SECTION TWO

CONSEQUENCES OF MIGRATION AND BEYOND

Volume II

CHAPTER 10

RURAL CONSEQUENCES OF OUT-MIGRATION

Introduction

To make any assessment of the impact of out-migration on the rural homeland from which the migrants depart, it is necessary to go beyond the appraisal of the proportion of the population departing and the characteristics of the absentees, both of which we earlier considered in chapter 5 For the absentees will maintain a greater or lesser degree of contact with the homeland, and the nature and extent of the relationship between homeland and out-migrants will greatly affect the impact of their out-migration on the villages.

Accordingly, the first section of this chapter is devoted to the assessment of urban-rural links between the migrants and their homeland. Various indicators of urban-rural contact have been discussed in earlier chapters, and more especially the degree of correspondence of seasonal labour demands in the two dimensions of circulation considered (chapter 6). In that chapter, the frequency and duration of revisits was noted. Now, we consider frequency, purpose and amount of remittances, ownership of a house in the homeland and intended place of final 'retirement' of the migrants.

In the second section of the chapter, an attempt is made to determine the average rural impact of the departure of one male out-migrant in terms of the depletion of output, under certain assumptions. The extent to which remittances offset this loss is then considered.

In conclusion, the effects of the levels of out-migration experienced in rural areas are summarised in the light of the evidence presented, and this is related to the debate on the subject.

Urban-Rural Links

Existence and function. Caldwell (1969, 140-70) devotes a chapter of his study of rural-urban migration in Ghana to the topic of urban-rural links, and commences with the following statement.

> "When the migrant has reached the city, found a job, and established himself in reasonably satisfactory housing, he has normally not completed a once-and-for-all operation. Very few migrants begin a new life and forget the old. On the contrary, for most there are continuing links of all kinds with the village .... "

The persistence of these links is noted by Gugler (1969, 146), based on evidence from eastern Nigeria.

> "However, even among Africans committed to a full working life in town many continue to maintain close links with a rural area they consider their home. They are urban residents loyal to a rural home, part both of the towns they live in and of the villages they have come from. They live in a dual system."

Adepoju (1974, 394), also using evidence from Nigeria, indicates that these linkages can be of extreme rural importance. He concludes:

> "... that most (urban) migrants identify themselves with their home families through periodic home revisits. Such visits have strengthened the social-cultural links between migrants and their home communities... the remittances of money and in particular the employment of such remittances are, from the point of view of the receiving households, a very important contact."

It is, however, Caldwell who pays particular attention to the influence of urban-rural links as a force for change, and for modernisation at the rural end of the spectrum. This potential for change should not be ignored in the consideration of the out-migration on the rural areas.

The extent of such urban-rural links amongst diamond miners and their home villages in Sierra Leone is now discussed.

House-ownership. Almost all miners (over 95%) considered that they had a place to reside in their homeland (Table 10.1), whether in their own house, or in a family house or in a house they were building at the time of interview. However, overall only one-quarter owned their own house there, and interestingly this phenomenon was most common amongst the generally more youthful I.D.M. (31%) against 24% for S.L.S.T. employees and 18% for A.D.M.S. tributers of all miners, 94% claimed access to farm land in their home areas.

Intended retiral. In view of the high proportion of miners considering themselves to have access to both land and a place to reside in their villages, it is not surprising to discover that the vast majority expected to eventually return there

permanently (S.L.S.T. 90%; A.D.M.S. 93%; and I.D.M. 92%) (Table 10.2). However, no date of likely withdrawal from mining was discussed, and no doubt circumstances would change in at least a proportion of cases.

TABLE 10.1

POSSESSION OF A HOUSE IN HOMELAND

BY MIGRANT DIAMOND MINERS

House Ownership	S.L.S.T.		A.D.M.S.		I.D.M.	
	Nos.	%	Nos.	%	Nos.	%
Own house[1]	48	23.7	68	18.1	43	31.4
Family house	141	69.5	279	74.4	84	61.3
Own building in progress	6	3.0	15	4.0	3	2.2
No	8	3.9	13	3.5	7	5.1
Total	203	100.0	375	100.0	137	100.0

Source: Sample survey of miners: See methodological appendix.

Note: 1. In some cases in addition to a family house.

TABLE 10.2

INTENDED LOCATION OF SETTLEMENT ON WITHDRAWAL FROM DIAMOND MINING

Intended Location	S.L.S.T.		A.D.M.S.		I.D.M.	
	Nos.	%	Nos.	%	Nos.	%
In homeland	182	89.7	350	93.3	126	92.0
In diamond areas[1]	0	0.0	10	2.7	4	2.9
In other town	3	1.5	2	0.5	3	2.2
Uncertain	18	8.9	13	3.5	4	2.9
Total	203	100.0	375	100.0	137	100.0

Source: Sample survey of miners: See methodological appendix.

Note: 1. Includes Koidu and Kenema towns, and present place of operation, excluding those persons for whom this would in fact be home.

Remittances. In the light of the foregoing pattern, it seems natural that miners would from time to time send remittances to their rural families to ensure their continuing recognition and acceptance in the home community. To assess the frequency of such remittances, the duration since the last payment is displayed in Table 10.3. The regularity of remittances by the different groups varies markedly, but this seems explicable in terms of their systems of reward. Thus, of the S.L.S.T. employees, who have a regular monthly pay packet, over one-third (35%) had sent a remittance within the previous month, a further 18% within the previous quarter, and yet 17% more within the last year. In all, therefore, 69% of company employees had sent at least one remittance within the year prior to their interview. In contrast only

27% of A.D.M.S. tributers had done so, no doubt a reflection of their uncertain earnings and only periodic washing of gravel. I.D.M. stood in an intermediate position, 32% having sent at least one remittance within the previous year. This reflects the greater immediacy of their payment and their ability to come and go as they please. The sizeable proportions of A.D.M.S. tributers (50%) and I.D.M. (62%) who have never sent remittances no doubt mainly comprise those who have never struck a good diamond find together with those who had only recently joined the industry.

TABLE 10.3

OCCASION OF LAST REMITTANCE BY DIAMOND MINERS

Occasion	S.L.S.T.		A.D.M.S.		I.D.M.	
	Nos.	%	Nos.	%	Nos.	%
Within last month	69	34.5	15	4.4	9	7.0
Within last quarter	35	17.5	24	7.0	8	6.3
Within last year	34	17.0	54	15.8	24	18.8
More than a year previously	8	4.0	76	22.3	8	6.3
Never	54	27.0	172	50.4	79	61.7
Total[1]	200	100.0	341	100.0	128	100.0

Source: Sample survey of miners: See methodological appendix.

Note: 1) Excludes 47 cases where the miner is residing at home.

The amount of remittances sent on the occasions prior to interviews are displayed in Table 10.4.

TABLE 10.4

AMOUNT OF LAST REMITTANCE BY DIAMOND MINERS

Amount in leones	S.L.S.T.		A.D.M.S.		I.D.M.	
	Nos.	%	Nos.	%	Nos.	%
0 - 5	38	25.9	20	11.8	4	8.2
6 - 10	54	36.7	34	20.1	13	26.5
11 - 15	5	3.4	11	6.5	2	4.1
16 - 20	24	16.3	28	16.6	7	14.3
21 - 25	4	2.7	0	0.0	0	0.0
26 - 50	20	13.6	32	18.9	9	18.4
51 - 75	0	0.0	16	9.5	3	6.1
76 and over	0	0.0	25	14.8	9	18.4
Unknown	2	1.4	3	1.8	2	4.1
Total[1]	147	100.0	169	100.0	49	100.0
Mean remittance leones	12.5		34.6		36.8	

Source: Sample survey of miners: see methodological appendix.

Note: 1. Excludes those living at home and those who have never sent a remittance.

Not surprisingly, the S.L.S.T. employees with their more frequent remittances sent a small mean amount of Le12.50, whereas the A.D.M.S. tributers and I.D.M. normally sent around three times this (Le34.60 and Le36.80 respectively). Interestingly, amongst A.D.M.S., whose once-a-year washing tends to produce larger occasional amounts, 15% sent over Le76 on the occasion of their last remittance. Eighteen per cent of I.D.M. also sent this amount as their last remittance. Such large cash injections could be of considerable significance in a rural community such as that described in chapter 3, where cash is rare.

Thus while some rural households fare relatively well from the absence of some of their members, others do not. It might be imagined that it would be married men that were most conscientious about sending remittances back to their wives and children living rurally. However, remittances to the homeland were almost exclusively to parents and siblings, rather than to wives and children (overall 84% against 7%), and were above all sent for general living expenses or as gifts (53%), although payment of school fees, burial ceremonies, and house building were other reasons (Table 10.5). While very few miners sent money to pay taxes, some (13%) did remit money to assist with farming, possibly in lieu of their absent labour.

TABLE 10.5

PURPOSE OF REMITTANCES
DIAMOND MINERS AND THEIR RECIPIENTS

Purpose	Total sample[1]		Recipient	Total sample[1]	
	Nos.	%		Nos.	%
To pay school fees	43	11.8	Parent(s)	188	52.2
To help with farming	48	13.2	Wife(ves)	12	3.3
For tax	3	0.8	Child(ren)	12	3.3
To pay for medicine	7	1.9	Brother(s)	95	26.4
To provide a ceremony[2]	20	5.5	Sister(s)	18	5.0
To purchase clothes	12	3.3	Uncle(s)	21	5.8
To build a house	21	5.8	Other relative(s)	14	3.9
For general living expenses	156	42.9			
Just a gift - not specific	35	9.6	Total	360	100.0
Other	19	5.2			
Total	364	100.0			

Source: Sample survey of miners: See methodological appendix.

Notes: 1. Excluding over 350 cases in which no answer was obtained to this question i.e. those who live at home and those who have never sent a remittance.

2. For example a burial.

Speculatively, we have assumed that many miners had been too briefly in the field to send any remittance at the time of the interview, but to study the relationship between duration as a migrant and scale of remittances, all information about the previous remittances of miners is taken together (without weighting) in Table 10.6, but categorised by years in employment away from home. A quite clear relationship is established: for example the proportion of migrants remitting zero or very small amounts declines steadily with increasing years in employment away from home: from 81% amongst those less than two years in such employment to 44% amongst those over ten years employed away from home.

On the other hand, the proportion of miners who send remittances of Le26 or over is only 5% amongst those employed less than two years away from home against 21% in the longest migrant group. This general tendency to increasing remittances being associated with longer periods in employment away from home is reflected in the mean remittances for each group: Le5.8 for those employed less than two years; Le12.5 for 2<4 years; Le13.9 for 4<5 years; Le20.2 for 5<10 years; and Le18.2 for 10 years and over. This pattern of remittances is suggestive not only of the economic difficulties that face the migrant in his early years, but also of the abiding strength of the links that tie an African to his homeland, to the extent that even after many years urban employment he still recognises his rural roots and ensures his haven there by making a regular financial commitment.

TABLE 10.6

AMOUNT OF LAST REMITTANCE AND NO. OF YEARS EMPLOYED AWAY FROM HOME

AMOUNT OF REMITTANCE	YEARS IN EMPLOYMENT AWAY FROM HOME									
	<2 YRS.		2<4 YRS.		4<5 YRS.		5<10 YRS.		10 YRS OVER	
	No.	%	No.	%	No.	%	No.	%	No.	%
Le0 - 5	109	81.3	61	62.2	26	48.1	79	47.3	95	44.2
Le6 - 10	10	7.5	15	15.3	12	22.2	23	13.8	45	20.9
Le11 - 15	2	1.5	1	1.0	2	3.7	9	5.4	3	1.4
Le16 - 20	6	4.5	6	6.1	4	7.4	16	9.6	26	12.1
Le21 - 25	0	0.0	0	0.0	1	1.9	1	0.6	2	0.9
Le26 - 50	6	4.5	9	9.2	7	13.0	15	9.0	24	11.2
Le51 - 75	1	0.7	3	3.1	0	0.0	11	6.6	4	1.9
Le76 and over	0	0.0	3	3.1	2	3.7	13	7.8	16	7.4
Total	134	100.0	98	100.0	54	100.0	167	100.0	215	100.0
Mean(Le)	5.8		12.5		13.9		20.2		18.2	

Source: Survey of migrant miners: see methodological appendix.

Notes: 1. Known cases only: includes those not sending(Le0): unweighted.

Return gifts. It must not be assumed, however, that the urban migrant receives nothing in return from his rural family. Certainly this should not be seen in terms of an exchange for his remittances but rather within the communal responsibility of the extended family. In all, one third (34%) of miners in all groups receive rice from their homeland to assist with their feeding. As no attempt was made to assess quantities, no tabulation is displayed, but it is important that this significant counterflow be remembered, although in terms of value it probably represents rather less than 10% of the cash flow to the villages. For, if 34% of miners received from their villages say two (60 lbs.) bushels of husk rice each per annum, it would be reasonable to value this even at urban prices in the late sixties at around Le10 per miner or Le2,430 for the respondent group. Taking the average occurrence, frequency, and size of remittances for each group of miners studied, the annual in-flow of cash to the villages from sampled miners would be well in excess of Le30,000. The net benefit is thus seen to be heavily in favour of the villages, at least until the payment is seen as offsetting labour lost (see below). Of course in individual cases no remittances are sent, and there is therefore nothing to offset the labour loss, except the absence of a hungry mouth.

Extent of links. Overall, from the evidence contained in this and other chapters, we have been able to identify a pattern of periodic circular movement which brings out-migrants back to their homeland from time to time. These return visits are endorsed as a continuing link with the home by remittances, mostly in cash, which are only to a

minor extent offset by counterflows mostly in the form of rice. The long term intention remains in the minds of over 98% of miners studied to 'retire' at the end of their period of active mining to their homeland, where most had access to land and housing, although only a limited number possessed their own home there.

The Rural Balance

Production lost. At this juncture, we need to clarify the assumptions we are going to make to estimate the production lost as a result of any one act of adult male out-migration. As we will examine in a later chapter the possibilities for introducing new technology and will consider there the greater productive potential of each unit of labour, we shall assume for the time being unchanging technology, such as that prevailing in the remoter rural areas described in chapter 3. We shall also make the assumption that average and marginal rice production are equated i.e. that the withdrawal of one unit of adult male labour will mean the inability to clear the two acres that one man can fell, burn and clear in the appropriate season (chapter 3). Whether or not this assumption holds good, will of course vary from area to area depending on the land-man ratio, and on the extent of absenteeism. The assumption at any rate implied a loss of around 900 lbs. of husk rice per acre, or of 1,800 lbs. per unit of labour, or of 30 bushels of husk rice (of 60 lbs. weight each), following the earlier benchmarks set out in chapter 3. In 1975, farm gate prices would value this at Le150.

However, the lone out-migrant means one less mouth to feed and a subsequent saving in consumption of 103 kgs. of milled rice

or of almost six bushels of husk rice, again valued at the farm-gate price of Le5 per bushel. If the migrant was accompanied by his family, there would be an even greater saving in feeding, but also a so-far uncosted loss of female labour on the second-year groundnut farm and so on. So we shall focus on the lone migrant, who in fact predominates amongst numerically greater informal mining sector.

The net loss per out-migrant in terms of value of production on the assumptions made will be Le 120 per annum. But there is a probability of 1 in 3 that he will receive around two bushels of husk rice valued (farm gate 1975) at Le10, as a gift from his rural family. We will therefore approximate the final loss as Le125. Still following the figures in Chapter 3, this represents 42% of the average household output..

While in reality a considerable part of the lost production could be made up by using older children, or even women, to undertake jobs traditionally done by men, there is a likelihood that this may not happen. There has been much discussion in economic literature about the role of leisure preference of the rural population in determining the possibilities of replacing out-migrant labour with longer working hours on the part of the remaining population. Arguments appear to be against this phenomenon occurring. In the first place, it has been suggested that only government pressure or implausible circumstances would produce a position where this is even likely to happen.

> "Although the economics of surplus labour or disguised unemployment is now well established as an area in the study of underdeveloped countries, no standard definition of a surplus-labour situation emerges from the literature. Early writers such as Nurkse and Lewis cited the zero or low marginal productivity of labour in agriculture and concluded that some workers could be withdrawn with no fall in the total output of the sector. This latter characteristic became the definition of a surplus-labour economy in much of the subsequent literature through an apparent failure to consider the behaviour which would be expected on the part of the workers remaining after any out-migration of labour. We present here an indifference curve analysis of these workers which demonstrates that, barring government intervention and changing tastes, the postulated result occurs only when very specific (and perhaps implausible) assumptions are made about the workers' indifference map between work and leisure." (Berry and Soligo, 1968, 230)

We feel that such circumstances might be created in the Sierra Leonean situation through a combination of changes in pricing policy and of introduction of new technology, but not given the unchanged technology we have assumed, and not without a time lag after the departure of the migrant.

In the second place, some authors have questioned the ability to measure leisure in traditional (or transitional)

societies, and we would argue that were "leisure" to be reduced among the remaining residents of villages such as that described in chapter 3, there would be a concomitant loss in production of goods traditionally supplied "free" e.g. housing, locally woven clothes and mats. Allowance for the loss of these would have to be made in any calculation of the net effect. We therefore tend to argree with Berg (1961, 473) about the conceptual difficulty over leisure.

> "There is some conceptual difficulty connected with the notion of 'leisure' in transitional societies. In that part of the total society already wholly integrated into the modern market economy it does not involve too great a distortion of reality to regard 'leisure' as simply time not spent at 'work'. In the traditionally oriented sector, however, which is to say in most villages, 'leisure' is the sum of village activities not immediately or directly concerned with production. Within village society it is by no means easy to distinguish between 'economic' and 'noneconomic' activity, between 'work' and 'leisure'."

Yet, we have still not come to the essential criticism of an analysis that considers the substitution of additional work by the remaining population a realistic replacement for labour loss through out-migration. The weakness of the analysis in inter-tropical Africa is that it ignores the seasonality of farm activity, which

has extremely peaked demands for labour. Johnson (1967, 229) suggests that underemployment may not be nearly so extensive as is often supposed for this reason.

> "One of the main reasons for apparent under-employment in the village is the seasonal nature of production. In the central African territories there is one rain season from November to March, and only one planting of crops is possible. When the planting rains arrive, all able-bodied members of the family are found working in the fields, and the intensive period of activities continues until the main weeding season is over. Thereafter, a lull in work required occurs until harvesting starts at the beginning of the dry season. Now if full regard is given to timeliness of operation in agriculture, it is highly plausible that any loss of manpower in the growing season itself could lead to a diminution of final output, through later than optimum planting of crops and delays in timeliness of weeding."

Our own farm studies were not detailed enough to provide information on this point, but the present author repeatedly saw farm-families returning long after dark to the communities he studied in the growing season of 1972.

Remittances gained. Evidence earlier in this chapter, has indicated that there is extreme variation in the frequency and amounts of remittances sent by individual migrants. If we can assume that our migrant is for the moment a remitter, then using the occasion of the last remittance prior to his interview (Table 10.3), we can derive the average frequency of remittances in each sector of the industry to be approximately seven, two and 3.5 times per annum for S.L.S.T. employees, for A.D.M.S. tributers and for I.D.M. respectively. When these are related to the average last amount remitted for each group, average annual estimated remittances will be Le87 for S.L.S.T. employees; Le69 for A.D.M.S. tributers and Le128 for I.D.M. These figures are admittedly approximations and of course relate only to those households who do receive remittances at all. It is therefore appropriate to deflate them by the probability of any one household in each group receiving a remittance at all. These probabilities are respectively 0.7, 0.5 and 0.4, meaning that the 'average' S.L.S.T. employee's rural family might expect Le61; that of the A.D.M.S. tributer Le35; and that of the I.D.M. Le51 per annum. This basis of calculation allows us to see the variation in the effect on the rural family depending on the generosity, or capacity to be generous, of their individual out-migrant. In some cases, this clearly indicates a net benefit, although this appears to be the exception rather than the rule.

Net effect. It appears that overall rural families stand to lose from out-migration of an individual

member on the assumptions we have made. Thus against average losses amounting to Le125 of production, offsetting remittances will cover between Le35 and held i.e. between 28% and 49% of the loss. However, these net losses do not take account of the high utility of cash in rural communities, whose near subsistence levels of production render any inflows of cash particularly useful.

If an overall average remittance of Le50 per annum is assumed, this represents an increase of 17% of the annual income of a farm that manages to maintain its average four acres despite the absence of one adult male member, and 33% of the income of a farm where the labour loss is not offset.

The unequal distribution of income from diamond mining probably allows much larger flows of cash to the villages than these figure would suggest, because of the large surpluses that fall into the hands of individuals, who then invest heavily in their homelands to establish their prosperity and status. At any rate remittances, whether individually small or large, push cash into the village economies, and so gently nudge them towards integration into the modern sector, while at the same time enhancing the prospects of agricultural innovation. The consumption or production orientation of the expenditure of the remittances will itself have a major influence on the longer term impact of out-migration on rural areas.

Summary

For the vast majority of miners, the maintenance of ties with their homeland is of importance. Through holiday visits, by and large annually; remittance of money, to parents for the most part; construction of a rural house; marriage to women from their homeland; and saving of funds to achieve 'rural' goals, such as a better farm or the opening of a village shop (Chapter 8), many miners retain one foot in the rural camp in the long standing image of 'men of two worlds' (Houghton, 1960). However, for many a first revisit had not been made, nor had a remittance been sent. The reason appeared to be economic failure or inadequate time to attain sufficient income to fulfil these goals. Only in a few cases where witchcraft or animosity had led to out-migration from the village, and these were the exception, was there any doubt expressed about the desire to revisit and to help the rural family with gifts. But in many cases, lack of funds prevented fulfilment of the aims. The hypothesised budget of a young bachelor miner (Chapter 8) shows how difficult it would be for a visit to be made in a bad year, as the estimated mean income of a tributer or an I.D.M. is but the average of an unusually wide range of economic rewards. For the diamond industry breeds uncertainty and hence variety of outcomes. Generally the position is probably best summarised by the words of an interviewee, a tributer at a licensed plot in Kenema District. "When you come out from home and don't get money, you have to stay until you do." Thus those who do revisit seem likely during

their village visits to give a false impression of easy success, or at least of success more generally attained than it is in reality. Certainly the holidaying migrant success is numerically more significant and also more likely to make a lasting impression than the limited number of 'failed migrants' detected in chapter 9. It could thus be expected that the visits to their homeland by out-migrants will generally, through a demonstration effect, enhance the probability of further rural out-migration to an extent based on false hopes, but nevertheless capable of producing allometric growth of migratory flows.

While the uncertainty of the diamond industry produces wide variations in individual cases, it seems generally true to say that urban-rural remittances do not completely offset the loss of production incurred as a result of out-migration. However, this conclusion is arrived at within restricted assumptions of no technological change and equated average and marginal production. Nevertheless, the cash inflows to rural communities is getting capital to where it can produce the greatest net benefit, in view of the extremely low income level of the village people. At the same time, it eases the way for the sort of technological change that is proposed in Chapter 14. The modernising influence of urban-rural remittances must not be discounted in any evaluation of rural-urban migration. This has been earlier stressed by Waters (1973, 448).

"Remittances, flowing in the opposite direction to the stream of migrants, have a dual impact

on the basic dichotomy which exists between the rural and urban sectors of African nations. There is an immediate distributional and welfare effect as the remittances permit a higher level of current consumption in rural areas while reducing it in the cities, and there is a longer run distributional effect via the increased smallholder agricultural sector."

We shall discuss the possibilities for greater rural productivity in Chapter 14, but we can meantime interpret the migrants as fairly successfully maximising their prospects (and those of their rural families), at least within the given economic framework where they find themselves. That some fail in their self-appointed task of maximisation of benefit (to themselves, but more generally to the family) is only natural in the case of migration to a boom mining area, where economic reward is more often to a gambler's winnings than to a just payment for effort.

What the individual migrant cannot do, and what many economists fail to consider, is the possibility for changing the economic framework through evolution as well as revolution. We would agree with Carvajal and Geithman (1974, 120) in their conclusions from a study of Costa Rica:

> "... the economic approach to migration determinants employed in this study broadly corroborates the view of migration as a rational economic

phenomenon. People respond to their perception of market forces and changing economic opportunities, thereby helping maintain a balance between the geographical distribution of available resources. This conclusion places labour force migration in an economic resource-allocation framework and implies the existence of some volume of migration consistent with optimal national resource allocation, which Kuznets defines in terms of supplying the manpower required for all the emerging economic opportunities in those regions of the nation where the local labour supply is inadequate. The emergence of new opportunities in some region and the contraction of opportunities elsewhere is at the very heart of the process of economic development."

We would not, however, agree that it is necessarily good to maintain the balance to which these authors refer, and we therefore examine in Chapter 14 the possibilities for releasing potential migrants from the restrictions of their present limited choice.

CHAPTER II

NATIONAL CONSEQUENCES OF OUT-MIGRATION TO DIAMOND MINING

Introduction

It is possible at this stage to assess some of the principal effects on the Sierra Leone economy of labour mobility stimulated by the diamond industry. We shall consider the inter-relationships between the movement to the mines and the national economy, under four main heads - the employment effect, which will be given most attention, the production effect, the foreign exchange effect, and the revenue effect. Each of these will be considered in turn at the national level, use being made of the data and conclusions presented thus far in the text and tables. Quantification of the effects will be attempted and their implications in terms of development will be considered. For the most part in the present chapter we are concerned with considering what has been: with collating the information mostly already presented, within an economic framework to promote a broad understanding of the role the diamond industry in general, and its attraction to labour in particular, has played in the Sierra Leone economy up to the present time.

The Employment Effect

Numbers involved. In chapter 5, we were able to discuss the size of the direct mines labour force, including all employees of S.L.S.T., whether or not they were engaged in the process of extracting diamonds. In total the force numbered around 60,000 men in 1968,

composed of almost 36,000 A.D.M.S., almost 4,000 S.L.S.T. employees and an I.D.M. force of over 20,000, taking the medium estimate for this last (Table 5.8). The numbers active varied greatly from year to year, but 1968 seems median between the peaked activity of the early sixties and the decline of the seventies: in 1961 miners totalled 116,000; in 1974 20,000 approximately.

Diamond miners in the working population. The National Development Plan (Government of Sierra Leone, 1974, 27) estimates the working population of Sierra Leone as 1,079,000 against the 1963 Census figure (Government of Sierra Leone, 1965, Vol. 111, Table 6) figure of 908,147. We shall therefore assume a 1968 figure mid-way between these points as growth slowed down in the early seventies. This gives us a working population of approximately 993,000 persons, at that time, and if we apply the same proportions by sex as at the time of the 1963 Census, 64% will be male. This implies a 1968 male working population of 635,000. Diamond miners would thus constitute 9.4% of the total labour force.

Of course this represents the situation at a given point in time, and the numerically dominant A.D.M.S. and I.D.M. do not report long duration in mining activity (5.0 and 3.4 years respectively being the mean duration for the two groups). Thus over the period of 20 years, during which the mining industry has existed in its present structure, some four times the present mining force may have at one time or another participated in mining - say (if all were still alive, and most were after all young men at the time of their

participation) over 37% of the present working population have either in the past been, or at present are, diamond miners in some form. In other words, assuming a pattern of youthful participation in mining before finding another occupation either in wage employment or back on the family farm, over one in three of the working population have experienced diamond mining activity. The widespread effect of the industry in most villages and homes in the nation is thus clearly understood. The seemingly increasingly common practive of young men leaving home soon after their initiation ceremonies has meant for many of the youths of Sierra Leone a movement to the diamond fields.

The service population. However, the impact of diamond mining on employment in Sierra Leone should not be considered only in terms of the direct labour force. For most urban males in the mining centres of Kono and Kenema Districts are either involved in service occupations whose custom is generated by mining profits - garage mechanics, bar-keepers, taxi-drivers and the like, or are traders or shop keepers selling to the mining and service populations. It is difficult to put any figure on the size of this ancillary labour force, but an employment multiplier effect does occur, even when considering male employment. For although many traders are female and most restaurants are run by women, men also trade, particularly youths who can find no other source of income. In addition drivers and garage-mechanics, for example, are exclusively male. For the most part the ancillary occupations can be described as of low income-earning capacity many representing unpaid apprenticeships or marginal petty entrepreneurial activities. In fact, many of these occupations, like mining itself with its idle season, represent examples of urban underemployment.

In Kono District in 1963 there were 10,329 male miners, quarrymen, and related workers against 12,269 male sales, transport and service workers, inclusive of craftsmen and labourers (Government of Sierra Leong, 1965, Vol. 111, Table 6). A small number of the second group would no doubt be unassociated with the mining activity in the district, for example those trading in the non-diamondiferous chiefdoms of Eastern Kono. However, the majority would be dependent on diamond mining activity to generate their custom, say at least 80%. It is therefore safe to assume that there were approximately equivalent numbers of miners and of service employees dependent on them. If we apply the same ratio to the 1968 mining population, we can assume 120,000 males dependent for their livelihood on mining activity or the trade generated by it. This would imply that 21% of the total male labour force in 1968 of 576,925, fell within these categories. However, using the 1963 figure of 70% of the male working population engaged in farming and related occupations, (Government of Sierra Leone 1965 Vol. 111. Table 6). We find that diamond miners form 35% of the male non-farm working population, and a similar percentage on our assumptions earn their living from diamond generated earnings. We can thus see the dominant role played by the industry in generating seven-tenths of non-farm employment in the Sierra Leone economy in the late sixties, and can understand why the mining areas have been such a dominant area of attraction, as noted by Forde (1971 28-30) and others.

Wasting asset. As diamonds are a wasting asset, the problem of re-deployment of the mining labour force must be the primary manpower objective in Sierra Leone. If this force can be successfully re-deployed, then

the ancillary workers will be able to continue to trade, run taxis, or whatever, by continuing to serve the same labour force in its new employment. The diamond boom in Sierra Leone has thus paralleled similar ephemeral phenomena in many developing countries. In recent years, Nigeria's oil boom provides an obvious example within the same region. The concomitant of such boom economies with their strong attractions to migrant labour must be the investment of revenues to generate alternative employment opportunities, create necessary infrastructure and develop other future sources of income and revenue in preparation for quieter times. In the Nigerian case, investment targets were created with much enthusiasm, but with less planning,and resulted in inflationary pressures and eventually budgetary crises.

In Sierra Leone, the boom has been characterised by low revenue-generating capacity (see below) and the urban centres of central Kono are characterised by extreme examples of public poverty and private affluence, the most commonly noted example being the lines of new Mercedes-Benz cars struggling over pot-holed un-metalled roads. Even at the national level, conspicuous private consumption has been more common than urgent public investment. In recent years, with government participation in N.D.M.C, and a greater awareness of the economic ills of the nation, more funds have flowed into government coffers, but have very often been expended on infrastructural projects rather than on directly productive activities. The pre-dominance of the former has meant a concentration on capital intensive techniques of low employment generation, while the absence of the latter means there is no obvious successor to the diamond fields as the principal source of the country's foreign exchange. The direction

of investment into capital intensive projects with little employment generation was able to continue for so long without political explosions, only because of the peculiarly strong attraction of opportunities in the diamond areas, lures that as we have seen, depend more on man's gambling instincts, than on a true appraisal of the prospects. The political acceptability of the investment programme at the time it was determined in no way ameliorates the unemployment crisis that the passing of boom conditions has engendered in the seventies.

