the magnitude of the employment problem. Norman Bromberger (1978) provides a succinct summary of the more important studies to date.

Any review of unemployment data must mention the very substantial difficulties of estimation within the South African context. Problems arise from the co-existence of traditional and very modern economic systems, difficulties in classifying and quantifying activities in the native "homelands", classification of persons at rest between assured contracts in the mines and particularly difficult classification problems for most non-white, rural women. These conceptual problems are compounded by several empirical problems, not the least of which is the

complete absence of recurrent statistics on employment at the national, regional or (with a few exceptions) industrial level. There is also the real possibility that recurrent data now being initiated will, in the future, have their utility eroded by citizenship changes being contemplated for Africans. This absence of data coupled with a belated awareness that the problem is serious has spawned a recent spate of research. Unfortunately, without official data series on which to develop estimates, an unusually wide variation appears among the resultant studies.

However, South Africa's domestic employment problem has a direct bearing on the future of Basotho migration. Regardless of data problems it is critical to develop the best possible prediction of future events. Therefore, we proceed with an examination of the various available estimates of unemployment in South Africa. The several available studies can be subdivided into three categories. In ascending order of magnitude they are:

1. Those tied to the 1970 Census.
2. Recently released official figures.
3. Those prepared prior to the official estimates (2/79) which ignored the questionable Census baseline.

Census Related Estimates: J.L. Sadie (1977) presents the lowest of the available estimates. Basing his calculations on the 1970 census, he suggests a range of 170,000 to 338,000 African males as unemployed in 1976, or 4-8% of available manpower. Bromberger (1978) challenges the use of the census figures as a base and also suggests that, even if correct, Sadie's 8% unemployment rate is insignificant in the face of a 21-25% under-employment rate to which Sadie also admits. The definitional boundary between un- and under-employment apparently has become obscured and partially negates Sadie's moderate to low unemployment figures.

Van der Merwe (1976) starts with the census base figures but then develops estimates of the annual additions to the ranks of unemployed for each year through 1976. By 1976 he has calculated additions of 746,000 unemployed in urban and white rural areas plus 1,142,000 additional underemployed in the homelands. Two observations can be made. First the magnitude of the estimated annual increase reinforces the suggestion that the reported levels in the 1970 census are absurdly low. Second, even without regard to the total numbers involved, it is significant that over 50% of the annual additions to both African and Coloured labor forces went unemployed during the six years covered in van der Merwe's study.

Official Data: In a statement released in February by the Prime Minister (Botha, 1979) based on staff work of the Economic Advisory Council, unemployment in South Africa was placed at "approximately 800,000" in 1978. This total which includes Transkei and Bophuthatswana equals 9.5 percent of the working population. Comparative figures for

1970 equalling 200,000 and 3.0 percent indicate the magnitude with which the problem has grown in recent years. The racial composition is given below.

	<u>Percent of Economically Active Population</u>	
	<u>1978</u>	<u>1970</u>
Whites	3.6	0.3
Blacks	11.1	4.1
Asians	9.2	1.4
Coloureds	11.1	1.6
Total (Weighted average)	9.5	3.0

These figures are developed from data of the Continuous Population Survey conducted by the Department of Statistics. They have been challenged in the press as too low (Financial Mail, April 6, 1979). To conform to internationally accepted definitions, persons were excluded from the economically active population and from the ranks of unemployed if 1) they had not actively sought work in the preceeding week or 2) could not report for work within one week. Given the restrictions on movement and urban residence pertaining to non-Whites, it is quite possible that large numbers of involuntary unemployed persons were excluded from the official count. Furthermore, an individual was considered employed if he worked as little as five hours the preceeding week. Underemployment is thus almost completely converted to employment by virtue of the definition used.

It is therefore almost certain that actual unemployment equals one million persons (11.6% of economically active population) and may in fact exceed this by a substantial margin. The official estimate of 800,000 must be taken as a conservative figure, in other words the lower end of a possible range of estimates.

Independent Non-Census Related Estimates: For comparison, several estimates are available from academic and research organizations in South Africa. Each of the following have avoided using the 1970 Census for a benchmark.

