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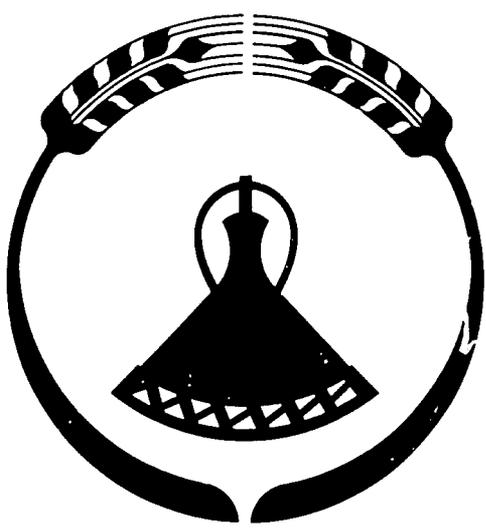
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LESOTHO AGRICULTURAL SECTOR ANALYSIS PROJECT

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**THE FUTURE ENVIRONMENT FOR AGRICULTURAL PLANNING
1980 - 2000 AD**

**Discussion Paper No. 9
Lesotho Agricultural Sector Analysis Project**

**by
Jerry Eckert and Joseph N. Mohapi**

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PREFACE

This study was undertaken as part of an overall analysis of the agricultural sector. If taken by itself in isolation the study presents a rather gloomy prediction of the future of Lesotho's economy. However, the intent of this analysis is to highlight and quantify the most urgent priorities that must govern development objectives over the coming decades. It does so by depicting developments that will (or may) occur in the absence of a decisive and well implemented development strategy. As such it sets the stage for the analysis to follow which will present key elements of the necessary strategy, tradeoffs between possible strategies, and an analysis of their probable impacts.

This paper does not suggest that change and growth are not possible. What it does say is that there are a number of obstacles which will make the development process difficult in coming years.

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THE FUTURE ENVIRONMENT FOR AGRICULTURAL PLANNING 1980 - 2000 AD

by

Jerry Eckert and Joseph N. Mohapi¹

I

Introduction

Agricultural development is specifically concerned with change in the agricultural sector. However, agriculture is intimately linked with events in other sectors and with the economy as a whole. This is particularly true where agricultural resources (e.g., land, livestock) are spread so widely among the rural population. In Lesotho's case, the dominant factors encouraging or constraining overall economic development are also those affecting agriculture.

Several dynamic trends can be predicted for the perspective plan period. Each of these will have significant impacts on the prospects for development. In most cases they are not factors over which agricultural planners have much control. Consequently, when taken together they constitute the environment within which agricultural planning must take place.

In a much more direct sense the trends which are now underway in Lesotho can be analyzed to predict the major problems and challenges facing economic planners. These conditions establish the priorities which must be addressed in the formulation of long term plans. The analysis that follows first presents a descriptive set of projections of major economic, demographic and institutional changes to be expected during the perspective plan period. The third section analyzes these various trends for their implications for various policies and strategies that must be considered in Lesotho's context. Major trends described below include:

1. Population and labor force growth.
2. Growth in the number of rural households.
3. The future for migrant employment.
4. Rainfall oscillations.
5. Infrastructural and institutional developments.

¹The authors are Team Leader, Lesotho Agricultural Sector Analysis Project and Agricultural Statistician, Bureau of Statistics.

II

Identifiable Future Trends

Population Growth

Lesotho's *de jure*¹ population stood at 1,216,815 persons in 1976 (BOS, unpublished tables from the 1976 population census). Growth rate during the previous decade was measured at 2.27 percent per annum, an increase from the 2.05 percent measured between the 1956 and 1966 censuses. Thus, while Lesotho's population growth is only moderate by African standards,² the rate of growth is increasing over time; a fact that has been recorded since 1940 (LASA, 1978).

Using the 1976 Census of Population preliminary figures as a base, Eckert and Wykstra have projected Lesotho's population forward to 1980 and by five year intervals thereafter to 2000 AD (Eckert and Wykstra, 1979b). They offer two alternative projections, one with a constant growth rate, and one where the historical increase in growth rates is sustained with the result that population continues to increase at a slowly increasing rate. While it would be less controversial to accept the constant growth rate assumption, the balance of evidence suggests that the growth rate will increase slowly for at least the near future. On the one hand the factors normally associated with voluntary reductions in fertility are relatively present in Lesotho compared to other African countries.³ One would expect only a limited further impact from these sources. On the other hand there remains considerable scope for decreased infant and early childhood mortality and for an increase in life expectancy by both sexes. For these reasons, we accept the proposition that population growth rates will continue a slow rise and, in fact, probably stand at 2.4 percent in 1980.

Two future demographic elements must be mentioned. First, government announced at the 1979 donor's conference a policy of providing technical means and advisory services to families which voluntarily wish to plan their families. Second, if the declining income and employment opportunities discussed below do in fact occur, one possible response by the households

¹ Includes migrants who have been absent from Lesotho less than five years.

² Among all African countries, 30 exceed Lesotho's population growth rate and 14 have lower rates (IADS, 1978).

³ These factors include literacy rates, education levels, incomes and standard of living, all of which are relatively high in Lesotho.

affected would be to attempt to limit family size. These two factors could act together to cause a downturn in the population growth rate before the end of the century. Should this occur the principal impact will be a small reduction in the number of children under 15 years of age in the estimated 2000AD population. It is highly improbable that these factors could make more than a five percent difference in total population. Their principal impact will undoubtedly be in the next century.

Table 1 summarizes population projections to the year 2000.¹ Lesotho will add approximately 1 million persons by 2000 AD over and above the 1976 total. Gaining control over population growth rates will not be easy because, even if families choose to limit their children, additional progress will be achieved in medical services, thereby reducing mortality at the same time. Lesotho's population problem is the same as that of many developing nations; reducing overall population growth while continuing to improve life expectancy.

Table 1. Estimated *de jure* Population of Lesotho, 1980-2000.

<u>Year</u>	<u>Male</u>	<u>Female</u>	<u>Total (Rounded)</u>
1976 (Census)	587,331	629,484	1,216,800
1980	647,662	690,740	1,338,400
1985	735,197	779,618	1,514,800
1990	838,784	884,794	1,723,600
1995	961,805	1,009,701	1,971,500
2000	1,108,446	1,158,591	2,267,000

Source: Eckert and Wykstra, 1979b.

Growth in Labor Force

Labor force estimates are derived directly from population figures. Individuals of 15 years or older but under 65 years are assumed conventionally to constitute the work age population. Of these there will be some in each age group who do not work, either for reasons of preference or disability. Consequently a "participation rate" is applied to the work age population to arrive at an estimate of the labor force. Loosely defined the labor force is the sum of those employed and those available for work at any point in time.

¹We have used the increasing growth rate assumption of Eckert and Wykstra (1979b) for the reasons noted. If the population growth rate should cease to rise the total population given in Table 1 for the year 2000 may be as much as 100,000 high.

The only available participation rates for Lesotho are those calculated prior to the Second Five Year Plan (CPDO 1976, Lesotho 1975/76). While admitting that these may change over time, these rates are applied to the estimated work age population to give labor force projections in Table 2. Participation rates normally change slowly.

Table 2. Estimated Basotho Labor Force, 1980-2000.