Modes of production

The structure of the diamond industry at the time of Sierra Leone's independence was such that it was able to carry colonialist monopolistic exploitation into the post-independence period in a framework of neo-colonial opportunism. The creation of A.D.M.S. as a solution to the attack on S.L.S.T.'s monopoly rights by tens of thousands of illegal miners reflects the immense capacity of capitalistic organisations to adapt to changing circumstances and thus ensure their profitable survival, and it also indicates the willing connivance of the colonial administration in this process. Thus just as land settlement schemes in Kenya served to ease the pressure on large scale farms and allow their continued existence up to and after independence (Leys, 1975), so the creation of A.D.M.S. in Sierra Leone, permitted the survival of the capital intensive operations of S.L.S.T. The continuing existence of a similar structure in the industry more than a decade and a half after independence indicates the extent of this capacity to survive, albeit with greater African participation in the capitalistic hierarchy. The continuing existence of S.L.S.T., now as N.D.M.C., reduces greatly the level of employment opportunities that could have been generated,

although ensuring for the shareholders a continuing profit. The larger shareholder is however, now the Government of Sierra Leone, and it must therefore bear the larger responsibility for the effects of this economic structure.

However, one alternative mode of production as represented by A.D.M.S. (and I.D.M.) has demonstrated its capacity to allow expoitation, as we saw in chapter 8, when considering the shares of final export value going respectively to the dealers and to the labour force. In the case of the Sierra Leone diamond fields what Leys calls "the comprador interests" are represented by African politicians in league with Lebanese and African entrepreneurs.

Large scale business catering for the world market is capital intensive, and only 4,000 regular wage opportunities were made available by the company, while all other participants (93%) had to create their own chances, either legally or illegally, through gambling their energy against the hope of opportune finds of diamondiferous gravels, and even then their return would be but a fraction of the true market values of diamonds found. The exploitation of Sierra Leone's diamond fields is therefore a particularly venal example of opportunism. It has been frequently argued that in such circumstances there is no escape from the problems of unemployment and underemployment, and that it is only by a change in the existing economic structure that a breakthrough can be made (Leys, 1975).

Wage employment in perspective. It would be incorrect to convey the impression that the 4,000 paid employees represent an elite group, who are better off than their fellow urban dwellers. For although it has been shown that the security of regular employment is attractive and that the 'perks' that go with it are many (housing,

sports facilities, access to schools etc.), we have also shown that in terms of average income, company employees can be surpassed by I.D.M. We have also shown that, given urban costs of living, the wage-earner has little surplus after paying for essentials, and we would thus support Amin's (1977, 196) view that:

> "African wage earners are not in the least a 'privileged' section, if we allow for differences in price levels between town and country, and the peasants' resources for self-subsistence."

The extension of this argument would be that the phenomenon of "the working poor" (I.L.O., 1972, 51-64) is relevant to the conditions prevailing in the diamond fields of Sierra Leone, with the implication that migration does not produce an escape from poverty, but rather a transfer from rural self-sufficiency to urban poverty, the main attraction of the latter being the ownership of cash to allow at least a limited choice of consumption patterns. Nevertheless the tendency has been for regular jobs to be in greater demand and for a process of selection therefore to produce a better educated group, amongst Company employees, who because of security then become earlier married and more stable in town.

<u>The position of the informal sector.</u> An important conclusion can be deduced from the fact that in economic terms no clear distinction can be drawn between the financial benefit gained from wage earning in the capitalised formal sector and involvement in the informal sector. We have seen earlier that the vast majority of diamond miners as well as those involved in providing services to the miners, belong to this informal sector, to the extent that we could almost define the situation in the urban areas of the diamond fields as "a predominantly informal economy".

The I.L.O. (1972) team developed the idea that the encouragement of the informal sector would be one of the best ways to generate employment opportunities in Kenya, the country which it was studying, and that the sector could be promoted through the establishment of greater linkages with the formal sector (e.g. by disaggregation of orders for component parts to allow small-scale suppliers to compete). Certainly the evidence in Sierra Leone's diamond fields would support the contention that informal activities are far more labour intensive than S.L.S.T., which is the sole major representative of the formal sector, and as a result over 90% of diamond mining jobs are created by the informal sector.

However, the reward received by the legalised participant in informal diamond mining is only marginally greater than that he could obtain by the sale of produce from upland farming in his homeland. If he participates illegally he seems likely to fare better, but only within the same broad range as a company employee, his exact benefit being difficult to define because of the nature of his 'employment'. The informal sector of the Sierra Leone diamond mines, therefore, did not seem capable of generating incomes at a level that would be meaningful to an escape from poverty, not at least given its present structure. It seems that higher income levels in both the formal and informal sectors require a more fundamental change in the structure of the economy. For both groups (formal and informal) are confronted with the similar dilemma that opportunities have not proved economically very rewarding. The mean annual incomes of miners estimated in chapter 8 would probably not be very different from those received by traders and others in the ancillary group who depend on the miners for their business. For the opportunities

have already been seen to be of the self-generated small entrepreneurial type, which because of excessive competition are of limited profitability. As living costs in town have escalated in recent years, these opportunities have tended to become less viable, and the income required to allow people to remain in towns is considerably higher than just a few years ago. Some opportunities will thus disappear as they become sub-marginal. In all cases reality does not conform to the expectation: the migrant was attracted because of an unrealistic appraisal of his prospects. Lack of knowledge (or an information gap) occasioned an unjustified level of expectations (or an expectations gap).

Highlights of the employment effect. In terms of employment in Sierra Leone, the diamond industry has been extremely significant, itself creating in 1968 an estimated 35% of male non-farm employment, while at the same time generating a similar percentage of service employment. Most of this employment was created within the informal sector, but rewards resulting from such activities have been only marginally attractive. Change in the structure of the economy seems necessary if more attractive employment opportunities are to be generated. In particular, the diamond industry's character as a wasting asset means there is a particular urgency about this structural change, as the industry will no longer be able to retain its capacity to absorb all comers and so postpone radical criticism which would otherwise have been directed at the authorities.

The Effect on Agricultural Output

Indications of decline in output. The migrant diamond

mining labour force essentially represents a transfer of labour from agricultural activity. The conditions studied by the present author in Dandaya and described in chapter 3 would suggest that the resultant situation in the agricultural sector is one of labour shortage certainly during periods of peak demand for young and active male labour, and the expectation would therefore be that agricultural output would drop as a result of the absence of so many *quondam* or prospective farmers. This of course occurs because of the complete absence of technological innovation in the more traditional rural communities, and no doubt because of the unattractive prices for many commodities on the local market. Saylor (1967, 41) suggested that commercial production (for export) of Sierra Leone farms declined in the 1950s, but that subsistence output was maintained, suggesting prices as more influential than labour supply vis-a-vis agricultural output.

There have long been arguments that neglect of agriculture resulted from the diamond boom, and Bagai (Table 16) showed how Sierra Leone's modest export of rice in the early 1950s changed as the mining boom gathered intensity to local shortages and then to an increasing need for imports of rice to feed the nation. Undeniably with a boom in full swing, the numbers to be fed increased at the same time. In 1955, perhaps the peak year of the diamond boom when chaos in the mining areas was at its worst, food riots in Freetown broke out in response to the excessive price and great scarcity of rice. The report of the commission of enquiry into these riots makes it clear that hunger was amongst the principal causes of the riots and of strike action which preceded them.

> "There is no question that an increase in the cost of living had taken place, notably during 1954 and especially in respect of palm oil and rice which are the staple foodstuffs of the working people; and that this created some hardship amongst them. It is not for the Commission to inquire into the reasons for the substantial increase in the price of these locally-grown commodities: they appear to have been partly a bad harvest and partly the movement of labour from agriculture to other activities.
>
> "... We are satisfied that the Government, by importing rice in bulk from abroad and placing it on the market at controlled prices during periods of acute scarcity, by buying up some palm oil for the same purpose, and by other methods, made a serious attempt to keep the prices of essential commodities within manageable bounds. But the gap between demand and supply was too wide to be bridged, and the Government's actions were only partially successful." (Government of Sierra Leone, 1956).

The evidence of this official report would suggest that the effect of out-migration of agricultural labour had quite dramatic downward effects on the output of the sector, not only in terms of the staple, rice, but also vis-a-vis the fruit of the oil palm. The oil palm, as it grows wild in Sierra Leone amongst other forest growth, achieves considerable heights often as much as 80 feet, and requires agile young men to cut down the clusters of fruit. In plantation conditions the tree may only grow to 20 to 30 feet and so harvesting can be much more conveniently carried out, but the high wild fruit may well go ungathered if suitable labour is not forthcoming. Banton (1957, 47) noted this problem in the fifties.

> "Migration to the towns deprives the countryside of labour and has especially affected palm-kernel production, for it has always been the young men's job to cut the fruit."

While the population of Sierra Leone has undoubtedly increased considerably since the mid-fifties, and demand

for basic foodstuffs has consequently increased, recent output targets for self-sufficiency in rice have not been met, as the rice import bill in 1974 of some 23 million leones most poignantly indicates, although this especially high figure was a combination of record world prices, and excessive estimation of needs, as well as shortfall of local output.

Some estimate of the impact of rural out-migration, to diamond mining and to the ancillary occupations discussed above, can be obtained by considering the proportion of the actual and potential agricultural labour force involved. In 1968, if we assume the 1963 Census proportion of the male labour force engaged in agriculture (70%), we find there were then 444,500 farmers or related workers. The miners themselves represented 13.5% of the force still active in agriculture, and the service sector in the mining areas a similar proportion. Therefore one can say that 21% of all the potential male agricultural labour force is away in the diamong mining areas, although we should discount this a little to allow for the small proportion of miners who did not come from agricultural backgrounds. In earlier chapters, we already noted the lack of seasonal fit of the movement to mining, and as traders and other ancillary workers would wish to be present to take advantage of the flush of money in the hands of miners as the washing season approaches, they too are likely to be absent when their labour is most required. In the present study, only migration to the mining areas has been considered, but clearly many potential farm workers are in the capital and elsewhere and the total proportion of the potential farm population absent must therefore be greater still.

Contrary indications. But the evidence of diminished agricultural output because of the mining boom must not be accepted without consideration of some possibilities of misinterpretation and of contradictory evidence.

1. In the first place, as Banton (1957), who undertook his fieldwork in 1953, indicates, the movement of young men away from the villages pre-dated the diamond rush, and the boom may merely have re-orientated a trend that was already established and producing a labour scarcity in the agricultural sector. It can be further argued that an increase in out-migration from the rural communities was inevitable in the second half of the twentieth century, and that the diamond mines were just convenient destinations for young men already determined to leave agriculture.

2. Evidence of food scarcity and high prices in the fifties would not necessarily imply reduction in output in conditions which included the presence in Sierra Leone of tens of thousands of West African foreigners. The need to feed all these extra mouths could generate a shortage regardless of output achieved.

3. In particular, the riots and food shortages in Freetown might merely indicate the price responsiveness of farmers who had wished to sell their produce in the booming and hence more profitable diamond area markets, hence leaving city demand unfulfilled.

4. In general, it can be argued that the strong demand over wide areas of the country generated by diamond activity would stimulate rice and other agricultural production in response to profitable opportunities.

Previously unheard of prices could suddenly be obtained for basic food-stuffs, and production may actually have been stimulated in some areas. Of course, some of the marketable 'surplus' may in fact have been used prior to mining development to allow better rural feeding standards, and in such instances its market sale would represent a loss to the village, unless the price allowed the feeding standards to be at least fully compensated by purchase of other equally nutritious items.

5. The failure of agricultural producers to adapt techniques to situations of manpower shortage can probably be explained for the most part in terms of the artificially low pricing policies, pursued officially and often carried out through the mechanism of the produce marketing board (S.L.P.M.B.). In fact in response to manifest shortages, government tended to respond by legislating, or otherwise creating, quite unrealistically low prices, which by providing no stimulus to production, produced even greater disequilibria (Saylor, 1967, 58 ff).

Nevertheless the not insubstantial flows of remittances to the rural areas evidenced in the last chapter did not achieve extensive investment and innovation in the agricultural sector, apparently because the cash was required for other more pressing day-to-day matters, such as feeding, school fees, or a burial. This would seem to be an indication that family benefit is not necessarily maximised by the absence of certain members of the household unit,

as the missing labour does not remit adequate funds to compensate the farming household for its absence.

Overall, it appears that the combination of labour shortage due in no small part to out-migration to mining, and of artificially low prices and hence profit margins restraining technological innovation, has produced at best limited expansion of output, although it would be hard to believe that more than limited general contraction of production occurred. Nevertheless in the technological framework widely extant on Sierra Leone farms, marginal labour productivity was far from zero in most areas prior to the departure of out-migrants, and hence their absence was likely to have a depressant effect on output. The more general effect of diamond activity in distracting attention from the needs of the agricultural sector, and investment from those needs, is clearly manifested by the huge investments in two highways to the mining areas (via Bo and Makeni), while farm villagers are still required to headload their produce if they wish to market it.

The Foreign Exchange Effect

Export earnings. An examination of Sierra Leone's balance of payments figures very swiftly reveals the significance of the diamond industry to the country's foreign exchange earnings. As Table 1.3 shows, diamonds have accounted for over 60% of the country's visible export earnings year by year at least since

the time of independence. However, there are many other considerations to take into account before the overall foreign exchange effect of the industry can be assessed. As in the other sections of this chapter, we do not feel justified in presenting firm figures, as so many assumptions would be involved that the result could only be described as purely speculative. Nevertheless, there does seem sufficient evidence of patterns of behaviour to suggest likely trends.

In fact there has been an earlier attempt to quantify the balance of payments effects of the mining sector in Sierra Leone. Killick and During (1967) estimated that for the years 1963-65, the annual current account deficits of the non-mining sectors were of the general order of Le50 million per annum, producing a small net deficit on current account overall of under Le5 million per annum, the remainder of the deficit being absorbed by the entire mining sector surplus (including that from diamonds). However in presenting their estimates, the authors emphasised that they related both to a specific period of time and to the various assumptions they found it necessary to make. It is beyond the scope of the present study to investigate the validity of each such assumption, nor would it be possible to reconstruct the earlier calculation without access to information not generally available, as Killick and Martin were based in the Bank of Sierra Leone. Nevertheless, the evidence presented here does allow some general observations, as well as comparisons amongst the effects of the different sections of the diamond industry.

Effect of smuggling. In the first place it is necessary to take cognisance of the fact that the officially recorded export earnings of diamonds are in reality supplemented by the value of stones smuggled. In 1968, using the smuggling estimates presented in table 4.4, smuggled diamonds represent between 19% and 32% on top of the official figure for the value of total exports, depending on the acceptance of the low or high estimate in the given year. In Table 11.1, these figures indicate that as much as 70% of Sierra Leone's true export earnings may be derived from diamonds, which in 1968 was equal to a figure of the order of Le60-70 millions.

Expenditure of foreign exchange: the company. While it is relatively simple to estimate the foreign exchange earnings of diamonds, it is much more difficult to reduce this gross figure to net terms, after making allowance for expenditure of foreign exchange occasioned by the industry either directly or indirectly, and it is in this area that information is lacking to produce actual estimates.

In the case of the mining company, clearly there are considerable expenditures on earth-moving and other equipment, spare parts, petroleum products in the first instance; on expatriate salaries in the second instance; and finally on repatriation of profits. This last item has been considerably reduced of course since government became 51% participants, and as the level of taxation has increased through time. Possibly too expenditures on capital account on major items of equipment have fallen away somewhat in the seventies as the uncertainty over the future life of the company

TABLE 11.1

EXPORT VALUE OF SIERRA LEONEAN DIAMONDS, 1968

Item	1968
Officially exported diamonds Le10^6	45.7
Total exports (all commodities, official) Le10^6	75.6
Smuggled diamonds Le10^6 [1]	14.5 - 24.5
Total diamonds exported Le10^6	60.2 - 70.2
Total exports (all commodities, incl. smuggling) Le10^6	90.1 - 100.1
% diamonds in total exports[2]	66.8 - 70.1

Source: Table 4.4 and Bank of Sierra Leone, Vol. IV, Nos. 2-4, June 1970, Table 23.

Notes:
1. The range shown covers the estimated variation between low and high estimates calculated in Table 4.4
2. The percentage range is calculated respectively on low and high diamond and total export figures.

has caused some apparent hesitation in investment programmes. Wages and salaries paid to Sierra Leonean employees of the company will be partly expended on imported goods, and especially those in staff appointments will probably have a higher propensity to consume imported goods than the general mining population outwith the company. Expatriates not only remit parts of their salaries to pay school fees, house maintenance costs, leave expenses, and to accrue savings in U.K. or elsewhere, but also make almost all their local purchases in the company staff store, which is stocked very largely with imported goods. Finally the considerable proportion of company profits ending up as government revenue is often used as has been seen to finance major investment programmes, which themselves have a high foreign exchange component.

In short, in view of the considerable number of ways in which the foreign exchange benefits of company mining are reduced by a series of direct and indirect effects, it is not surprising to learn that Killick and During (1967, 24) estimated that on current account, only 12% of the export value of company diamonds accrued as net benefit to the balance of payments in the years they considered. When capital considerations were taken into account, and both direct and indirect effects, they derived a figure of 43% as an approximate guideline. As their figure relates to the mid-sixties and is based on data not available to the present author, no attempt is made to better it.

Expenditures on foreign exchange: A.D.M.S. In the case of diamonds extracted under the A.D.M.S. and exported legally, there are clear indications that the direct drains on foreign exchange are negligible; for the production methods are mainly manual, and even where capital intensive equipment is involved, it has often been acquired secondhand from a road construction company, and hence involves no further expenditure of foreign exchange. Foreign workers may repatriate funds, but their numbers are relatively small, and as they are mostly Guineans they will expend their earnings in Sierra Leone and carry back their savings in kind in view of the sparcity of market commodities of all kinds under Sekou Toure's government of generally fierce isolationism. Thus the foreign tributer's exchange loss would be like his Sierra Leonean counterpart's - an indirect one through his purchase on the local markets of imported commodities. We are in a position to estimate this fairly accurately, if any validity can be claimed for the hypothesised expenditure pattern in chapter 8. The breakdown of these expenditures according to import content is shown in Table 11.2, and the assumptions made to allow these estimates are listed in the notes to that table. Overall 40% of the income of miners is estimated to be expended on imports. This is rather higher than that of 23% used by Killick and During, but both are only crude estimates, and the truth may well lie somewhere within the range of the two figures. In 1968, this would have amounted to Le1.4 million, on the basis of our own figure, assuming that 80% of the imports purchased by this low income group were F.O.B. value, the remainder being duty etc.

TABLE 11.2

IMPORT CONTENT OF MINERS' EXPENDITURES

(Leones per miner)

Expenditure category	Estimated amount	Estimated proportion imported (%)	Estimated value imported
Rent	48	50[2]	24
Feeding	84	20[3]	17
Transport	20	75[4]	15
Social life	30	10[5]	3
Clothes	50	80[6]	40
Remittances	35	20[7]	7
Total	267[1]	40[8]	106

Notes: 1. This figure corresponds to the total expenditures we estimate have to be met by a bachelor tributer: it exceeds the average total income derived in Chapter 8, but we assume he makes up the difference by diamond associated activity e.g. trading to his fellow miners.

2. All the rent is paid locally, but if we assume that it is expended on house construction by the recipient (say in building another house to rent), corrugated iron-sheeting would be likely to be imported, as well as cement to make the blocks. A crude assumption might be that around 50% of the construction costs of a typical cement block 'pan' roofed

TABLE 11.2 (Contd.)

house in one of the principal mining towns would be imported.

3. Most foodstuffs can be taken to be locally grown and the labour content is indigenous. Tomato puree and onions would however be imported and sometimes tinned fish, say about 20% of the total costs including salt.

4. Transport fares would contribute to the running costs and purchase price of the vehicle used. Petroleum and vehicles are both imported in Sierra Leone and therefore 75% import content is assumed.

5. It will be assumed that local beer, spirits and soft drinks will be consumed and a local dance band enjoyed. Only 10% import content is allowed to consider such items as the band's equipment.

6. Prestige clothes are usually imported by choice - certainly shoes, belt, dark glasses, and headgear, although the shirt and trousers might be made from imported material, although sewn locally. Only 20% is discounted for local tailoring expenditures.

7. Most remittances go to meet general living costs, or school fees perhaps. An estimated import component of 20% seems generous for expenditures in the rural areas.

8. Derived from the total import content and expenditure figures, and is only a very rough estimate as the nature of the assumptions made in reaching the several figures, which combine to make the total, shows.

However, in Figure 8.1, we showed that only 17% of the total expoet value of diamonds mined by them accrued to tributers, and before we can begin to approach the proportion of the total export value of diamonds won under the Scheme expended on imports, an attempt must be made to estimate the patterns of expenditure of many other groups. It could probably be said that those who take a relatively large share of the income from diamond sales such as gangmasters and licensees would tend to have more funds available for luxury consumption, which in Sierra Leone tends to be synonymous with a higher import content in their expenditure patterns, because of the limited range of local production. We estimated that a small number of dealers, some Lebanese, received around one-quarter of the export value of diamonds passing through their hands. This group have an undeniably ostentatious life style involving substantial expenditures on luxury consumer goods ranging from Mercedes-Benz to air-conditioners, from liqueur brandy to expensive cosmetics. In addition, export of capital in the case of foreigners to their homelands, or in the case of Sierra Leoneans to investment overseas, would affect the situation to an unknown degree. An accurate evaluation of all these and other factors influencing the situation would be a major task with probably questionable results, but it would be safe to say that

of the 25% of the total export value of diamonds won under the Scheme estimated to fall into the dealers' hands 60% or more would leave the country or be expended on imported goods. In 1968 this would amount to a figure of over Le4 million.

Expenditure on foreign exchange: I.D.M. In the case of I.D.M., expenditures of the miners themselves could be assumed to have much the same content as those of the A.D.M.S. tributers. But as they receive 25.5% of total export value, this would imply a total figure in 1968 of Le1.6 million (using middle-smuggling estimates and similar F.O.B. % value). However, the quarter and half of total export value received respectively by sponsors and dealers (Figure 8.1) would no doubt generate extensive imports at the same time as involving considerable repatriation of funds. If we continue our earlier assumption that illegally mined stones are then smuggled out of the country, and if we add the additional presumption that one reason for smuggling is to obtain foreign exchange, then we can presume that I.D.M. will involve a greater loss of potential exchange benefits. This is particularly so in view of the already noted concentration of profits in a limited number of hands. Even if we assume, as Killick and During do, that dealer's profits may be fairly small in the case of legal stones, there should still remain for them fair profit margins on illicit diamonds, despite the possibility that part of their 'killing' has to be passed on to oil the wheels of corruption. This latter effect would probably not greatly alter the import propensity of the expenditures, as the recipients of the fruits of corruption would be likely to follow the same pattern of ostentatious

living and capital export as the donors. While it may be generally true that the loss to the Sierra Leonean economy of smuggling is limited to the profits of the smugglers, as funds equal to the price at which they purchase the stone will have to be replenished in Sierra Leone to ensure the continuation of the business, it appears at least on the assumptions made earlier that these gross profits may amount to as much as 50% of the final export value, no doubt considerably discounted in fact by the costs of operating as an illegal dealer.

Killick and During (1967, 14) observe:

> "We are inclined to accept that the general public has an inflated idea of profit margins. Dealing is sometimes spoken of as if it was a nearly costless form of business, with net margins nearly as great as gross-margins. Quite apart from the probably substantial cost of 'dashes', there are appreciable working capital costs, for dealers commonly pre-finance diggers as a method of earning their own supplies..."

Nevertheless, the dashes may take the form of a new Mercedes-Benz or other imported luxury, and we are inclined to believe that at least 70% of the gross profits of dealers and organisers will be directly exported or expended on imported goods i.e. 70% of the 50% not re-cycled to buy more diamonds. In 1968, this would have amounted to Le5.5 millions, assuming a 50% average level of duty on these more luxury items and 50% repatriation against 50% local purchase of imported goods.

Overall foreign exchange balance. While we have been able to approximate specific losses of foreign exchange derived from diamonds, these have been little more than guesstimates. We can however, produce an impression of the overall effect by utilising Killick and During's much more detailed study to apply this to the 1968 situation, and as Killick and During merge smuggling into their A.D.M.S. figures, we shall do likewise in this calculation, shown in Table 11.3.

TABLE 11.3

	Export Value 1968 Le10^6	% Benefit[3]	Amount Le10^6
Company[2]	22	43	9.5
Alluvial & Smuggling[1]	45	33-50	15-22.5
TOTAL	67	38-48	24.5-32

Sources: Killick and During, 1967, Table 8: this thesis Table 4.1 and 4.4

Notes:
1. Using medium smuggling estimates, as shown in Table 4.4
2. As shown in Table 4.1
3. Based on Killick and During's percentages.

The benefit remains immense and the conclusion must be in agreement with Killick and During (1967, 21), who opined that:

> "The practical effect of the mining companies' contribution was to permit a substantially higher level of economic activity and importation in the rest of the economy than would otherwise have been possible."

The conclusion can however be extended to include the activities both under the A.D.M.S. and also of I.D.M.

The above calculations suggest that taken together A.D.M.S. and I.D.M. activities produce a greater net benefit in terms of foreign exchange than does the company, although in percentage terms Killick and During found their range of assumptions in the case of 'alluvial' miners to include the company benefit estimate. It is arguable, however, that as much of the loss of foreign exchange in the company's case accrues because of capital intensive methods of production and use of expatriate employees, the advantage in terms of foreign exchange weighs all the more heavily in favour of the 'alluvial' sector. For although the loss there too is considerable and of similar proportions, it generates along the way more satisfaction of wants for Sierra Leoneans, not only in the form of unnecessary and even luxury demands, but also in the form of essential foodstuffs and clothing. We are here making a value judgement on the usefulness of foreign exchange expenditures through the extent of their distribution, but at the observational level this is perhaps permissible.

Foreign exchange and development. In concluding this section it is appropriate to observe that there is ample evidence even in the abbreviated discussion above that foreign exchange surpluses earned by the diamond mining sector have been expended in many ways over a long period without adequate attention to their potential for the development of the nation's economy. At times an element of almost prodigal recklessness has apparently been present. Today ways have to be found to reduce the needs for foreign exchange as well as finding ways of expanding the earnings for other sectors. Sierra Leone's patterns of investment and consumption have been to a very major extent influenced over the past twenty years by the availability of diamond-generated foreign exchange. The pattern that has prevailed has not been conducive to rapid development, least of all in the agricultural sector. The export commodity extracted by migrant miners can thus be said to have influenced, in many ways undesirably, the path of development, Migration in other words has allowed development to follow paths that would otherwise not have been open to it..

The Revenue Effect

In the mid-seventies, it has been estimated that diamonds contributed around 17% of Sierra Leone Government's revenue (African Development, April 1975, SL.13), which would imply a figure of approximately Le10.1 million derived directly from the industry in taxation. While the detailed composition of the taxation is available in the annual reports of the Department of Mines, these

do not become available for several years. For this reason, and more importantly because if is useful to gain also some impression of indirect taxes arising from diamond earnings, it has proved necessary to endeavour to derive the revenue effects of the diamond industry using piecemeal data from a wide range of sources. The results will obviously be at best tentative, and are more to indicate the relative revenue-generating effect of each of the three components of the diamond industry, than to suggest any definite overall figure of revenue arising from the industry. The figures, for what they are worth, are displayed in Table 11.4, which must be considered only in conjunction with the explanatory notes that follow as they reveal the assumptions, often bold and without a reliable basis, that have had to be made to achieve even these crude estimates. In the case of revenue, we have considered the position in the seventies to take account of the re-organisation of S.L.S.T. into N.D.M.C. and the changes in tax structure that followed.

1. Seventy per cent duty on profits has been levied since 1971 and the formation of N.D.M.C., and is the maximum combined level of taxation (company income tax plus diamond industry profits tax) that is payable by the company. Company profits vary from year to year, but were Le3.5 million in 1970/71 and Le3.9 million in 1976/77 prior to taxation (African Development, April 1972, S.L.31 and April 1978, 81). Le3.7 million is therefore taken as the basis of calculation.

TABLE 11.4

APPROXIMATE LEVELS OF CENTRAL GOVERNMENT REVENUE
GENERATED BY THE DIAMOND INDUSTRY
IN THE SEVENTIES

A. N.D.M.C.	Source of revenue	Leones
Direct [6]	70% Diamond profits tax [1]	2,590,000
	7.5% export duty [2]	1,127,000
	51% government share after-tax profits [3]	566,000
	Total direct [4/5]	4,283,000
Indirect [6]	Income tax (employees) [7]	267,000
	Import duty (employees) [8]	245,000
	Import duty (company) [9]	2,000,000
	Total indirect	2,512,000
	Total N.D.M.C.	6,795,000
B. A.D.M.S		
Direct [6]	7.5% export duty [10]	1,545,000
	Mining licences [11]	30,000
	Dealer licences [12]	138,000
	Buyer/exporter fees [13]	500,000
	Total direct [14]	2,213,000
Indirect [6]	Import duty (dealers/large scale licensees)	956,000
	Import duty (A.D.M.S. tributers) [15]	525,000
	Total indirect	1,481,000
	Total A.D.M.S.	3,694,000
C. I.D.M.	Source of revenue	Leones
Direct [6]		
Indirect [6]	Import duty (I.D.B. and sponsors) [17]	2,574,000 [16]
	Import duty (I.D.M.) [18]	676,000
	Total I.D.M.	3,250,000
Total diamond industry - direct		6,496,000
- indirect		7,243,000
- total		13,739,000

Sources : As indicated in text

Notes : The numbers in the table indicate the relevant explanatory comment in the text.

2. Export duty was levied at 7.5% on all diamonds leaving the country legally (6.9% of actual export value which is gross of the duty)until 1978. N.D.M.C. sales of Le15.02 m. were recorded in 1976 (African Development, April 1977, 353), presumably valued prior to the levying of export duty.

3. Since 1971, the government is a majority shareholder in N.D.M.C., and therefore 51% of the after-tax profits also accrue to government.

4. It is believed by the present author that N.D.M.C. still pays Le20,000 per annum for mining rights, but it is uncertain whether this accrues to Central or District funds. It is therefore omitted from the calculation, to which it is in any case insignificant.

5. Similarly all permit fees for foreigners and non-foreigners to reside in the restricted areas are not taken into consideration, as they are not a major source of revenue generation, although foreigners do have to pay quite sizeable fees for their right of residence. The regulations have changed rather frequently, and in any case revenue collected would hardly cover the administrative and enforcement costs, especially in years when extensive anti-stranger drives are made. It is believed that N.D.M.C. employees are issued residence permits free of charge.

