POPULATION CHANGES IN LESOTHO 1966 TO 1976:
SOME IMPLICATIONS FOR NATIONAL PLANNING.

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In preliminary results from the 1976 population census become available, it is possible to derive indications of numerical and spatial trends in population change in Lesotho over the period 1966 to 1976. This is the first time that a direct comparison of census results for two censal years has been possible: prior to 1966 there was no standardized enumeration unit. In the 1966 census constituencies and enumeration areas were defined; only minor corrections to this enumeration base were made for the 1976 census.

Summaries of population change trends can be presented at three levels: national, regional, and urban.

A comparison of the national figures for 1966 and 1976 reveals an increase in total population of 246,767. This represents a 25.39% increase from the 1966 total of 972,025. From these figures an average annual growth rate of 2.3% can be derived for the period 1966 to 1976. This raises important considerations for the future: if such an annual growth rate were to be maintained, and there is every indication that this will be the minimum case, then the total population of Lesotho will double in approximately 29 years.

An examination of national population trends during the post-war period confirms the expected exponential growth pattern typical of nations passing through phase two of the so-called 'demographic transition'; basically the demographic transition model postulates three phases of demographic evolution thus:
PHASE 1
High birth rate, high death rate, low total population. Typical demographic conditions in pre-industrial economies.

PHASE 2
Falling death rate, relatively constant birth rate, rapidly growing total population. Typical of developing economies where improvements in hygiene, medical facilities, communications, etc. have an immediate effect on death rate.

PHASE 3
Gradually falling birth rate; eventually constant low birth and death rate, stable high total population. Typical of developed economies where predominantly urban life style and reduction in social importance of the family lead to low birth rate.
Phase two is inevitably one of considerable increase in total population, as death rates fall sharply while birth rates remain relatively constant. The following summary of population growth in Lesotho from 1946 onwards indicates a phase two situation:

<table>
<thead>
<tr>
<th>Lesotho total population</th>
<th>Census date</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>656 748</td>
<td>1946</td>
<td></td>
</tr>
<tr>
<td>793 639</td>
<td>1956</td>
<td>+ 20.84</td>
</tr>
<tr>
<td>972 025</td>
<td>1966</td>
<td>+ 22.48</td>
</tr>
<tr>
<td>1 218 792</td>
<td>1976</td>
<td>+ 25.39</td>
</tr>
</tbody>
</table>

Sources: see footnote 4.

The national population growth situation summarized above should be related to a series of problems facing the nation in its future development:

a) Land shortage is already acute. In 1968 approximately 3% of the population classified as 'dependent on agriculture' was without land. 5

b) The cultivable area is already fully occupied 6 and land unsuitable for cultivation is consequently coming into use. The cultivable area is estimated at 405 000 hectares or only 13% of the total land area. 7

c) The extension of cultivation into areas physically unsuitable for such activity, and the reduction in fallowing resulting from increased subsistence demands, have created a serious soil erosion problem.
d) Landlessness and insufficient alternative employment opportunities within Lesotho have resulted in labour migration (mainly to the Republic of South Africa) in the order of 12% of the total population. 83% of the migrants are male. There can be no doubt that annual population growth of well over two percent can only exacerbate these problems.

At the regional scale of analysis, five formal regions are generally recognized in Lesotho: the lowlands, foothills, mountains, mountain valleys and Senqu valley. The altitudinal definitions of these regions are as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>Altitudinal limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowland province:</td>
<td></td>
</tr>
<tr>
<td>Lowlands</td>
<td>below 1828 meters (6000 feet)</td>
</tr>
<tr>
<td>Foothills</td>
<td>1828 to 2437 meters (6000 to 8000 feet)</td>
</tr>
<tr>
<td>Mountain Province:</td>
<td></td>
</tr>
<tr>
<td>Mountains</td>
<td>over 2437 meters (8000 feet)</td>
</tr>
<tr>
<td>Mountain Valleys</td>
<td>1828 to 2437 meters (6000 to 8000 feet)</td>
</tr>
<tr>
<td>Senqu Valley</td>
<td>below 1828 meters (6000 feet)</td>
</tr>
</tbody>
</table>

Schematically, the regional system can be presented thus:
Schematic diagram of the regions of Lesotho. Not to scale.

1 LOWLANDS
2 FOOTHILLS
3 MOUNTAINS
4 MOUNTAIN VALLEYS
5 SENQU VALLEY
© MASERU
Through a transitional foothill zone, into a western lowland. The mountain massif comprises well over 75% of the national area. The Senqu valley represents an extension of the lowlands into the mountain province; the mountain valleys are the equivalent of the foothill region.