Year	Males		Females		Total (000)
	15-24	25-64	15-24	25-64	
1976 Pop.	109,206	211,821	123,061	223,011	667.1
L.F.	74,260	199,111	71,375	191,789	536.5
1980 Pop.	135,051	233,647	143,641	252,777	765.1
L.F.	91,835	219,628	83,312	217,388	612.2
1985 Pop.	152,112	262,199	152,878	290,815	858.0
L.F.	103,436	246,467	88,669	250,101	688.7
1990 Pop.	155,259	309,788	156,372	341,761	963.2
L.F.	105,576	291,201	90,696	293,914	781.4
1995 Pop.	168,587	355,391	168,102	389,872	1,082.0
L.F.	114,639	334,068	97,499	335,290	881.5
2000 Pop.	203,304	400,554	198,292	436,763	1,238.9
L.F.	138,250	376,500	115,000	375,600	1,005.4

Source: Age-specific population totals from Eckert and Wykstra, 1979b.

Notes: a) Population totals refer to ages 15-64 only.

b) Participation rates from Lesotho's Second Five Year Plan as follows:

	Male	Female
15-64	.68	.58
25-64	.94	.86

Household Numbers

For many agricultural policies and planning decisions, the rural household is the decision making unit on which influence is desired. Productive resources available to the household determine the farmer's potential to meet his food, income and other needs. The various sources of income

received by the household determine the incentive structure of household decision makers. To assess these factors in agricultural development it is important to know the number of rural households, presently and in the future.

In Lesotho, traditionally, a household is formed when a couple marries. To estimate the growth rate in household numbers, we have assumed an average age of marriage of 25 years, taken the growth rate of population 25 years earlier, adjusted for mortality between birth and age 25 and arrived at approximations for 1980, 1990 and 2000 AD. Table 3 shows details of the calculations as well as the results.

Since the purpose is to estimate rural household numbers it is necessary to adjust for rural to urban migration. Unfortunately no systematic analysis is available. The only available figures are in the various censuses and relate to individuals, not households. Part of the net movement to urban areas shown in these data then results in smaller rural households, not fewer households.

As pressure on the land increases, it will become increasingly difficult for newly married couples to find means of earning a living in rural areas. It seems probable, therefore, that an increasing number of them must move to towns. As a guess it is suggested that 5, 10 and 15 percent of the net additions to rural households will move to urban areas during the 1970s, 1980s and 1990s, respectively. These three percentages are believed to be conservative; actual figures could be higher, in which case there could be a partial drop in the steady increase in rural household numbers.

Table 3. Methodology for Estimating Lesotho's Rural Household Numbers with Modest Rural to Urban Migration

<u>Item and (method)</u>	<u>From 69 to 80</u>	<u>From 80 to 90</u>	<u>From 90 to 2000</u>
a. Midpoint of period	1975	1985	1995
b. Population Growth Rate 25 years earlier	1.808% (1950)	2.05% (1960)	2.27% (1970)
c. Survival Rate to age 25	.8	.8	.85
d. Annual Growth Rate in Households (b x c)	.0145	.0164	.0193
e. Base Figure and (year) for projection	212,228(69)	246,800(80)	286,000(90)
f. Gross increase $e(1 + d)^t - e$	36,414	43,596	60,250
g. Minus Rural-Urban Migration (f x specified %)	@ 5% 1,821	@ 10% 4,360	@ 15% 9,050
h. Net addition to Rural (Households (f - g))	34,593	39,236	51,200
i. Total Rural Households (h + e)	246,821	286,036	337,200

Sources: Item b, LASA, 1978.
 Item c, Monyake, 1973 (third figure assumed)
 Item e for 1969 from BOS, 1972.
 Item g, column one computed from LASA, 1978; other two columns assumed.

Migration to South Africa

A number of recent research reports have cast doubt on the ability of Basotho to look to the Republic of South Africa for employment in the future. (Clarke, 1978; Eckert and Wykstra, 1979a). Eckert and Wykstra, working with scholars, industry representatives and others in RSA, have provided long term projections based on an in-depth analysis of trends now underway in South Africa. They conclude that the number of Basotho employed in South Africa will be reduced to half of present levels by the

end of the century and that most of this reduction will occur in the next 12-13 years. It should be pointed out that their projected rate of decline is slower than that considered "realistic" by the Chamber of Mines, the principal employer of Basotho migrants, although the Chamber does not expect the decline to begin in earnest until the early to mid-Eighties. They suggest that a 3.1 percent compound rate of reduction beginning in 1978 will simulate the probable path by which both of their predictions will be met. Beginning in 1978 migrant numbers would fall to about 65 percent of present levels by 1990 and to 50 percent ten years later. For our projections we have accepted the available estimates of some 200,000 migrants in 1976 (van der Wiel, 1977). Analysts who wish to use the "official" figures of 160,000 for the same year are invited to do so (CPDO, unpublished data). Table 4 combines the estimated developmental path of migration with projected growth in the total Basotho labor force to show the magnitude of the domestic employment challenge. To avoid large scale unemployment or massive underemployment Lesotho must generate well in excess of 20,000 jobs per year in all sectors of the economy. For comparison, during the Second Five Year Plan the modern sector including government succeeded in adding only 2,500 jobs per year.

Table 4. Projected Trends in Location of Employment for Basotho 1980-2000.

Year	Total Labor Force (000)	Employed in RSA (000)	Remain for Domestic Jobs (000)	Required Employment Creation Rates	
				Annual Jobs	% Growth in Jobs
1976 (Base)	536	200	336		
1980	612	188	424	22,000	6.0%
1985	689	160	529	21,000	4.5%
1990	781	137	644	23,000	4.0%
1995	882	117	765	24,200	3.5%
2000	1,005	100	905	28,000	3.4%

Note: These projections assume no change in participation rates. Therefore they have assumed that 233,000 people of working age will not be participating in the labor force by the year 2000.

Rainfall Oscillations

Meteorological research in South Africa has fairly well established that the summer rainfall area of Southern Africa is characterized by alternative wet and dry spells. These clusters of wet years or dry years are approximately 9-10 years in duration and are popularly referred to as the "quasi-20 year oscillation". The pattern has been measured quantitatively since 1910. Less precise records from the writings of early local observers suggest that it was observable as early as the mid-19th

Century while tree ring research gives evidence that the pattern may have endured more than 300 years (Dyer and Tyson, 1977). The weight of evidence has led Tyson to assert:

"... the oscillatory character of South African rainfall has been demonstrated beyond all reasonable doubt for the period 1910-1972. . ." (Tyson, 1978).

Similar oscillations, coinciding with those in South Africa, are visible in Lesotho's rainfall data since the early 1940s (Eckert, 1980a). Figure 1 shows this pattern based on combined rainfall records of seven Lowland stations.¹ Dyer and Tyson's analysis suggests the onset of a dry spell in approximately 1981 which will then presumably last until 1990. Figure 1 would tend to confirm this possibility for Lesotho specifically.