6. The terms 'direct' and 'indirect' as used here do not necessarily conform with normal taxation terminology, as they refer specifically to whether or not the tax is levied directly on the diamond industry.

7. N.D.M.C. is known to have some 300 A grade staff, (1972 = 289) who would form the main group subject to income tax; around 50% of these employees would possibly be expatriate. A mean salary level of Le6,000 per annum is somewhat modestly assumed for the group as a whole, on which it is suggested tax would be paid on Le4,000 at an average rate of approximately 33%. These surmises (and that is all they are) allow a crude figure of income tax derived from company employees to be determined, assuming that the general work force pays only nominal amounts, if any.

8. Because of the presence of expatriates who would not only eat mostly imported goods from the company store, but also remit their savings to their homeland, and because the company employees are on the whole better off than other miners and might expend more on imported household durables, the figure of 40% of expenditures on imported goods derived in Table 11,2 for other miners is regarded as too low for N,D.M,C, employees, An estimate of 55% is used to replace it, 'A' staff expenditures are assumed to be Le6,000 (income) - Le1,335 (tax) - Le500 (savings in Sierra Leone) = Le4,165, while other employees are assumed to expend all their income (Le473 on average - See chapter 8), An average import duty of 20% is assumed taking into consideration the everyday nature of many of the imported commodities, 15% is deducted from the gross expenditure to allow for local profit margins and transport costs, Excise duties and import content of locally produced goods are assumed to be included in these estimates,

9. The present author is not in a position to know recent investment policies by N.D.M.C., but with diminishing returns on their existing assets, it could be assumed that new investment would be limited. However running expenses include many imported items such as diesel and spares, while vehicle replacement would be necessary. A high average level of duty is assumed on such items - 50%, and no allowance is made for local profit margins, as many of the larger orders might be placed directly overseas. In the years 1963 - 65, it was found that all mining companies had total imputed imports of around Le10 million per annum at current prices (Killick and During, 1967, 7), and we could perhaps assume 40% of this would attributable to the then S.L.S.T. If we double this figure to allow for the inflationary decade from 1965 - 75, and then discount the result 25% to allow for a tailing off of N.D.M.C.'s investment in Sierra Leone, we just might be somewhere near the correct figure.

10. The A.D.M.S. sales of diamonds in 1976 were Le20,6 million (African Development, April 1977, 353), presumably valued prior to the levying of export duty.

11. Yearly mining licences cost Le50, half yearly Le30 and river mining licences Le60; surface rent is also paid, but benefits the individual land-owner and chiefdom, and hence is excluded from these calculations. Based on 1972 figures, it is assumed 1,000 half-yearly licences are issued (including a notional provision for yearly and river licences),

12. In 1972, there were 115 non-citizen dealers and 58 citizens (Van der Laan, 1975, 184). A non-citizen licence cost Le1,000 and a citizen one Le400 per annum. A few may be taken only on a half yearly basis. The number is assumed to have remained the same.

13. The author has no knowledge of what financial arrangements are made to levy fees from the half dozen or so licensed buyer/exporters other than DICORWAF, but the latter alone paid Le330,000 per annum, and on the basis of this figure an overall total for this head is obtained. DICORWAF still export around three-quarters of Sierra Leone diamonds.

14. In Figure 8.1, we indicated that dealers might enjoy around 25% of the export value of diamonds passing through their hands, and we can add to this around 10% for the share of licensees who are operating on a larger scale. This group could be described as the 'big spending' fraternity whose prestige and status as operators depends on their ability to spend ostentatiously (Van der Laan, 1975, 191 and 205). With 35% of the export value of A.D.M.S. diamonds at their disposal (on the assumptions earlier made), they would have available as much as Le7,7 million to save or expend annually. Much of this gross profit might well go on hand-outs to keep their customers happy and officials smiling (say 20%), but this too would be recycled on ostentatious living. If the diamond tycoons save 50% of their profit, expend 30% and disburse 20%, we would have a position where Le3.9 million was expended annually, much of it on luxury goods such as stereo-record players, luxury cars, imported clothes, and spirits. A high import content of say

70% could be assumed in the case of such an expenditure pattern, and average duty levels would be similar (e.g. large cars are dutied at 120%). Gross expenditure is discounted by 15% to cover local profit margins. We will assume that this group does not pay income tax.

15. While 30,000 is probably too large a figure for A.D.M.S. tributers today in the face of recent decline in the industry, we will retain it and assume it to include the managers, smaller licensees, pump hirers, and others fringe to the industry. In Table 11.2, we have determined that the average 'import content' per miner would be Le106 per annum. It only remains to assume a fairly low average duty level of 20%.

16. I.D.M. contribute nothing directly to Central Government revenue, aside from possible fines for illegal activities such as non-possession of residence permit, or possession of mining implements. These fines will in any case not cover the expenses of prison sentences, court procedures, and police drives against strangers. We retain our assumption from chapter 4 that I.D.M. production is all smuggled.

17. We assumed dealers and sponsors (in Figure 8.1) enjoyed as much as 75% of the final export price of smuggled diamonds, giving them an annual income of Le18.7 million, based on the 1974 medium smuggling estimate of Le24.9 million (in Table 4.4). Handouts, savings, and expenditures, often ostentatious, can be assumed as in point 14 above. Thus Le12.5 million would be expended annually. However, we

will half this figure on the asumption that much of the money is either expended overseas or on return smuggling of consumer goods.

18. Numbers involved in I.D.M. are assumed to be 26,000 with earnings similar to A.D.M.S. tributers, although perhaps with a slightly higher import content because of the modest ostentation of this 'cow-boy' group - say Le130 per annum import content. Because of the nature of their purchases, a slightly higher average duty level of 25% will be assumed.

By attempting to study the revenue effect in the seventies, rather than in 1968 for which we have more reliable data, we have brought to Table 11.4 an element of estimate. Neverthess, treating this figures with due caution, we find a total direct revenue of Le6.5 million in the later seventies, probably a fair reflection of the sharp decline in the caratage mined by N.D.M.C. after 1975 (481,000 in 1976 against 998,239 in 1972). For the company contributes the major portion of direct revenue - 59% in our estimates, the remainder coming from the licensed mining sector, as I.D.M. by their nature contribute nothing to direct government revenue. When company sales were higher, this proportion must have been similarly higher,

The proportion of government revenue received directly from the diamond industry thus appears to be falling, although still a substantial sum in absolute terms.

Indirect taxation (arising mostly from import duties) is considerable from all sectors of the diamond industry, our figures suggesting a total of around Le7.2 million, of which 45% (Le3.3 million) derived from the ostentatious spending associated with I.D.M. N.D.M.C. contributed around Le2.5 million and the A.D.M.S. some Le1.5 million. All these figures are, however, little more than intelligent conjecture, and the fading fortunes in the industry in recent years could mean a sharp decline in luxury spending (bringing incidentally a welcome relief to foreign exchange problems), or on the other hand may mean a greater expatriation of funds while the going is good. Either of these trends would markedly reduce the level of indirect revenue derived by government.

On the basis of the figures in Table 11.4, government would derive annually, including both direct and indirect revenues, some Le 13.7 million, 50% through N.D.M.C., 27% through the A.D.M.S., and 23% from I.D.M. Clearly, whether thinking of either direct revenue alone or of revenue overall, the company sector of the industry has made the greatest contribution, as expected, to government revenue. Historically this means that revenue earning opportunities have been lost - if the Le350,000,000 worth of stones suggested as having been smuggled in chapter 4, had been mined and exported by the company, possibly Sierra Leone's coffers would have received an additional revenue of around Le113 million, although historically tax rates were lower. But we have suggested elsewhere that the revenues that have been received may well have led to unfortunate patterns of development, and therefore it is perhaps more appropriate that a greater proportion of the diamond earnings were distributed amongst Sierra Leoneans to expend them

as they pleased, although the contrast of individual private affluence amidst public poverty is sometimes most incongruous. For the future, the declining Company output means that the government is experiencing erosion of one of the mainstays of its revenue, and alternative sources will have to be sought. The failure to generate such 'golden geese' has been one of the main weaknesses of the post-independence economic policies.

Summary

We have endeavoured to measure, however approximately in many cases, some of the total effects of the diamond industry on the economy of Sierra Leone. It appears that since the 1950s, the industry has attracted, either to itself or to associated service opportunities, at different times around 21% of the potential agricultural labour force, while itself generating over 35% of all non-farm employment in the country. By so doing it has allowed development policy to proceed without due consideration to employment creation. It has also perhaps drained initiative away from agriculture, resulting in a situation of stagnating rural incomes, as well as declining output, or at least diminishing marketable surplus, of staple foodstuffs such as rice and palm oil. Foodstuffs have therefore been a substantial item on the import bill in recent years. Indubitably however, pricing policy has also played a major role in depressing the agricultural sector. The foreign exchange earnings of the diamond industry have long covered massive deficits arising from the other sectors despite the fact that ostentatious living amongst the diamond-rich has created strong demand for imported luxury goods. Today, with the diamond industry in decline, the decades of lost opportunities to set the economy on a path towards substantial non-mineral productive capacity seem sad,

and almost blind. The substantial revenues earned have been expended sometimes on useful infrastructure, sometimes on worse, but rarely on enhancing productive capacity, and hardly ever on agricultural development. Chapter 14 will turn attention to what has been, is being, and can be done in that long-neglected sector.

CHAPTER 12

COMMUNICATIONS AND MIGRATION

Introduction

It would be easy to gain the impression from reading much of this thesis that diamond mining has been the main 'engine of growth'in so far as internal migration in Sierra Leone is concerned, and it is the purpose of this and the next chapter to rectify this impression. While it is undoubtedly true that the diamond mines have been a major (and at times the major) destination of rural-urban migrants, the forces at work prising young men (and women) away from their home villages are many and diverse. In this chapter, we focus attention on the inter-relationships between the growth of communications and of migration.

Manifestly lines of communication become the channels of migration. Similarly improved transport networks or lower costs of transport mean a reduction in the costs of migration. This brings about a reduction in the importance of the restraining influence of 'between factors' or obstacles to migration: i.e. the T in the equation $V_1 - V_2 - T = 0$ (Chapter 2).

We begin by following the historical development of communications in Sierra Leone, and by interpreting their importance to the spread of modernising influences. We then turn our attention to a particular highway developed in the late sixties, while we were studying migrant miners, but not then open. This road, the Kono-Tonkolili highway, was the object of intensive study by the present author and his colleagues from Fourah Bay College (see the Kono Road Project section of the methodological appendix). As a result details of its impact on the region through which it passes are available.

Finally an attempt is made to assess the impact of such highway development on migration and on economic development in general.

The Development of Communications

Colonial period. To enhance the flow of produce from the hinterland, the colonial government set about the building of a railway to run east-west across the country. While this act may have had some strategic overtones in relation to French colonial expansion from Guinea, its principle objective, as is evidenced by the route of the railway through the main produce growing areas of the Southern Province (Figure 12.1), was commercial (Williams and Hayward, 1973, 109 - 73). In this aim, it was successful and today the decaying buildings of once flourishing commercial houses in a score or more of communities along the railway bear witness to this former success. Mano in Moyamba District, Hangha in Kenema District, and Pendembu in Kailahun District are three examples of towns that rose to prosperity with the railway, but are today visibly in decline.

From the 1920s on, a steadily growing network of feeder roads spread out from the railway to drain a wider area of the country of its surplus produce, and indeed in the process re-orienting the communication network of the country from the riverine traffic of the 19th century to the route of the railway (Riddell, 1970, 22ff: Sesay, 1967). As a result formerly prosperous ports such as Sulima and Bonthe in the south-west became gradually "moribund" (Harvey, 1966A). Despite the rash of feeder roads in the inter-war years, it was not until the exigencies of the Second World War that Freetown was linked by road to the rest of the country in 1940. Prior to that date, the railway was the only link, and a limited one at that, as the Sierra Leone Railway was of 2'6" gauge single track construction. Maximum speed for much of the winding and circuitous route was 20 m.p.h.. That this rather inadequate link sufficed is ample testimony of the slow pace of development in the colonial era in Sierra Leone.

Post-independence highway development. Road construction has been a theme common to all governments of independent Sierra Leone. A sizeable proportion of successive development budgets has been allocated to this costly task: for example, in 1972/73, 54% of the development budget of Le15.3 million was allocated to roads and bridges (Government of Sierra Leone, 1973C, D2). The urge to provide a modern communications network is a natural one for a government of a nation whose earlier progress had been characterised by the slowness of development projects in reaching their conclusion. Roads would allow many other developments to be initiated, although of course they could be more permissive than active in this role. At any rate the government proceeded to provide the network of modern highways shown in Figure 12.2, mostly to very high standards in anticipation of future demands. The improvement in road transportation has been so great that it was finally decided to phase out the railway by 1972. By 1973, there were 472 miles of paved highway in the Provinces (U.N.D.P., 1973, Table 3.1), mostly constructed since independence.

In terms of migration, it is hypothesised quite simply that the rapidly expanding network of modern highways with their attendant tributaries in the form of feeder roads must through the removal of barriers to migration encourage greater mobility in Sierra Leone. In this light, improved communications are seen as reducing the friction of movement, and so reducing the effect of 'between factors'. A double edged impact was made in the mid-sixties by the rapid development of the road network at the very time when Japanese-made vans were widely adopted in Sierra Leone for use as passenger transport in the form of 'poda-podas'. This not only meant a speedier and more comfortable journey, but also markedly cheaper fares than had earlier existed. To some extent the lower running costs of vehicles used on paved highways were passed on to the consumer, and light vehicles of the type newly imported were cheaper to buy and more economical to run than the 'mammy waggons' (lorries) which were earlier responsible for passenger as well as goods movement. More intense competition

too no doubt had its effect on the price level. The actual miles to be travelled were in some cases drastically reduced also, and most of the Northern Province came into much closer contact with the diamond areas by the opening of the direct Tonkolili-Kono road via Masingbe, used increasingly from 1968, and reducing the road distance between Makeni or Kabala and Koidu by 140 miles in each direction, with a saving of 5 - 6 hours travelling time.

Tonkolili-Kono Highway

Construction and costs. One of the highway priorities in the early years of independence was the provision of a direct east-west link between the diamond areas and the capital. It can be hypothesised that the priority given this road was politically inspired. The S.L.P.P. government of the day was most anxious to obtain the support of the four Kono members of Parliament who were members of the Sierra Leone Progressive Independence Movement (S.L.P.I.M.) in the early sixties. When three of the S.L.P.I.M. politicians joined the S.L.P.P. in 1963, they did not have to wait long for the commencement of construction of the road (Cartwright, 1970, 171-3: Blair, 1973, 141). For in 1964 construction began on the development of this highway, and by 1973 approximately 150 miles of first class tarred road linked up with theearlier completed sections from Lunsar to Masiaka (formerly Mile 47) and from there to Freetown.

Class I standard implies, in addition to the 26-foot paved carriageway, appropriate gradients and curvatures to allow maintenance of high speeds without interruption (at least 50 m.p.h.) (Illustration 27). This highway was constructed with extensive foreign assistance in the form of loans from the Government of the Federal Republic of Germany and the work was undertaken entirely by German construction consortia, although the Federal German Government did not make this a condition of the loans. Details of the financing of the road are laid out in

Table 12.1,

TABLE 12.1

FINANCING OF TONKOLILI-KONO HIGHWAY

Item	Details
Total costs of construction	Le23,189,186 (last two phases estimated)
Total loans from Germany	DM 55,737,230
Interest on loans	3% (2% on later phases of loan) per annum
Grace Periods	2-10 years for various phases
Total Leones received from loans	Le11,914,720
Final repayment	2002
Percentage of costs met by loans	51.4%

Source: Auditor-General of Sierra Leone.

although the very considerable interest costs are not discussed.

Employment was generated along the line of the road during construction, despite the capital intensive techniques used, but was by its nature limited in duration. The foreign exchange component of this development was large, approximately 70% of the total costs of Le23.1 million, comprising plant and equipment, expatriate salaries and contractor's profit.

Construction costs per mile were extremely high, especially during the last section, where they averaged Le206,000 (£103,000) per mile, and in certain phases of construction were far above the estimate (by 80% in Phase II). For its western half, the new highway merely replaced a former laterite road, but in the east it completed a previously un-motorable section, providing a bridge crossing of the River Sewa in western Kono District. It is therefore in its eastern portion that the highway might be expected to yield the greater return, as this new route reduced the Freetown - Kono journey by something over 100 miles each way. A calculation by the present author of the actual saving in user cost made by petrol companies produced a figure of Le40.00 saving per 1,500 gallon tanker round trip, Freetown-Kono. This implied a total saving of Le144,000 per annum amongst the five petrol companies, but the extent to which this saving was passed on to transport contractors, sales outlets, and the final consumer varied from company to company. These figures were based on the ton/mile rates paid by the oil companies to transport contractors and so represent actual savings to them through the shortened journey. These figures seem consistent with others available: using figures of costs per mile for trucks calculated in 1973 for Sierra Leonean conditions (U.N.D.P., 1973, 17), the saving per truck on a round trip Freetown-Kono would be Le40.90 (at 20.45 cents/mile), assuming the distance saved as 'fair laterite', which approximately that length of the longer southern route still is. Benefits could therefore be expected from the new highway in terms of savings of user cost.

Usage. However, the figures displayed in Table 12.2 indicate extremely light usage by through traffic, surveyed at Makali on the new road at a point where few feeder roads affect the count. The series of surveys from 1972-76, undertaken at the instigation of the present author, on the road linking the two largest towns in Sierra Leone, show not only an extremely light flow of traffic in total (338 vehicles per day or 14.1 per hour on average both ways in 1972), but also a tendency in recent years for this two-way flow to decline

TABLE 12.2

DAILY TWO-WAY TRAFFIC FLOW ON THE TONKOLILI-KONO HIGHWAY, 1972-76

Vehicle category \ Vehicle count[1]	1972		1973		1974		1975		1976	
	Nos.	% of Total	Nos.	% of Total	Nos.	% of Total	Nos.	% of Total	Nos.	% of Total
Cars	73	21.6	75	16.3	118	29.2	76	20.5	56	21.8
Taxis	58	17.2	69	15.0	65	16.1	94	25.4	61	23.8
Poda-Podas[2]	113	33.4	162	35.3	122	30.2	88	23.8	66	25.8
Buses	11	3.2	9	1.9	15	3.7	11	3.0	4	1.6
Light goods vehicles	15	4.4	8	1.7	10	2.5	20	5.4	22	8.6
Lorries	58	17.2	132	28.7	72	17.8	73	19.7	40	15.6
Other	10	2.9	4	0.9	2	0.5	8	2.2	7	2.7
Total	338	100.0	459	100.0	404	100.0	370	100.0	256	100.0
% change on previous year	-		+35.8		-12.0		-8.4		-30.9[3]	

Source: Surveys undertaken at Makali by research assistants under the supervision of the present author.

Notes:
1. Figures are for two-way flow for 24 hours.
2. 'Poda-podas' are mini-buses or vans carrying passengers.
3. All the surveys took place during the rains in July, except 1976, which was undertaken in October. This may partially account for the extreme variation.

rather than increase (from 459 vehicles per day in 1973 to 256 in 1976) possibly in response to higher fuel prices combined with declining activity in the diamond areas at the eastern end of the road.

Further reference to the same table, reveals that of the traffic using the new direct access route to Kono in 1974, passenger carrying vehicles (namely cars, taxis, *poda-podas*, and buses) constituted 79% of all through movement measured at Makali, where a relative absence of feeder roads prevents confusion with local traffic. This figure emphasises suitably the utilisation of the highway principally for the passage of people.

Table 12.3 adds additional detail concerning vehicles actually entering Kono District at the Mambodu police barrier, which limits access to the main diamondiferous areas. Two assistants of the Kono Road Project conducted this survey under the supervision of the present author for one month at the Mambodu Police Barrier from mid-June to mid-July 1972, interviewing the driver of every fifth vehicle passing in each direction between the hours of 9.00 a.m. and 6.00 p.m. daily (see methodological appendix). Questioning of drivers of vehicles passing the barrier in 1972, confirmed that 66% of vehicles were employed in transporting paying passengers, and 13% were being used for personal travel. 79% in all were thus associated with the movement of people rather than goods. The 1972 survey of vehicles entering Kono was also conducted at Woama on the old road to Kono via Kenema and Bunumbu Junction. The origin of journeys of vehicles travelling to Kono by both routes is displayed in Figure 12.3, and reveals that a substantial proportion of the journeys are local (60%), often generated within Kono itself in communities beyond the bounds of the diamond protection area (50%),or at places further along the new road in Tonkolili District (10%). (Table 12.3.) This would imply extensive movement to and from the urban mining centres of central Kono and the rural communities of a wider hinterland. Only a very minor part of the movement is trunk, in the sense of being nation-wide: rather the roads are mainly of local relevance in the passage of people.

TABLE 12.3

PURPOSE AND ORIGIN OF JOURNEYS ON MAIN ROUTES TO KONO DISTRICT, 1972

Mambodu (new road)	
A. Purpose of journey (both ways)	
Purpose	Percentage of vehicles
Carrying paying passengers	66.2
Personal travel	12.9
Transporting goods	12.6
Transporting petroleum products	6.1
Transporting wood	2.2
Total	100.0

B. Origin of journey to Kono		
Origin	Percentage of Vehicles	Cumulative Percentage
Jaiami Sewafe	46.6	
Other Kono	3.1	
Total Kono		49.7
Masingbe	9.4	
Makali	0.8	
Total on new road		59.9
Mogburaka	5.4	
Makeni	6.6	
Total within 100 miles		7.19
Kabala	1.6	
Bo	2.2	
Other Southern Province	1.6	
Other Northern Province	3.9	
Freetown	18.6	
Total		100.0

(cont.)

TABLE 12.3 (cont.)

Woama (Old road)	
A. Purpose of journey (both ways)	
Purpose	Percentage of vehicles
Carrying paying passengers	72.2
Personal travel	15.3
Transporting goods	11.4
Transporting petroleum products	0.6
Transporting wood	0.6
Total	100.0

B. Origin of journey to Kono

Origin	Percentage of Vehicles	Cumulative Percentage
Gandorbum	26.3	
Other Kono	17.6	
Total Kono		41.9
Pendembu	2.9	
Kailahun	12.8	
Segburema	14.0	
Koinder	5.1	
Total Kailakum/Kono		76.7
Kenema	17.4	
Tengo Field	5.1	
Total Eastern Province		99.2
Freetown	0.7	
Total		100.0

Source: Survey undertaken by assistants of the Kono Road Project under the supervision of the present author in June/July 1972.

Table 12.4 allows an assessment to be made of the extent to which traffic flows to and from Kono have increased in seven years from the mid-sixties, a period during which the new highway came into operation. The notes to the table indicate the adjustments that have had to be made to make the figures comparable, and overall the results must be treated with caution. However, the change in traffic levels, even after adjustment, between 1965 and 1972 is great: a cumulative increase for the seven year period of 21% per annum. Taken in conjunction with the earlier evidence that most vehicle are passenger carrying, this figure indicates a pattern of rapid increase in the number of people moving about the country. Average vehicle occupancy at Mambodu was 5.1 persons (other than the driver) including all vehicle categories travelling to Kono. The similar figure for Woama was 6.3 persons. The daily inflow of people at the three check posts (including the small number at Jaiama) must therefore have been approaching 3,000 in 1972. Scrutiny of traffic flows provides evidence in various ways of extensive mobility: the purpose, duration, and distribution of these moves cannot however be discerned.

Roadward attraction. In chapter 7, we discussed the growth of two chiefdom towns on the line of the Tonkolili-Kono highway, and found that both had shared very rapid growth of total population: Matotoka had grown between 1963 and 1972 at a cumulative rate of over nine per cent per annum, possibly because of its position at the junction of the Freetown-Kono and Makeni-Bo roads. Makali by comparison grew at the more modest rate of three per cent per annum. In that chapter, too, we indicated the limited absorptive capacity of such local centres, given existing employment opportunities, and the tendency for many migrants to move on, naturally along the line of the road. We also supported Banton's (1957, 53) contention that the coming of a road presents constant temptation to the more youthful residents to follow their companions.

TABLE 12.4

VEHICLE FLOWS TO AND FROM KONO DISTRICT, 1965 and 1972

Route	To Kono		From Kono		Total two-way flow daily		Discounted	Cumulative % increase p.a.
	1965[1]	1972[2]	1965[1]	1972[2]	1965[1]	1972[2]		
Nimi Hills via Panguma[3]	-	30	-	22	-	52	(-)	
Old Road via Bunumbu Junction[4]	119	176	113	165	232	205[6]	(-40%)	
New Road via Masingbe[5]	-	317	-	355	-	605[6]	(-10%)	
Total	119	523	113	542	232	862		20.6%

Sources: 1965, Ministry of Works, Road Traffic Census, Point B1 Kenema Division: figures obtained from files in the Ministry.
1972, Surveys by Kono Road Project (K.R.P.) assistants under the supervision of the present author.

Notes:
1. For the 1965 figures, the mean of the average daily flow over a week in January and over a week in July is taken.
2. The K.R.P. surveys cover only 24 hours in April 1972.
3. The Jaiama route via Panguma was not well maintained for most of the sixties, and in fact was only opened because of lumbering operations linking the Kono and Kenema District networks. Very little traffic utilised it at that time - The Ministry of Works did not set up a survey point on it. The K.R.P. survey point was just south of Jaiama Nimikoro at the police barrier.
4. The K.R.P. survey point was at the Woama police barrier, while the M.O.W. survey was at Bunumbu Junction. This was the only road to Kono in 1965.
5. This road was first passable in the dry season 1967/68, but was not much used until a year or two later. The K.R.P. survey that seemed most appropriate was undertaken near the Sewa Bridge and thus excludes most Kono local traffic.
6. These figures are not actual two-way flows, as the Woama K.R.P.figures have been discounted by some 40% for Kono local traffic (see Table 12.3) and the Mambodu route K.R.P. figure by an estimated 10% to account for local traffic between Masingbe and Jaiama Sewafe. The figures displayed are after discounts have been allowed.

> "According to the chief, very many young men go off to Freetown on the lorries, returning home after a while to boast about life in Freetown; then they disappear again drawing many of their age mates with them".

Without repeating the details earlier presented, it is adequate to accept this summation of Mills (1973, 20) concerning his study of Matotoka:

> "That migration increases with increased technology was dramatically seen when considering the coming of the new road. Immigration appears to have rapidly increased in volume within months of the road reaching the town and as a factor in bringing people to the town and leading them to economically more important centres the road is probably the most important single reason for the increased immigration of recent years."

It is pertinent to note too that even smaller communities along the new highway mostly show considerable population increase after its construction. Thus Masekoray, on the new highway on a previously completed roadless stretch between Masingbe and the River Sewa, grew from a 1963 population of 73, to 178 in 1972, overall a more than 10% cumulative increase per annum. It seems therefore that lines of communication attract a steady flow of migrants to communities on their line, but the degree to which they retain them is a reflection of their ability to generate opportunities for the newcomers to be absorbed. Clearly such a redistribution of rural population is a concomitant of development: for the economic and social amenities that can help to hold people in the countryside can only be distributed to local centres and not widespread throughout a region.

However, the rate at which this redistribution occurs must be kept in line with the expansion of local opportunities in these centres, and with the rate of change of agricultural technology if over-concentration of farming activity is not to produce soil deterioration and increasing hunger.

Communications and migration from rural villages. How widespread is the impact of a new line of communication on village communities? Clearly, if the centres along the new highway are attracting migrants from other local communities, a decline can be expected elsewhere, but how far into the hinterland are the villages affected? Table 12.5 presents evidence on this point, using data for 30 villages in Tonkolili District between 1½ and 11½ miles from the nearest motorable road. These 30 communities were those that remained of the 77 surveyed in 1972 after the exclusion of those in Kono District where diamond mining activity confused the pattern, those in close proximity to the modern highway (on it or within 1½ miles of it), those which could not be identified in the 1963 census, and Makong, which was a focus of the reactivation of gold-mining. In other words, the 30 communities considered represented the relatively isolated agricultural communities in the possible sphere of the new highway's influence, and without other major influences at the time.

The communities are ranked by their foot distance from the nearest motorable road-head, and by their percentage change in total population from 1963, the year of the Census, to 1972 when they were re-surveyed. Most showed a marked decline, although a few increased in population in the period. Using Spearman's rank correlation, a coefficient of -0.234 was calculated. This bears the negative sign that would be expected i.e. inverse relationship between distance and

population change (especially decline). However, this did not prove significant even at the 0.1 level as, using Student's t test, $t < t_{0.90}$ with 28 degrees of freedom.

Female out-migration has been shown to be more locally oriented and more related to marriage, which would possibly mean that change (a net figure) would not reveal all movement as in and out movements would to some extent cancel each other. Communications being more likely to have an effect on the longer distance migration, which was predominantly male, percentage change in adult males 1963-72 was considered (Table 12.6). In this case, with but few exceptions, change meant decline, and the appropriate calculations revealed a correlation coefficient of -0.406, according to Spearman rank techniques. This proved significant at the 0.05 level, after the application of Student's t test. Therefore, at least in the circumstances investigated in a predominantly agricultural area, the link between improved communications and accelerated out-migration seems firmly established.

In this context, it is interesting to note that feeder road development extends the area of impact of a new line of communications to many more communities. A survey was undertaken by the present author proceeding in a landrover to the motorable head of every egress from the relevant stretch of the main Tonkolili-Kono highway, and enquiring pertinent details in the communities reached. Along 70 miles of new highway, feeder roads totalling 142 miles were found to radiate in 1974 to 88 communities with a total 1963 population of approximately 17,000. The ratio of feeder road mileage to main highway mileage developed was in this case 2:1, underlining a probable tendency to wide distribution of such roads because of their low capital requirement, and popularity with village populations who are willing to contribute labour to a communal effort. What effect feeder roads will have on migratory trends remains to be examined, but it can be supposed that it may be a similar if weaker impact to that evidenced above of a major highway. At any rate, the role of a modern communications network in stimulating rural exodus has been fairly extensively evidenced.