Simkins' work beginning in 1976 caught the attention of scholars and policy makers alike. After several iterations grappling with different methodologies his most recent version was published in 1978 (Simkins, 1978a). In this study he develops estimates of unemployment from 1960 to 1977. In the latter year he calculates over 2,300,000 unemployed, equal to 22.4 percent of the labor supply. While his time series estimates show a chronically high rate for structural reasons, he also shows that the unemployment rate began to rise significantly during the recent recession. Equally important, Simkins finds no real reduction in unemployment occurring during the period of rapid economic

growth in the late Sixties and early Seventies. Simkins' figures are the highest of those available to date.

Loots (1977) produces "very high, high, med in and low" estimates for the 1970-76 period. His figures in 1976 are 18.6%, 14.2%, 11.8% and 10.2% respectively. He finds unemployment rising over the period in both absolute numbers and percentage terms regardless of the estimation method used.

Summary: Considerable variation exists in estimates of unemployment. Recently released official figures are felt to err on the low side by most scholars but are considered acceptable as conservative figures by government planners. All researchers who depart from the 1970 Census estimate unemployment in excess of 10 percent of the labor force. And all available studies show a strongly rising trend during the Seventies. Most studies portraying historical trends suggest that high unemployment rates are a chronic feature of South Africa. It is surprising that they have not become a political issue before now. Given recently measured increases in unemployment, one might well expect a politicization of this problem in the near future. Certainly the situation suggested by van der Merwe, in which more than half of the new entrants from major population groups go unemployed, cannot continue for long without commanding urgent national attention.

Of particular interest to Lesotho is the racial composition of unemployment. Simkins' figures are summarized in Table 3 below and suggest that 81 percent of the unemployed persons in RSA are Black. His figures probably err slightly on the high side due to his methodology in aggregating underemployed people in homeland agriculture. However, even with a slight downward adjustment, one must accept at least 75 percent as the number of Blacks in the total.

Table 3. Racial Composition of Unemployment in the Republic of South Africa, 1975.

	Labor Supply (000)	Unemployment Rate (%)	Unemployment (000)	Unemployment (%)
Whites	1740	13.0	226	11.2
Coloureds	845	11.2	95	4.7
Asians	217	26.7	58	2.9
Africans	<u>6963</u>	<u>23.5</u>	<u>1636</u>	<u>81.2</u>
Total	9765	20.6	2015	100.0

Source: Simkins, 1978b.

Black and Coloured populations are growing faster than national averages, at rates almost exactly double the growth in these same figures for Whites. Government figures (RSA, 1976) show the Black population to

be growing at greater than 3 percent per annum during the 1975-80 period. and although some reductions in this rate are projected by the end of the century they will not occur until after 1985 and will therefore not lower the growth of the Black labor force until after 2000AD. At present some 79 percent of the annual additions to population are Black (from Leistner, 1978). Simultaneously, some 71 percent of the annual growth in labor force is Black (from Simkins, 1978b). Their even more critical role in the employment crisis is the result of the fact that 57 percent of these new Black labor force entrants go unemployed (van der Merwe, 1976). Translating these dynamic elements into an employment challenge, Leistner (1978) shows that South Africa must generate 280,000 jobs per year for the rest of this century to accommodate net additions to the Black labor force alone.

The reason for isolating the labor force dynamics of South Africa's Black population is simply to reinforce the assertion that the search for domestic employment solutions must concentrate on jobs for Blacks. And as the problem intensifies, as it must before it will abate, the competition of foreign black workers for these same jobs must become a more visible and more controversial issue. South Africa must find 7,000,000 jobs for Blacks alone in 25 years, an average of 280,000 per year or 23,000+ per month. It does not seem likely that the South African economy can meet this demand (see following section). Therefore, one policy option which must eventually be considered is displacement of at least a portion of the half million foreign workers now holding jobs in the South African work force.

#### Macro-Dynamics in South Africa's Economy

The growth rate of the South African labor force has increased steadily since 1951. Sadie (1977) provides the following estimates:

1951-60	2.2% per annum	1965-70	2.6% per annum
1960-65	2.4% per annum	1970-75	3.1% per annum

Most analysts consider the latter figure to be excessive. Leistner (1978) projects 2.79 percent until the end of the century. Simkins (1978a) calculates 2.81 at present and for an unspecified period into the future. A figure of 2.8 seems an acceptable compromise that will characterize fairly accurately present and near future growth in labor force.