An examination of population change per region over the period 1966 to 1976 yields the following pattern:

<table>
<thead>
<tr>
<th>Region</th>
<th>Total population 1966</th>
<th>Total population 1976</th>
<th>% change 1966 to 1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowlands</td>
<td>488388</td>
<td>651402</td>
<td>+ 33.5</td>
</tr>
<tr>
<td>Foothills</td>
<td>126518</td>
<td>149987</td>
<td>+ 19.5</td>
</tr>
<tr>
<td>Mountains</td>
<td>66175</td>
<td>76564</td>
<td>+ 15.7</td>
</tr>
<tr>
<td>Mountain Valleys</td>
<td>195783</td>
<td>237963</td>
<td>+ 21.3</td>
</tr>
<tr>
<td>Senqu Valley</td>
<td>76032</td>
<td>91537</td>
<td>+ 20.3</td>
</tr>
</tbody>
</table>

Sources: see footnote 9.
The lowland region is clearly the exception in the above pattern: it is the only region with a percentage change value exceeding that for the nation as a whole. If it is assumed that natural increase is roughly constant throughout the nation, then the percentage change figure for the lowland region would suggest that this is a region of considerable in-migration. The major source areas for this migration appear to be the mountain and foothill regions; however, more sophisticated analysis of the 1976 census data will be necessary before such hypotheses can be tested; as yet there is no data available for net increase/decrease or in/out migration per enumeration area. Despite the grossness of the currently available data, the magnitude of the lowlands percentage change figure may almost certainly be interpreted as evidence of in-migration. The emphasis of increasing demands for land, settlement, and employment will thus be placed on the lowland region; here the highest population densities are recorded (eg. over 2500 persons per square kilometer in parts of Kasamu), and consequently it is here that the worst manifestations of overcrowding, landlessness and unemployment will occur.

The third, and most detailed scale of analysis may now be applied: within the nation there is regional differentiation in population change; within the region there is local variation in population change. At the level of the individual urban place important population trends, with significant implications for national planning, may be identified.

Given the hypothesis that migration into the lowland region is taking place, it would be logical to assume that the relationship between population density of a given enumeration area and its distance from a selected point in the lowlands would be inverse. Specifically, population density per enumeration area will decrease with increasing distance from major urban places, the latter being located in the lowlands. As migration into the lowlands continues, the strength of this inverse relationship will increase. Such reasoning is confirmed by a simple regression analysis of

$$y = ae^{bx}$$

where
- $y =$ population density
- $x =$ distance from nearest lowland urban place
- $e =$ base of natural logarithms
- $a,b =$ regression coefficients derived by computation.

This equation may be applied to the 1966 and 1976 data for population density per enumeration area, with the following results:
Y POPULATION DENSITY: PERSONS PER SQUARE KILOMETER
X DISTANCE FROM NEAREST LOWLAND URBAN PLACE (m)

\[ y \text{ regression curve 1966} \]
\[ y = 50.75e^{-0.01x} \]
\[ r^2 = .14 \]

\[ a. \text{ regression curve 1976} \]
\[ y = 195.50e^{-0.04x} \]
\[ r^2 = .66 \]
$r^2$ value, the coefficient of determination, expresses the degree of explanation of $y$ achieved by $x$. In 1966, distance from nearest lowland urban place explained 14% of the variation in population density per square area in Lesotho. In 1976, distance explained 66% of the variation. The shapes of the regression curves show how these results may be interpreted: in 1976 the relationship between population density and distance from nearest lowland urban place was much stronger (steeper curve) than in 66; i.e. there has been a relatively greater increase in population density nearer to urban places than at greater distance.

In fact the majority of the strengthening of the density/distance relationship is probably accounted for by population increase in one urban place: Maseru. The population of Maseru increased by 52% between 1966 and 1976, while the populations of the other lowland district headquarters increased between 3% and 44% only. Clearly migration to the national capital is the dominant trend in internal population movement in Lesotho; the source of this migration may be from within the lowlands themselves as well as from other regions of the country.

The case of migration towards a single urban destination within a nation has been described as the 'primate city phenomenon.' It has been suggested by Friedmann that this is one of several stages in the evolution of the spatial structure of the development process.
STAGE 1  Independent local centres with no evidence of hierarchical settlement organization. Typical pre-industrial structure.