TABLE 12.5

COMMUNICATIONS AND OUT-MIGRATION IN TONKOLILI DISTRICT, 1963-72

Community[1]	Distance from motorable road[2] (in miles)	Total population 1963	Total population 1972	Total change 1963-72	% total change	Rank % change population	Rank distance[3]	d_i	d_i^2
Matambu	1.6	83	81	-2	-2.4	25	30	5	25
Lot	2.7	64	34	-30	-46.9	6	29	23	529
Makema	2.8	294	264	-30	-10.2	22	28	6	36
Makera	2.8	121	33	-88	-72.7	1	27	26	676
Kenewa	2.9	97	115	+18	+18.6	28	26	-2	4
Ropolon	3.2	70	66	-4	-5.7	23	25	2	4
Kumrabai-Masira	3.2	351	210	-141	-40.2	9	24	15	225
Malemo	3.6	92	77	-15	-16.3	18	23	5	25
Duore	4.3	31	13	-18	-58.1	2	22	20	400
Mankibana	4.7	184	85	-99	-53.8	4	21	17	289
Petifu-Bana	5.0	502	447	-55	-11.1	20	20	0	0
Nerekoro	5.5	658	433	-225	-34.2	12	19	7	49
Maseku	5.8	140	84	-56	-40.0	10	18	8	64
Gbombana	6.1	76	40	-36	-47.4	5	17	12	144
Mabra	6.3	128	144	+16	+12.5	27	16	-11	121
Maranda	6.8	410	179	-231	-56.3	3	15	12	144
Masimo-Kani	7.1	117	77	-40	-34.2	13	14	1	1
Magbanabum	7.2	392	317	-75	-19.1	16	13	-3	9
Farawe	7.3	128	75	-53	-41.4	8	12	4	16

(cont.)

TABLE 12.5 (cont.)

Community[1]	Distance from motorable road[2] (in miles)	Total population 1963	Total population 1972	Total change 1963-72	% total change	Rank % change population	Rank distance[3]	d_i	d_i^2
Mawkruku	7.5	92	76	-16	-17.4	17	11	-6	36
Kondembaia	8.0	233	183	-50	-21.5	15	10	-5	25
Nonkosokoia	8.3	171	92	-79	-46.2	7	9	2	4
Magbantobana	8.8	273	190	-83	-30.4	14	8	-6	36
Dandaya	9.0	224	312	+88	+39.3	30	7	-23	529
Royema	9.1	139	166	+27	+19.4	29	6	-23	529
Kombolkaya	9.5	74	70	-4	-5.4	24	5	-19	361
Masagbe	9.5	328	211	-117	-35.7	11	4	-7	49
Basaya-Banakora	10.0	55	61	+6	+10.9	26	3	-23	529
Dafariya	10.7	52	45	-7	-13.5	19	2	-17	289
Kongorobaia	11.5	341	304	-37	-10.9	21	1	-20	400
Total (30 Communities = N)		5,920	4,484	-1,436					5,548

$$r_s = 1 - \frac{6\sum_i^N d_i^2}{N^3 - N} = -0.234 \qquad t = r_s\sqrt{\frac{N-2}{1-r_s^2}} = 1.27 < t\ 0.90$$

(cont.)

TABLE 12.5 (cont.)

Source: Survey of 77 villages, 1972 - see methodological appendix. 1963 Census of Sierra Leone: Community populations listing, supplied by C.S.O.

Notes:

1. Of the 77 villages surveyed, those in Kono were omitted as an extensive previous road network existed and diamond mining activity was widespread. In Tonkolili District all communities along the new highway or within 1½ miles of it were omitted as representing the area of in-migration described. Several further communities had to be omitted because their 1963 population could not be established from the Census, as they were unidentifiable in it. One further community was omitted - Makong - for the reason that it too was affected by a mining 'boom' during the period - the re-establishment of gold mining activity.

2. The foot distance was measured by the shortest locally recognised pedestrian route to the nearest boarding point on a vehicle road, provided only that the road was of a standard sufficient to remain open in normal conditions for the whole year: these figures refer to the situation in 1972.

3. Equal rankings were distinguished where possible by more detailed information than appears in the table.

TABLE 12.6

COMMUNICATIONS AND ADULT MALE OUT-MIGRATION IN TONKOLILI DISTRICT 1963-72

Community	Distance from motorable road (in miles)	Adult males 1963	Adult males 1972	Adult male change 1963-72	% adult male change	Rank % change	Rank distance	di	d_i^2
Matambu	1.6	19	16	-3	-15.7	25	30	-5	25
Lot	2.7	22	9	-13	-59.1	3	29	-26	676
Makema	2.8	102	71	-31	-29.4	18	28	-10	100
Makera	2.8	34	10	-24	-70.6	1	27	-26	676
Kenewa	2.9	37	26	-11	-29.7	17	26	-9	81
Ropolon	3.2	26	17	-9	-34.6	13	25	-12	144
Kumrabai-Masira	3.2	151	54	-97	-64.2	2	24	-22	484
Malemo	3.6	29	21	-8	-27.6	19	23	-4	16
Duore	4.3	10	5	-5	-50.0	6	22	-16	256
Mankibana	4.7	61	31	-30	-49.2	7	21	-14	196
Petifu-Bana	5.0	153	113	-40	-26.1	20	20	0	0
Nerekoro	5.5	176	112	-64	-36.4	11	19	-8	64
Maseku	5.8	42	24	-18	-42.9	9	18	-9	81
Gbombana	6.1	26	12	-14	-53.8	4	17	-13	169
Mabra	6.3	44	46	+2	+4.5	28	16	12	144
Maranda	6.8	130	38	-92	-22.4	23	15	8	64
Masimo-Kani	7.1	33	16	-17	-51.5	5	14	-9	81
Magbanabum	7.2	123	91	-32	-26.0	21	13	8	64

(cont.)

TABLE 12.6 (cont.)

Community	Distance from motorable road (in miles)	Adult males 1963	Adult males 1972	Adult male change 1963-72	% adult male change	Rank % change	Rank distance	di	d_i^2
Farawe	7.3	31	21	-10	-32.3	15	12	3	9
Mawkruku	7.5	26	17	-9	-34.6	13	11	2	4
Kondembaia	8.0	66	50	-16	-24.0	22	10	12	144
Nonkosokoia	8.3	48	31	-17	-35.4	12	9	3	9
Magbantobana	8.8	88	51	-37	-42.0	10	8	2	4
Daudaya	9.0	51	64	+13	+25.5	30	7	23	529
Royema	9.1	43	47	+4	+9.3	29	6	23	529
Kombolkaya	9.5	26	21	-5	-6.8	27	5	22	484
Masagbe	9.5	92	48	-44	-47.8	8	4	4	16
Basaya-Banakoro	10.0	20	14	-6	-30.0	16	3	13	169
Dafariya	10.7	13	12	-1	- 7.7	26	2	24	576
Kongorobaia	11.5	100	80	-20	-20.0	24	1	23	529
Total (30 Communities = N)		1,822	1,168	-654					6,323

$$r_s = 1 - \frac{6\sum_i^N di^2}{N^3 - N} = -0.406 \quad t = r_s\sqrt{\frac{N-2}{1-r_s^2}} = 2.35 > t\ 0.95$$

Sources: Survey of 77 villages - see methodological appendix. 1963 Census of Sierra Leone: Community populations listing, supplied by C.S.O.

Notes: See table 12.5

Fig. 12.1 COMMUNICATION NETWORK BEFORE 1930

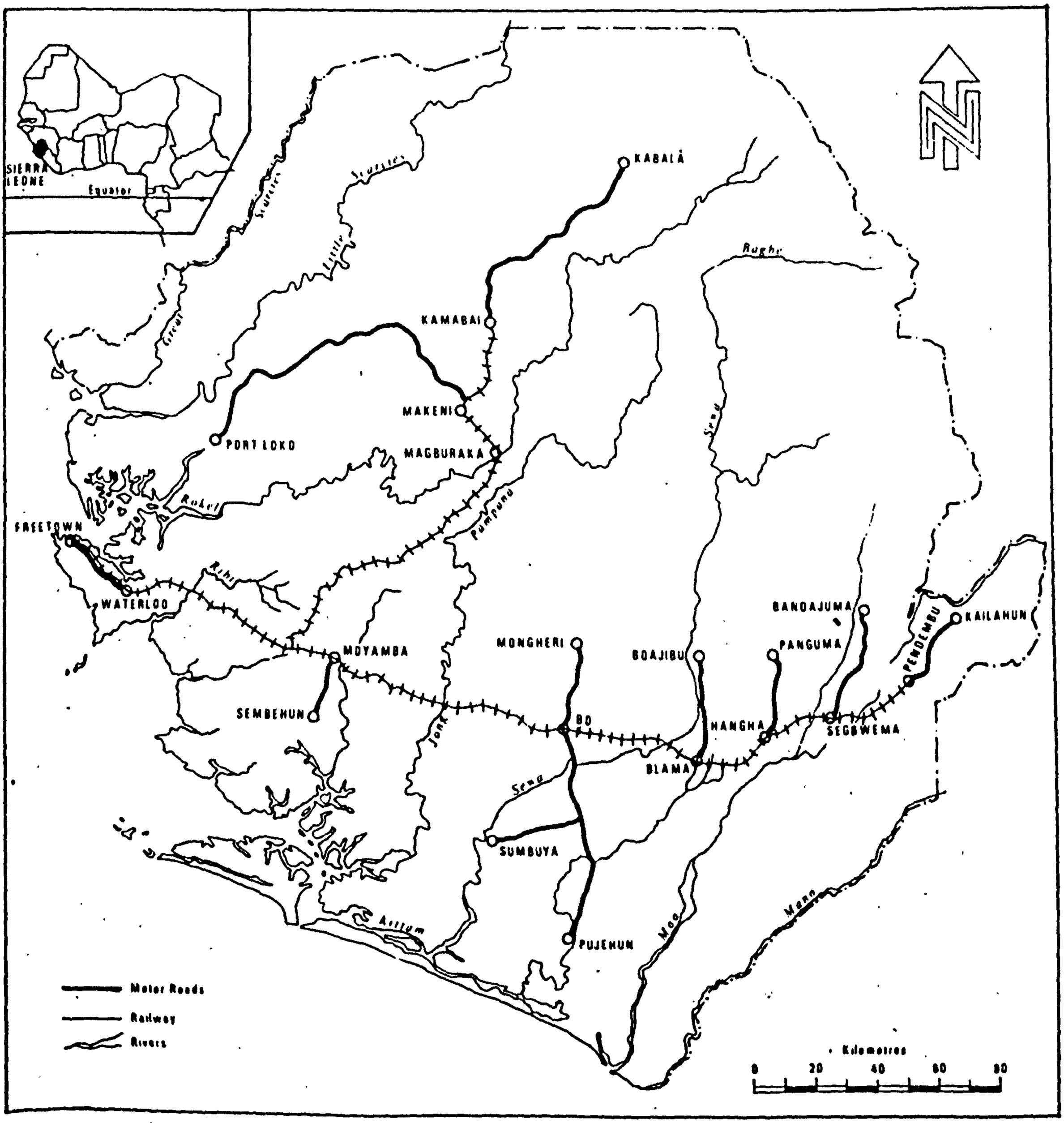


Fig. 12.2 MAJOR ROAD NETWORK 1976

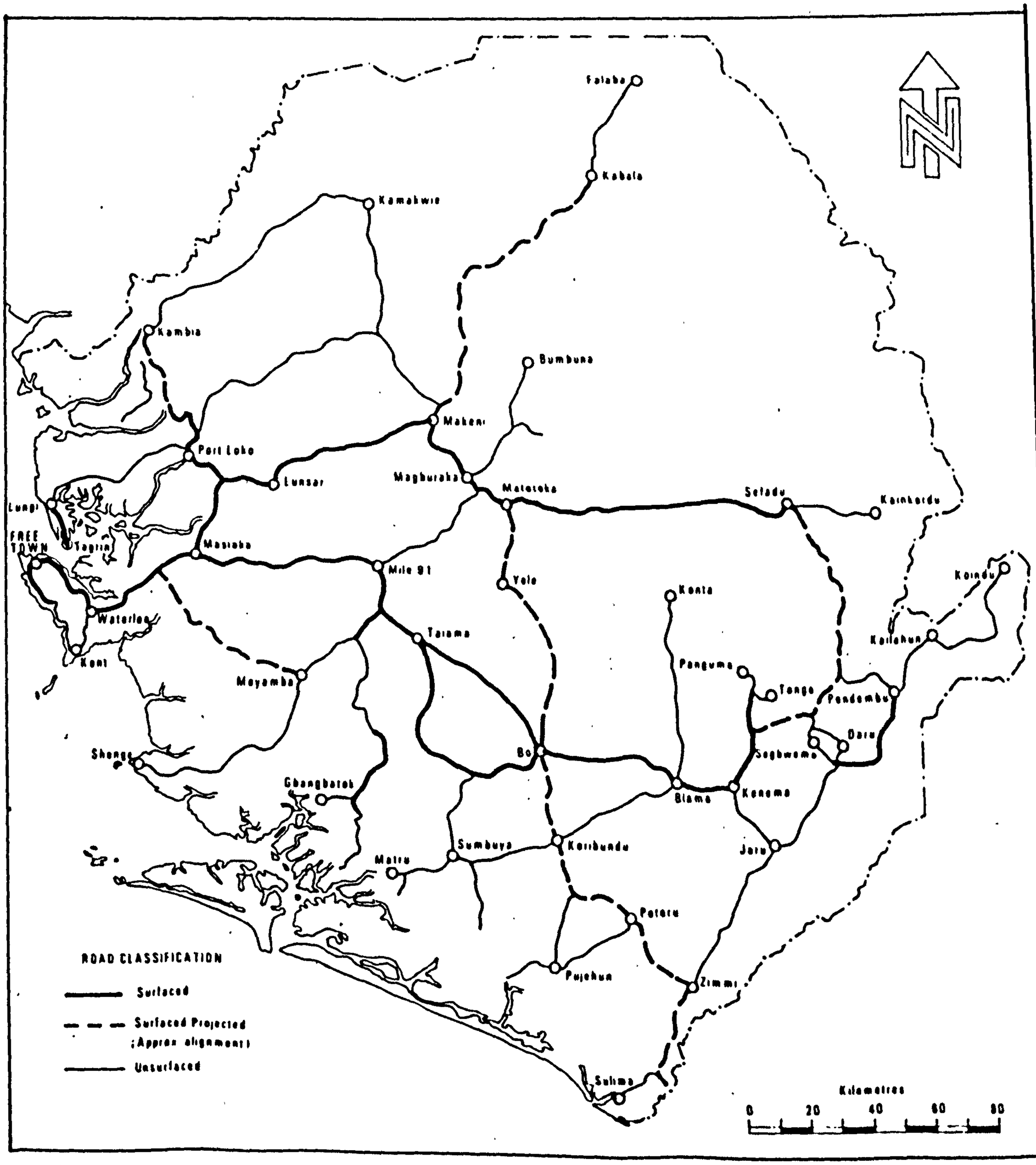
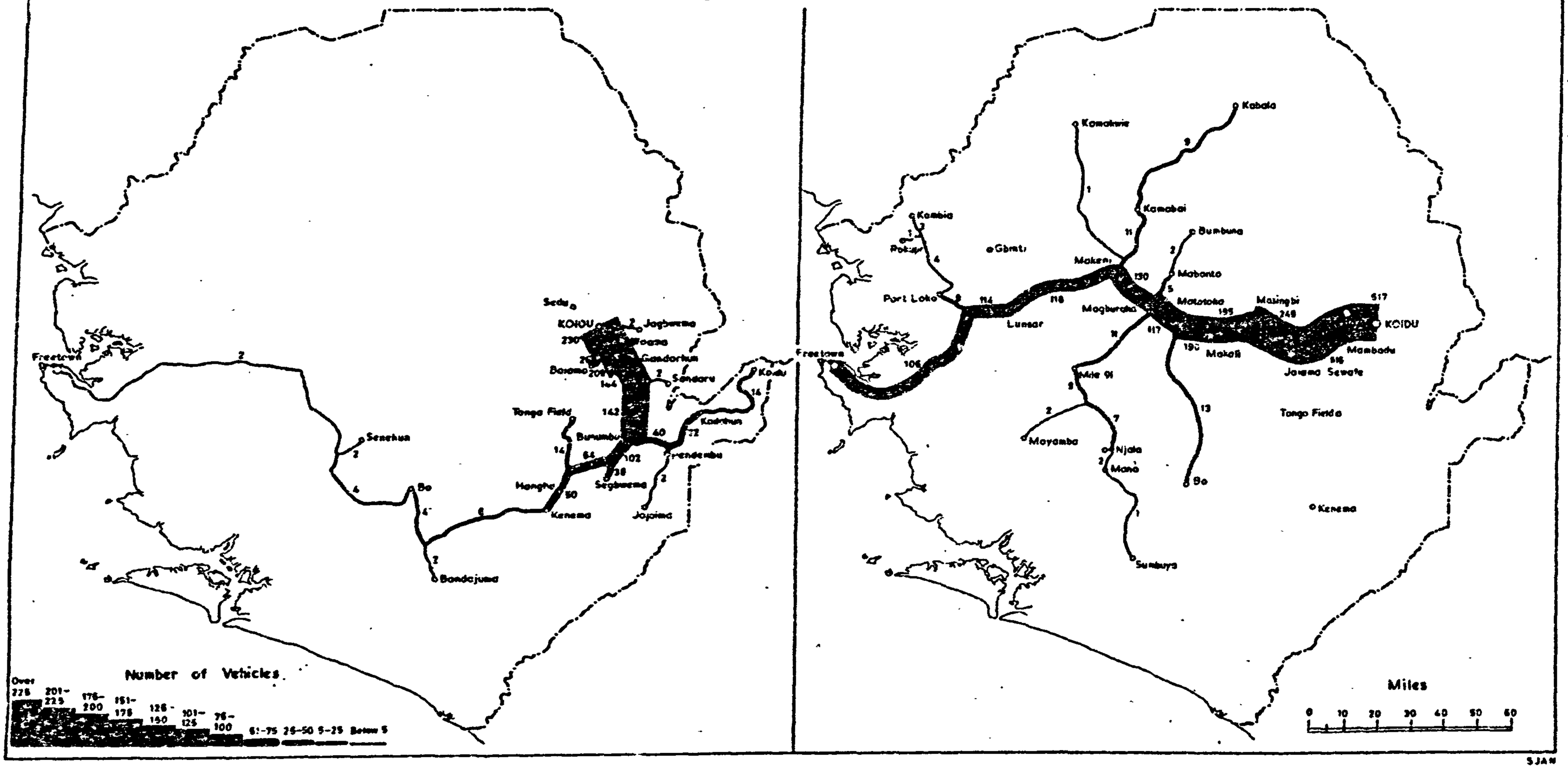


Figure 12.3 Origin of Kono Bound Traffic



Roads and Development

Background. We have derived in the previous section of this chapter various indicators all pointing towards highway development stimulating out-migration from rural areas. In other words, the government policy of rapid development of a good highway network has significant implications in terms of the regional distribution and labour supply, and in particular in terms of the inter-sectoral allocation of labour especially between agriculture and other sectors such as service and industry. At the moment the migratory implications of such major development projects go unplanned and are not absorbed into any form of manpower planning, but this observation made, we will leave the topic for further discussion in the conclusions to this thesis.

For the minute our concern focuses on the extent to which the highway is something of a white elephant, in that it is little utilised, particularly by commercial vehicles. The highway itself was not, of course, expected to be directly productive nor was it expected to yield any return: thus no tolls are charged, probably wisely as traffic densities would hardly cover the recurrent expenditures of a toll collection system. Nor can the highway be said to have stimulated significant activity in the country: not at least on the face of the evidence that densities declined by 24% between 1972 and 1976, even from their very low 1972 level of a one-way average hourly flow of an incredibly low seven vehicles. It is now our task to assess some dimensions of the expense of this white elephant, not only in terms of its purchase price, but by examining briefly some of its impacts on the Sierra Leonean economy.

'The debt trap'. In moving from the Tonkolili-Kono road in particular to the Sierra Leonean economy in general, it is necessary to observe that heavy investment in infrastructure has not been confined to highway development. Other foci of attention have been

Freetown harbour facilities, improvement of the airport to international standards, provision of water supplies, first to the capital, and then to many provincial towns, expansion of electricity generating capacity and development of larger and improved hospital facilities. Almost all such developments have entailed foreign borrowing, either public or private, and have been undertaken by foreign companies using imported machinery and experts. Sierra Leone's external debt is therefore substantial and stood in 1973 at Le65.5 million representing 14% of the G.D.P. (Table 12.7), and during the 1970s steadily tighter foreign exchange regulations have had to be introduced to enable repayments to be met. Nevertheless, major expenditures have continued to be incurred since 1973 including the installation of a colour television network and the rash of amenities for the 1980 O.A.U. sessions. In 1973, almost one-third of external public debt outstanding (32.6%) had been incurred for construction of roads and bridges, exactly ten times that incurred for agricultural development. Overall, loans incurred went almost entirely for infrastructural development, and even by 1968 (while major new loans were being incurred to enable the Tonkolili-Kono highway to proceed) over Le10 million was spent on debt servicing including capital repayment, interest and other service charges. Such debt servicing payments were running at around 6 - 7% of the total value of exports of goods and services in the early seventies.

The continued link until the late seventies (Le2 = £1) between sterling and the leone has not helped Sierra Leone in her task of repayments of loans in more buoyant currencies, especially the deutschmark, at least in those contracts where no pre-agreed rate of exchange was settled. For example, in the case of the loans granted for building the Lunsar-Koidu road, the additional cost of repaying loans (including interest) because of exchange rate fluctuations was by 1973, Le8.4 million or 70% of the original loan

TABLE 12.7 EXTERNAL DEBT ACCOUNT OF SIERRA LEONE GOVERNMENT 1973

A. Distribution of Loans, 1973

Purpose of Loans	Leones Outstanding[1]	% of total
Road construction, bridges etc.	21,310,623	32.6
Airport	1,880,474	2.9
Quay extension	4,521,921	6.9
Telecommunications	8,287,436	12.7
Education	920,359	1.4
Water Supply	5,948,004	9.1
Agriculture	2,096,315	3.2
Hydro-electric power	1,370,041	2.1
Army/police/security	2,471,292	3.8
American Public Law 480	1,575,611	2.4
S.L.S.T. purchase of assets	3,825,000	5.8
Unspecified	11,256,928	17.2
Total	65,464,004	100.0

Source: Derived by the present author from the Debt Statement prepared by the Audit Department, 30th June, 1973.

Note: 1. Calculated at the rate of exchange agreed in the loan contract for repayment, or where there is none stated, at the then current rate of exchange. Interest excluded.

(Cont.)

TABLE 12.7 (Cont.)

B. Outstanding External Public Debt

Year	Amount[1] (Le10^6)	Percentage long term multilateral and bilateral loans	Percentage suppliers credits mining and other loans
1968	69.7	69	31
1969	47.3	50	50
1970	39.2	62	38
1971	46.6	55	45
1972	55.7	55	45
1973	65.5	60	40

Source: Government of Sierra Leone, 1974, 4.

Note: 1. Interest is not included.

C. Debt Servicing Payments

Year	Amount[1] Le10^3	% of export of goods and services	Net inflow (Le10^3)
1966	6,056	9.8	+ 596
1967	9,687	8.8	+4,487
1968	10,308	5.7	+5,592
1969	9,095	7.5	+2,013
1970	6,647	6.1	+ 878
1971	7,547	10.0	-1,214
1972	7,808	6.1	+1,955
Total	57,148		+14,667

Source: Government of Sierra Leone, 1974, 4 and 9

Note: 1. Includes all interest and other service payments as well as capital repayment.

and this author estimates changes since then to have added a further Le9.2 million to the cost of repayment, taking early 1977 exchange rates. In fact so extreme was this case that terms had to be negotiated with the Federal German Government.

Equally significantly, the government has found that the costs of a highway network, a school system, a modern hospital, or whatever, do not cease with the completion of construction. For recurrent costs are ubiquitously heavy - be it for road maintenance, classroom equipment and teachers' salaries, or drugs. Excessive demands on the government budget produce a situation of chronic lack of liquid resources, and indebtedness emerges as a regular feature of the economy. Schools cannot adequately equip their teachers, so standards fall: salaries do not keep pace with inflation so disillusionment spreads, often resulting in disinterest on the part of hospital or teaching staff: clinics and hospitals function with inadequate or no supplies of drugs: water supply systems lie idle for want of funds to purchase the diesel fuel to operate the pumping station. This last is particularly serious in small towns, where the chiefdoms responsible for the supply of diesel unfortunately face the end of their financial year on June 30th, meaning that fuel is usually unavailable during the last few months of the dry season when alternative water sources are least adequate.

Of such bottlenecks, it can be argued, is development made, but no country can continue over a period of years to provide more and more improvements in infrastructure without generating from the productive sectors of the economy at least the income to repay the interest on capital loans, and the maintenance and similar costs to keep the infrastructure operational. That contractor finance, corruption, and misplaced enthusiasm have all played their part in leading Sierra Leone towards a combined foreign exchange and budgetary crisis, need not be proven or otherwise here, but that

such a crisis did occur can be seen in the 1974 deficit of Le64.9 million, which represents 53% of the total f.o.b. value of exports in that year. (African Development, April 1975, Ch 10). The import prices for that year (Table 12.8) assist in understanding the extent to which world-wide inflation contributed to this situation, particularly oil and rice prices, which stood respectively at 350% of 1975 import price, and at 240% of the 1968 import price. The reasons behind the need for this importation are explored in chapter 11. Goods vehicle prices had also risen from 1968 by 372% and passenger cars by 172%, although this last figure seems to be affected by underassessment for the purpose of customs invasion, as the unit value shown in Table 12.8 seems very low.

However, the composition of the import figures also indicates the way in which infrastructural development has maintained the needs of the Sierra Leonean economy over the years (Table 12.9). Machinery and transport equipment amounted to 26% of imports by value in 1964 and 20% in 1974, while mineral fuels rose from 10% to 11% in the same period. The foreign exchange requirement of a new road continues at a high level as road users buy new cars, for example, or vehicle operators import new tankers. Indeed the Government has itself had considerable outlays on imported Daimler-Benz buses, themselves imported from Germany, financed by loans from the Federal Republic of Germany. It is not possible here to examine the foreign exchange requirements of various strategies of development. Suffice it to say that the strategy followed for many years has placed an intolerable strain on foreign exchange resources given the present inflationary situation in the world economy, and that in realisation of this, the present National Development Plan has placed considerable emphasis on expansion of productive capacity, particularly within the agricultural sector.

TABLE 12.8 UNIT VALUE AND QUANTITY OF SELECTED IMPORTS TO SIERRA LEONE, 1968-74
(Selected years)

Commodity (and units)	1968			1971			1974		
	Quantity a	Value Le10^3 b	Unit Price Le $c = \frac{b}{a}$	Quantity d	Value Le10^3 e	Unit Price Le $f = \frac{e}{d}$	Quantity g	Value Le10^3 h	Unit Price Le $k = \frac{h}{g}$
Rice (tons)	16,881	2,542	150.58	27,004	2,471	91.50	41,656	15,069	361.75
Passenger cars[1] (units)	1,174	1,475	1,256.39	2,000	2,685	1,342,50	2,212	4,782	2,161.84
Trucks/lorries[1] (units)	716	1,220	1,703.91	372	1,507	4,051.08	456	2,889	6,335.53
Petroleum[2] (crude/ partly refined) (gallons)	Not comparable[3]			69,263,836[4]	5,396[4]	0.08[4]	67,026,593	18,820	0.28

1974 unit price as percentage of 1968 unit price:

rice = 240%, passenger cars = 172%, trucks/lorries = 372%,
petroleum (crude/partly refined) = 350% (1974 as % of 1973)

Sources: 1968/71; Government of Sierra Leone, 1971, Table 69.
1974; Figures supplied to the author by Mr. Bernard Njavombo of the Central Planning Unit, Ministry of Finance, Development and Economic Planning.

Notes:
1. It appears that the value of vehicles have been understated as the unit values, even free of duties, seem low, but the upward price trend is still quite clear.
2. Excludes aviation spirit, motor spirit, white spirit, diesel, gas oil and lubricants for which in 1974 imports totalled Le8.4 million.
3. In 1968, the local refinery was not open and figures are therefore not comparable, as imports were of refined products only.
4. These figures refer to 1973, by which time the refinery was meeting almost all local needs. The dramatic price change between 1973 and 1974 is clearly indicated.

TABLE 12.9 IMPORTS TO SIERRA LEONE BY COMMODITY SECTION, 1964-74 (VALUE AT CURRENT PRICES IN LE 10)

Year	Commodity Section											
	Food	Beverages & tobacco	Crude Materials	Mineral fuels	Animal & Vegetable oils	Chemicals	Manufactured goods classified by material	Machinery & transport equipment	Miscellaneous manufactured articles	Miscellaneous transactions & commodities	Total	% Increase on previous year
1964	9,808	2,481	474	7,264	507	3,760	20,279	18,508	6,829	1,109	71,019	N.A.
1965	11,252	2,622	970	6,768	1,305	3,914	19,596	22,686	7,227	697	77,310	8.9
1966	13,798	2,536	955	5,693	596	3,817	19,155	16,638	7,013	1,500	71,701	-7.3
1967	12,566	2,159	966	4,790	1,323	3,473	17,696	14,788	6,362	1,155	65,278	-9.0
1968	13,265	2,976	1,110	5,694	739	5,427	22,080	16,458	7,489	1,144	76,382	17.0
1969	15,321	2,750	1,028	5,673	763	5,639	27,624	22,208	10,932	1,087	93,025	21.8
1970	20,398	2,857	806	4,552	1,089	6,161	26,004	24,970	8,781	1,295	96,893	4.2
1971	18.175	3,482	982	6,738	856	5,772	24,187	22,692	8,690	1,488	93,062	- 4.0
1972	16,745	3,242	838	7,111	1,276	6,730	25,123	22,190	9,283	1,627	94,165	1.2
1973	30,610	4,465	1,589	7,531	1,205	9,049	34,420	25,058	11,538	1,737	127,204	35.1
1974	41,858	4,769	3,679	21,574	1,392	11,973	46,851	38,507	15,813	2,369	188,785	48.4
% Distribution 1974	22.2	2.5	1.9	11.4	0.7	6.3	24.8	20.4	8.4	1.3	100.0	
% Distribution 1964	13.8	3.5	0.7	10.2	0.7	5.3	28.6	26.1	9.6	1.6	100.0	

Source: Bank of Sierra Leone, Economic Review, Vol. 1X, Nos. 3/4, Table 24.

"The acceleration of economic growth will be achieved primarily through significant acceleration of the growth rates of the commodity producing sectors - agriculture, industry, and mining, which have been slow in the past. Top priority has been given to agriculture the growth rate of which is projected to increase from an estimated 1.6 per cent during 1963/64 - -970/71 to 4.6 per cent".

(Government of Sierra Leone, 1974, vii).

An atmosphere of financial constraint has clearly not been conducive to rapid expansion of employment opportunities, either in the private or the public sector. From Table 12.9, we can derive the facts that between 1967 and 1973, the cumulative increase in wage employment in establishments with six or more employees was only 0.3% per annum, and that within the manufacturing and construction sectors,employment actually fell in the same period. By contrast between 1962 and 1967 overall cumulative growth of such employment was 3.5% per annum. Clearly, by the early seventies the formal sector of the Sierra Leonean economy was in difficulties and suffering from near stagnation. Inevitably in the face of this negligible growth, registered unemployment mushroomed, and after 1965 was generally between one-fifth and one-quarter of the formal sector employed (Table 12.10). In 1972, the registered unemployed numbered over 12,000. Central Planning Unit estimates in 1972 showed a decennial increase of 149,000 in the total working population, but of these only 34,000 were taken into wage employment. The rest were unpaid household workers or self-employed. Wage employment therefore grew by 22.8% during the period 1962-72 (3.1% per annum) Government of Sierra Leone, 1974, 23). In other words, only 3,400 wage jobs were being created per annum, representing only 27% of the registered unemployed at the end of the period, and only 43% of the estimated number of underqualified school leavers dropping out each year (see chapter 13).