These workers seek employment in an economy that is only now emerging from a prolonged recession following the "Golden Years" of the 1960s. Historical growth rates in real GNP are given below.

1955-60	3.7% per annum	1973	4.2%
1960-65	6.0% per annum	1974	8.0%
1965-70	6.2% per annum	1975	2.6%
1970	4.8%	1976	1.3%
1971	4.6%	1977	0.5%
1972	2.9%	1978	2.5%

Source: Bureau of Economic Research, 1979.

In the budget presentation of March 1979, the Finance Minister announced a program of sweeping policy changes designed to end the recession and spur the economy to a 4 percent rate of real growth (Horwood, 1979). One of the most important objectives of this budget is to help slow deterioration of the employment situation (Botha, 1979).

There is some question as to the rate of growth that can be sustained in the Republic. While high rates could be achieved through government intervention, the danger of inflation and a distorted economy are real. In addition, too much stimulation could lead to an increase in the capital intensity of the economy, thereby exacerbating the longer run task of employment creation. It is difficult to find economists who believe that a return to growth rates of 5-6% or higher is feasible. Rather the consensus seems to be that the next decade will be marked by annual growth rates approximating 4 percent. In fact, a recession or slow-down in economic growth among South Africa's trading partners or a host of other factors could make even 4 percent an elusive target. One of the larger unknowns, of course, is the future world price of minerals, especially gold. Energy prices also pose constraints to development. However, for the present a sustained growth rate over the next ten years of 4.0 percent can be assumed, with the caveat that 3.6-3.8 is also plausible.

During the rapid growth of the 1960s the impression was held in government and industry that a scarcity of labor prevailed. Subsequently during the 1970s a period followed in which both rising wages and increased instability raised the monetary and non-monetary costs of labor. The result of this sequence was a significant shift toward substituting capital for labor throughout the economy.

Bromberger (1978) summarizes several reasons, all of which are visible in recent South African economic history, for the current capital-intensive labor-saving structure of the economy

"There is the view which emphasizes the fact that we import so much of our technology, in consequence of which it is a technology which suits economies where labor is not in surplus. There is another view which emphasizes the fact that arguably the market signals influencing the choice of technology are distorted - roughly wages are too high and capital costs too low. There is a whole group of factors which conduce to bring this about. The complex of causes behind the industrial colour bar is one; the political and social pressures behind rapid African wage increases in recent years is another; and then there is also the access of South Africa to the world capital market, and the set of investment allowances and subsidies which encourage capital intensity.

We can also argue that political factors of various kinds lean against labor absorption and encourage capital intensity. The ceilings on the employment of Blacks in some urban industries

and the uncertainties of continued supply of Black labor to certain areas attach greater costs and uncertainties to the use of Black labor. van der Merwe has referred to the activity of labor boards in farming areas in setting labor quotas and encouraging a reduction in Black farm employment.

(Finally) There is an argument which links technology to the particular mix of commodities produced in a country. Allegedly commodities produced for high income consumers will tend to be produced in more mechanized ways than others."

These various factors led to what should have been predictable results. From 1971 to 1977 the national average capital:output ratio rose from 2.17 to 2.67 while at the same time the capital:labor ratio rose from R4479 to R5404 (S.A. Reserve Bank, 1978). While in part these changes may reflect unutilized capacity during the recent recession, it is nevertheless believed that they also demonstrate long run changes in the structure of the economy. Since these figures represent economy-wide averages, the marginal rate of capitalization must have been considerably higher to induce these changes. Recently the Economic Advisory Council has stated that it now requires R10,000 in capital investment to create one job in industry (Horwood, 1979).

Official figures relating growth in GNP to growth in employment are unavailable. Simkins, using historical data, estimates that to absorb a labor force growing at 2.81 percent, an economic growth rate of 5.3 percent is required. In other words, employment in recent years has grown at 53 percent of the growth rate of GNP. In view of the increasing capitalization that has occurred, this ratio probably should be revised downward for estimating future events. Most of the incentives that have induced the shift to capital intensive production are still operating despite the recent emphasis toward stimulatory economic policies. Therefore, in the near future employment will grow at less than half (say 40%) of the rate of growth in GNP. Until the structure of the South African economy can be significantly altered, this means that employment will grow at less than 2.0 percent per year, and perhaps as low as 1.6 percent in the near future. This is clearly well below the expected increase in labor force.