STAGE 2  Single growth point: the primate city; a focus for migration of labour, skill, capital. Typical of early phases of industrialization. Source areas of migration are starved of labour and peripheries result. The whole is referred to as a core(C)-periphery(P) situation.

STAGE 3  Regional sub-cores emerge as industrial maturity is reached and as development impulses diffuse through the nation. Peripheries are reduced to small inter-metropolitan areas.

STAGE 4  The fulfillment of the development process is spatially represented by a totally integrated system of urban places; peripheries are eliminated as small service centres bring development benefits to the most remote areas.

Source: see footnote 13
Current population trends in Lesotho indicate a stage two situation whereby a single core acts as the destination of the vast majority of migrants from rural areas. Maseru is the core; the mountain massif may be regarded as the periphery in this context.

National and regional planning is thus faced with two alternative strategies in terms of the main thrust of development investment: either a) to invest in the incipient core to consolidate its position as the economic focus of the nation, or b) to direct investment towards the peripheral areas in order to stimulate the emergence of regional sub-cores, which would ease the pressure of migration on Maseru, and which would create regional foci from which development impulses and benefits might spread. The Growth Centre Plan would suggest that the government has opted for the second alternative. The problem here is whether such a strategy can be successful unless it is related to a well-developed and established national core. Given that the phenomenon of large-scale migration to the national core is a recent one (the last decade), it may be questioned whether a national core of such a status has yet been consolidated. Under such conditions, it can be argued that strategy a) would be more appropriate at the present time. As Friedmann points out:

"...the objectives of spatial organization will differ in the early stages of the growth process from those which may be appropriate at a later time. During the initial stages it might be argued that all efforts should be turned toward the creation of a dynamic economic centre through the promotion of a maximum concentration of investment of people and activities at one or two growth poles in the nation without regard for the effects of this policy on locationally obsolescent areas."

Historically, the evolution of a fully integrated system of regional sub-cores and local service centres has been shown, invariably, to be subsequent to the consolidation of the national core, which in turn is subsequent to a wave of large-scale migration into a primate urban place. There is certainly evidence that the latter process is currently dominant in Lesotho; this should be a major guideline in the formulation of priorities for contemporary national development planning.
1. For 1966 population figures see
LESOTHO, BUREAU OF STATISTICS 1966 Population Census Report
2 volumes; vol.1 1966 vol.2 1971. Maseru.
For 1976 population figures, the author is grateful to the staff
of the Bureau of Statistics for allowing access to as yet
unpublished 1976 population census material.

2. Derived from tabulations in SIMMONS, I.G. The Ecology of
Natural Resources (Edward Arnold, London 1974.)

3. For further exposition of the demographic transition model see,
for example, CLARKE, J.I. Population Geography (Pergamon Press,
Oxford 2nd. edition 1972.)

4. See note 1) plus: BASUTOLAND GOVERNMENT Basutoland 1936 Population
Census. (Maseru, 1958.) BASUTOLAND GOVERNMENT Basutoland Census
1945. (Maseru, 1951.)

5. Estimates in BARTEN, K.G. and CARRILL, D.K. The Land Resources of
Lesotho. (Directorate of Overseas Surveys, Tolworth, England
1968.)

6. SMITS, J.G.A. The Distribution of the Population in Lesotho and
some Implications for Economic Development. (Basutoland Notes
and Records No. 7 1968.)

7. Source: see note 5).

8. 1966 figures.

9. Calculations based on data from 1) above.

10. Results of current research by John Filbert and Lucas Smits,
Department of Geography, National University of Lesotho.

11. Such a result may be intuitively expected simply because
population totals per enumeration area were already relatively
higher nearer to lowland urban places in 1966. However, the
'expected' strengthening of the relationship had population
growth been perfectly uniform per enumeration area is insignificant
relative to the observed 1976 regression curve.

12. For a discussion of the primacy city phenomenon see, for example,
HAGGERTY, P. Locational Analysis in Human Geography. (Edward
Arnold, London 1965)

13. FRIENDLAND, J. Regional Development Policy: a Case Study of
Venezuela. (Cambridge, Massachusetts M.I.T. Press 1966)

14. LESOTHO, DEPARTMENT OF COMMUNITY DEVELOPMENT Development of
Growth Centres in Lesotho (Maseru, 1972)

15. See discussion in MOODY, E. Growth Centres in Lesotho. (Africa
Institute, Pretoria 1975.)

16. Regional Development Policy, op.cit.