TABLE 12.10

WAGE EMPLOYMENT IN ESTABLISHMENTS WITH SIX OR MORE EMPLOYEES, 1962-73

(Selected years)

Industry	1962	1967	1962-67 Cumulative % change per annum	1973	1967-73 Cumulative % change per annum
Agriculture, forestry and fishing	2,350	3,628	9.1	3,693	0.4
Mining	7,549	7,803	0.7	8,230	0.9
Manufacturing	3,314	6,624	14.9	5,823	-2.1
Construction	10,392	8,917	-3.0	6,259	-5.7
Electricity, water and sanitation	1,190	1,897	9.8	2,015	1.0
Commerce	4,495	6,640	8.1	5,760	-2.3
Transport, storage and communications	7,047	8,578	4.0	9,526	1.8
Services	17,291	19,556	2.5	23,634	3.2
Total	53,628	63,643	3.5	64,940	0.3

Source: Bank of Sierra Leone, Economic Review, Vol. IX, Nos. 3/4, Table 33.

TABLE 12.11

REGISTERED UNEMPLOYMENT IN SIERRA LEONE, 1963-73

Year	Nos. registered unemployed[1] (a)	Nos. employed in establishments of six or more workers[2] (b)	Percent unemployed ($\frac{a}{b}$ X 100) (c)	Non-maritime vacancies filled (d)
1963	9,346	58,146	16.1	7,277
1964	9,077	61,699	14.7	5,648
1965	11,688	67,682	17.3	6.078
1966	12,790	67,388	19.0	4,281
1967	12.855	63,643	20.2	3,381
1968	13,439	63,070	21.3	3,779
1969	14.441	64.513	22.4	2,962
1970	15.536	58,636	26.5	2.848
1971	14,034	65,138	21.5	3,283
1972	12,770	65,728	19.4	2,578
1973	11,457	64,940	17.6	3,073

Source: a) Government of Sierra Leone, 1974, 24.
b/d) Bank of Sierra Leone, Economic Review, Vol.IX, Nos. 3/4, Table 33.

Notes:
1. Registered unemployed on 31st March each year. These figures probably disguise more significant trends, as it is likely that the inducement to register is diminished when vacancies are few.
2. It is only larger establishments that in practice recruit through the labour exchanges.

Significantly, wage employment in the formal sector (defined in this section as in establishments employing six or more workers) increased by only 12,100 between 1962 and 1972 (Tables 12.9 and 12.10). Therefore even if wage employment under 36% of new opportunities were in the formal sector, and of all new opportunities the formal sector provided only eight per cent.

It is against such a depressing background of stagnation and slow expansion of wage employment, that migration to the diamond fields has been proceeding, and that the Sierra Leonean Government has been, knowingly or unwittingly pursuing investment programmes such as highway development that we have shown stimulate the numbers of urban job seekers.

Summary

Since the late 19th century, improvement of communications, first in the form of a railway and subsequently in the form of the gradual development of a road network, have been encouraging the spread of modernising influences in Sierra Leone. Highway development received especial attention from independent governments and by 1973, there were 472 miles of paved highway in the Provinces.

Not unexpectedly, better roads, more public transport and lower fares reduced the friction of migration by making it swifter and cheaper. Most villages throughout Sierra Leone (even when a day's walk to the roadhead is involved) are now within 48 hours journey of the diamond fields. Between factors are therefore of much reduced significance.

From the evidence collected by the present author in relation to the Tonkolili-Kono road, it is possible to determine that:

i) movement on the highway is largely of people (79% of all vehicles being passenger carrying);

ii) towns and villages on (or near) the line of the highway grow

markedly in population (by as high as 10% per annum in many cases), with the concomitant effect (discussed in chapter 7), of onward movement of those they can not absorb; and

iii) departure of male adults increases in relation to nearness to the main highway in the remoter villages.

In this last case, a significant negative correlation was found between distance from the highway and decline of adult males, and additional evidence suggests that feeder roads will extend the effect of the highway in a diluted form over a wide area.

In short, ample evidence was presented to show a strong link between improved communications and more rapid rural exodus. In other words, there is a high probability that the villager who goes down to the highway to sell some oranges, will one day travel with the vehicle to catch a few more customers: and another day he will go to Kono where the prices are higher: until on another occasion he will join the migratory flow.

This accelerated migration effect occurs at a time not only when diamond reserves are showing signs of depletion, but against a background of massive (20-25%) registered unemployment, and of near stagnation of the formal sector (0.3% per annum growth in employment in establishments with six or more workers between 1967 and 1973). Through heavy investment in highway development, government policies have therefore exacerbated urban unemployment/underemployment.

The heavy costs of highway and other infrastructural developments have led to equally heavy foreign borrowing, roads and bridges consuming 33% of the total outstanding in 1973. Debt servicing in an economy lacking investment in D.P.A. was already a problem, prior to the massive jump in prices of import commodities such as petroleum products, vehicles and rice. By 1974, the country was faced with budgetary and foreign exchange crises of considerable magnitude.

The construction of highways contributed to this not only through their original costs, but also through their on-going repair and maintenance costs, and indirectly through enhancing demand for vehicles and fuel (representing together almost one-third of import value in 1974).

The Government of Sierra Leone has thus been pursuing a development policy that has generated increased rural-urban migration, without creating jobs to absorb the migrants. At the same time, agricultural production was being increasingly threatened (see chapter 11) by labour shortage, while agricultural investment was relatively neglected, and the successive budgetary crises make future investment more distant. Against this background, the diamond mines acted as a temporary stop-gap to absorb some of the flow of rural discontents. The suggestion in chapter 4, that A.P.C. governments have been lenient about I.D.M. would appear substantiated, because any alternative policy would be political suicide.

The rural Sierra Leonean has had his freedom of choice severely curtailed by the economic policies pursued since independence, and therefore seizes at any remaining chance to better his economic condition. For the past twenty years this has meant trying his luck in the diamond fields, with overall only the marginal benefits discussed in chapter 8. The average Sierra Leonean migrant is doubly unfortunate in that not only has the development strategy pursued induced him to migrate, but also it has led to relative stagnation, and, since 1974, stagflation, in the economy: diamond mining has been a convenient sponge that has absorbed the frustrations of the people, and so allowed the continuation of unsound development programmes. We seem to have come close to Samir Amin (1974, 88-9) in his contention that:

> "Economic (so called 'rational') choice and notably the decision of the migrant to leave his region of origin, is then completely predetermined by the overall strategy determining the 'allocation of factors' ".

Certainly we have been able to put into perspective the diamond mining industry's role vis-a-vis migration: we could better describe the lure of the diamonds as a coincidental rather than a causal force, and as a directional rather than a determining factor.

CHAPTER 13

EDUCATION AND MIGRATION

Introduction

We now look closely at the inter-relationship between education and migration in Sierra Leone, principally to obtain a better understanding of the role the diamond miners have played in migratory trends within a wider framework of causal forces. The heart of this relationship is well-described in Mabogunje (1975, 160-1). He notes firstly the tendency for very rapid expansion of school enrolment in West Africa; secondly the swift tapering of post-primary numbers; and thirdly the emphasis on liberal education rather than vocational at the secondary level (at a ratio of 11 to 1 in 1965 in West Africa generally). He proceeds to make the following crucial observations.

> "This pattern of education means, in essence, training the youths mainly for clerical and similar white-collar occupations. It certainly discourages an acceptance of agricultural work and rural residence as an attractive way of life. The result has been a massive exodus of young school leavers from the rural areas into the cities. However, if the intense social change taking place all over West Africa, especially in the field of education, serves as the 'push' factor encouraging many to leave the rural areas, the direction and destination of their migrations have been determined to a large extent by the pattern of industrial development in most West African countries over the last 15 years."

We proceed to assess the relationships between education and migratory patterns, and then test the veracity of Mabogunje's description of major educational trends in the specific context of Sierra Leone. Finally, conclusions are drawn on the effects of educational programmes on migration in Sierra Leone generally, and to the diamond mines in particular.

The Relationship between Education and Migration

Enhanced Propensity to Migrate. Widespread evidence upholds the hypothesis that the spread of education and the propensity to migrate are positively related. In Ghana, Caldwell (1968, 370) found the following relationship.

> "The relationship between education and propensity for rural-urban migration does not appear to be weakening. Thus only one-seventeenth of males who had never migrated and who were without education were planning to migrate, but a third of such persons with education beyond middle school had such intentions."

We have earlier shown for Sierra Leone (in Chapter 6) the pronounced selectivity of rural-urban migration in terms of educational status. This selectivity produces a situation where:

> "...the share of education allotted to the rural sector is more than enough to harm both its prospects of development and the efficiency with which educated resources are allocated. To increase the prospects of the rural child will increase, more than proportionately, the drain of capable persons from village to town." (Lipton, 1977, 260).

The evidence of the existence of such urban bias in the educational system can be easily drawn from the Sierra Leonean data that follow. For even in attempting to favour the countryside with more educational opportunities, there is a great danger of further enriching the city with ex-educands, unless some form of integrated rural development programme (as suggested in Chapter 14) is underway.

The double action of the educational process on the propensity to migrate is now described.

Changing attitude to agriculture. The relationship between education and migration is complicated by the fact that it is composed of what might be called direct and indirect linkages. The indirect ones are, as often, the harder to measure as they consist of attitudinal changes that can themselves be comprised of many elements. At primary school this probably implies an initial feeling of exclusion from the mainstream of life in the village, which is focused on agriculture and the events of the farming cycle. For many children who remain in their village homes and travel daily to school, the exclusion will not be great as they will quickly doff their uniforms after school and join the rest of the family in whatever task needs attention. In many village schools part of a pupil's learning time will be spent at the teacher's farm, or more properly on the school farm. For those children who do leave home for primary education, and they are not inconsiderable in number, the exclusion will be greater, especially as their Christmas vacation brings them home too late for the upland harvest, although the long vacation during the rains enables them to participate in bird-scaring. The exclusion can lead to resentment which emerges as dislike of farming when coupled with an awareness of their education. The

acquisition by the end of primary education of permanent literacy can all too easily leave the child with a false feeling of superiority over his brothers, and even his parents, which translates into dissatisfaction with his lot if he ceases schooling at this stage and resumes his village existence and his place in the agricultural household.

By the secondary level, exclusion and resentment have by a gradual process emerged as open conflict between the pressure to study in a foreign language concepts that are new and to find fees, books, uniforms, and shoes against a background of need in the village home - need for a grandmother's funeral, a mother's sickness, a brother's primary fees. If he succeeds in keeping his priorities and attention on a path that leads him successfully through secondary school, the village-born youth is then confronted with the expectations of his family who feel the time has come for their sacrifice in aiding his education to be rewarded. To resume farming would be to admit failure, and even many scholastic failures similarly interpret their position. This process can be summarised as a multi-faceted and gradual alienation from the village and its farming community. It is a world-wide phenomenon associated with 'Western education', and a primary cause of urban growth in developing countries, as has been most vividly described by Nair (1961, 145-59) vis-a-vis an agricultural community in West Bengal.

Migration to school. The more direct effect of education on migration is the need to move to attend school. This can occur at the primary level, and may mean an acclimatisation to urban life even at that stage, that is hard to readjust. But it is principally at the secondary level that migration to school causes a major break with

rural existence, which for a high proportion of scholars becomes permanent. Sierra Leone, unlike some African countries, such as Ghana, does not have almost ubiquitous residential secondary schools. More common is the phenomenon of residence with relatives in the town where the school lies, although most schools do have boarding departments. In higher forms, scholars often band together in twos or threes to rent a room in town and so become their own masters, enjoying the freedom of town life to the full in some cases. Gradually school life merges with adult needs and ways - the schoolboy who failed in June and learnt the result in September, is by November convinced that he will not find a place to repeat that session, and so seeks casual jobs to tide him over 'because he has been unfortunate', but he still intends to attend another school the next year or study privately and resit as an independent candidate. After a year or two his misfortune is complete, and disgruntled he turns his search to more permanent employment opportunities, which for the most part in his opinion do not include farming, as this would confirm his failure and seal his fate. Sinclair (1976), in his study of aspirations amongst secondary school leavers in Sierra Leone, makes clear the extent of rejection of agriculture.

School Leavers and Migration in Sierra Leone

Outline. Some quantification of the problem of the secondary school leaver in the labour market in Sierra Leone can be attempted. First the distribution of schools can be discussed, and one case study of the distribution of students within a school adds detail to the general picture. Next drop-out rates can be examined in association with total school places to provide some idea of the magnitude of the work-seekers and their 'qualifications'. Finally, some evidence can be gleaned from various surveys of the extent

to which a move to school leads to permanent out-migration, and of the jobs in which such school leavers find themselves. It is necessary to emphasise, however, that the problem of educated manpower in Sierra Leone and its distribution and deployment, is largely still in the future. It is in countries like India and to some extent Nigeria that a full impression of its dimensions can be gained. It has to be remembered that pupils entering class I as long ago as Sierra Leone's independence only came on the labour market in the last year or two, assuming that is that they completed the course to form V without too many repeats. Partly as a consequence of this time lag, the migrants studied in earlier chapters were for the most part uneducated, and only to a limited extent does education affect the situation amongst them, most noticeably perhaps in fact in reducing their horizons by limiting the opportunities existing for the non-literate.

Distribution of secondary schools. Table 13.1 and Figure 13.1 amply illustrate the unequal distribution of secondary schools in Sierra Leone regionally, the Northern Province being especially under-represented and the Western Area over-represented vis-a-vis their respective populations, although the imbalance has been greatly reduced in a decade. In 1963, there were 33 secondary school places per 1,000 population in the Western Area, against as few as 1/1,000 in several provincial districts including Kono. In 1963, 54% of secondary school places were in the Western Area, but by 1974 this was reduced to 26%, still far in excess of the nine per cent of the population living there.

More important, however, is the concentration of secondary schools in a handful of urban centres, especially the capital and the three provincial centres of Bo, Kenema,

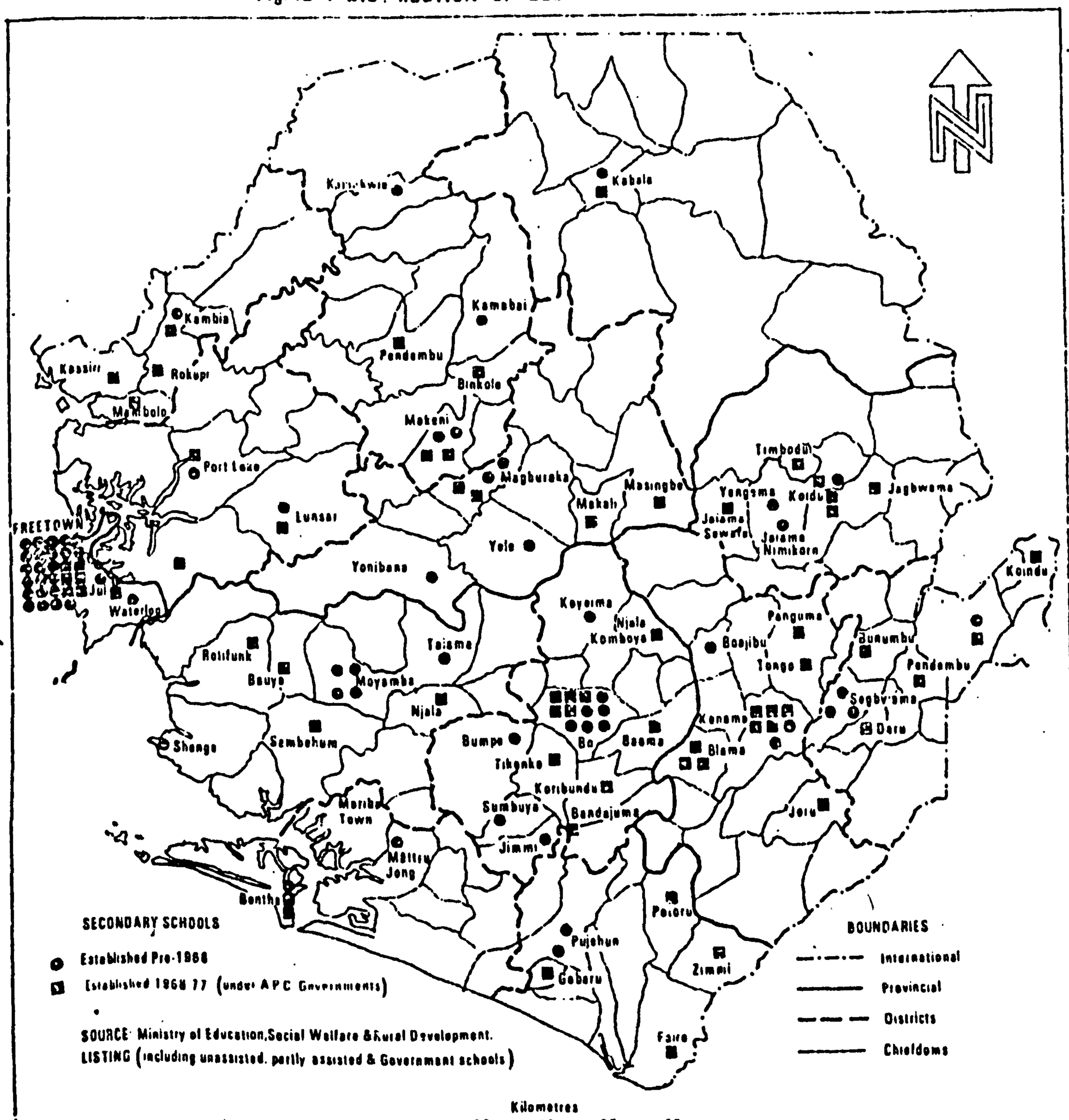
TABLE 13.1

DISTRIBUTION OF SECONDARY EDUCATIONAL OPPORTUNITIES IN SIERRA LEONE, 1963 AND 1974

Area	Population 1963		Secondary enrolment 1963	Secondary places per 1,000 population 1963	% secondary enrolment 1963	% secondary schools 1974
	Nos.	%				
Western Area	195,023	8.9	6,397	33	53.5	25.8
Southern Province	542,187	24.8	3,085	6	25.8	34.0
- Bo	209,754	9.6	1,947	9		
- Bonthe	80,139	3.7	408	5		
- Moyamba	167,425	7.7	508	3		
- Pujehun	84,869	3.9	222	3		
Eastern Province	545,579	25.0	1,150	2	9.6	22.7
- Kailahun	150,236	6.9	423	3		
- Kenema	227,428	10.4	548	2		
- Kono	167,915	7.7	179	1		
Northern Province	897,566	41.2	1,314	1	11.0	17.5
- Bombali	198,776	9.1	466	2		
- Kambia	137,806	6.3	134	1		
- Port Loko	247,463	11.3	120	5		
- Koinadugu	129,061	5.9	140	1		
- Tonkolili	184,460	8.5	454	2		

Sources: Government of Sierra Leone, 1965, Vol. I, Table I.
Government of Sierra Leone, 1974, p.106.
Government of Sierra Leone, 1964, p.33.

Fig. 13.1 DISTRIBUTION OF SECONDARY SCHOOLS 1977



SECONDARY SCHOOLS

- Established Pre-1968
- Established 1968-77 (under APC Governments)

SOURCE: Ministry of Education, Social Welfare & Rural Development.
LISTING (including unassisted, partly assisted & Government schools)

BOUNDARIES

- International
- Provincial
- Districts
- Chiefdoms

Kilometres
0 20 40 60 80

and Makeni (this last associated also with Magburaka). In all, 41% of the 183 secondary schools in the country in 1977, were in these five towns alone. A wider distribution is however emerging as each chiefdom tries to raise funds to encourage government or a mission to open a school there, and some of the problems of longer distance migration to secondary schools may vanish through time, although no doubt varying school standards will cause flows and counter-flows for many years to come.

Lipton (1977, 261) sees the "bad schools for ignorant rustics" as:

> "... both a cause and an effect of rural skill drain: a cause, since it compels many bright children to urbanise if they seek adequate secondary or even primary education, and this is often the first step towards permanent settlement in the city; an effect, because if more of the able teachers of rural origin worked in the villages the problem would be less serious."

To indicate the extent to which secondary schools in Sierra Leone induce migration, use can be made of data pertaining to the secondary school at Jaiama Nimikoro in Kono District. Form I enrolments each year from 1960 to 1971 (except 1966) were recorded from school records by research assistants of the Kono Road Project under the supervision of the present author, and with the approval of the Principal of Jaiama Secondary School. This school was established shortly before independence by the E.U.B. mission which had long been operating in Jaiama. It was the first secondary school in Kono District, and Kono despite its diamond riches remained one of the poorest

supplied districts, in terms of secondary school places (one place per 1,000 population in 1963). It is therefore expected that the school would focus attention on the Konos, and in fact this is so as Table 13.2 shows, but the ethnicity of the pupils attending is very widely representative and includes the 12 main ethnic groups in Sierra Leone. Nor is this distribution explained solely in terms of the father's presence in Kono; for parental address was obtained from the records and the distribution included 45% in Kono District but outside Nimikoro Chiefdom, 11% outwith Kono District, and five per cent beyond the Eastern Province. As it can be assumed that anyone living outwith the chiefdom would have to board in school or live in Jaiama town, this implies that at least 60% of the pupils have to move their residence to attend secondary school. Equally the wide drainage area of this one school is illustrated by the distribution of primary schools attended by the pupils prior to their admission to Jaiama. Only 58% obtained their primary education in Nimikoro Chiefdom, implying a change of residence for the remainder between primary and secondary education: many within the chiefdom too would have to move into Jaiama town. Absence from home it seems, is a widespread phenomenon amongst secondary school pupils in Sierra Leone, who gain their education only by travelling to obtain it. The school at Jaiama Nimikoro is one likely to have a fairly low ratio of longer distance migrants, because of the demand for places in Kono where schools are scarce. If the figure of 40% is taken as a very modest estimate of the proportion of secondary school children unable to attend on a daily basis from their own home, in round terms some 4-5,000 new first formers are being introduced to migration every year in the seventies, as can be evidenced by the crowded public transport at the beginning of every new school term.

TABLE 13.2

FIRST FORM ENROLMENTS AT JAIAMA NIMIKORO SECONDARY SCHOOL, KONO DISTRICT, 1960-71

Ethnicity	Percentage enrolled
Kono	74.3
Mende	12.1
Temne	2.6
Kissi	1.7
Limba	1.1
Madingo	4.0
Koranko	0.9
Sherbro	1.0
Creole	1.1
Fula	0.3
Susu	0.7
Loko	0.1
Other	0.4
Total	100.0

Area	Location of primary school, percentage	Residence of father, percentage
Western Area	2.2	1.3
Northern Province	0.9	0.2
Southern Province	5.3	2.1
Eastern Province	91.5	95.4
- Kailahun	0.7	2.3
- Kenema	5.1	4.2
- Kono other	28.2	45.4
- Nimikoro Chiefdom	57.5	43.5
Other	0.0	0.9
Total	100.0	100.0

Source : Survey of school records undertaken under the supervision of the present author.

Notes:
1. Form I enrolments were scrutinised covering the years 1960-71, except 1966. In all, 697 students' admission records were examined, representing overall around 80% of admissions. Records were not available for the remainder.
2. Presumably 'or guardian' as this was the home address of the student for the school to contact.

Extent of secondary drop-outs. The calculation of the numbers emerging from the secondary school system as drop-outs is attempted in Table 13.3. The term drop-outs is appropriate as many are not academic failures, but merely have to terminate their education for one of a variety of reasons, often associated with lack of finance for fees and other school expenses. The death of the parent or guardian responsible for the payment of fees is one of the most common causes of involuntary termination of education. Nor should those who fail to gain promotion and give up the struggle be rejected as incompetent: apart from the varying quality of education received, noted in the last chapter, no school system anywhere in the world expects to take 100% of its students to form V success. In the absence of a formalised school leaving age, the poorer pupils inevitably are squeezed out, and were the Sierra Leonean economy differently structured, they would no doubt find vacancies to suit their needs and abilities. The prevailing situation, however, is one where the educational system is producing some 10,000 extra young people every year who are not especially qualified but whose education has raised their aspirations. In the 15 years after independence, this annual figure increased some six to seven-fold, stressing the extent to which educated unemployment is still in the future in Sierra Leone. The distribution of these drop-outs amongst forms of learning is probably fairly even, and not very significant to their chances of employment. The inclusion of the large number of Form V entrants who fail to obtain four or more O levels might be questioned, but less than that achievement implies little or no extra prospect of employment, given the labour market at the present time, and the tendency to focus on soft-options such as bible knowledge and history. There is an element

TABLE 13.3

SECONDARY SCHOOL DROP-OUTS IN SIERRA LEONE, 1960-78

Year A	Nos. entering form I in year A-4[1]	Nos. entering form V in year A	Nos. dropping out between forms I-V	Form V poor performers (86%)[2]	Total underqualified school leavers
1960	1,731	560	1,171	482	1,653
1961	1,777	631	1,146	543	1,689
1962	1,453	721	732	620	1,352
1963	1,825	874	951	752	1,703
1964	1,881	1,070	811	920	1,731
1965	2,804	1,422	1,382	1,223	2,605
1966	3,091	1,819	1,272	1,564	2,836
1967	3,489	2,006	1,483	1,725	3,208
1968	4,249	2,368	1,881	2,036	3,917
1969	5,787	2,479	3,308	2,132	5,440
1970	7,812	2,932	4,880	2,522	7,402
1971	7,649	3,281	4,368	2,822	7,190
1972	8,684	(P) 4,200	4,484	3,612	8,096
1973	9,999	(P) 4,800	5,199	4,128	9,327
1974	11,460	(P) 4,800	6,660	4,128	10,788
1975	11,080	(P) 5,000	6,080	4,300	10,380
1976	(P) 12,200	(P) 5,500	6,700	4,730	11,430
1977	(P) 13,800	(P) 6,200	7,600	5,332	12,932
1978	(P) 13,800	(P) 6,200	7,600	5,332	12,932
Total	124,571	56,863	67,708	48,903	116,611

Sources: Government of Sierra Leone, 1971, Table 59.
Government of Sierra Leone, 1964, Table 30.
Government of Sierra Leone, 1974, p.249, including projections (P).

Notes:
1. The entrants to Form I in Year A-4, without repeating, would enter Form V in Year A. Repeating can be ignored as it is a recurring problem affecting approximately the same number of pupils throughout the time period.
2. Assuming Ketkar's (1975, F40) figure of 14% of Form V entrants obtaining four or more O levels, the remainder are regarded as underqualified school leavers.

of double counting in the figure of 10,000 per annum, as a proportion of Form V poor performers manage to obtain school places to retake the year - often in another school. We shall therefore discount 20% - probably a high estimate when school places are hard to come by - and reduce the net figure to 8,000 extra young persons seeking employment concomitant with their ideas of their qualifications each year: 70% (or 5,600) of these will be male, who form the hard core of the problem as they wish to remain bread-winners throughout their working lives. As the Sierra Leonean economy expands there is little doubt that for some time to come it should be able to absorb the successful minority of the school output, but without very radical changes, it is harder to imagine ample opportunities for the larger number of drop-outs.

Distribution of secondary school leavers. It is possible to piece together, from the evidence of various surveys, mostly by the present author, what has been the fate of some of these drop-outs in recent years, although of course it is only within the last decade or so that their numbers have so rapidly expanded. In a survey of 77 rural communities in Tonkolili and Kono Districts of Sierra Leone, with a total adult population of 5,906 persons, only 158 (3%) were found to have attended school at all, of whom only 31 (1% of total) had reached secondary forms. However, of 1,095 employees surveyed in three Freetown companies, exactly 50% had some secondary education (Sinclair, 1976). Again of a survey of 545 adult in-migrants to Koidu in Kono District from agricultural areas of neighbouring Tonkolili District, 12% had acquired some secondary education, and of the males under 30, this figure rose to 20%. In Makali, a chiefdom town on a modern highway, 18% of the male population in the age range 20-30 years were secondary educated to some level. Even on the basis of

this fragmentary evidence it is clearly possible to suggest that the suspected urban distribution of the secondary school former pupils is confirmed.

Rate of Growth of Educational Places

Mabogunje's anticipated rapid rate of expansion of school enrolments has not so far been discussed *per se* and the opportunity is now taken to do this.

Colonial education. Overall the pace of development remained slow even in the later colonial period, although in certain areas such as education, where attention was focused, there was expansion of facilities. Particularly after 1953 school expansion was aided by the establishment of a Catholic mission determined to obtain a foothold despite its late arrival in the Sierra Leone mission field, late that is in comparison with the Anglican Church which had been represented by the Church Missionary Society (C.M.S.) since 1816, and the United Brethren in Christ (now the Evangelical United Brethren) which began missionary work in 1855 (Olson, 1969). Another boost around the same time came from the policy of creating District Council schools, after this form of administration was introduced in 1950.

Slow growth of the school system had occurred since the establishment in 1906 of the Bo School for the sons or nominees of chiefs (Corby, 1975; Walton, 1975), but it was only in the fifties that a significant proportion of provincial children began to receive education. However, necessary the educational expansion was, it catered for the manpower needs of the future, and did not provide jobs for those workers, jobless after the end of the

wartime boom, or that greater number of aspirants, who seeing the material progress made by their fellows in wage employment, hoped to follow their example. However, even by 1963, less than ten per cent of the total provincial population of age five years and over had received any formal education. Of persons in the age range 5 - 19 years at that time, 17% were receiving or had received at least some education (Government of Sierra Leone, 1965, Vol.II, Table 7).

Educational expansion since independence. A cornerstone of government policy in the early years of independence, maintained until the present time, was the expansion of education at all levels. The share of education in the total recurrent budget rose from 17% in 1961/62 to 22% in 1966/67, and to 27% in 1971/72. (Government of Sierra Leone, 1974, 229-30). To allow rapid expansion of the educational system, recourse had to be made to recruitment of teachers from overseas. In 1971, of 1,706 secondary school teachers in Sierra Leone, 505 were non-Sierra Leonean (i.e. 30%) (Government of Sierra Leone, 1971, 250). The presence of this large number of expatriate teachers (over half of them volunteers) allowed an expansion of secondary school enrolment at a rate of 16.7% per annum between 1960 and 1970 (Government of Sierra Leone, 1974, 228), a rate which would not have been possible if dependence had been entirely on the increased number of Sierra Leonean trained teachers. Volunteers are however normally young, inexperienced, and unadjusted to the Sierra Leonean situation, and their effect on the quality of teaching was by no means ubiquitously beneficial, especially when some schools were staffed almost entirely with volunteers.