Figure 1

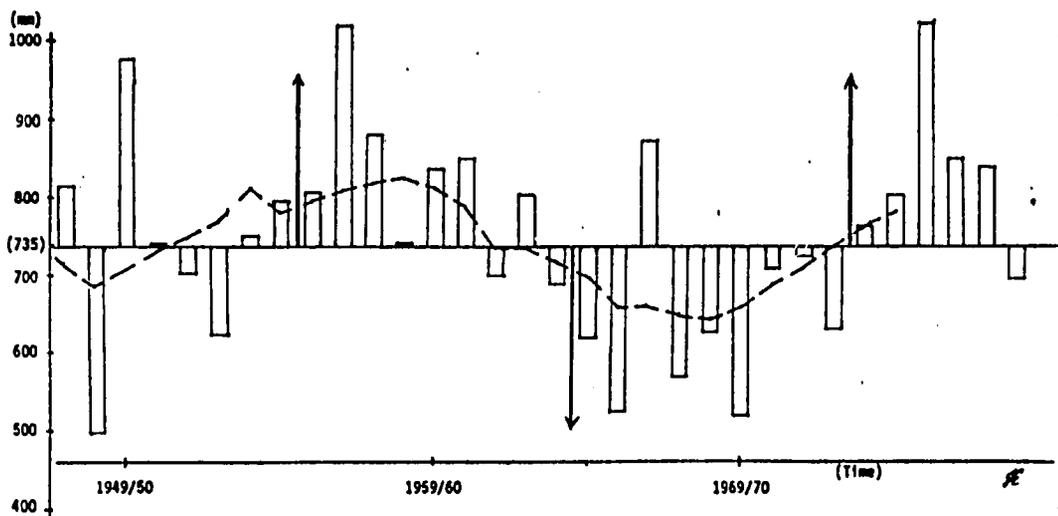


FIGURE 1. RAINFALL PATTERNS IN LESOTHO

VERTICAL BARS - ANNUAL RAINFALL
HORIZONTAL LINE - 50 YEAR MEAN

DASHED LINE - 9 YEAR MOVING AVERAGE
ARROWS - POINT OF ONSET OF WET OR
DRY PERIOD (DYER & TYSON)

¹ Butha-Buthe, Leribe, Teyateyaneng, Maseru, Mafeteng, Mohale's Hoek and Quthing.

It is recognized that many people feel weather prediction to be a non-science, better left to old men and caterpillars. It is further recognized that many meteorologists are loath to accept weather "cycles" for lack of a scientifically acceptable cyclic source of causation. Nevertheless, the evidence from the summer rainfall region of southern Africa is relatively persuasive and gaining in acceptance. While other patterns have been shown to exist, and to even dominate certain regions, many studies have confirmed a widespread 20-year rainfall oscillation as the principle pattern in much of southern Africa. Unless this pattern ceases the 1980s will be characterized by below average rainfall while the 1990s should return to above normal.

Average rainfall for the seven lowland stations in Figure 1 is 735 mm per year.¹ There is evidence in Dyer and Tyson's work that the amplitude of the deviations above and below normal has been increasing since 1920. In the first five years of the current wet spell (1970s) annual rainfall averaged 853 mm, 16.1 percent above normal. In the late 1960s, rainfall averaged 13.0 percent below normal. Dyer and Tyson point out that their equations are better at modeling the change from one side of the long term average to the other than they are in depicting annual variations. Therefore, while we will not predict annual rainfall totals, it seems plausible that during the 1980s, annual observations will average 650-660 mm, some 160 mm lower than is being recorded at present.

Rainfall differences between wet and dry years are concentrated in four months as shown below:

	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Total (Yr)</u>
Wet average	98.9	113.9	128.4	116.4	820.6
Dry average	<u>64.7</u>	<u>81.3</u>	<u>105.9</u>	<u>94.3</u>	<u>667.8</u>
Difference	34.2	32.6	22.5	22.1	152.8

(Note: Averages for 1945/46 to 1978/79)

These are exactly the months affecting germination and emergence, root system development and pollination for Lesotho's major summer crops. Relationships have recently been estimated between monthly rainfall and maize and sorghum yields. Applying the monthly precipitation totals characterizing dry spells to these formulae suggests that maize and sorghum yields will decline 130 and 50 kg/ha respectively from present average levels.¹ If labor supply per hectare remains constant

¹This discussion avoids the issue of the significantly different yield levels arising in 1976/77 and subsequently. Recent research has shown these to be largely the result of a 75 percent increase in available male labor per planted area, which occurred because planted area dropped 38 percent while available male labor supply rose slightly. Consequently the assumption of constant labor supply per hectare planted is important to the conclusion which follows.

offsetting technological advance, maize and sorghum production will decline 16,500 tons from recent levels. (Eckert 1980a).

Infrastructure Development

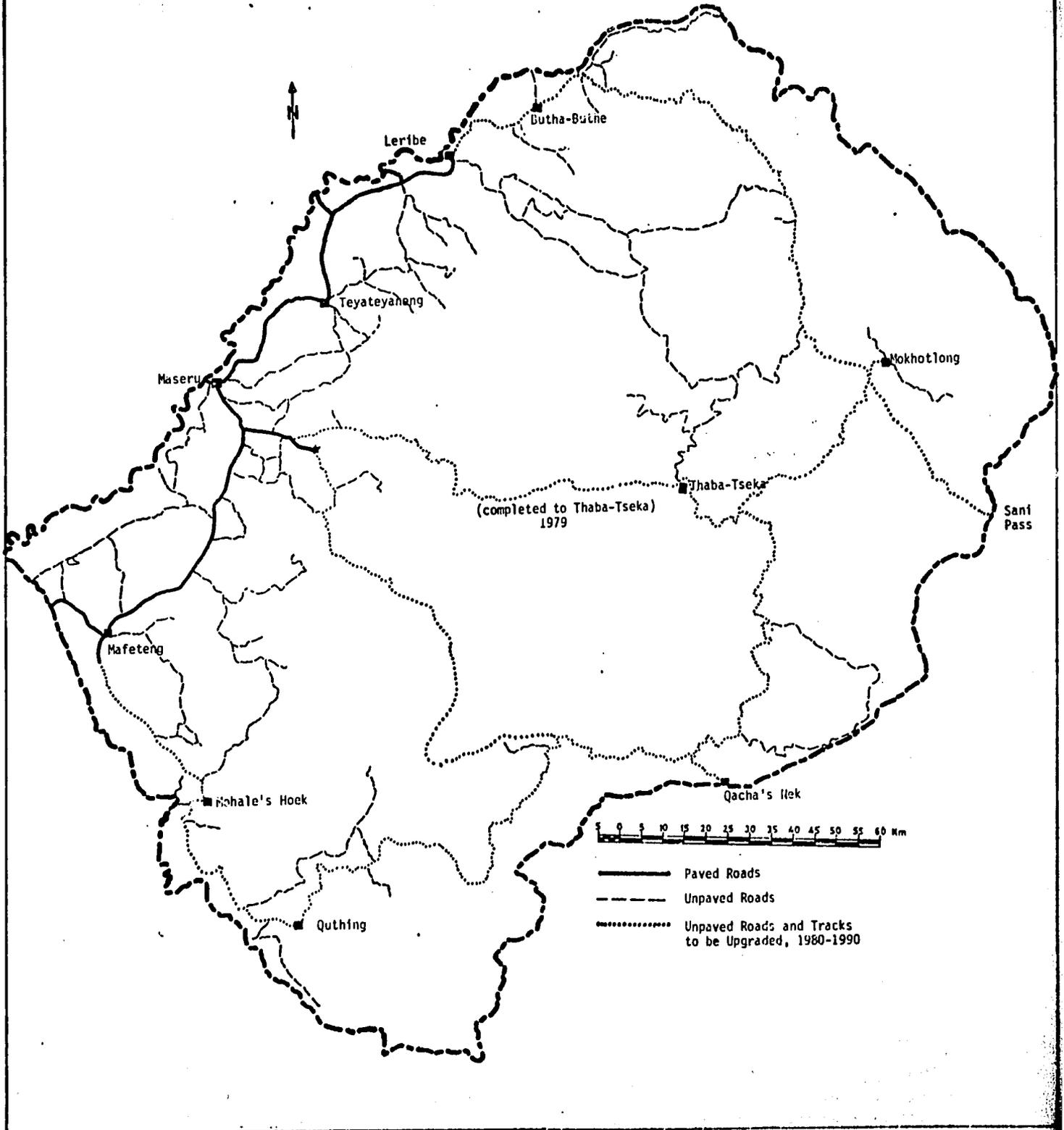
Two major national efforts promise to bring significant change to Lesotho during the forthcoming twenty years. The first is the network of improved roads now planned to interlace the mountains. Most segments have already attracted donor interest and are either in or beyond the feasibility study stage. Almost all of these road links will be completed during the 1980s. Figure 2 details the probable locations for this "spinal road network".