Consequently, the employment problem in South Africa will continue to increase during coming years. Whether or not it then decreases significantly depends on the success of government in sustaining a high growth rate while significantly improving the labor intensity of the economy. Even with a sustained 4 percent rate of economic growth, unemployment as a percent of the labor force will increase by 50-60% in the next five years.<sup>1</sup>

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<sup>1</sup>800,000 people out of work is identified as an unemployment rate of 9.5% (Botha, 1979). The labor force must therefore be 8,421,000 and employment 7,621,000. If these two quanta grow at 2.8 and 1.6% respectively (see analysis in text) the 1983 figures will be 9,668 and 8,250 thousand. Unemployment will then equal 14.7% of the labor force, 55% above the 1978 rate.

### Conditions Affecting Basotho in Mining

A majority of Basotho migrants work in the mines. The Chamber of Mines reports more than 92,000 Basotho employed by their members alone. Government of Lesotho figures suggest a figure of 110-120,000 miners out of an approximate total of 150,000 known migrants. Gold mining is the principle employer with collieries a distant second. With this high a concentration in essentially two industries, the future demand for labor for these two industries becomes an important determinant of the future of Basotho migration.

Standard methodology suggests that predictions of labor demand can be made by predicting output growth in an industry plus future labor-output relationships. One excellent recent study attempts just this for employment in each sector of South Africa's mining industry (Bromberger, 1979). Unfortunately the rate of change in both coal and gold mining that has become apparent since Bromberger wrote (his paper was first presented in 1977) has made many of his underlying assumptions for these two industries obsolete. The present position is sketched very briefly, and incompletely, below. In each case significant new dimensions have appeared, both in demand for output and in the technology of its extraction.

Gold Mining: Until recently gold mining was considered a declining industry in South Africa. Attention focussed on adjustment problems related to the closure of exhausted mines, the search for new sources of mineral wealth and the like. Bromberger (1979) cites one study based on 1972 information that projected a steady decline to the end of the century with output at that time projected to be 240 tons, less than one-quarter of its 1970 level.

However, following the freeing of the gold price in the early 1970s, the dramatic price rise that followed resulted in a vast redefinition of reserves. Low grade ore that was previously not included became economically exploitable. Many, perhaps most, gold mines began investing to reopen previously depleted portions of their mines. New mines including two very large ones were rushed to completion in order to bring production on stream while gold prices remained high. The first of these to begin milling, the Elandsrand mine, poured its first bar of gold 31 months ahead of schedule (Anglo American, 1978).

In the geological circumstances of South Africa, gold and uranium ores are closely associated. Each can be, and often is, a by-product of mining for the other. In recent years the price of uranium has risen markedly, generating a significant growth in uranium output, with additional gold recovered in the process. Gold is also obtained as a by-product from the extraction of chrome, platinum, copper, antimony and even phosphate at one location. In each case, old tailings piles are being scrutinized and reprocessing equipment installed. One of the more interesting recent developments is a major effort to reprocess the tailings piles of a large number of contiguously located mines for the joint extraction of gold and uranium.

These factors mean that previously assumed limits to gold output are no longer valid. Only two years ago Bromberger concluded that gold output would "rise somewhat from 713 tons to around 800 tons by 1985, and will decline thereafter to about half its current level by the end of the century". Instead output should top 800 tons in 1980 and continue to rise rapidly for a period thereafter.

Knowledgeable opinion from within the industry stated in 1976 that an up-turn in gold production would appear in 1978 (it did) with further substantive gains over a 9-10 year period provided market conditions for gold and uranium remained favorable (Etheridge, 1976). Current expectations are that gold output will decline slowly after the late 1980s although this type of prediction has proved erroneous several times in previous decades. Recent gyrations in the gold price suggest extreme caution in long-term predictions for this industry.