In this way school places were created at an unprecedented rate, both at the primary and the secondary level, as well as places in teacher training and other branches of further education (Table 13.4). Primary places grew between 1946 and 1973 at a cumulative rate of 8.6% per annum, and secondary places even faster at 11.3% per annum between 1947 and 1978. With such rapid growth, standards were hard to maintain, and have resulted through time in alarmingly high failure rates in the school-leaving certificate examinations in recent years. Awareness of dropping standards is indicated in the National Development Plan (Government of Sierra Leone, 1974, 229): "Since the Government does not directly control admission to primary and secondary schools it cannot, in the face of a strong public demand for education, avoid the tendency towards over-crowding with deteriorating effects on the quality of education." Of 4,089 students who sat the West African School Certificate O level examinations in 1971 in Sierra Leone, only 385 (9%) had passes in four or more subjects, while in the A level results for the same year of 263 candidates sitting, 108 (41%) achieved two or more passes and 61 (23%) one pass (Government of Sierra Leone, 1971, 86-7). As many students take examinations as 'private' candidates included in the above figures, the actual proportion of school pupils obtaining adequate passes would be higher. Ketkar (1975, F40) suggests 14% of Form V enrolment obtain four or more O level passes.

Both in government schools and in the rash of private enterprises that developed on the crest of the boom in education, fees are charged and this has contributed to a very high drop-out rate at all levels. While primary fees are usually less than Le.2.00 per session, secondary fees are normally around Le.10.00 per term, and this has

TABLE 13.4

EXPANSION OF SCHOOL PLACES IN SIERRA LEONE, 1946-78

School year beginning	Total enrolments			
	Primary	% increase over previous year	Secondary	% increase over previous year
1946	19,411	N.A.	N.A.	N.A.
1947	19,951	2.8	2,170	N.A.
1948	21,330	6.9	1,823	- 16.0
1949	23,292	9.2	2,294	25.8
1950	26,614	14.3	2,869	25.1
1951	28,641	7.6	2,730	- 4.8
1952	31,415	9.7	3,233	18.4
1953	35,053	11.6	3,603	11.4
1954	38,413	9.6	5,210	44.6
1955	44,872	16.9	4,821	- 7.5
1956	51,648	15.1	5,255	9.0
1957	57,200	10.7	5,356	1.9
1958	65,172	13.9	5,452	1.8
1959	70,429	8.1	6,058	11.1
1960	81,881	16.3	7,097	17.1
1961	94,218	15.1	7,777	9.6
1962	102,706	9.0	9,027	16.1
1963	117,875	14.8	10,919	21.0
1964	123,250	4.6	12,942	18.5
1965	126,438	2.6	16,414	26.8
1966	128,566	1.7	21,318	29.9
1967	130,824	1.8	22,119	4.6
1968	139,412	6.6	25,221	14.0
1969	154,898	11.1	29,058	15.2
1970	166,071	10.7	33,318	14.7
1971	171,600	3.3	35,507	6.6
1972	178,100	3.8	38,800	9.3
1973	182,100	2.2	42,500	9.5
1974 P	Entrance age	N.A.	45,000	5.9
1975 P	raised	N.A.	48,600	6.7
1976 P	projections	N.A.	50,600	4.1
1977 P	not	N.A.	52,000	2.8
1978 P	comparable	N.A.	53,500	2.9

Cumulative growth rate per annum 1946-73 8.6% Primary
Cumulative growth rate per annum 1947-78 11.3% Secondary

Sources: For 1946-63, Government of Sierra Leone, 1964, pp.204-49.

For 1964-1973, and later projections (P), Government of Sierra Leone, 1974, pp.248-9.

tended to mean particularly high drop-out rates in lower secondary forms. In addition to the daily uniforms (usually white shirts and variously coloured shorts in the case of boys), most secondary schools require a ceremonial uniform of a blazer and badge and long white trousers, costing a minimum of Le14.00 in recent years. Some Freetown schools maintain the practice of including a beribboned straw boater as part of the ceremonial uniform. Ketkar (1975, 35) estimates the cost to the parents or guardians of a secondary school pupil in 1972/73 to be Le811.00 from Forms I-V, this figure including the opportunity costs of earnings foregone while attending Forms IV-V.

With falling standards and high drop-out rates, the Sierra Leone school system has been producing for a decade or more now a large band of semi-educated youths, for school enrolment in most of the country is still biased heavily in favour of the male. In 1970/71, of 33,318 secondary school pupils enrolled 23,863 were boys (72%) and only 9,455 (28%) girls. 58% of the girls were studying in the Western Area, and Provincial enrolment of girls was as little as 12% of the total there (Government of Sierra Leone, 1971, Table 57).

In any case educated girls soon find their future role in marriage, as their education makes them most desirable wives. Many parents therefore see no economic return from educating their daughters, although they may be under-estimating the economic benefit of a good marriage. For the youths, the situation is more difficult, and an increasing number every year find their ambitions frustrated and their employment prospects dim despite their education.

The widespread existence of this phenomenon in Africa is well-evidenced (e.g. Calloway, 1973; King, 1974). Applicants for a single post of a clerical nature in Sierra Leone in recent years often number hundreds. Yet manpower planning has only made its appearance since the early seventies (Yadi, 1972: Government of Sierra Leone, 1974, 21-8).

Clearly the expansion of the educational system, achieved at no small cost, has been quite out of gear with the manpower needs of the nation. The total expenditure on education from 1965-70 was: recurrent expenditure - Le36,152,000 (Government of Sierra Leone, 1971, Table 89); estimated development expenditure - Le3,443,000 (calculated on basis of known ratio between recurrent and development expenditure for the period); in all Le8,608,000 on average per annum. Estimates of recurrent costs of education per pupil per annum to the government of Le19 for primary, Le84 for secondary, and Le1,354 for university (Table 13.5) underline the need for education to be functional, and in this respect the Sierra Leone system has been slow to respond, vocational training being a recent innovation and Latin an all too recently regular subject on the curriculum of the longer established Freetown schools. But revision of the quality and content of education would not overcome the basic fact that jobs for school-leavers at all levels of attainment are few and far between, a reflection of the slow rate of growth of the economy in general (4.3% p.a. growth in G.D.P. at factor cast in 1963/64 prices during the period 1963/64 to 1970/71) (Government of Sierra Leone, 1974, 1) and of the even slower expansion of manufacturing industry in particular, as it is often within industry that school leavers in more

TABLE 13.5

CURRENT EXPENDITURE ON EDUCATION IN SIERRA LEONE, 1967/68

1967/68 Financial year	Level of education		
	Primary	Secondary	University
A Expenditure on current account (Leones)	2,467,000	1,864,200	641,800
B Percentage of total[1] (A)	32.7	24.7	34.1
C Enrolments	130,824	22,119	474
D Expenditure per student p.a.[4](Le)	18.86	84.28	1,354.00
E Average years[2]	7	5	4
F Total current cost to Government for one student to complete each stage,[2] assuming constant 1967/68 costs,[3](Le)	132	421	5,416

Source: A/B, Yadi, 1972, p.66. C, Government of Sierra Leone, 1974, 248–9, and Yadi, 1972, 64.

Notes:
1. Does not total 100% as 'other' education is omitted.
2. Excludes repeating, as well as form VI and honours courses.
3. Cf. Ketkar, 1975, F35.
4. This is a crude estimate, assuming all costs of education can be allocated in this way.

developed nations find employment, at least materially beneficial, if not entirely to their liking.

Summary

In this chapter, we have shown that the diamond fields are likely to be of more importance in channelling the direction of migration, while the propensity to migrate is affected by the rapid rate of educational expansion. However, historically, most migrant miners have been shown to be illiterate, and it is not denied that the lure of diamonds remained an important basic motivation at least for this large segment of the population. Indeed for the illiterate, educational expansion meant the restriction of opportunities to the informal sector, as more and more paper qualifications were demanded for formal employment opportunities. It is important to bear this in mind when considering expansion of employment opportunities for the future, as the majority of adult Sierra Leoneans will lack functional literacy to the end of this century and beyond.

We were able to document Mabogunje's contentions about educational trends in West Africa. In Sierra Leone, expansion of the number of school places was evidenced by a cumulative growth rate of 11.3% per annum in secondary schools between 1946 and 1973. The phenomenon of large scale drop-outs was evidenced by the minimum of 8,000 secondary school leavers each year estimated not to have adequate form V qualifications (86% of the total attempting to obtain them). The inappropriateness of much of education is summarised as:

> "... a lack of diversification of the curriculum and undue emphasis on literary subjects at the expense of technical and commercial education particularly at the secondary and post secondary levels" (Government of Sierra Leone, 1970 B, Para 3).

This educational policy has been clearly out of line with the manpower needs of an economy with an average rate of growth of G.N.P. of only 4.3% per annum in the period 1963 to 1971, and slower since. That the policy is not only a positive contribution to unemployment, but also an obstacle to future development has been demonstrated. The dual action of educational expansion encourages some 4,000 to 5,000 new first formers each year to migrate away from home to centres of education, a process which leaves them unlikely to return in many cases. At the same time, the educational process changes their attitudes and aspirations, and renders them unsuited for reabsorption in their village homes. In this way the countryside is deprived of its natural leadership, and a strong bias towards urbanward drift of the ex-educands is created. This in turn means that integrated rural development projects in the future will be rendered more difficult because of the absence of much of the dynamic young leadership from the village communities. Yet, it is only through such programmes that the range of economic opportunities necessary to retain educated young people in the villages can be provided. Our own studies were able to amply demonstrate the disproportionate numbers of the secondary educated (or partially educated) in urban centres of all sizes.

Against this background, the diamond industry has provided an option to agriculture largely for the illiterate, whose

alternatives have been steadily diminished by the rapidly increasing number of ex-educands growing for formal sector employment. The future for them looks grim, as diminishing returns set into the diamond fields' wasting assets, and as the school leavers from the great bulge of postindependence school expansion faced a fairly stagnant market. The 'diamond alternative' has allowed the imbalance in job-seekers and employment opportunities to become, by the late seventies, exceptionally large in Sierra Leone, while rendering more difficult the task of a peaceful green revolution in the countryside, which is the only place where adequate opportunities can be generated. The surprisingly high proportion of primary or secondary educated amongst the predominantly youthful I.D.M. (21%) noted in Chapter 6, is an indicator of the inability of urban industry to generate employment opportunities even for those with some education.

CHAPTER 14

A STRATEGY FOR RURAL CHANGE

Introduction

We have earlier cited various economic writers in support of the need for more investment to be channelled into the rural areas: e.g. Samir Amin (1974), who argues in favour of a transformation away from the export orientation of developing economies; Todaro (1969), who defends the existing free market situation, but sees a need for inducements in the rural areas to serve as an equilibrating factor in his model of migration; and Lipton (1977), who wishes by so doing to redress the imbalances created by the bias in favour of urban development.

We have further presented evidence that once the urban costs of living have been taken into account, migration to the Sierra Leone diamond industry has been at best only marginally beneficial to the in-migrants (chapter 8). We have indicated the over-dependence of Sierra Leonean exports, non-farm employment and government revenue on the diamond industry (chapter 11), while pointing out ominous signs during the past decade that diminishing returns are already setting in to this wasting asset (chapter 4). The slow growth of the Sierra Leone economy and the 25% unemployment recorded have indicated the need for a new growth sector, which we have tentatively identified as agriculture.

It is the purpose of this chapter to demonstrate that, given appropriate strategies and adequate inputs, the agricultural sector in Sierra Leone can generate rural earnings of a level equal to and greater than urban jobs. Through such an approach, the Sierra Leone Government

could alleviate the ills of the economy, and restrain the ever-increasing migrant flows which much of its recent strategy have encouraged, as shown in chapters 12 and 13.

Obviously in the space available a detailed blue-print for agricultural change cannot be presented, nor can we reach any conclusions without making fairly limiting assumptions. But the assumptions made are based on the present author's detailed observation of the existing agricultural sector in Sierra Leone, and we believe therefore that they are fairly realistic.

We first re-present in outline some of the features of the diamond-ward migration that we feel contribute to our belief in the potential of an agricultural renaissance, and we then reconsider the backward agricultural systems of communities such as Dandaya, which we described in chapter 3, to see what potential they have 'to be saved.'

Features of the Diamonward Migration

Economic motivation. In the case of migrant miners, 50% of all stated reasons for leaving home can be said to be economic, but the full significance of economic motivation is only realised when it is noted that the four most-associated categories of motivation are respectively 'money for specific need' (81% of cases), 'economic hardship' (77%), 'no suitable local employment' (61%), and 'chance of diamond riches' (50%). The preponderance of economic motivations is thus emphasised, albeit that it is anticipatable amongst a group mining diamonds. The pattern seems similar to that found by Hutton (1968, 5) amongst migrant Ugandan industrial workers, where the inadequacies of the home environment led to dissatisfaction. The rural-urban imbalance of (perceived) opportunities is thus highlighted.

Gross benefit. The act of migration from village farming to diamond mining has been shown to have been historically economically rational

in that greater earnings accrued to all groups of miners from their mining activity than could have from their agricultural efforts. The gross benefit in cash terms for each group was calculated for 1975 as follows:

	Mean earnings diamonds Leones	Potential 'earnings' upland rice farm Leones	Gross benefit Leones
S.L.S.T.	473	150	323
A.D.M.S.	161	150	11
I.D.M.	256-593	150	106-443

Therefore both from an individual and a national standpoint, it initially appears that rural-urban migration is beneficial.

Net benefit. However, despite the obvious gain to the individual in acquiring a higher gross income and receiving it in cash himself (rather than in kind, and even then not directly but only as one member of a family group), there has to be taken into account a whole range of urban living expenses, which would normally not be a cost in the rural home (e.g. Western clothing, room rent, urban entertainment). These expenditures mean for the average miner a reversal to his pre-migration position of little to no (surplus) cash in hand. The position that appears to prevail, on the basis of assumptions and calculations already made, is of erosion of expectations by expenses of urban living, with the result that goals are not swiftly achieved, nor are significant savings acquired by the average migrant miner.

Impermanence. Almost all miners regarded themselves as having either their own house or access to a family home in their place of origin, and most considered that they would be able to find a place to farm there if they were to return. Ninety per cent of all miners expressed the firm intention of terminating their urban residence in the mining

areas and returning to their former homes, although no attempt was made to quantify the expected duration of their total period of participation in mining. The expectation that the movement is circulation rather than permanent migration is therefore upheld, firstly in the stated intentions of the miners, but also in the evidence of the relatively short average duration in mining of present miners, at least in the A.D.M.S. and I.D.M. sections of the industry (5.0 and 3.4 years respectively). N.D.M.C. employees are distinct as a more stable force with 9.8 years average service with the company. As licensed and illegal mining had been going on for some 15 to 20 years prior to the date of survey, it can be assumed that many former miners had indeed already left the industry, especially amongst the numerically dominant alluvial and illicit forces.

Return migrants. The evidence presented on the small number of villagers, who returned to their homeland between 1971 and 1976, indicates that they were firstly failed migrants in that they had earned lower than average urban incomes; secondly that they had resumed agriculture; and thirdly that they were for the most part contented so to do. They appear to evidence a situation in which many urban in-migrants, less than satisfied with their urban economic situation, are constantly casting glances over their shoulders to their homelands to see how the agricultural economy is faring. In other words many migrants appear to be responsive to improved real-income earning potential.

Lack of seasonal fit. Despite the fact that the severance of connection with the homeland is not regarded as permanent, and despite the fact that there is a clearly defined slack season in diamond mining during the heavy rains, there were very few cases (29 of 716) where migrant miners returned home to undertake farming in their homelands on a seasonal basis. The nature of the circulation is long-term rather

than seasonal, although most, but by no means all, miners do repay a visit to their rural homes at least once a year, usually staying there for a holiday visit only however, rather than to participate in farm-work seasonally. No seasonal integration of urban and rural activities can therefore be identified.

Overall, these six features of the migratory pattern existing in Sierra Leone's diamond mining areas and selected for special note here, draw a clear picture of movement more for economic need than for personal desire; of an impermanent move that will not lead to a settled urban population; of a willingness to follow economic promise wherever it may lead, even home again; and of a lack of success in the movement from the point of view of the average rural out-migrant in that his expectations are often frustrated by his wrong assessment of the costs and opportunities of urban life.

Reflections on Diamondward Migration

The poverty trap. Within the framework of economic theory, this pattern of migration seems to justify many of Samir Amin's charges levelled at rural-urban movement as a form of neo-colonialist exploitation. For certainly the average migrant has been shown to be in an unenviable position largely unable to fulfil his ambitions, and often exploited because of the structure of the industry in which he is working, which has led to under-capitalised petty entrepreneurs being caught in the iron grip of financiers, often non-African. The average migrant finds himself exchanging rural subsistence agriculture for urban or semi-urban labouring for which he does not receive a regular wage, but for which he instead receives his subsistence and the chance of some further benefit. He exchanges in effect the patronage of the extended family and the village farm for that of the diamond tycoon and the mining plot. He thus does not obtain the independence he was seeking, and certainly he does not escape from the poverty trap.

What is conceptually important is that such conditions continue to attract large numbers of migrants year in year out. Clearly Todaro's emphasis on expected gains from urban employment is of prime importance here, but in the peculiar circumstances prevailing in Sierra Leone's diamond areas, it is possible to go beyond this and say that even the chance of gains is quite enough to attract many migrants. Thus every year men take a gamble with their labour and hope for above average returns in their own cases. Given that most men have some gambling spirit within them, the application of this trend in the more normal circumstances of the chance of finding employment in an urban centre seems likely to imply that increasingly urban unemployment or even diminishing average rural-urban wage differentials will for considerable ranges do little to deter further flows of migrants, each of whom will see his own chances as better than they actually are. If a man is willing to gamble six months' hard toil and risk receiving nothing, is he not equally likely to risk six months' idleness, not necessarily unpleasant if the extended family assures him in his meals, while seeking an urban job?

It remains true however that many migrants are in fact 'chasing a rainbow', to follow Lipton's (1977, 218) phrase, and that urbanward migration does not solve the problem of the 'have-nots'. Indeed even amongst the migrant miners, Lipton's argument that the chance or urban success is remote, appears true. The company employees enjoy security of jobs, fringe benefits such as company housing and medical facilities, and even pensions, earn more than many other miners, and respond to their privileged situation by remaining much longer in urban employment. Nevertheless, they still express the eventual intention of returning to their rural homes, thus not becoming successful permanent in-migrants. In education and in parental occupational background, as well as in their own past experience, company employees have been shown to be distinct; 39% of company employees with some schooling, against 21% of I.D.M. and 7% of A.D.M.S.; two-thirds of company employees with previous non-agricultural employment against one-third of other miners. Thus even this group with its privileged start and

present benefits does not become fully integrated. However, while the present generation of company employees may not themselves become permanent urban dwellers, they do remain long enough in residence to create a situation where many of their children are urban born and bred, and begin their schooling in town.

Barriers to rural-urban migration? Whether or not there is enough evidence to identify company employees to some extent with Lipton's 'less-poor' in-migrants, it is interesting to note that several of the barriers he expects to operate against the very poor being able to migrate do not exist in the case of Sierra Leone's diamond fields, and thus many of the A.D.M.S. tributers and I.D.M. have been able to enter 'urban employment', albeit of a rather unusual nature in that it is not regular wage employment. The lack of restraints to migration in Sierra Leone is thus once again emphasised.

The restricting factors Lipton notes, which are not significantly present in this case, are as follows.

1) Lack of information. Sierra Leone is small enough and the diamond boom well known enough for there to be virtually no community in Sierra Leone which has not had its share of participants in the movement to the mines.

2) Literacy. Because of the particular circumstances of the diamond boom, lack of literacy disqualifies no-one from participation in mining.

3) Limited vacancies. As a result of the scale and widespread nature of diamond reserves in the mining areas, and because of open entry to I.D.M., there is no restriction on the number of participants in diamond mining. Excess competition, whether in mining itself, or in the associated services and trading opportunities, will of course reduce the extent of individual rewards.

4) Lack of cheap public transport. The small size of Sierra Leone, the development of major highways, and the competition between passenger transport operators, ensure that travel expenses are rarely a long-term barrier to movement of potential migrants.

5) Language. Although Sierra Leone has around a dozen languages, the *lingua franca* of the market place is Krio, evolved from a blending in earlier centuries of English, other European, and African languages. Although dictionaries and grammars of this language are making their appearance in the latter half of the twentieth century, Krio is essentially a spoken language and therefore communication amongst illiterates of different ethnic groups is not a major barrier, despite the fact that many older people and residents of remoter communities remain quite unfamiliar with Krio.

Migrants and Rural Development

Overall, it appears from the foregoing discussion that migration to the diamond fields has meant little immediate benefit to the typical individual, at least when measured in direct economic terms and against his expectations. For urban living costs erode the individual's possibly higher earnings. From the national viewpoint, a much smaller labour force could exploit the diamond wealth of the country more methodically and hence less wastefully, while at the same time paying the Government of Sierra Leone considerably more revenue. Fortunately perhaps in view of the fact that diamonds are a wasting asset, most migrants express no intention of settling permanently in the diamond areas. Indeed signs of dwindling reserves have been showing themselves clearly since the mid-seventies, and only higher export prices have offset reduced production. For example, N.D.M.C.'s production in carats fell from 732,000 in 1975, to 481,000 in 1976, and to 417,000 in 1977. However, earlier evidence that even the <u>chance</u> of a lucky find will induce many more migrants to the diamond

areas, coupled with the apparent tendency for more widespread education and better lines of communication to produce more rural out-migrants, mean that Sierra Leone is likely to continue to find an excess of underemployed, lowly rewarded in-migrants to its diamond areas. Unfortunately, the revenues arising from the diamond industry in the past have allowed development to proceed along lines oriented towards capital intensive infrastructure, which has not generated alternative employment opportunities in other sectors, that might act as attractions to potential migrants.

At the perhaps justifiable risk of being repetitive, put at its simplest, the pattern of migration studied for the most part reveals young men leaving their rural homes in an effort to earn a more rewarding livelihood than they can in their villages. Their urban venture is intended to be of limited duration, the exact number of years of participation apparently depending on their degree of success, a success which for many proves elusive because of the costs-of-living they encounter, and possibly too because of the structure of the industry in which they work, a structure that allows the capitalist organisers to exploit the unorganised labour force and to leave it with just enough rewards, or more exactly just enough chance of rewards, to continue participating. The venture is at best a gamble, at worst rampant exploitation, possibly because of unequal bargaining strengths.

Three most important conclusions can be drawn from this situation vis-a-vis rural development in general.

1) It is clearly true that tens of thousands of Sierra Leoneans have been willing over the years to migrate to 'opportunities', which in reality give them a very limited prospect of economic success. It can therefore be assumed, as has been noted, that because of expectations always exceeding the reality, rural-urban migrants will over-subscribe their labour to any economic opportunities

occurring, provided that their chance of rural prosperity is as low as it has been shown to be historically in the Sierra Leonean countryside. This over-supply of labour will itself operate to ensure the probable lack of success of their migrant ventures. It appears therefore from the fact that many migrants persevere in diamond mining despite years of very limited reward, that the average miner is well aware of his very low potential level of real income in the village. In his terms he is "voting with his feet" and saying "What else can I do, but carry on digging and pray to God that he will one day reward me? I have surely no alternative." In economic terms he is expressing his conviction that the level of rural cash income is a key variable affecting the individual's decisions first to migrate and later to remain an absentee from his homeland, and thus stressing the probable accuracy of Levi's (1971B) contention that the level of rural real income has significant influence over the extent of migration, apparently in preference to Todaro's views on urban-rural income differentials. In the next section of this chapter we will turn attention to considering to what extent and by what methods rural real income levels can be raised.

2) The expressed desire of most migrants to return to their homelands; the pattern of motivations to migrate that include such reasons as 'to obtain a dowry and come home to marry;' the limited duration of residence of most interviewees in urban areas; and the youthfulness of migrants studied, all point to a pattern of movement that is not one-way migration, but rather limited-duration circulation. In other words the orientation and eventual ambitions of the migrants remain rural, and their desire is to eventually establish themselves in rural homes and occupations. There is therefore an apparent desire to return home provided economic circumstances allow. The orientation of this study must therefore move towards answering the question "Can rural economic circumstances permit a 'reasonable' standard of living in Sierra Leone?"

3) Very clear evidence of the willingness of the migrant force to till the soil is available in the very nature of their 'urban' jobs: for as miners in the labour intensive sector of the diamond industry, they are undertaking arduous work on the land. Indeed they have exchanged 'a spade for a spade,' and thereby testify that there is no question of manual work being unacceptable to them. This point is most important against a background of literature that tends to emphasise the rejection of farm jobs as undesirable. Given the appropriate rewards, the jobs will be acceptable: indeed even the chance of a reasonable reward seems acceptable, which is of significance in an agricultural context where yields are dependent on climatic and other uncertain factors. Return to the villages and readoption of farming by some former miners endorses this argument.

Thus we appear to have a situation of: 'ABLE WORKERS DESIROUS OF BEING RURALLY BASED SEEK AGRICULTURAL WORK WITH REALISTIC REWARD.' How can their 'advertisement' best be answered in Sierra Leone?

Swamp Rice Farming

Possibilities and returns. While mangrove swamps near the mouths of major Sierra Leonean rivers have long been cultivated with paddy rice, initially in the north along the Scarcies River and more recently in the south also, there has been historically little development of rice growing in the, individually often limited but in aggregate considerable, areas of inland valley swamps. The most obvious change in the structure of the agricultural industry would be the transfer of much rice production from the uplands to the presently largely unused swamps. Continuous cultivation could thus replace the age-old and land-wasteful system of rotational bush-fallow that is currently extensively practised.

The per-acre manpower requirements of swamp rice (assuming labour intensive techniques) are somewhat higher than those for upland farming (75 days), averaging around 88 days in the Makeni area, according to findings of the research team from the German Development Institute (1973, 77). This labour requirement excludes initial brushing of an inland swamp, an often unpleasant task when undertaken manually in view of the thorny nature of much swamp vegetation (see below). The peak labour requirement of 50 man days is between June and August for preparation of the ground, nursery work, and transplanting. This coincides much better with the 'idle' season of diamond mining, and returnee migrants could more easily participate in swamp farm work, than they can in the upland farms where peak requirements for brushing coincide with the busy mining season before heavy rains begin in June (March-May).

As the average farm family in the area has already been shown to be able to provide 92 man-days/month (based on 0.7 male man-day/female; 0.3 man-days/child; 20 working days/month), and as there is no special need for male labour during the peak swamp season, it would appear that the average farm family could manage almost two acres of swamp per month, or four acres in the two of the three months (June-August) in which the appropriate rainfall might occur on an average season. Because of the wider spread peak labour requirement, and despite the 18% greater overall labour need of the swamp farm, the average farm family could therefore cultivate much the same acreage of swamp as upland, even without the participation of return migrants. However, they could expect a greater yield from swamp soils; perhaps 1,400 lbs. of husk rice/acre on a new swamp <u>without application of fertiliser</u> (German Development Institute, 1973,77), implying a total of 5,600 lbs. of husk rice as their annual harvest. With a 66% recovery rate from milling, 3,538 lbs. of clean rice would be obtained after retention of one bushel (60 lbs.) of rice/acre for the next planting. If the same level of consumption as previously is

assumed (of 3,365 lbs, of husk rice/farm household/annum), some 2,000 lbs, of husk rice will be available as a saleable surplus. The price realised will depend on transport expenses to be incurred and on the current market price, but an average estimate of Le4/husk bushel (60 lbs.) would seem reasonable, implying a cash surplus (after the household is fed) of Le133 per household. This amount is of considerable significance in communities where cash was previously only available from the sale of necessary food supply, and in a country where per capita annual income was Le107 in 1970/71, as earlier noted.

Since it is estimated that there are 550,000 acres of inland valley swamps in Sierra Leone of which only 90,000 acres were cultivated in the mid-seventies (Gleave, 1977, 6), we can assume, in the absence of constraints to land use, that for most returned migrants, their marginal output would be equated to the average from inland valley swamps. Assuming the returned migrant works alone (if he is a failed migrant, he will still be trying to save his bride price!), he can cultivate two acres during the three months, when suitable planting weather without irrigation is likely to prevail, assuming he works daily for this busy period. For the sake of argument, we are assuming the returned migrant is anxious to prove himself again, and so aiming for the maximum possible return feasible. This will yield him a return of 2,800 lbs. of husk rice, of which he will lay aside 120 lbs. for planting. He can, if he wishes, market the remainder at Le4/husk bushel, which means his return would be Le179 for his year's work. This is not a particularly inspiring inducement for his very hard work, and he, as in town, has to feed himself as he has sold his output.

However, it is rather better than he would have received from devoting his efforts to upland farming. For 154 man days there would have rewarded him with only 1,800 lbs. of husk rice from two acres against the 2,800 lbs. he has gained from 176 man days in the swamp. This incremental output of 1,000 lbs. has been achieved for 22 days' extra work, and represents a daily return of almost exactly Le3, a more than reasonable daily wage in Sierra Leone. From such comparative gains, he may well derive a degree of satisfaction, and other villagers may be induced to follow him to the swamp.

The improvement in yield per acre noted between traditional upland rice farming and new swamp cultivation, does not terminate the possibilities for improvement in income from rice farming. For it is possible to clear the ground once and for all, introduce controlled irrigation, and harvest annually. That more Sierra Leonean farmers have not done so is probably a reflection of the high labour inputs required to reclaim one acre and establish controlled irrigation on it - estimated, up to readiness for planting, at some 80 man-days. The average household unit probably could not organise enough resources to do this without affecting its current production, and in any case irrigation is better introduced over large areas. Government organisation and sponsorship will therefore be necessary to bring about such development. In many parts of Sierra Leone, water supply would be adequate to allow two crops of rice per annum in such conditions, implying a labour requirement of over 200 man-days/acre, which would to a large extent banish seasonal underemployment from the farming scene.

Through appropriate applications of fertiliser, and by using controlled irrigation and scientifically bred seeds, a yield (main crop) of 2,400 lbs./acre would be on average achieved (German Development Institute, 1973, 19). Costs incurred might include around 100 kgs. of fertiliser per annum plus weedicides and pesticides, totalling under Le10/acre/crop in 1975. This figure is based on the German Development Institute team's assumption of 100 kgs. of fertiliser per acre at Le1.50 per 50 kgs. at 1973 prices: and of Le3.00/acre for pesticides. We have inflated this to a 1975 price of Le10, although since then input and output prices have altered dramatically. The total net cash benefit per acre (after retention of seed rice) might be of the order of Le146, representing an income of Le1.66 per man-day. As one married man with assistance from his wife could comfortably cultivate two acres (as a nuclear family holding) a returning married migrant might be able to value in cash terms his income from intensified swamp rice farming at approximately Le300. If he worked for the whole year on a two-crop basis (assuming available moisture), he might earn some Le500/annum, assuming the dry season yield to be two-thirds of the main crop (or 1,600 lbs./acre).