The second major development, the Highlands Water Scheme, must be considered somewhat more problematical until the feasibility study and negotiations with South Africa are complete. This scheme is intended to harness the upper reaches of the Senqu River drainage and to make irrigation water and hydroelectric power available, either for sale or for domestic use. If the decision is taken to proceed, construction could also be completed during the 1980s.

Both of these developments could change the economic face of Lesotho. The road network will finally integrate the mountains with the rest of Lesotho, reduce transportation times and costs, make it feasible to consider establishing small scale agro-industries, services and other activities in what are now remote areas and could measurably enhance the marketing of agricultural inputs and products. These represent potential benefits, however; many of them will not happen automatically. It will also make human movement easier which could easily lead to accelerated migration from rural to urban areas or from the mountains to the lowlands. This result will probably happen unless development programs succeed in capitalizing on the road network to generate economic activity in the mountains leading to jobs and incomes for mountain residents.

As these major roads are being built a parallel program will be underway to construct feeder roads in the lowlands. The Basic Agricultural Services Program (BASP) is undertaking 1000 kilometers of feeder road improvement as part of their marketing infrastructure efforts.

FIGURE 2. PROSPECTIVE MAJOR ROAD DEVELOPMENTS, 1930-1990



Successful completion of a major reservoir and hydroelectric plant would open the possibility of two dramatic new avenues to rapid development. First, irrigation water offers the prospect of breaking the stranglehold held by Lesotho's variable climate on crop productivity and farming incentives. Once the moisture constraint is relaxed high value, intensive cropping becomes a real possibility with its attendant incomes and employment prospects. Second, hydro-power offers a release from dependence on fossil fuels imported through or from South Africa as the principal energy source in development. Given the enormous hydro-electric potential of Lesotho it is possible to envision an economy fueled largely by electricity. If government were to embark on a 20-25 year program to harness a major portion of this potential, it is conceivable that Lesotho could enter the next century essentially self-sufficient in energy, a position few other developing countries will enjoy. Finally, surplus water and electricity can be exported to provide a much needed source of revenue in the years ahead. However, it must be pointed out that all of these are merely possibilities and that none of these benefits will occur unless the hydro-electric potential of Lesotho is developed into a producing resource.

Institutional Change - The 1979 Land Act¹

The Land Act 1979 was passed by Parliament in September, received royal assent in October and was gazetted in December of 1979. Actual implementation awaits completion of implementing regulations and specialized training programs, both being developed or undertaken by the Ministry of Interior and Chieftainship Affairs. Once implemented this act will constitute the most fundamental institutional influence on agricultural development during the next 20 years.

While the Act preserves the fundamental inalienability of the land as "belonging to the Basotho nation" it includes several provisions which differ significantly from traditional tenorial practices. The first, for the purposes of the present analysis, are the provisions dealing with inheritance. The Act provides for the passing of land allocations to a single heir, usually the eldest son, and in the absence of a son to another single heir that may be designated by the family of the allottee. In effect a form of primogeniture is established. For development purposes the implication is that the number of allotments is essentially frozen at, say, 1980 levels. There will be no further subdivision. The declining trend in acreage allotted per household which has been quantified since 1950 (LASA, 1978) has been arrested. The corollary implication is that any increase in rural household numbers will essentially be landless and must look to other sources for incomes. On the positive side, the possibility of inheriting land use rights should increase incentives for permanent improvements in one's allotted parcels.

¹

The authors are deeply indebted to Abner Masasi, Commissioner of Lands and his associate Brian Twomey for their many hours spent explaining this rather complicated legislation. It has been an interesting education for us.

Perhaps more important are the provisions relating to leases. One of the Act's principal purposes is to create a market in land use rights. The mechanism used is leasehold. Any allottee who wishes may convert his allotment to a lease provided the intended use is consistent with those uses to be sanctioned by regulation. A lease may then be sublet. Pending actual experience with implementation, it would appear that these provisions will permit the more serious farmers to lease in fields from others, accumulate economically viable holdings, profit from economies of scale, if any, and utilize higher levels of technology which are generally associated with larger farms. It is plausible that a viable group of farms will emerge, operating between 4 and 10 hectares of land composed of allotment and leased land. The smaller holdings now have the option of receiving a rental income from their allotted fields without the necessity of attempting to eke out a few bags of grain by investing their time and money in an impossibly small holding.

For planning purposes, if these developments occur, the land base of Lesotho will gradually concentrate, for management purposes, into the hands of the better managers. Technological change should become more readily possible and higher yields, the result. Fallow percentages should decline sharply since fallowing is now practiced largely due to the lack of incentive to plant rather than for soil fertility reasons.

Among the potential negative consequences are the following. First, there will likely be a concentration of land resources among fewer, more "progressive" farmers. The role of land as an income generating asset will change accordingly. One of the tradeoffs for higher productivity from the land base may be a concentration of the resulting incomes. Second, we stated above that land would accumulate to the better managers. This is, perhaps, an ideal. It is equally possible that land would accumulate to the affluent, persons whose affluence derives from urban or migratory jobs and who would remain so occupied. In this case, leasing could result in the emergence of an absentee landlord class.¹ Third, if larger farms are to result from the 1979 Land Act, they will probably be more efficient. They will also be better able to utilize capital equipment which raises the possibility of diminished needs for labor on a per hectare basis. On the other hand, the higher yields and output that could occur simultaneously offer the potential of increased employment in harvesting operations, marketing and output processing. The ultimate balance is important to Lesotho's employment objectives and deserves explicit attention at the policy level. Finally, there is potential for the standard problem of land tenancy: soil fertility mining. This occurs when a tenant (lessee) nears the end of a lease and finds it in his best interest to use up as much of the fertility in the soil as possible before terminating the lease.