This is not, however, cause for optimism by Basotho. Many of the older mines which employ Basotho have had only a temporary reprieve and will again face declining operations in 10-15 years unless gold prices prove a surprise once more. New mines that are opening are in areas much closer to other sources of Black labor than to Lesotho. Furthermore these new mines are much more capital intensive than existing mines. A sample of gold mines established before 1975 shows an average output of 180 tons of ore milled per Black worker. Elandsrand will mill 340 tons per Black worker (Anglo-American, 1978) and other large new mines will use similar technology. In 1977 the industry as a whole average 53.8 ounces of gold per employee (CM, 1978b). The Elandsrand mine will, at peak production, average 120.5 ounces per man-year of employment (calculated from Heever, 1977). Furthermore, the reprocessing of tailings piles is an above ground operation that no longer involves hard rock. It is therefore a highly mechanized process involving only limited number of laborers per ton processed. Finally, whatever new jobs are created by reopening low grade deposits underground will largely accrue to the closest source of labor. In most cases this is not Lesotho.

Coal Mining: Similar dynamics are apparent in coal. The rising price of oil plus the loss of Iranian oil supplies is restructuring energy policy in South Africa. Massive investments are underway to expand the SASOL technology for converting coal to petrol. Coal must increase its role as the principle fuel for electric power generation. Finally, the completion of the Richard's Bay facility will permit a doubling of coal exports to some 40 million tons annually. All of these developments suggest a dramatic increase in coal output during the rest of the century. Coal production (92 m. tons in 1978) is officially estimated to rise to between 250-300 million tons in 2000AD by the Minerals Bureau, Department of Mines. Even this may be conservative. Bromberger (1979) projects a figure between 260 and 550 million tons a year and then settles on a growth rate of 6 percent per annum.

As the economics of energy shift to favor coal in South Africa, the size of "reserves" (economically exploitable deposits) changes as well. The rapidity of this trend is shown by Burnton's challenge in 1978 to the findings of the Petrick Commission (RSA, 1975) only three years earlier. He states that "South African coal reserves can be revised upward by 150 percent (from Petrick Commission estimates), with peak production shifting from early in the next century toward the end of the century (2100AD)." He revises Petrick estimates upwards by 10 billion tons of recoverable coal, stating that 60 percent of total deposits will be ultimately recovered as opposed to the 1975 estimate of 31 percent.

As with gold, however, optimistic projections of rapid output growth do not translate directly into increased employment. This is particularly true for employment of Basotho. Most Basotho coal workers are employed underground where rapid technological change is underway. Mines are progressively shifting from hand loading to machine loading to continuous mining machines to "long-wall" techniques with a reduction in labor utilized per ton of output at each step. Perhaps even more dramatic will be the shift to open-pit (open-cast) mines which use very little labor. The most recently commissioned open-pit mine in Natal will eventually produce 5 million tons per year employing only 900 people, 600 of which will be Black.

The rate of technological change in coal mining is shown below in Table 4. One qualification is necessary to these data. Direct access to Iranian oil has been lost since these estimates were made. Consequently total output will rise more rapidly than shown, probably with most of the additional expansion occurring in open cast mines.

Table 4. Contribution of Different Mining Techniques to South African Coal Production, 1965-1990

	1965	1970	1975	1980*	1985*	1990*
Output (M.T./yr)	47	52	70	112	140	150
	- - - - - Percent of Output - - - - -					
Hand Loading	90	56	17	4	0	0
Mech. Loading	10	38	64	52	42	32
Continuous Miners	0	6	0	9	16	25
Longwall Technique	0	0	0	10	18	18
Open-cast	0	0	19	25	24	25

\*Estimated

Source: Approximated from chart prepared by Miklos Salamon, Research Advisor to Chamber of Mines, appearing in CM, 1978b.

Summary: Both gold and coal mining are in a period of rapid output expansion. Coal output will probably continue to rise well into the next century while gold production may decline slowly during the 1990s, depending, of course, on future price developments. In both cases the relationship between output and employment is also changing rapidly, towards a more capital intensive mix. Expansion of mine employment is closely tied to whatever new demand arises from new or expanded operations. Unfortunately, this is exactly where capital intensification is concentrated. That the employment needs of existing mines are essentially saturated was clearly shown in 1978 by reports of an "almost embarrassing flood of Black workers seeking employment on the mines", "considerable numbers" being turned away by TEBA district offices, and the statement that with 421,000 workers in gold, platinum and copper "virtually 100 percent of the industry's underground requirements have been met while surface requirements have achieved an over-employment level of more than 110 percent" (CM, 1978a).