This would be far above the average per capita income for Sierra Leone in 1972, and a more attractive average income than the diamond fields have normally been able to offer. However, while an element of chance remains (bad seasons, for example), there certainly is no possibility of the extreme riches of a lucky diamond strike. It seems, however, that on the basis of these calculations, albeit crude, such levels of agricultural income could prove attractive at a time when diamonds finds are becoming fewer.

It is necessary to enter a word of caution regarding the foregoing paragraphs. For in the first place any valuations placed on rice are somewhat specious, in that price levels not only change through time, but also from place to place depending on accessibility. However, the valuations used give at least an approximation to values in 1975 and are those relevant within the Sierra Leonean economy. In the second place, the main focus of the present study is labour mobility and not agricultural techniques. Therefore the discussion of possibilities and systems is cursory in the extreme, but it is founded on detailed feasibility studies and surveys by others whose main interest was agriculture. At any rate, the main point of the calculations stands out clearly: that yields per acre can be increased by 50% by transferring from hill to swamp; by 150% by transferring from hill to swamp intensively farmed with controlled irrigation; and by 400% by transferring from hill to swamp cultivated twice per annum. In the face of such trends, significant increases in farm incomes of the order indicated can be expected, and we seem safe in our conclusion that levels of rural incomes can be made much more attractive on Sierra Leone's rice farms through changes in agricultural techniques.

The acreage worked per unit of labour, however, may remain similar (around two acres for both hill and swamp), if the labour input figures utilised prove accurate. In this connection, it is significant that the 1970/71 Agricultural Statistical Survey found the average size of swamp rice farms nationwide to be almost exactly two acres, which lends some credibility to our calculations. The same survey found an increase in swamp cultivation of rice between 1965/66 and

1970/71 of 37%, and notes;

> "It is also known that there has been a substantial increase in the acreage under cultivation for swampland rice due to Government drives to convert the trend of farming Upland rice farming to Swampland rice farming and then to intensify its cultivation." (Government of Sierra Leone, 1972A, 64-66).

Thus, change from the traditional pattern of upland rice cultivation is already occurring, although even in 1970/71 of the 857,174 acres mainly devoted to rice 76% (or 649,408 acres) were under upland rice against only 207,766 acres of swamp rice (including mangrove swamps, often long established).

One advantage of utilising former diamond miners to develop new inland valley swamps would be their apparent willingness to move in pursuit of economic opportunity. This could be significant in view of Spencer's (1973) findings that:

> "The results of the study showed that self-sufficiency in rice production would be very difficult to achieve by 1980, because to achieve it would require substantial transfer of labour between regions...."

Insofar as migration to employment is now adopted as part of the *rites de passage* to manhood as suggested by Finnegan in the fifties, rural-rural migration of young men not previously away from home suggests itself as a replacement of the present rural-urban migratory trend to Kono or Freetown. Some element of redistribution might in this context be seen as desirable rather than unlikely or even detrimental, as Spencer implies.

That further steps have not earlier been taken towards promoting swamp rice cultivation may be explained in terms of the artificially low price of rice in Sierra Leone prior to 1973. Prices have risen very markedly

since then and have consequently been a considerable inducement to produce more and to sell more, sometimes even to the detriment of village diets. In Dandaya, in 1975 traders were coming to the village, srranging their own head-loading and transport, and paying Le5.00 per husk bushel (60 lbs.), against the 1972 situation when Le1.00 - 1.50 was the maximum that could be obtained locally. Such increases in price are bound to have changed dramatically the supply situation, and thus to contribute to the potential attractiveness of rural incomes.

Macro-Economic Considerations

It is possible to project the hypothetical transfer of all the 21,000 I.D.M. to new swamp rice farms of inland valley average two-acre size, and imply a utilisation of only 9% of unused swamps in the country. Adequate acreage would be available to a labour force that has already exhibited its willingness to travel to economic opportunities. It is interesting to consider what the national level impact of such an inter-sectoral transfer of manpower would be.

Agricultural sector. Several impacts can be identified.

1) Supply of rice. On the rather unrealistic assumptions that present farmers will continue to supply the same quantity of rice as before and that our ex-miner farmers will produce average yields for swamps intensively farmed with controlled irrigation, and that 50% of them will be in areas where the water supply allows double cropping, the 42,000 acres we presume them to cultivate would yield 61,000 metric tonnes of husk rice per annum, approximating to 40,000 metric tonnes of clean rice.

2) Import substitution. As can be seen in Table 14.1, since the mid-fifties and the peak of the diamond boom, Sierra Leone has been importing considerable quantities of rice annually, the swings from year to year sometimes being exaggerated by over-stocking in a previous year. At first sight, it would seem that the 61,000 metric tonnes that the ex-miners might produce would be excessive to replace imports in an average year. However, the gross figure

TABLE 14.1

IMPORTATION OF RICE TO SIERRA LEONE,
1955 - 73

Year	Tonnage Imported[1]
1955	32,000
1956	56,000
1957	47,000
1958	32,000
1959	63,000
1960	42,000
1961	6,000
1962	41,000
1963	32,000
1964	1,000
1965	28,000
1966	57,000
1967	33,000
1968	25,000
1969	19,000
1970	74,000
1971	40,000
1972	10,000
1973	(estimate) 60,000

Source: Andersen, Due, and Karr, 1974, 31.

Note : 1. Metric tonnes and husk equivalent.

would first have to be reduced to allow for domestic consumption by the producers - let us assume at the rate of three adults equivalent per household and 103 kgs. of clean rice per adult per annum as before. Around 9,700 metric tonnes of husk rice would therefore be allocated for family consumption, and only some 30,000 tonnes marketed, implying little excess of production over home demand. Sierra Leone would thus be saved substantial foreign exchange to import rice - Le23 million in 1974 - a most welcome trend in view of the beleaguered balance of payments situation.

3) Future demand. There are various trends at work in the Sierra Leone economy that would suggest further increases in demand for rice in the future. Population increase has been around 2.4% per annum (Rund, 1973) implying a 1983 population of 3.7 million. In addition rising living standards would probably mean an increase in per capita consumption of clean rice from a national average of 113.7 kgs. in 1974 to 123.6 kgs. in 1983 (Government of Sierra Leone, 1973A, 28). This would imply an increase in demand from the 1974 level of 332,000 tonnes to a 1983 level of 456,000 tonnes, and indicate a ready market for our hypothesised miners turned farmers.

Overall, it seems that there would be land and there would be a market for the output from substantial numbers of extra workers in the rice-farming sector.

<u>Mining sector</u>. Again several consequences would result.

1) Diamond output. It seems probable that the departure of the entire I.D.M. force in Kono and Kenema Districts would have very little effect on overall caratage mined per annum. For in the present situation of dwindling reserves and limited new prospecting, the illicit miners tend to operate either on the company lease, or amongst and around licensed mining areas.

Such a picture is clearly portrayed in the following excerpts from a report in New African Development (April 1978, 81).

"The collapse in production [of diamonds by N.D.M.C.] came suddenly in 1976, but now the trend is clearly established 'almost all the diamond bearing parts of the leases have now been mined,' said one trade spokesman, 'and the remainder is under increasing attack from illicit miners.' There could be up to 30,000 illicit diggers at work and the pressure is such that the diamond fields simply cannot accomodate more people....

"The chairman told the annual general meeting [of N.D.M.C.] that illicit mining had increased in the Tongo field area and was threatening the company's exploration activities in the Woa area. Illicit mining had caused the closure of two plants in high grade areas because it had made them uneconomic to operate."

If this picture portrayed by N.D.M.C. management is accurate, then the production of diamonds might even be enhanced by the withdrawal of the I.D.M., indicating an opportunity benefit, rather than the anticipated cost. The working life of the company operation could thereby be extended.

2) Government revenue. Clearly diamonds mined by N.D.M.C., or to a lesser extent by A.D.M.S. tributers, yield a much higher level of revenue to Government than they would have done if mined by I.D.M. If we assume Le25 million worth of stones mined annually by I.D.M., and that 60% of this could instead be mined by N.D.M.C. and 40% under the A.D.M.S., we could hypothesise an increment to Government revenues per annum of Le770,000 and Le750,000 respectively, totalling Le1.5 million.[1] This would allow an investment by government in the 42,000 acres of new riceland of $35/acre at no cost except that of borrowing the capital.

3) Smuggling. While Government has long condemned I.D.M., illiciting has proved difficult to eliminate because of the persistence of its adherents in the face of economic hardship, and because of the

political delicacy of rendering voters unemployed, The hypothesised swamp rice development would allow the dispersal of I.D.M. in an economically and politically acceptable way. As I.D.M. is much associated with smuggling, the elimination of one would do much to avert the other, especially as much closer scrutiny of dealers' activities would be possible if their only sources of stones were A.D.M.S. licensees, whose output can be more closely monitored.

Planning by persuasion. In all ways therefore it appears beneficial that diamond miners, especially those unofficially and illegally involved in the industry, should return to the land and take up farming in appropriately improved ways. It is not suggested that a sudden switch of this manpower is practical or even useful, although we will discuss in a subsequent section how government could better aid the transformation of agriculture to allow realistic rural incomes to be generated. It has been the intention rather to demonstrate, through considering the implications of restoring labour to the agricultural sector, that rural earnings need not lag behind urban ones, if development policies pursue appropriate goals: specifically if planning and investment are redirected towards redressing 'urban bias' in development patterns.

However, the most important issue that emerges from the discussion above is the fact that individually and collectively migrants do not necessarily identify what is best for them. Their viewpoint is restricted; their expectations excessive; their knowledge piecemeal. In addition they are faced with a given set of circumstances that they are unable by themselves to change. It is necessary, therefore, for government to take an overview of the possibilities, identify, and if necessary enhance, the best opportunities, and guide and encourage the migrants (and potential migrants) in the right direction.

Sierra Leone Government Policy

Control of movement. It would be most unfair to leave the impression that government has done nothing to try to rectify the inter-sectoral imbalance of employment distribution. For many years it has endeavoured to restrain migration to the mining areas by taking legal action to restrict entry to the areas, by conducting periodic drives against illicit miners, and by strictly controlling the issue of licences under the A.D.M.S. However, such measures have been of limited success, and over the years the migrant (and potential migrant) community has become immune to threats of dire action against I.D.M., and have discerned a lack of seriousness in the official intentions. This needs to be rectified.

Agricultural promotion. On the more positive side of enhancement of agricultural opportunities, the government has never been idle, although often inept. Generally in the sixties, investment in agriculture was minimal (for example in 1969/70 agriculture gained 6% only of gross public investment), and often misdirected, a notable example being the embryonic oil palm plantations often in ill-conceived locations and certainly not provided with adequate support after their creation. But there is no need here to detail historical failure: for it is more important to identify the extent of present commitment to agricultural development. This can be fairly clearly seen from two statements of policy, the first from the speech made by the Minister of Development and Economic Planning, when proposing the adoption of the National Development Plan for the period 1974/75 - 1978/79.

> "The acceleration of economic growth will be achieved primarily through significant acceleration of the growth rates of the commodity producing sectors - agriculture, industry and mining, which had been slow in the past. Top priority has been given to agriculture the growth rate of which is projected to increase from an estimated 1.6 per cent during 1963/64 - 1970/71 to 4.6 per cent....

"The largest share will go to agriculture which will receive 25.5 per cent of the total public investment. The emphasis on public investment in agriculture is already evident from this year's Development Budget /1974/ in which 38 per cent of the total projected expenditure will be in agriculture. The proportion was less than 6 per cent in 1969/70." (Government of Sierra Leone, 1974, vii-ix)

The second is a more recent reiteration of this intention by the late Governor of the Bank of Sierra Leone in his 1978 Annual Banquet address.

> "It is my strong conviction that in the face of dwindling diamond output, uncertainty in the iron ore industry and the overall dependence of the mining sector on outside influences, we must concentrate on what we ourselves can control most effectively namely agricultural development. To this end, we must provide greater incentives for our farmers; make rural life more attractive and reduce the drift to the urban areas."

In these statements of policy, a clear determination to transform the agricultural sector is evident and in the latter the vital point of rendering rural life attractive is made. For while we have suggested in this chapter a need for government action, it is still presumed that this action will only produce a situation to which rural dwellers, and perhaps even former rural dwellers, will respond on a voluntary basis. To ensure this response, the government initiative must provide acceptable economic opportunities and adequate amenities in the countryside.

Possible Courses of Action

It may be considered that heavy investment in agriculture in Sierra Leone is ill-conceived, in that forces have already been discerned which are likely to lure ever-increasing numbers away from the rural areas, better lines of communication and more widespread education to name but two. However, we have also discussed the economic rationale of many acts of rural-urban migration, and indicated the potential reversibility of the moves given the appropriate levels of economic inducement. In view of the detailed scrutiny of rice farming that has been included in this study, it is apposite to give some consideration to the question of how adequate levels of rural reward are going to be achieved. There seems to the present author five essential ingredients to any successful agricultural policy in Sierra Leone at the present time.

Intensification of rice production. As the staple foodstuff of the population with an assured market for a substantial increase in production, the obvious commodity deserving of promotional effort is rice. The transference of its cultivation from rotational bush fallow on hillsides to swamps, with controlled irrigation in many cases, is one aspect of the change necessary that has been discussed and has been shown to be happening. The second aspect of rice production that still needs further promotion is the intensification of production, not only on swamps, but also on selected upland farms. Further efforts are needed to make improved seed varieties more widely available for all types of soils and conditions, to promote the use of pesticides and weedicides as appropriate, and to optimise the use of fertilisers, which have the capacity, as has been noted, to magnify yields very substantially.

Extensive tree-crop planting. A logical concomitant to the release of many upland areas from the wasteful bush fallow system, as an

increasing proportion of rice derives from swamp areas, is the introduction of economic tree crops on a commercial scale. Not only would this enhance farm incomes, and with different seasonal peak demands for labour, ensure the banishment of under-employment from the village scene, but it would also act as an anti-erosion measure, especially if associated with the establishment of an appropriate cover crop. Several tree crops, suitable for hillside cultivation, already flourish in Sierra Leone - oil palm, rubber, cocoa, and coffee. The country has recently benefited substantially from high prices for the latter two commodities, export earnings rising from respective 1974 levels of Le7.3 million and Le2.8 million to 1976/77 (July-June) levels of Le24.9 million and Le40.7 million, despite reduced production. Oil palms have long flourished in Sierra Leone, but are often of an age well past the economic optimum. Yet Sierra Leone has a partially unsatisfied home demand for palm oil, the red oil of the mesocarp being the major and most favoured cooking oil in the country. In most years Sierra Leone imports over one million leones worth of edible oils, but market place shortages of palm oil are frequent. Increased home productinn would therefore act like that of rice to reduce the food import bill, and there are in any case several other West African countries which are net importers of palm oil.

It is not possible here to scrutinise the potential market for a variety of tree products, nor yet to consider soil feasibility, but the potential income-generating capacity of tree crops is substantial. If a village community developed a considerable stand of one of the suggested tree crops, or of fruit trees many of which yield excellently in Sierra Leone, income could be shared amongst all participating households. One man full time could probably maintain say 10 acres of oil palm, so on a part time basis away from rice, a farmer could perhaps, with his family, handle a two acre lot. If this yielded him a very modest 5 tons/acre of fresh fruit per annum when mature, he could anticipate a very substantial additional income of around Le750 per annum, depending on the admittedly unstable price of this commodity. Only with the intensification of rice production, does land become available for tree cropping on a large scale. This 'new frontier' should surely be exploited to the optimum.

Management support services. Sierra Leone needs to develop not just greater agricultural extension services, but an adequately integrated system of farm management and support services. Such a system would need to cover not only supplying of seeds, fertilisers, pesticides, and agricultural implements, but also handle on a regular basis supervision of agricultural activities to ensure that appropriate standards are ubiquitously maintained. It would have to go further still and ensure efficient transport and marketing facilities. Possibly as it sophisticated it could encompass provision of rural amenities as well. In such a system, the agricultural officer, or his assistants, become virtually farm managers, with authority over a limited area (probably around 5,000 acres). Failure to achieve carefully planned timetables and targets in that area become his responsibility, and if necessary his downfall. He would be supported by supervisors and field assistants so that no village farmer is ever long without advice and supervision. In such a way, modern farming techniques can be introduced, economies of large scale operation can be gained, and above all an efficient system of farm management can be introduced despite the lack of education of the main body of farmers. Managerial, supervisory, and field assistant positions will be attractive to educated young men, for whom special training establishments would have to be set up. In other words, the leadership of which the rural areas have previously been drained, will be retained and will guide agricultural development.

The provision of such management services would clearly cost money, and in the first instance government money, derived perhaps from the revenues the former sons of the soil have helped produce in the diamond industry. However government could recoup its expenditure either by sales levies, or preferably by charging to each community, or even each individual in it, appropriate costs for the particular services it/he has received. In the same way, development costs (e.g. of swamp clearance, of establishment of irrigation) could be met by government, and collected at a later date once the enterprise is productive and flourishing. Not only is large scale land development

thus made possible, but control of standards is simplified. If the manager of the area also controls marketing, mainly to ensure efficiency, he is in a position to deduct repayments to government from agricultural earnings at source.

The government can contract out by competitive tender to the private sector many of the operations such as swamp clearance, ploughing, and transportation, and with the manager and his staff supervising, not only ensure achievement of standards, but also generate opportunities to promote and guide indigenous entrepreneurs. Many capital expenditures will thus be met by the private sector (e.g. cost of tractors). Funds should be readily available to government to establish such a management support service, both internally from commercial banks, but also internationally, as it is always easier for the nation to obtain funds than for private developers. Many international agencies are stressing rural development at this time. By taking this package approach, government can overcome the problem of provision of capital to the agricultural sector, always slow and messy on a piecemeal basis, while at the same time overcoming the ennui, the resistance to change, that supposedly typifies rural communities in Sierra Leone.

Communal approach. Much attention has been given in Africa generally, and in Sierra Leone in particular, to the problems created vis-a-vis agricultural development by the systems of land tenure still existing, and usually long established and steeped in tradition, rather than clearly defined in writing. However, by establishing a package deal, the communal ownership system through the paramount chief becomes a strength and not a weakness.

For the chiefdom agricultural officer can form a committee together with the paramount chief, with his managers, and with representatives of each village community in the development areas. The traditional power structure is thus married to a modern management system, and the land can remain in the nominal hands of the chief. Each village community becomes one operational unit within a development area,

and works, as it always has done for many tasks, communally, but under the guidance of the manager and his team. The income from yields of rice or tree crops can either be credited individually to one man's nominal area, or communally, but the field assistants will have recorded the work contribution of each individual, and whatever system is used a penalty will be imposed on the idler and credited to the person who has made up his work. After deduction of repayment to government, the manager is then in a position to pay each member of the community his share of the earnings (based on yield), plus or minus extra work done/not done, minus his repayment of development and administrative costs. The commitment of each individual to the success of the agricultural project is thus assured. Village farmer and government advisory staff are thus working hand in hand towards a high standard of agricultural practices, and hence towards rural prosperity.

Individual reward. The study of out-migrants from rural areas discussed earlier, emphasised the economic nature of motivations to migrate. In view of a young man's natural desire to have money in his pocket, it is vital that the reward system for communal agriculture is on an individual and not a household basis, however innovative and unacceptable this may be in the rural situation. For lesser urban earnings may remain attractive if rural work means only 'pocket money', while the majority of a young man's true earnings go into the family coffers. Family bonds are strong in Sierra Leone, and many young earners may well choose to sacrifice much of their income, for example for the education of their younger brothers and sisters. But it is important to them that they do this, each of his own free will, each from his own clearly distinguished individual earnings.

One advantage of the contract system in this context is that it allows alternative rural earning opportunities, apart that is from farming *per se*. Thus rural-rural migration can healthily occur to allow a young man freedom from family ties, travel to prove his manhood or just to see a new place. For a young villager can leave home and earn

a wage as a contract labourer in another development project, as near or as far from home as his fancy takes him. It is indeed the lack of wage labour in the present farm situation in Sierra Leone that makes the rural scene so stiflingly short of job opportunities. By following such strategies, it seems that the Sierra Leonean agricultural scene could be thoroughly transformed, generating along the way attractive rural incomes and possibly resulting in much of the earlier hypothesised migration back from the mining areas to the country's farms.

Summary

The burden of this chapter has been to emphasise that migration to diamond mining has been largely generated by economic necessity, and that many migrants intend and wish to return to their village homes. It has been shown that hypothetically many of them could be absorbed in the agricultural sector through quite simple changes in present farming techniques, most notably in a shift towards intensive swamp farming of rice. However, it has been further argued that by utilising a system of management support services and government sponsored agricultural development, rapid transformation need not be merely hypothetical. Still greater incomes could be generated by utilising uplands released from the bush-fallow system of rice cultivation for large scale tree-crop production. It has been suggested that the communal aspects of land tenure and of village agricultural work could be positively beneficial within this framework, although the provision of individual rewards is seen as essential to retaining, or even attracting, young people on the farms. In short, the purpose of this section of the study has been to demonstrate, in as much detail as space allows, that the long established rural-urban movement is not inevitable, and that in view of dwindling reserves the attraction of the diamond fields is less and the need for an alternative more urgent. Government's desire to promote agriculture and to make rural life more attractive has been stressed, but the policies implemented to date leave much scope for further action, possibly on the lines described.

Footnote

1. New African Development, April 1978, 81 gives N.D.M.C. profit as Le3.9 million from sales of diamonds worth Le64 million. If we assumed the same percentage profit on an additional Le15 million of diamonds, over Le770,000 additional revenue would accrue to Government (including its share of net profits). A.D.M.S. sales tax is calculated at the former 7.5%, which would have been levied if smuggled diamonds had been legally exported prior to 1978.

CHAPTER 15

CONCLUSIONS

Introduction

This thesis has been wide-ranging in its coverage of migration to the diamond mines of the Eastern Province of Sierra Leone, and of the consequences this movement of a significant proportion of the rural population of the country has brought about. It is therefore appropriate to pull together in this final chapter the main implications we have evidenced from this inter-sectoral transfer of labour, from agriculture to mineral extraction for the most part, vis-a-vis the corpus of knowledge on migration and development, and on the inter-relationships between the two.

Migration Patterns

We turn first to summarising the main findings of this thesis on the matter of migration patterns themselves: for it has long been the tendency, particularly amongst geographers and sociologists, to focus attention on these patterns.

Motivations. We found (in chapter 2) a well-established historical and cultural familiarity with migration amongst the peoples of Sierra Leone, with the implication that in times of hardship movement was regarded as a natural avenue of escape. In recent times, economic hardship had therefore occasioned the rural-urban migration of many young villagers. We found amongst the miners studied that 50% of motivations associated with their migration were economic, and that many of the remainder were more permissive than primary. The most commonly stated reasons for out-migration amongst the miners were 'money for a specific need', 'economic hardship' and 'lack of local employment'. The extent of the push factor is therefore clearly demonstrated, and the complete lack of a rural alternative emphasised (see below).

We therefore conclude that economic deprivation in rural areas is the major causal component of rural-urban migration in Sierra Leone, and that

for the economic planner this raises the possibility of manipulating motivation to produce a degree of control over migrating fears through reducing that deprivation.

Geographical Aspects. We evidence four conclusions concerning the geographical dimensions of migration.

i) Step-migration. The theory of step-migration first enunciated by Ravenstein in the 19th century, was claimed by Riddell to describe the pattern of movement in Sierra Leone in the 20th century. We found, however, a high proportion of miners in their firstnon-agricultural jobs (57%) (chapter 6), and this seemed to indicate a different pattern, whereby villagers from all over the country moved directly to the main areas of economic attraction. Additional evidence was gleaned from the studies of Mills and the present author in two chiefdom towns in Tonkolili District, Matotoka and Makali respectively (chapter 7). These small communities could be expected to constitute the first step on the migration ladder, or in other words the first level at which migrant townsmen would be replaced by in-migrant villagers. Both studies showed that this to an extent occurred, but that the rate of growth of population (as high as 9% per annum in Matotoka) produced a situation where the local communities could not generate enough employment (for males) or marriage (for females) opportunities, and that many in-migrants to these centres very quickly passed on to the main areas of economic attraction. We therefore conclude that the process of migration in Sierra Leone is an absorptive one, in that local centres act as a filter and reduce the flow of migrants to the major growth poles to some extent. This carries the important implication that economic policies directed to promote regional growth modes would be an effective way of stemming long distance migrant flows, and possibly of establishing the step-migration process which we presently reject as a description of migration patterns in Sierra Leone.

ii) Distance-decay effect. The way in which migration is quantitatively reduced by increasing distance from the growth pole which constitutes the area of attraction, is most effectively demonstrated by figures 7.1 and 7.2. In these maps, the chiefdom of birth respectively of SLST workers

and of A.D.M.S. licensees is shown, and the heavy concentration within the Eastern Province (i.e. around the area of attraction) is manifest. However, the extension of concentration along the line of the main highway to Kono is suggestive of the way in which lines of communication can counter the distance-decay effect and we discuss below the ways in which such restraints have been diminishing in Sierra Leone. We conclude that migration to the Sierra Leone diamond industry demonstrates a distance-decay effect, whereby a declining proportion of the resident population migrate to the area of attraction as distance from the latter increases, but we see this as a diminishing and non-limiting influence as migrants do travel to the mining areas from the furthest parts of the country.

iii) Between factors. We noted the rapid expansion of 472 miles of tarred road in the Provinces mostly built after Independence; the resulting shorter distances to the mining areas from many parts of this already small country; and the reduction of fares following the introduction of Japanese mini-vans as *poda-podas* for passenger transport (chapter 12) as factors diminishing the capacity of between factors, to restrain migration. In addition, we evidenced (chapter 14) the apparent lack in Sierra Leone of many of the social and economic restraining factors mentioned by Lipton: everyone has information about the diamond industry (more or less accurate); literacy is not a requirement for diamond mining; entry to mining is not limited by available vacancies; and Kris is a spoken *lingua-franca*.

We therefore conclude that the restraints to migration that are often held to exist and are commonly and collectively known as 'the between factors' are not a major influence on migration patterns in Sierra Leone. This implies from the viewpoint of economic planning the need to create some form of artificial restraint, probably in the form of generating inducements for the rural population to stay (see below)

iv) Allometric growth. In chapter 2, we suggested that what we called 'the permissive factors' influencing migrants, might well be of considerable significance in determining the direction of migration, although not the actual decision to migrate. Such factors as having a relative in town or travelling with a friend already established in the area of in-migration, clearly smooth the process of first-

migration, while influencing the final destination. In all, 52% of interviewed miners claimed that a visit to a relative was influential amongst their migratory motivations, while 23% claimed to travel with a friend and 50% noted the stories of friends as influential. These influences (not mutually exclusive)were therefore prevalent amongst migrants to the diamond areas.

We therefore conclude, that what Collier and Green referred to as allometric growth whereby the destination of migrants becomes crystallised in the path of their relatives and co-villagers, appears to be prevalent in Sierra Leone. This has the implication that the news media, especially the radio which reaches even remoter communities in this transisterised age, need to be used as a means of conveying information about employment opportunities throughout the country. Another implication could be the need for the government or employers in new areas of attraction to provide the facilities that the relativ do in existing growth poles e.g. temporary labour lines could be provided for the workforce until migrants have time 'to find their urban feet'.

Selectivity. In chapter 6 we were able to demonstrate the marked selectivity of the migration process. In terms of age, we found 26% of S.L.S.T. employees, 40% of A.D.M.S. tributers and 51% of I.D.M. to be between the ages of 21 and 30 years, against 16% of the total male population of Sierra Leone. Vis-a-vis, ethnicity, we found certain tribal groups over-represented in mining in relation to their representation in the population of the country: apart from the local ethnic groups, the over-representation was especially found amongst the long-distance trading peoples such as the Fula, Madingo and Yalunka. Educationally while 39% of company employees had had some formal education (to primary or secondary levels), the similar proportion for I.D.M. was 21%, but for the nation as a whole (male over fives) only 12%.

We therefore conclude that the long-established expectation (Ravenstein) that migration is selective is upheld in the case of migrant diamond miners in terms of age, education and ethnicity. The former two carry the implication that the resident rural population will be handicapped by lack of young male adults and by the loss of its educated leadership.

This is supported by the age-sex distribution of rural communities in remoter parts of Tonkolili District (Figure 3.1) and by the complete absence of literacy in Dandaya village in 1972 (chapter 3). The ethnic selectivity implies that some minority groups, long established in entrepreneurial spheres may be deriving more than their 'fair' share of the returns from the diamond fields at the expense of other larger components of the population.

Demographic trends. Two important demographic conclusions are exceptionally well illustrated in chapter 9. For our studies unusually had examined not only a resident rural population (in five chiefdoms in Tonkolili District) but also in-migrants from the same geographical area, but interviewed while residing in Koidu, 'the diamond capital'.

i) Marriage and family size. From the comparison of these two study groups, we found that the age of male marriage was postponed as a result of migration, 48% of the rurally resident males in the age group 20 to 30 being married against only 30% of the migrants. However, female marriage amongst the same age group was greater amongst the urban resident women (95% against 91% of these rurally resident). The years of 'potential fertility' had not been reduced by urban residence (if marriage is an important factor at all here in the social environment prevailing.) However, the number of surviving children born to urban in-migrant women in successive age groups was consistently half that born to rurally resident women from the same area of the country. Amongst women of completed fertility the number of surviving children were respectively 6 and 4 for the rural and urban mothers.

We therefore conclude that rural-urban migration does not encourage postponement of marriage amongst rurally born women, but (presumably as a result of greater exposure to, and use of modern methods of family planning) does produce a marked drop (possibly as much as 50%) in the number of surviving children. This important conclusion is founded on a good data base because of the study of urban in-migrants from a rural area for which information was already available. The implication of this finding (if subsequently proved to be widespread) is of profound significance to economic development insofar as this is measured in terms of per capita income.

ii) Polygamous marriage. A second minor finding concerning marriage was the revelation that as much as 49% of the miners studied, who were working for the company, were polygamously married, against insignificant proportions of the other mining groups. This contrast remained even when age differences of the samples were taken into account (chapter 9).

We therefore conclude that employment in the formal urban sector does not necessarily imply a break with such traditional practices such as polygamy, and indeed may encourage them through relative economic security and the phenomenon of the split (rural and urban) family unit. We therefore see the emergence of what Houghton called "men of two worlds" or what are more generally described as 'urban villagers'. The implication of this finding is that even the generally more prosperous formal sector employees (see below) fail to be absorbed as true townsmen and therefore remain as pseudo-urbanites (Lipton).

Economic benefit. The calculations in chapter 8 indicate that the net benefit of migration to diamond mining is not great. This results from the costs of urban living of which the migrant is probably incompletely aware when he embarks on his venture. The figures, however, are derived (in the case of A.D.M.S. and I.D.M.) from aggregate export value of diamonds and therefore are not only averages, but also estimates. Nevertheless, the modest lifestyle of in-migrants and failure to meet many of their economic targets seem to uphold the idea of modest income levels.