Finally, the "special agricultural areas" provisions of the Act permit a wide range of innovation in tenancy and usage. Under this section all titles would cease in a particular area and the land would be re-allocated in a manner and for uses determined by the Ministry of the

¹However an absentee holder who allows his land to be misused can lose the land under the Act.

Interior and the Ministry of Agriculture in consultation. Unfortunately specific analysis of the possible implications of these provisions must await definite plans for their utilization which have yet to be formulated.

Summary

Agricultural development during the next twenty years will take place in an environment characterized by the following:

- a. Population will increase by 60 percent.
- b. Labor force will increase by 64 percent to approximately 1.0 million.
- c. Migration opportunities will halve with some 75-100 thousand migrants being forced to turn to the domestic economy for jobs.
- d. The number of people requiring jobs in the domestic economy will increase by 213 percent, with net additions of over 20,000 per year.
- e. Rural households will increase by one-third to a total of 337 thousand.
- f. Rainfall during the 80s will average 160 mm per year lower than has been the case in the 1970s, depressing crop yields by approximately percent. This will be followed by a return to present rainfall levels in the 1990s.
- g. An extensive network of improved roads will be completed throughout the mountains during the coming decade.
- h. During the next five years BASP will complete nearly 1000 kilometers of feeder roads in the lowlands.
- i. Finally, the Land Act of 1979 will be gradually implemented with, at least, the results of:
 - (i) Restricting land allocations to those families presently having an allocation.
 - (ii) Permitting some concentration of land use and an increase in the average size of operated farm units.
 - (iii) Increasing security of tenure thereby encouraging investment.

III

Issues for Development

The trends depicted in the previous section suggest very definite priorities for development in Lesotho. Major dimensions are developed below. Most of these issues have been recognized by planners in the Government of Lesotho, however, our analysis moves a step beyond to quantify the magnitude of the problem as it may develop in the future. The approach used is to estimate what major changes will occur in the absence of preventative measures being built into the development program. In so doing, the urgency of developing the necessary policies and programs is highlighted.

Employment

This topic has received considerable research and analysis in the last two years (JASPA, 1979; Eckert and Wykstra, 1979a, 1979b, 1980). Government has gradually moved toward accepting employment as one of the top priorities of the development program. This priority was strongly asserted in the 1979 Donor's Conference and more recently in a major policy address by the Prime Minister (GOL, 1979; TRH Dr. Jonathan, 1980). It would therefore be redundant to include more than a summary of the present or future position here.

Three factors contribute directly to Lesotho's impending employment crisis:

- a. Labor force is growing moderately rapidly.
- b. Opportunities for migratory employment appear to have peaked and begun a decline which is projected to continue to the end of the century.
- c. Wage employment in Lesotho is growing slowly in terms of job numbers because of the very small number of modern sector jobs at present. The Third Five Year Plan will estimate some 40,000 modern sector jobs within a nation with a total labor force of 612,200.

Table 5 shows the timing of Lesotho's employment needs over the next two decades. Several conclusions have been made elsewhere from these data. First, the annual need for jobs is high and will remain constant for most of this period rather than starting low and escalating as the growth in labor force would suggest. This is caused by the fact that for the next 15 years migration will probably decrease faster than the modern sector

can expand. Table 5 suggests that over the next twenty years there will be a net decline of more than 20,000 wage jobs available to Basotho.¹

Table 5. Timing of the Development of an Employment Crisis in Lesotho*

(figures in thousands)

Period	Growth in Labor Force	Number Migrants Returned	New Workers for Domestic Absorption	Modern Sector Growth**	Residual for Agric Average Annual Number	Period Total
-----Both Sexes Combined-----						
1980-85	76.5	28	104.5	11.1	18.7	93.4
1985-90	92.7	23	115.7	14.1	20.3	101.6
1990-95	100.1	20	120.1	18.0	20.4	102.1
1995-00	123.9	17	140.9	23.0	23.6	117.9
-----Men Only-----						
1980-85	38.4	28	66.4	8.3	11.6	58.1
1985-90	46.9	23	69.9	10.6	11.9	59.3
1990-95	51.9	20	71.9	13.5	11.7	58.4
1995-00	66.1	17	83.1	17.2	13.2	65.8

*Based on most probable scenarios for labor force growth, migration and modern sector growth (Public Works excluded).

**Assumes a 5% compound growth rate in employment, 75 percent of which is filled by males.

Source: Eckert and Wykstra, 1979b.

Agriculture, alone, cannot solve Lesotho's employment problems. It can and must play a major role in their resolution, however. The point of this analysis is that agricultural productivity may well be depressed for the next two five year plan periods by below normal rainfall. This phenomenon should affect crop yields as well as rangeland's carrying capacity. Agriculture's capacity to create employment and incomes will be reduced accordingly until the 1990s at which time a return to somewhat higher productivity levels should occur.

¹ Migration declines by 88,000 while modern sector increases by 66,200.

At the same time that one recognizes constraints to employment generation in the agricultural sector, it is necessary to be realistic about the other sectors as well. Even with very high growth rates, modern sector employment will be limited due to its initial size. An additional constraint arises from the importance of government jobs in total wage employment (roughly 30 percent) when coupled with the prospect of near-stagnation in government revenue that is expected during the early 1980s. Financial limitations will likely constrain public works to a ceiling of perhaps 10,000 man-years per year. The remaining element, the informal sector, is one about which almost nothing is known at present except that the numbers so involved has increased rapidly in Maseru in recent years. It is obvious that preventing destabilizing levels of unemployment will require maximum effort on all fronts.

The logic above, particularly the thoughts on the timing of the employment crisis, suggests that Lesotho's job needs will exceed her capacity more in the near future than later in the century. Clear cut and decisively implemented policy decisions taken now can build a basis for rapid expansion of employment in the 1990s. Job estimates given in the above table for that period could in fact be exceeded. However, the constraints operating over the 1980s would seem much less flexible. For this reason it is suggested that labor intensive public works be given immediate consideration for possible expansion. An annual budget of R5,000,000 devoted to the types of projects developed by the Labour Construction Unit, Ministry of Works is felt to be manageable. Nearly 6,000 men could be employed. Benefit:cost ratios exceed those of similar but capital intensive projects. And the nation's transportation and/or conservation infrastructure could be built in anticipation of more rapid growth during the 1990s (Wykstra and Eckert, 1980).

Income Generation

Closely related to the problem of employment is the need for income growth. Here, again, Lesotho faces a significant challenge. Three factors will tend to reduce per capita incomes unless offset by successful development programs. First is the prospective decline in migrant numbers and probably total remittances. This could simultaneously increase the *de facto* population and reduce total income. Second, population will increase in the face of essentially fixed agricultural resource supplies. Arable land and livestock numbers cannot be realistically increased without risking serious deterioration of land resources. A third constraint to income growth arises from the effective limits to growth in modern sector employment.

To emphasize this point, Table 6 projects future per capita incomes assuming no change in resource productivity. Our point in these calculations is to emphasize the urgent need for increased yields per land and livestock unit. *De facto* population has been used for these calculations to be consistent with our focus on the domestic economy.