In this situation projecting the demand for labor is indeed risky business. It would appear, however, that several factors are working against continued employment prospects for Basotho. These include:

1. The prospect of reserve depletion in several gold mines now employing Basotho.
2. The mechanization of underground coal mining, displacing labor.
3. A geographic shift of the balance of gold output to areas beyond economical reach of Basotho, and closer to other labor sources.
4. A similar phenomenon in coal as open-cast mines are opened in Natal.
5. An increasing proportion of both gold and coal to be derived from surface operations, which use capital intensive techniques.

It could be asked whether Basotho might be permitted to shift from declining portions of the industry to other mines or other minerals which are now expanding employment. While some small latitude may exist for such transfers it is quite limited and on balance the answer is negative. As gold and coal mines in the Orange Free State close out and new ones open in Transvaal and Natal respectively, transportation costs alone raise the effective price of Basotho labor relative to nearer sources of supply. There are a great many other economic and political pressures suggesting that new mines employ from nearby, not the least of which is the critical need for a solution to South Africa's own Black unemployment problem.

## Conclusion and Prediction

The future for continued high levels of Basotho migration to the Republic does not look good. South Africa faces domestic unemployment problems of such a magnitude that they now command national priority attention (P.W. Botha, 1979, F. Botha, 1979). The most probable near term prospect is that the unemployment situation will worsen noticeably. Unfortunately, most of the growth in unemployment will be among Blacks. As the employment situation deteriorates, pressures will mount for solutions, priorities within employment policy will change rapidly and today's comfortable assumptions will come under intense review. Competition by foreign Black workers very likely will be one of the issues addressed.

Several South African academicians have already called for further displacements of foreign Africans with South African nations (Knight, 1976; van der Merwe, 1976). Clarke (1978) argues persuasively that a policy of displacement of foreign workers is in effect and has been for some time, implemented by various administrative and legislative means. He concludes:

"It would appear then that proximate determinants of the prevailing labour surplus (e.g., those associated with the current economic recession) are reinforcing determinants of a more deeply imbedded structural character. While forecasting is often an unwise venture, it would not therefore seem too amiss to anticipate a continuation of the pattern of relative displacement of foreign African labour supply as well as a more gradual but discernible absolute displacement, the latter process being largely a function of the growth in domestic labour surpluses and imperatives which will most likely arise from the local system's stabilisation."

Whether or not a policy exists, data on mine employment, presented in Table 4, confirm the facts of both a relative and absolute displacement of foreign workers in mining over the last four years. South Africans increased their numbers by over 143,000 while total employment rose only 60,000. Only two supplying nations increased numbers significantly during the period covered. Rhodesia (Zimbabwe) had 13,000 miners in RSA in 1978, an increase compared to essentially zero in 1974. However, Rhodesian numbers have dropped rapidly since 1976. Only Lesotho has shown a large and sustained increase. By contrast there has been a net decline of foreign workers from all sources except Lesotho of more than 100,000 persons. Because of these developments, Basotho constituted 47 percent of the total foreign labor component employed in September 1978 in mining. A concentration of this high a proportion in one nationality can only be viewed as a source of vulnerability to Lesotho.

Table 5. Labor Strength in South African Mines by National Origin\*

Source	1974	1975	1976	1977	1978	Net Change
Angola	2,904	3,220	2,356	645	126	- 2,778
Botswana	18,008	22,819	24,244	24,676	19,796	+ 1,788
Lesotho	72,343	83,306	86,781	92,875	92,387	+ 20,044
Malawi	93,992	8,517	182	6,131	20,613	- 73,379
Mozambique	87,626	100,103	56,404	41,667	41,341	- 46,285
Rhodesia	6	4,332	20,166	15,910	12,974	+ 12,968
South Africa	91,793	120,090	173,581	224,622	235,467	+143,674
South West Africa	941	1,308	2,550	2,757	1,760	+ 819
Swaziland	5,631	8,313	9,817	9,696	8,739	+ 3,108
Foreign Workers	281,451	231,918	202,500	194,357	197,736	- 83,715
Foreign Workers Excluding Lesotho	209,108	148,612	115,719	101,482	105,349	-103,759
Total	373,244	361,008	376,081	418,979	433,203	+ 59,958

\*Figures for September 30 each year.