Arable area is assumed fixed at 300,000 hectares. While only 250,000± hectares have been planted in 1979-80, we assume this will increase over time reaching the above ceiling in 1990. The contribution of cropping to

Table 6. Projected Income Per Capita Assuming No Change in Resource Productivity¹

Year	Arable Hectares per Capita	Value of Gross Crop Income per Capita ²	Large Stock Units per Capita	Value of Gross L.S. Income per Capita ²	Off-farm Jobs in Lesotho per Capita	Off-farm Income per Capita ²	Migrant Remittances per Capita ²	Total Income per Capita
1980	.217	M26.08	.739	M19.95	.035	M69.06	M129.49	M244.58
1985	.203	M24.36	.627	M16.94	.038	M75.36	M105.90	M222.56
1990	.139	M22.69	.536	M14.46	.041	M82.13	M 83.54	M202.82
1995	.162	M19.41	.458	M12.38	.045	M89.68	M 70.71	M192.19
2000	.138	M16.61	.392	M10.59	.049	M97.95	M 60.03	M185.10

¹ Based on *de facto* population derived by subtracting migrants (Table 4) from *de jure* population (Table 1).

² At constant M120/hectare, M27 per large stock unit or M2000 per manyear as computed from CPDO, 1979.

³ In 1978/79 there were an officially recognized 150,000 migrants remitting R125 million (CPDO, unpublished figures). Since we use a figure of 180,000 migrants, a proportional upward adjustment to R150 million has been made for remittances.

GDP is currently M120/hectare (CPDO, 1979). Livestock are held constant at 850,000 large stock units returning M27.07 each. While historically livestock numbers have reached one million large stock units it is reasonable to assume that increases above present numbers will be accompanied by a proportional reduction in output per unit, thus leaving livestock incomes constant. Off-farm jobs in Lesotho are expanded at 5 percent annually, however, real wages are held constant under the assumption of constant productivity. Finally, although migrant jobs are projected to decline, real migrant wages are assumed to increase at 1.5 percent for ten years while South Africa wrestles with its own unemployment problem. Thereafter a growth of 3 percent annually is assumed.

Without increases in productivity per capita income from all sources except domestic off-farm employment will decline. Due to expected patterns over time most of the reduction falls within the next ten years. Causes for this particular timing problem were discussed in the previous section. From these data Lesotho's development program is faced with an overall rate of decline in income averaging 1.9 percent annually from 1980 to 1990 unless offsetting growth can be achieved in one or more domestic sectors. It must be pointed out that modern sector growth will outpace the declines in other domestic income sources projected by this static technology scenario. Therefore, most of the net decline is caused by the projected 3 percent annual decline in migration. If this does not continue the picture would be somewhat more optimistic.

To hold agriculture's contribution to per capita income constant, productivity from both crops and livestock must grow as fast as the *de facto* population, a minimum of 2.4 percent annually. By African standards this will necessitate a high rate of technological change. From 1965 to 1974, the period spanning the "Green Revolution", only nine African countries recorded rates of growth in cereals yields in excess of 2.4 percent; eighteen grew at lesser rates, nineteen declined and five have no data (IADS, 1978). Lesotho is recorded as having experienced declining yields during this period. And despite the much higher crop yields reported after 1976/77, there is no evidence of any long-term positive trend in Lesotho's crop yields at present (Eckert, 1980b). While isolated examples of higher technology can be identified in Lesotho, they have yet to achieve the widespread adoption that would affect national production levels.¹ Consequently, generating technological change in agriculture remains an unmet challenge, but one which must be addressed immediately if further erosion in per capita agricultural incomes and food supplies is not to become a chronic characteristic of the foreseeable future.

Beyond this, it is possible to imagine technological change that would lead to increased agricultural incomes. A five percent rate of growth in yields would allow Basotho farmers to reach yield levels presently attained by South African farmers in approximately 15 years. While technologically

¹ Exceptions to this statement are found in eggs, broilers and milk production.

feasible, growth at this rate presumes an effectiveness level in Ministry of Agriculture programs that has not yet been attained. Indeed, most analysts today would suggest that for the 1980s, particularly in view of probable below normal rainfall, 2-3 percent per year may be an optimistic target for crop yield growth. If this is, in fact, all that can be attained, then little progress toward self-sufficiency can be expected until later in this century.

Some technological progress has been mentioned in selected livestock activities. However, these programs are small and affect only certain localities. On the whole the livestock herd is considered too large and in need of reduction if further deterioration of the range is to be avoided. Stock reduction must receive a higher priority as the 1980's rainfall depresses rangeland productivity even further. For per capita incomes from stock farming to rise, productivity must increase fast enough to offset both the rate of herd reduction (if any) as well as human population growth. If, for example, livestock numbers are to be reduced 25 percent over the next decade, then incomes per large stock unit will have to grow at 4.5 percent annually just to hold per capita livestock-based incomes constant.

The one source of income from which one might expect growth is the modern sector. Table 6 assumes a constant real wage despite the chronic 11-14 percent rate of inflation in southern Africa. Real wages could exceed this but, in the long run, only with an increase in productivity per worker. Strategies for achieving this must be carefully chosen. The most attractive mechanism would be to increase the proportion of capital equipment in the production process, thereby giving higher output per worker. However, in a fairly small economy such as Lesotho, this strategy runs a very great risk of displacing workers with the result being small numbers of well paid employees and a large increase in unemployment.

Income Distribution

The section above demonstrates that serious problems will exist simply to increase per capita incomes appreciably. It further points out that the 1980s face more serious constraints than the following decade. An equally important issue which has been largely ignored in national planning is the problem of income distribution. For ten years or more Lesotho has rested comfortably on the assumption that incomes were very equitably distributed. It is often asserted that traditional land tenure systems have ensured equitability.¹

Recent research has soundly disproved this hypothesis. When examined on a per capita basis land allocations deviate significantly from theoretical equality. The smaller 20 percent of farms hold only 5 percent of the land

¹The original data for this assertion were drawn from one table in 1960 Agricultural Census (Morojele, 1962), however, on close examination the table contains such large aggregations across farm types that the correspondence of numbers given is essentially meaningless.

while the largest 20 percent farm nearly 40 percent of the acreage. Per capita acreages for these groups differ by as much as 8 to 1. The situation is even more skewed with respect to livestock ownership with a few large holders, many small holders and about half of the rural population holding none at all (LASA, 1978).

If there is one source of equality in rural incomes it is off-farm employment. Most estimates in the latter half of the 1970s show that some 60 percent of rural households have access to migrant incomes and an additional 10 percent draw some incomes from off-farm work in Lesotho (van der Wiel, 1977).

The JASPA Mission reviewed all available estimates and data sources in 1978. In addition to confirming the above, they found that urban income distributions were substantially worse than those in rural areas. They stated "...that inequality is greater than hitherto assumed..." and conclude that "...just to have shown that it (inequality) is higher than usually presumed necessitates some rethinking in development planning." (JASPA, 1979).

Looking toward the future does not necessarily paint a brighter picture. The 1979 Land Act freezes allocations at present numbers and present households. The provisions for inheritance will mean that present allocations can and probably will remain in the same family. New households (from Table 3) will be essentially landless. As of 1980 approximately 27,000 households are without land. To this will be added 90,000 new households over the next two decades so that only 65 percent of the rural households will have land by the year 2000.