Source: Chamber of Mines

One must ask how long it will be before the reality of displacement begins to affect Lesotho. The analysis of the foregoing sections suggests that it will not be long. There is, in fact, some evidence that a decline in numbers has begun already. In 1978, for the first time in many years, the number of Basotho employed in the mines declined. While the percentage decline was small (3.8%) it was accompanied by a 17 percent reduction in recruitment as miners already in South Africa extended their stay (CPDO, unpublished data). The potential implications of these figures are significant.

In the mid-1970s a decision was taken to increase the local proportion of the mine labor force. A target of 50 percent South Africans was set for April 1977 (Clarke, 1978). At present (1979) South Africans constitute 54 percent of the total. This figure is projected by the Chamber of Mines to rise to 60 percent in the next four to five years. It should be noted that if all new jobs are reserved for South Africans, a 60:40 ratio will be achieved by a growth in total employment of some 60,000, almost exactly the growth that occurred between 1974 and 1978. One must conclude that if past rates of growth in employment continue and if the 60:40 ratio is to be met, there will be no new jobs for foreign workers.

In conclusion, it appears that employment opportunities for Basotho in South Africa have reached their peak. It further appears that the combination of demographic, economic, technical and policy factors that will prevail in coming years will lead inexorably to a substantial reduction in the number of Basotho employed. The extent of this reduction is difficult to predict. On the one hand, South Africa's unemployment problem vastly overshadows the number of foreign workers. In only two years net additions to the Black labor force could replace all present foreign workers. On the other hand, both the mining industry and government are aware of the consequences that a sharp reduction will have for Lesotho. One can, therefore, predict that Basotho migrants will be reduced as gradually and with as much advance notice as possible. However, the inevitability of such a reduction must also be accepted. The analysis in previous sections suggests that the most probable outcome is a reduction of Basotho migrants to approximately 50 percent of present numbers by the year 2000.

The timing and speed of this reduction is another source of concern. As mentioned above current statistics on both employment and recruitment indicate the decline may have begun in 1977-78. Recalling that the unemployment rate in South Africa will increase by 50-60 percent in the next five years, and allowing a short lag for this fact to have its effect on national policy priorities, one must admit the possibility that most of the necessary adjustment will be made during the 1980s. Within selected mines of the Transvaal, Orange Free State, northern Cape and the Johannesburg gold fields two trends are proceeding rapidly as of mid-1979. First is the employment, almost exclusively, of South Africans wherever new mining jobs open up. Second is the capital-intensification of mining, a process that may well accelerate in gold and coal as prices of these commodities continue to climb. Many mines currently have increased productivity per worker and a reduced work force as top priorities. These dynamic processes, the result of decisions of individual mines, will have a collective effect on the industry which should reinforce the conclusion above that migrant numbers will be reduced sooner rather than later. It is, furthermore, unclear whether or not government policy can reverse these developments once they are instituted.

The Chamber of Mines operates with a five year indicative plan rolled forward each year. Their current estimates, based on a tabulation of member mine's projections, show no appreciable decline or growth in Basotho miner numbers through 1983. However, in looking beyond this horizon and having reviewed the above analysis, the Managing Director of TEBA<sup>1</sup> states that a decline of 5 percent annually after 1983 "would not be an unrealistic expectation" for the future pattern of Basotho migration (A.C. Fleischer, personal communication). A 5.0 percent annual reduction would leave Lesotho with 40 percent of

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<sup>1</sup>TEBA, The Employment Bureau of Africa, is the organ of the Chamber of Mines which recruits labor to meet specified mine requirements.

present miner numbers by 2000AD. Our prediction above of a reduction to half for all migrants would be equivalent to a decline of 4.0 percent per year from 1983 or 3.1 percent annually if, in fact, the decline began in 1978. These various rates of decline should be viewed as fairly consistent with each other. Total migration may well decline somewhat more slowly than migration to the mines because the latter is subject to tighter controls through recruitment channels.

### Implications for Lesotho

The above conclusions suggest serious implications for Lesotho's economic development and stability. Several of the more important consequences are discussed briefly below to stimulate further policy analysis on these issues.

#### Lesotho's Domestic Employment Challenge

Recent estimates indicate that Lesotho's labor force will grow by at least 400,000 persons by the end of the century. Of these at least 210,000 will be men (Wykstra and Eckert, 1979). 1976 domestic male employment has been estimated at 104,000 (LASA, 1978). Consequently Lesotho faces the challenge of trebling their domestic employment of males just in order to accommodate the natural increase in labor force at present participation rates. To do so between 1976 and 2000 requires a compound growth rate of 4.7 percent annually. If migrant numbers are halved, approximately 80-90,000 additional men will require employment within Lesotho. This will raise the number of new jobs required in Lesotho to 300,000. Returning migrants therefore will increase the domestic employment creation challenge for males by 43 percent, requiring a nationwide compound growth rate in male employment of 5.8 percent for the rest of this century. It should be pointed out that to generate 300,000 jobs in 24 years is an annual requirement of 12,500 jobs. For comparison, the Second Five Year Plan period saw an increase of only approximately 2000 jobs per year. It should also be noted that the above does not address the need to integrate a growing female labor force into the economy.

#### Income Distribution

At the present time (1979) there are approximately 250,000 households in Lesotho. Accepting van der Wiel's estimated total migrant workforce one can calculate that some 150,000 households (60%) presently have access to migrant wage through one or more family members. Migrant remittances, today, are the principle contributor to whatever equality exists in rural incomes in Lesotho. Neither land nor livestock are equitably distributed. The relatively widespread access of rural households to migrant remittances coupled with various social mechanisms which transfer portions of those remittances among households in the villages deserve the credit for preventing the development of serious economic class differentials in Lesotho's rural society.

However, during the rest of this century household numbers should rise to 390,000 while the number of migrants declines to half, or approximately 100,000. If there were only one migrant per household, this would mean that only 26 percent of Lesotho's households will have access to migrant remittances, as opposed to the 60 percent today. If, however, a reasonable portion of households continue to have more than one migrant (van der Wiel, 1977) and they remain distributed as at present, only 19 percent of Lesotho's households will have access to remittances as a source of household income.

When one considers that migrant remittances presently account for 71 percent of rural household income, the extent of the potential income equality problem becomes evident. Lesotho could easily find itself in the situation where less than 100,000 households had incomes averaging R800 (in 1976 terms) with 290,000 households surviving on closer to R250 (again in 1976 terms). It is unlikely that off-farm jobs in Lesotho will expand at a rate sufficient to fully prevent this development.

#### Negative Influence on Economic Growth

It was shown above that approximately 6/7ths of Lesotho's real per capita growth in GNI since independence has resulted from rapid increases in migrant remittances. Even the small increase in real domestic product (GDP) that appears in the national income estimates has been questioned on the basis of shaky statistical foundations. It is possible that Lesotho's GDP has remained stagnant in real per capita terms for 12 years. Certainly domestic production has not contributed significantly to economic growth.

The view toward the future is not optimistic. First, mine wages appear to have been pegged to the South African cost of living since 1977. Since South African inflation runs at a slightly lower rate than Lesotho's, there will be a small erosion of purchasing power, even with constant remittances. With the massive unemployment problem now facing South Africa, it seems unlikely that mine wages will rise in real terms in the near future. New economic growth simply must be spread over more jobs, not higher wages. Therefore one can expect a constant or slightly declining value of remittances per migrant for, say, 5-10 years. Coupled with a decline to one-half of migrant numbers, Lesotho will experience the gradual loss of nearly R60 million (1978 value) from national income. Considerable off-setting growth in the domestic economy will be necessary just to remain at present income levels.

#### Government Revenue

We mentioned above that a dramatic increase in net imports followed the very rapid rise in migrant remittances in 1973-76. Under the terms of the Customs Union agreement government revenue in Lesotho is in large part a financial transfer based on the amount of imported goods. In the last 10 years, receipts under the agreement have averaged 18-19 percent of the value of total imports.

If the absolute amount of migrant remittances is cut in half and inflation continues to erode the real value of all incomes, it is possible to suggest a net decline in imports and a proportional negative trend in Customs Union receipts. Without growth in domestic sources of income to offset declining migrant remittances, the decline in net imports and hence Customs Union revenues could be substantial.

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