The leasing provisions of the Land Act permit the more aggressive farmers to lease in land from the smaller sub-optimal farms. This possibility could well become fact if government follows a policy of encouraging the emergence of "viable farms" now being recommended by many. If a viable farm under Lesotho's conditions is defined as one of approximately four hectares (10 acres), the arable land base would support approximately 75,000 such units. If such a land reform were fully implemented some 245,000 present allottees would be leasing out their land. Rental rates must be determined by the market but it is difficult to see how these could exceed M50 per hectare as long as real gross income per hectare remains at M120. If the smaller farmers lease to the larger, then the arable land resource and the resulting incomes would be distributed as shown in Table 7.

Table 7. Hypothetical Distribution of Land Resource Assuming Full Land Reform to Create "Viable" (4 ha) Farms.

Year	Household Numbers (000)			
	Total	Without Land	With Land	
			Managed by Household	Leased to Others
1980	247	27	220	(see note)
2000	337	117	75	145

Note: An appreciable amount of sharecropping exists at present but it is not reliably quantified at the national level.

While it is doubtful that such a complete land reform can be implemented, it is useful as a hypothetical case because it indicates probable directions of change under the Land Act.¹ It is fairly certain that by the end of the century nearly 120,000 rural households will be without land as a basis for income. To the extent that a rental market for land develops, additional large numbers of households will receive annual rental incomes of less than M100 from their allotment.² Obviously land will not be an important income source for these households. Finally, arable land resources will gradually become concentrated into fewer management units composed of allotted and leased land with an equivalent concentration of incomes thus derived. It is not difficult to envision 100,000 or less such farm management units by the end of the century. Furthermore, there will probably not be much demand for hired farm labor from these farms as long as farm sizes remain about four hectares. Lessee households cannot realistically expect additional incomes from wage employment on lessor household farms.

Livestock ownership is more difficult to forecast. More than half of Lesotho's rural households have no livestock. An additional sizable portion have noncommercial holdings; a few animals kept for household and social needs. Probably less than 50,000 rural households hold livestock as an important income generating farm activity.

The ultimate contribution of livestock to household incomes will depend on the policy mix adopted by government. If government agrees to recent recommendation for restricting the use of mountain pasture by lowland and foothill cattle owners a decrease in the number of animals held will occur in the lowlands. If government agrees to a program of stock reduction, the impact on household incomes will depend on how such reductions are implemented. Furthermore, the government's capacity to deliver high income livestock husbandry programs will definitely be restricted for the foreseeable future.

Consequently one foresees some decline in the number of households holding livestock for income purposes. In addition, Lesotho will experience a concentration of high technology-high income livestock activities in the hands of relatively few participants for the next 10-20 years. This latter observation draws as much from the limited market for commercial dairy products, slaughtered meat and the like as it does from the present small scale of government programs. Finally, incomes from free ranging livestock should be somewhat depressed during the 1980s as the grass responds to below normal rainfall.

Off-farm income prospects can be projected relatively well and have been fully developed elsewhere (Eckert and Wykstra, 1979b). What has not

¹ As of this writing it is understood that the Land Act 1979 will be officially gazetted June 16, 1980.

² Assumes that the smaller holders (<2 ha) lease to the larger holders at a rental rate \leq M50/ha in 1980 value.

appeared elsewhere is an analysis relating numbers employed off-farm to the number of households affected. Many households have more than one family member involved. Not only do the incentives causing one family member to migrate affect other members as well but also the first member to find off-farm employment can be helpful to others in gaining such employment. Van der Wiel presents the following data (1977: 86):

	Number of Migrants per Household							
	0	1	2	3	4	5	6	Total
Household Number	522	586	123	42	12	-	1	1,286

From the sample it appears that only 755 households are needed to produce 1,000 migrants. Table 8 assumes this same relationship for persons involved in off-farm wage employment in Lesotho and projects future access to wage employment for households.

Table 8. Projected Involvement of Households in Wage Employment Off-Farm (Thousands)

Year	Household Numbers	Migration		Modern Sector (Lesotho) ¹		Households Without Wage Employment
		Employed	Supplying Households	Employed	Supplying Households	
1980	247	188	142	40	30	75
1990	286	137	103	65	49	134
2000	337	100	76	106	80	181

¹Assumes a 5% compound growth rate in employment from a 1980 base of 40,000.

²These figures assume no overlap between households supplying migrants and modern sector workers. Since, in fact, considerable overlap occurs, the numbers of households without wage employment are underestimated; perhaps substantially, in this column.

The conclusion is a significant increase in the number of households without a family member in wage employment as a source of income. In 2000 AD only 46 percent will be directly involved, compared with 70 percent at present. It should be noted that even if migration remains constant at present levels a similar, though not so drastic, trend will occur, with the number of households without a wage earner growing by 53 percent to 115,000.

The above analysis strongly suggests that an income distribution crisis is imminent for Lesotho. Over the next 29 years the number of landless households will grow by 90,000 and the number receiving only small rental incomes from their land could increase by 100,000 or more. Simultaneously, a similar reduction in households deriving income from livestock may occur. And the number of households without access to wage employment could increase by as much as 100,000 or more.

The problem is compounded by the tendency for these income sources to have parallel distributions. There is a definite positive correlation between land and livestock holdings. Farms with larger arable areas tend also to have larger livestock herds (Tribble, unpublished data). There is also a tendency for these same households to have a disproportionate share of migrants and domestic wage earners. Again data from van der Wiel provide an illustrative confirmation. His sample was stratified into income groupings which represented approximate quartiles of the rural population. The distribution of incomes by source for these groups is shown in Table 9. The more affluent households command a heavily disproportionate share of incomes from all sources. Even though family size in the top quartile is more than twice that in the bottom quartile, per capita incomes are more than 10 times as great.

Table 9. Coincidence of Distribution of Sources of Income Among Rural Lesotho Households

Item	Income Strata (M)			
	0-199	200-599	600-999	>1000
Percent of Households	27	20	27	26
Percent of Total Crop Incomes	15	27	17	41
Percent of Total Livestock Incomes	6	19	15	60
Percent of Total Agric. Incomes	9	22	16	53
Percent of Domestic Wage Incomes	4	9	24	63
Percent of Total Migrant Remittances	≈0	8	34	58
Total Household Income	M66	M408	M859	M1739
Percent of Total Rural Incomes	2	13	28	57
Average Household Size	3.1	4.9	5.1	7.7
Per Capita income	M21	M 83	M168	M 226

Source: Computed from van der Wiel, 1977: 84-88.

The inverse of this observation is that households with limited sources of income tend to be limited with respect to all sources simultaneously. Off-farm incomes do not offset the absence of incomes from agricultural resources. Instead the coincidence of distributions results in severe imbalances in household and per capita incomes.

Thus, incomes are poorly distributed at present and the analysis above strongly suggests that the situation will worsen as land and livestock become less accessible and modern sector employment cannot keep pace with increasing household numbers. Without government intervention in the form of an income distribution policy, there is a strong likelihood that presently affluent households will use their influence to retain control of the bulk

of income sources even as supply dwindles relative to demand. Reliance on the market as an allocation mechanism will only further increase the concentration of resources in the hands of the affluent.

Thus, it is strongly recommended that government assume a definitive role in resource allocation with policies geared toward establishing greater equality in incomes. Equity has been espoused as a fundamental objective in both the second and third five year plans. However, adequate progress toward this objective has not been achieved, in part because the urgency of the issue has not been previously understood. While this urgency is visible today, it can only increase as growth in household numbers outstrips the supply of income generating assets.

If government were to take a role in resource allocation, one of the more fundamental issues is whether or not certain households can accumulate more than one income stream. For example, given the scarcity of jobs projected for the near future, should not migrant opportunities be rationed to those households without an adequate land base? Should not modern sector employment in Lesotho be largely restricted to households without agricultural resources or a migrant abroad? Should not arable land and commercial livestock herds be allocated to different households? As employment becomes scarcer and pressures for incomes mount, a combination of market and non-market allocation mechanisms will arise. Without a determinant role being played by government, the present imbalance of influence and economic power will lead inexorably toward a worsening of the distortions portrayed in Table 9. The result could easily be a large number of households, desperately lacking in sources of income, while a much smaller group enjoys relative prosperity.

Economic Dispersion

Several of the foreseeable trends can operate together to create significant differences in growth rates between rural and urban areas. During the 1980s agricultural productivity will be depressed by below normal rainfall. This situation will affect both livestock and cropping activities. Rural households which are most dependent on these income sources will be most severely affected. The effect of the Land Act on excluding new households from receiving land allocations will impact primarily in rural areas. Most of the recent growth in modern sector activities and employment has taken place in urban or peri-urban areas. Unless there are explicit policies to the contrary this trend will continue with the result being a concentration of opportunities in emerging urban growth poles. Finally, projected improvements to the road network will substantially reduce the costs of travel to larger urban centers. Rural residents should respond by much more frequent travel and repeated exposure to the "delights of the big city".

The result could easily be a massive increase in rural to urban migration within Lesotho with Maseru, Maputsoe and two or three other locations receiving most of the impact. There will be several very serious problems in the long run if this type of migration is not constrained to manageable numbers. Among them are:

- a. **Serious overburden on already strained urban public services. Maseru is already sprawling with large numbers of dwellings without water, sewer or electricity. Clinics and hospital space are overcrowded to the point of reducing the quality of medical services. And schools operate with astronomical student teacher ratios.**
- b. **The presence of growing numbers of unemployed in urban areas has contributed measurably to the urban crime rate.**
- c. **As rural residents visit towns more often, they will tend to make more of their consumer purchases in urban stores. Purchasing power will be drained away from rural areas causing what small enterprises there exist to suffer. The gap in development between rural and urban settings will widen, thus increasing the incentives to migrate.**

Without development policies to the contrary, Lesotho could ultimately be characterized by a stagnant rural sector drained of its money and talent (in effect, an economic wasteland) and congested urban centers growing too fast for proper town planning.

The solution lies in a strategy of economic dispersal, with productive activities being sited around the country. The same roads that threaten to increase rural to urban migration also provide the infrastructure for economic decentralization.

The principal advantages of a dispersed (decentralized) economy include the following:

- a. Economic growth and vitality in remoter areas.
- b. Jobs located so that employees may continue to live in their village homes, thereby preserving village structure and society.
- c. Individuals can combine a higher modern wage with low costs of living which characterize village residence.
- d. The agonies of urban glut are partially avoided.
- e. Scale of production in rural firms will be small, therefore more appropriate technology is possible utilizing local inputs and maintaining relatively high labor intensity.

The main disadvantage of a strategy of economic decentralization is that somewhat higher costs per unit of output may result because of small scale enterprises. However this outcome is not automatic. Normally there is some difference between urban and rural wage levels. In this case the combination of labor intensive small scale operations paying the lower rural wage can often compete successfully with urban manufacturing.

Summary

The next twenty years of development in Lesotho will be a period of severe challenge. Without a highly effective, well integrated development strategy, Lesotho could quickly experience serious unemployment, growing food shortages, declining incomes and the emergence of a highly stratified society. The latter is perhaps the most important because the gap between rich and poor that would emerge would be a new and very unfortunate characteristic for the Basotho people. The magnitude of the task ahead will test the capacity of government at every turn. By quantifying the major issues it is hoped that this paper will have made a small contribution.

References

1. Bureau of Statistics, 1972. 1970 Agricultural Census Report, Maseru.
2. Central Planning and Development Office, 1976. "Employment Projections and Manpower Development in Lesotho: 1975-1980", mimeographed, Maseru.
3. Central Planning and Development Office, 1979. Third Plan Preview, prepared for the 1979 Donor's Conference, Maseru.
4. Clarke, Duncan, 1978. "Foreign Labour Inflows to South Africa and Unemployment in South Africa" in Structural Unemployment in Southern Africa, Charles Simkins and Duncan Clarke, editors. Development Studies Series: 1, University of Natal Press, Pietermaritzburg.
5. Dyer, T.G.J. and P.D. Tyson, 1977. "Estimating Above and Below Normal Rainfall Periods over South Africa, 1972-2000", Journal of Applied Meteorology, South Africa.
6. Eckert, Jerry, 1980a. "Rainfall Oscillations in Lesotho and the Possible Impact of Below Normal Rainfall in the 1980s", LASA Discussion Paper No. 10 (forthcoming June 1980).
7. Eckert, Jerry, 1980b. "Quantitative Analyses of Lesotho's Official Maize and Sorghum Yield Data", LASA Research Report No. 8. Ministry of Agriculture, Maseru.
8. Eckert, Jerry and Ron Wykstra, 1979a. "The Future of Basotho Migration to the Republic of South Africa", LASA Research Report No. 4, Ministry of Agriculture, Maseru.
9. Eckert, Jerry and Ron Wykstra, 1979b. "Lesotho's Employment Challenge: Alternative Scenarios 1980-2000", LASA Discussion Paper No. 7, Ministry of Agriculture, Maseru.
0. Eckert, Jerry and Ron Wykstra, 1980. "South African Mine Wages in the Seventies and Their Effects on the Economy of Lesotho", LASA Research Report No. 7, Ministry of Agriculture, Maseru.
1. Government of Lesotho, 1979. Donor Conference Report, Central Planning and Development Office, Maseru.
2. International Agricultural Development Service, 1978. Agricultural Development Indicators, New York.
3. JASPA, 1979. Options for a Dependent Economy, Jobs and Skills Programme for Africa, International Labour Office, Addis Ababa.

14. Dr. Jonathan, The Right Honourable, 1980. Speech before Parliament of 13 March 1980.
15. LASA, 1978. "Lesotho's Agriculture: A Review of Existing Information", LASA Research Report No. 2, Lesotho Agricultural Sector Analysis Project, Maseru.
16. Monyake, A.M., 1973. Demographic Component of the Rural Household Income Survey, Bureau of Statistics, Maseru.
17. Morojele, C.M.H., 1963. 1960 Agricultural Census, Basutoland. (Part 3, Agricultural Holdings), Maseru.
18. Tyson, P.D., 1978. "Rainfall Changes over South Africa during the Period of Meteorological Record", in Biogeography and Ecology of Southern Africa, M.J.A. Werger, editor. The Hague.
19. van der Wiel, A.C.A., 1977. Migratory Wage Labour: Its Role in the Economy of Lesotho. Mazonod Book Center, Mazonod (Lesotho).
20. Wykstra, R.A. and Jerry Eckert, 1980. "Manpower *vs* Machinery: A Case Study of Conservation Works in Lesotho", LASA Research Report No. 6.

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