We therefore conclude that the migrants remain, for the most part, in poverty and are unable to escape the circumstances of their existence. In other words we agree with Samir Amin that migrants are 'an impoverished proletariat', implying a remaining need for remedial action.

Target achievement. The numerically dominant A.D.M.S. tributers and I.D.M. appear for the most part unable to achieve their economic targets, 82% of the former and 77% of the latter having failed to meet their original target even after five years or more of employment away from home (chapter 8).

We therefore conclude that the extension of duration of urban residence

amongst in-migrants is for the most part because of their difficulty in meeting their targetted objectives. This leads us to agree with Mirade and Fetter that economic goals remain modest but hard to attain in the face of inflation (evidenced by a near doubling of food-prices in the mining areas in eight years).

Another conclusion derives from the information presented on targets and their achievement. For in contrast to the informal sector miners, S.L.S.T. employees in urban employment for over five years had largely achieved their objectives (69%). In other words, achievement of their targets did not mean withdrawal from urban residence. Indeed, the return migrants studied in their village homes (chapter9) almost all had returned because of urban failure.

In view of these two pieces of evidence, we conclude that the belief that urban in-migrant Africans are target markers and that a backward sloping supply curve for labour prevails is not applicable in Sierra Leone's diamondward migration.

Urban elite. There has been considerable discussion in recent years whether or not formal sector employment constitutes a level of opportunity and reward distinct and higher than that enjoyed by in-migrants at large. For example Hinchcliffe sought this urban aristocracy in Nigeria and found none. We, however, found S.L.S.T. workers to have security and fringe benefits lacked by other mining groups, to be generally married and often with a wife and family or part family present in town (81%) (chapter 9). In addition, we were able to distinguish (chapter 6) a group within S.L.S.T. possessing not only educational attainments, but also skilled employment and the rewards that accrue to it. (chapter 8). This group numbered about one third of the S.L.S.T. force or 1,300 persons, out of an estimated mining labour force of 60,000 (in 1968) i.e. only 2%.

We therefore conclude that there exists in the diamond mining sector a small elite of urban in-migrants, who enjoy more education and greater economic benefit than the labour force at large. We presume this group serves as a major inducement to the educated villager, whose aspirations would have him join the group.

Education and migration. In chapter 13, we found many secondary

school drop-outs in Sierra Leone, numbering 5,600 males per annum, which the slowly growing economy was quite unable to satisfactorily absorb. We saw too the tendency for a majority of secondary schools to be sited in urban areas (41% in 1977 in five towns alone) and the resulting migration of some 5,000 first formers every year to school. We evidenced also the urban distribution of ex.educands: 1% of villagers in remote areas had secondary education, against 18% of small town dwellers, 12% of mining area in-migrants and 50% of city formal-sector employees.

We therefore conclude that education increases the propensity to migrate through the double action of migration to school and aspirations of ex-educands. In recent years, the Sierra Leone Government has therefore been inadvertently pursuing a policy of 'migration presumption' through its educational expansion programme. This has led to a position where the illiterate are squeezed out of most employment opportunities because of the over-supply of ex-educands and the concentration of illiterates in residual employment of low remuneration such as A.D.M.S. (93% with no formal education, greater than the national figure). (Chapter 6).

Communications and migration. Chapter 12 evidences the way in which highways stimulate migration and we found a significant negative correlation between distance from a main highway and extent of male adult out-migration.

We therefore conclude that improvement of communications stimulates migration, and as a corellary lead the migrants in particular directions. The implication of this tendency for Sierra Leone can be interpreted as heavy public sector investment 'in migration paths' and lack of spending on directly productive activities to absorb the flow at the end of the path.

Remittances. Controversay has long raged on the matter of whether or not the contributions of out-migrants adequately compensate their homeland for their absence. In chapter 10, we find that only a minority of diamond miners had managed to send any remittances at all up to the time of their interview (27% of S.L.S.T. employees, 50% of A.D.M.S. tributers and 62% of I.D.M. having never sent a remittance.)

Assuming land availability we found the average remittances to fall far short of the value the migrants potential production of rice in the homeland, even after discounting the reduction in mouths to feed.

We therefore conclude that migration represents a net loss to the homeland which is not compensated by remittances sent to the resident family. This in Samir Amin's (1974, 106) opinion means:

> "... no single region of emigration has ever developed in Africa or elsewhere. The transfer - which is more than considerable - is virtually a 'gift' from the poor source areas to the rich areas which benefit from it and this is sufficient in itself to explain the stagnation of the regions of origin of the migrants."

Significantly, we found that most remittances were destined for purposes of consumption rather than production, the high potential utility of cash in poor villages thereby being diminished. In short, it appears that out-migration is not an efficient vehicle to transfer capital to rural areas.

Theoretical Implications

Our finding enable us to comment on several recent theories of migrations.

Expected rural-urban income differentials. Todaro's argument that expected urban-income differentials have an extensive explanatory power over migration does not seem upheld by the evidence of this thesis. We would criticise in the first place the assumption that any single explanation is adequate for a phenomenon as complex and varied as rural-urban migration, and secondly while acknowledging that virtually everyone in Sierra Leone knows about diamonds and the existence of opportunities there, very little quantitative information on likely earnings, and more especially on urban expenses, is available. In particular, the very lack of a regular wage for most migrants to the diamond mines means that the response is to a chance to win reward rather than to any specific level of reward. In other words the migrant is saying 'anything is better than nothing', and we therefore support as an alternative to Todaro's theory that the most concial variable which operates on both demand and supply (of migrants) is the rural-urban income differential, Leis's contention that the

absolute level of rural incomes is all important. In particular we have emphasised in our description of rural lifestyle (chapter 3), the complete unavailability of cash to the rural youth (except at the whim of his elders) as an important motivating factor to the out-migrant. The artificially low prices for agricultural products maintained by the Sierra Leone Government in a mistaken attempt to keep down costs of living, have in this light been a major contributing factor to out-migration. The willingness of failed migrants to return (since 1972 when rice prices began to rise significantly) is additional evidence of this relationship (chapter 9).

In another way, Todaro's migration model does not operate in Sierra Leone. The ease of entry to diamond mining (more especially I.D.M.) means that the equilibrating function he gives to unemployment is not operative. We feel that the informal sector very often provides fringe opportunities to the in-migrant to allow any validity to the concept of unemployment *per se*.

Modes of production. The arguments presented in this thesis, we feel, give ample support to Samir Amin's contention that migration is a function of the structure of the economy in which it occurs. We showed the exploitive nature of the existing structure of the diamond industry (chapters 4 and 8) and we demonstrated the consequences of the heavy public sector investment in communications (chapter 12) and education (chapter 13). We find the migrant responding to the economic environment that the planners in his Government have provided. We see the causes of migration as embedded in the economic strategy pursued, and we agree with Amin (1974, 93) that "the 'causes' of migration cannot be separated from their consequences". We find the circularity of 'the cart and the horse' in road development funded by diamond revenues raised from the activities of migrant miners encouraged by the need to migrate to diamonds that built the road that led them to the diamond areas. We do not however find evidence to support Amin in putting all the blame on the export orientation of West African economies and we feel that the strategy outlined in chapter 14 presents an alternative to 'closing the door'.

Urban bias. We have presented clear evidence that the development

strategies pursued in Sierra Leone do have an urban bias in them, and we therefore support the attention that Lipton has given to this phenomenon. The concentration of ex-educands in urban areas is one evidence of the trend (chapter 13) and the way in which a major highway encourages rural-people to the towns at its ends (chapter 14) shows the difficulty in doing anything about removing the bias. Give education to the rural people, and stimulate their desire to move. Give them better roads, and lessen the difficulty of their movement. It is the enormity of this problem that leads us towards a recommendation for integrated rural development (I.R.D.) as the only solution to present imbalances.

The informal sector. We devoted considerable attention to the I.L.D.'s concept of the informal sector and found it to describe well the A.D.M.S. system of tributing, as well as the illegal diamond mining. We found none of the difficulty suggested by Sinclair in defining the sector, and found the existence of prospering and capitalising components as evidence of the potential of the sector (chapter 4). In all the diamond industry provided over 90% of its employment opportunities in the informal sector, and jobs in associated service trades were similarly distributed (chapter 11). However, from a scrutiny of the income levels of informal sector workers (chapter 8), we found a disappointing level of reward. This we associate with the ease of entry to the sector that applies not only to entrepreneurs but also to the migrants themselves. This ease of entry is part of the definition of the sector and we feel is the fatal flaw that will prevent it from providing more than a residual 'can't find anything better' form of employment. We do not therefore share the I.L.O. team's hopes for the sector in development, but place our faith rather in the policy prescriptions that follow. Expansion of opportunities in the informal sector will only, following Todaro's argument attract more adherents unless action is simultaneously taken rurally at the source of the migrants.

Consequences of Diamondward Migration

In devoting one half of the thesis to the consequences of migration, we were tacitly conceding the importance of migration in

development, and as we have argued the causal role of development patterns in migration. We found, as set out above, that out-migration on the scale experienced in Sierra Leone depletes the rural source area (chapters 3, 14 and above). But the most important finding was the evidence that not only does the pattern of development affect the extent of migration, but migration itself affects the pattern of development. The deployment of so many men in diamond mining and the associated sector in Sierra Leone has meant the diversion of attention from agriculture, which has received very small percentages of successive development budgets. Meantime, diamonds have grown to a disproportionate role in the economy meaning overdependence on that commodity for export earnings, government revenue and non-farm employment (chapter 11). In turn this has meant excessive political 'clout' for the diamond constituencies, and this itself resulted in influences on the pattern of development expenditure e.g. the construction of the Tonkolili-Kono highway: this then led to a pattern of development that generated on going needs for funds and imported commodities (e.g. money for road repairs, and cars and petrol respectively). It would be unfair to say that Sierra Leone's present budgetary and foreign exchange crises can be attributed to migration, but certainly the ability for the potential discontented to exhaust themselves in 'the diamond gamble' has allowed the path of development to proceed on strangely unproductive lines, more especially in non-employment generating investments in social and economic infrastructure. These themselves have encouraged more out-migration and therefore further neglect of the agricultural sector, which latter therefore now deserves our (and the Sierra Leone Government and people's) attention.

Policy Recommendations

We tried to evidence in chapter 4 the potential that the agricultural sector in Sierra Leone has to provide productive employment and generous incomes to the people of a country, climatically well-endowed for prosperity. We see the corner-stone of this policy as integrated rural development. For only through I.R.D. can the various bottlenecks to agricultural development be broken. In particular we emphasised the need for comprehensive management services for the agricultural sector, rather then the piecemeal extension services that exist at present.

We need not, and indeed cannot, lay out a blue-print for agricultural sector development here, but we believe that the principles laid out in chapter 14 from the Genesis of an agricultural development strategy: a strategy that needs the wholehearted commitment of the Government and people of Sierra Leone, if it is to transform the agricultural sector into the main engine of growth, an engine that must produce near vertical take-off, if Sierra Leone is to avoid the restlessness and revolution that roams West Africa.

The Last Words

In conclusion, it is necessary to state the obvious: that we have not provided an alternative model of migration to replace those that we have criticised earlier. This deficiency arises from our belief that no one model has the power to explain this very complex phenomenon, which results from many causes. The whole strategy of development and organisation of the economy influences migration. Every economic and political decision has a migratory consequence: every act of migration a further economic consequence. This pattern of cause and consequence must be absorbed as a whole into development theory and migration digested as part and parcel of economic planning. For migration is the consequence of many factors and its roots lie in many causes. As an integral part of manpower planning these causes and consequences must be constantly considered.

METHODOLOGICAL APPENDIX

INTRODUCTION

The original materials that form a considerable part of this thesis were derived from eight years of research by the author in Sierra Leone between 1967 and 1975. Inevitably over such an extended period, the methods used to study various aspects of labour mobility changed and the lessons from one study were used to improve the techniques of the next. As the years passed research by other scholars in various parts of the world guided the development of the present author's work. Therefore in this appendix a chronological approach is taken, so that the evolution of the overall strategy can be followed. An attempt is made not only to describe what was done, but also to explain why it was done in that particular way, thereby hopefully adding a small contribution to the methodology of research into labour mobility. It is necessary that the discussion of methods remains fairly limited, however, because of the need to outline the techniques used in not one, but a whole series of largely independent studies. This is essential to ensure that the validity of the findings in the text can be better assessed.

MIGRANT MINERS

POPULATION

Population: Initial stratification. The first difficulty encountered in planning research into the diamond mining community in Sierra Leone, was that of

identifying the target population. Classification of the population was not difficult as there were three distinct sub-groups in the mining population, viz. the company employees (S.L.S.T.), the tributers (A.D.M.S.) and the illicit miners (I.D.M.). The nature of each group has been described adequately in the text, and there was initially no problem in conceptualising their separate existence, although further study later showed a considerable degree of overlap and movement especially between A.D.M.S. and I.D.M.

The establishment of the number of miners involved in each group required quite extensive preliminary field-work, consisting for the most part of discussions with relevant officers in the mining areas, and of the scrutiny of, and extraction of information from, available records. It was felt necessary to give as much time and attention as possible to this task, not only because of the desire to draw a scientific sample from the population once identified, but also because of the fact that the number (and nature) of persons involved was inevitably one of the main parameters in any calculation of the macro-economic impact of the diamond mining industry, and of movement to it, in Sierra Leone. This work was conveniently undertaken during the rains of 1968 when travel to interview would have been difficult, and when in any case many mining plots were inactive. A brief description of the records examined, their content and utility follows for each section of the industry.

Population: S.L.S.T. The company sector proved the least difficult to handle, as the personnel department at Yengema Headquarters maintained record cards for each employee. Before utilising these records, two

decisions had to be made to delimit the population to be identified. The first of these decisions concerned the grades of staff to be included, and it was determined to omit the A grade or officers, whose salaries, housing, and fringe benefits identified them as a class apart. A majority of this grade were, in any case at the time of the study, European and therefore wide of the objectives of the study. The second decision concerned the inclusion or not of workers not directly concerned with the extraction of diamonds. An obvious example was the security force, but many other employees, such as those who maintained the company golf course, were remote from the productive process. However the logic was followed that the company existed to extract diamonds and that therefore all employees should be treated as dependent on diamond mining and so included in the study. There would have been considerable difficulty in drawing any hard and fast boundaries in any case. A total work force of 4,087 was thus identified in August 1968.

It was decided to take the opportunity at the same time to extract what information was available from the record card of each employee. The author and Dr. John Sinclair (a sociologist then also working on his doctoral dissertation on job satisfaction amongst school leavers) therefore borrowed the records from S.L.S.T. and extracted for each employee information on age, tribal grouping, religion, marital status, education, employment grade, salary, date of first employment with the company, and chiefdom of birth. This information was recorded on pre-coded slips, and was later processed by computer in the University of Glasgow to produce, for example, the information on birth place of company employees.

Population: A.D.M.S. The Mines Department (now the Ministry of Mines) of the Government of Sierra Leone had regional offices in Bo, Kenema, and Koidu, and each of these was visited with a view to extracting whatever information was available. The best, if limited and cumbersome, source of information, proved to be the duplicate licence books, which contained the carbon copy of each mining licence issued each year (or half-year). These forms contained the name, chiefdom of origin and location of mining of each licensee, and had to be painstakingly gone through for selected years (1957, 1962 and 1967) and marked up on tally sheets to produce in the end only the broad trend of migration to the alluvial mining scheme. This exemplifies the extent of spade-work that had to be undertaken before the main study could get fully underway, while at the same time emphasising the general ignorance that prevailed about migrant miners in the diamond areas. Hearsay, and even the written word, often proved false, and primary sources had to be minutely examined to build up the total picture as accurately as possible. The resultant findings in the case of A.D.M.S. were nevertheless far from complete. For some licence books were no doubt misplaced, or destroyed by the ravages of termites and other such trials of the tropical archivist. In addition, the Mines Department only had this information, limited as it was, about licensees and not about their tributers, on which few records were maintained. It was possible to derive from partly maintained summary sheets of mining activity, a figure of 15 as the average number of tributers per mining license issued, and so arrive at an estimated figure of over 30,000 workers in the A.D.M.S. for the 1968/69 mining season, when interviews would take place. No more accurate estimate of the total A.D.M.S. population could be achieved, nor could any start be made to identifying individuals in that population.

Population: I.D.M. By their very nature, illicit miners were bound to prove elusive to identify, and discussion with security and police officers was the only attempt made to establish a notional figure. The only point of agreement appeared to be the considerable degree of fluctuation in numbers of I.D.M., dependent at least in the eyes of these officers on the degree of severity of the security measures in force. In the case of this group of miners, therefore, not only was no listing of participants available, but in addition the dimension of the population was vague to say the least, and, to make matters worse from the researcher's view point, it appeared that the population was extremely fluid even in the short term, rendering identification of a well-based sample virtually impossible.

In the text of this thesis, some attempt has been made to indicate possible trends in numbers involved in I.D.M., but no one is more aware than the present author that the figures displayed are mere guesstimates, based on assumptions that can certainly be queried.

SAMPLING

Framework. Enough has been said in the previous section, to indicate that the task of drawing a scientifically based sample of diamond miners appeared daunting and would indeed force the utilisation of a considerable degree of improvisation in two of the three groups. However, geographically a framework was emerging, which involved two decisions regarding inclusion and exclusion. The first was that all participants in each group, whether or not they were migrants, should be involved in the study. This decision was made in the first place for the logistical reason that for most of the

Each of the sample frameworks is considered in turn, as it was impossible to use the same basis for all three sectors of the industry.

Sampling: S.L.S.T. The pre-coded slips used to record the available information on S.L.S.T. employees were numbered in sequence from no particular pre-arranged order. The slips were then sampled as a whole using random sample tables, and allocating the selected employees to Kono and Kenema sub-strata as appropriate until their respective quotas of 160 and 44 were filled representing a 5% sample in each case. In fact, additional employees were drawn in each case as substitutes. Substitution was allowed in cases of unavailability of employee for interview (e.g. sick-leave), but also when the employee had retired or died since he was included in the sample (on the grounds that a replacement would have been appointed in most cases thus maintaining the size of the population). Ideally of course the retired employee should have been excluded from the population listing, but inevitably there is a time-lag between an event and its appearance in personnel records, as there is between the drawing of a sample and the interviewing of the persons selected and a compromise must therefore be made. Substitution concerned approximately 7% of cases, and the two quotas were thus successfully achieved. The S.L.S.T. sample can therefore be said to be scientifically based, although rather small for a population of this size. A comparison of sample and population age distributions (see Table A - 1) rather disappointingly revealed considerable disparities between the patterns, although the dominant 31 - 40 year age group included just over 35% in each case. Broadly speaking, the sample had a lower proportion of younger and a higher proportion of older people, and a chi-square test indicated that

the two distributions were markedly different. However one possible explanation of the variation is the large number of cases for which age information was missing on the record cards (2,412 or 59%). It seems probable that the ages are more frequently missing on older records, thus falsely diminishing the proportion of older workers.

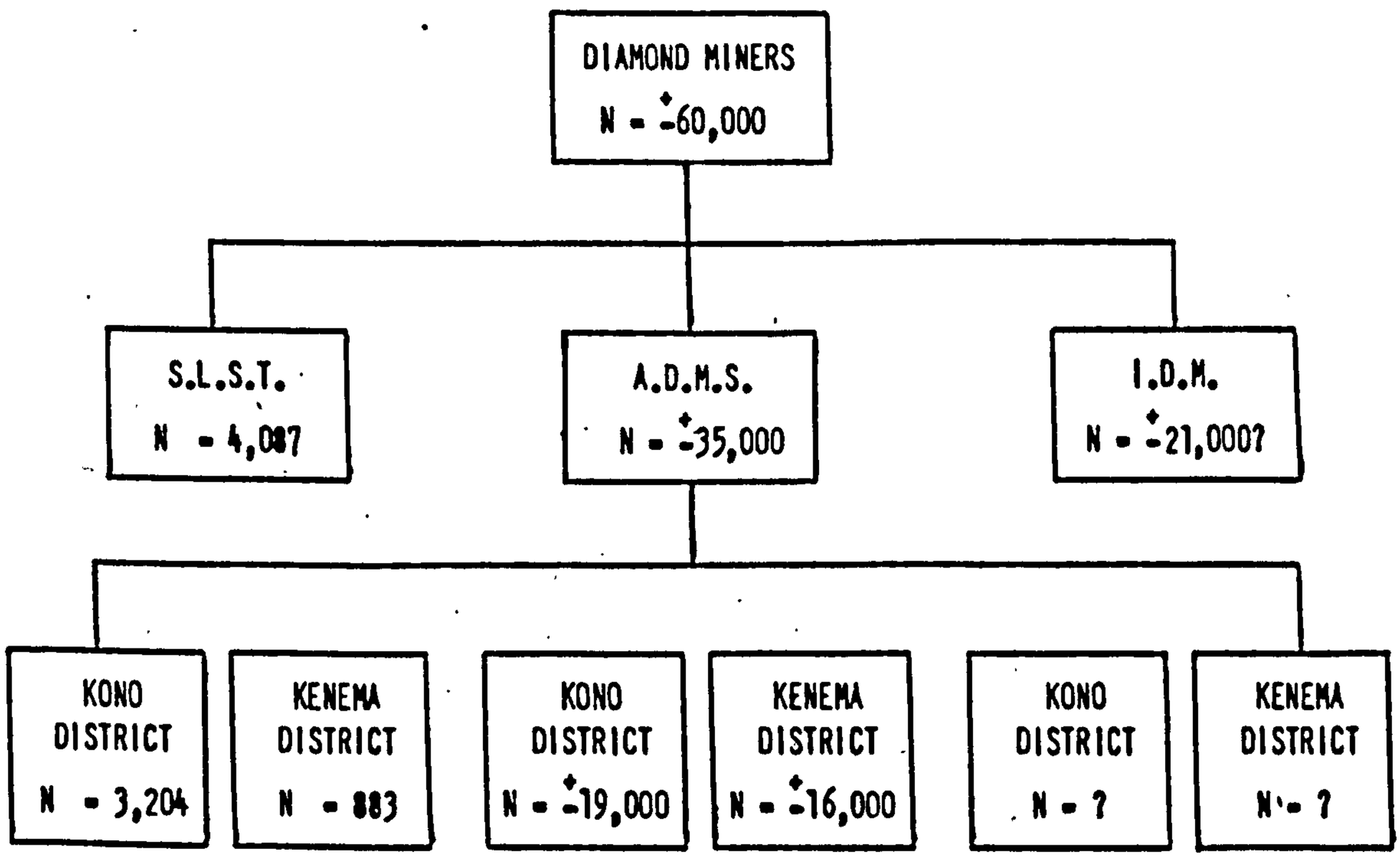
Because of this possible bias, it seemed worthwhile to test the representativeness of the sample against another variable - ethnic distribution. On this occasion, as can be seen in Table A - 2, the two distributions displayed a strong concordance, and a chi-square test proved the distributions to be the same, thereby encouraging confidence in the validity of the sample drawn despite its relatively small size.

TABLE A - 1

COMPARISON OF AGE DISTRIBUTIONS FOR S.L.S.T. SAMPLE AND TOTAL WORKFORCE

Age group	5% sample		Total Workforce	
	Nos.	%	Nos.	%
Under 21	3	1.5	67	4.0
21 - 30	52	25.6	605	36.1
31 - 40	72	35.5	591	35.3
41 - 50	59	29.1	324	19.3
51 - 60	13	6.4	81	4.8
61 and over	4	2.0	7	0.4
Total	203	100.0	1,675	100.0
Missing information	1		2,412	
Chi-square = 16.53 > 11.07, as tabulated for α = 0.05 and df = 5				

potential interviewees the relevant information would not be available until the interview was underway, and secondly because it was important to establish the extent to which mining labour was migrant. The exclusion was of the relatively dormant mining areas in the Southern Province, which were, in terms of numbers, relatively insignificant, and which involved mostly local migration in any case. The focus of the study therefore became the diamond fields of the Eastern Province and each major stratum of the sampling frame-work was sub-divided into two geographical components thus:



Geographical variation has not been greatly emphasised in the analysis in the text of the thesis, as intra-industry comparisons between the different mining groups were regarded as more important. Rather the geographically based sub-strata were introduced to broaden the coverage of the study and ensure its representativeness of the Eastern Province as a whole.

TABLE A - 2

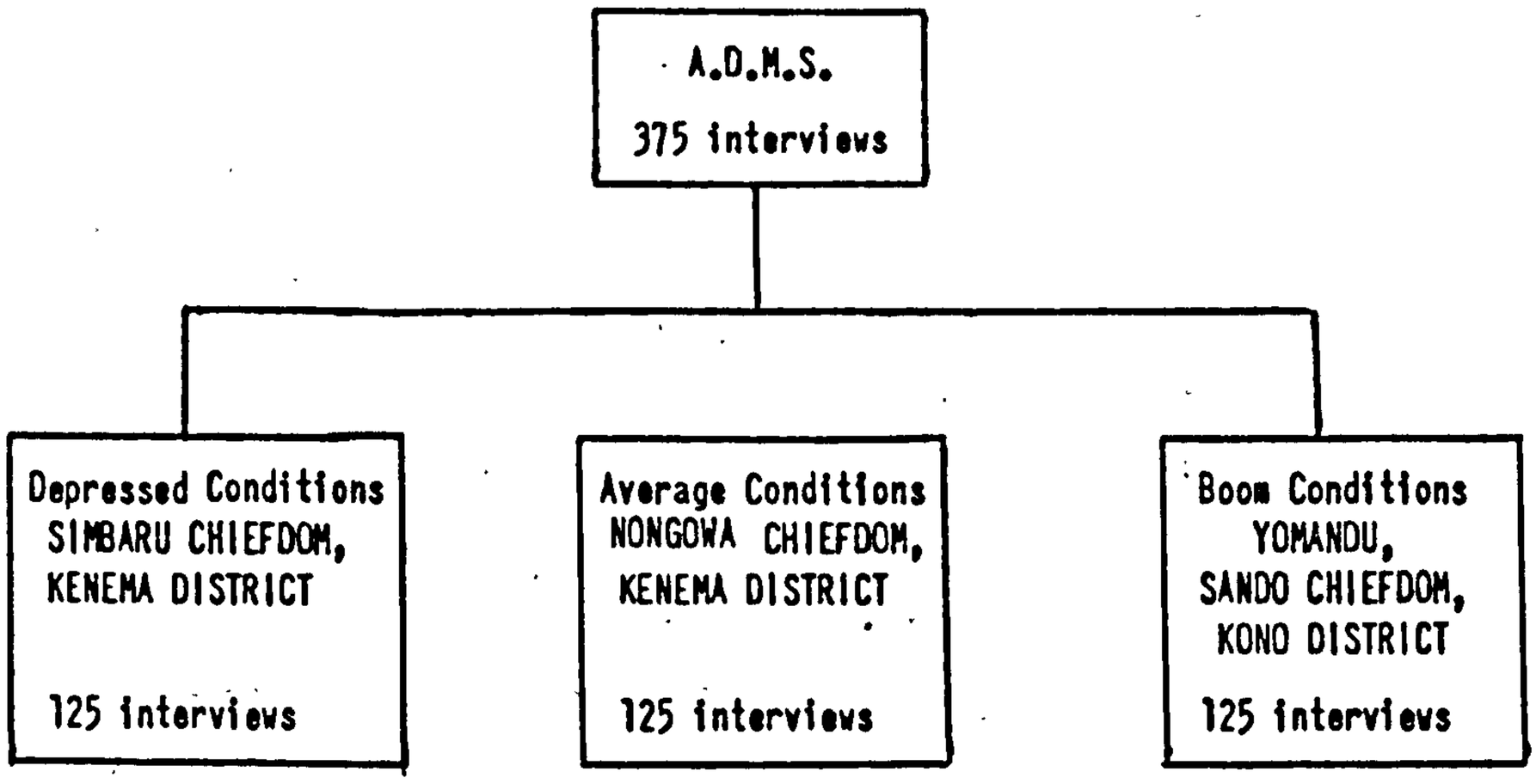
COMPARISON OF ETHNIC DISTRIBUTION FOR S.L.S.T. SAMPLE AND TOTAL WORKFORCE

Ethnic group	5% sample		Total workforce	
	Nos.	%	Nos.	%
Creole	2	1.0	64	1.6
Fula	1	0.5	34	0.8
Kissi	9	4.4	217	5.3
Kono	59	29.1	1,232	30.1
Koranko	14	6.9	239	5.8
Limba	4	2.0	92	2.3
Loko	0	0.0	34	0.8
Madingo	3	1.5	75	1.8
Mende	73	36.0	1,456	35.6
Sherbro	2	1.0	78	1.9
Susu	2	1.0	39	1.0
Temne	8	3.9	182	4.5
Yalunka	0	0.0	13	0.3
Other/Unknown	26	12.8	332	8.0
Total	203	100.0	4,087	100.0

Chi-square = 5.31 < 22.36, as tabulated for α = 0.05 and df = 13.

Sampling: A.D.M.S. It was apparent from the preliminary findings that any method of sampling those involved in the A.D.M.S. would have to be based on the licensees, and not on the tributers themselves as no listing was available of the latter. It was equally apparent that the total population was too large to attempt a generally based sample of any significant proportion, at least when working on the premise that the interviews would all be conducted by the author. Discussions were held with Mr. H.L. Van der Laan, the Acting Head of the Department of Economics at Fourah Bay College, on how best to overcome this problem. His experience of the diamond industry led him to suggest a sample based on selected areas representing boom, average and declining conditions, as he felt that the level of activity would be one of the most influential factors affecting migration to a given area. The most obvious area of declining mining activity at that time was around Boajibu in Kenema District, and the Simbaru Chiefdom was therefore selected for this purpose. Nongowa Chiefdom, in which Kenema Town is sited, seemed to have a fairly steady level of mining activity, and its choice had the added advantage of increasing the proportion of interviews in Kenema District, which was only minorly represented in the S.L.S.T. sample. For boom conditions, Yomandu in Sando Chiefdom in Kono District seemed ideal as the area had just been opened for A.D.M.S. activity, and interest was intense. In this last case, the number of licences issued at Yomandu alone was considerable, and only this one boom town was studied rather than the chiefdom as a whole. The A.D.M.S. sample was thus to consist of three sub-strata, each sub-sample being drawn randomly from a listing of the current licences in the three study areas selected. The

Yomandu licences were listed in October 1968, Nongowa in December 1968, and Simbaru in May 1969, as little as possible before the respective dates of interview.



The size of sample and its method of selection had next to be resolved, and it was felt that to retain some degree of consistency with the S.L.S.T. sample, it would be useful to interview 5% of the licensees in each sub-stratum, and their tributers. However, to ensure a reasonable dimension to the task a target of 125 interviews for each area was set on a quota basis. Up to the legal maximum of 20 tributers, all those working on the sampled plot on the day(s) of interviews would be included. The 125 interviews were achieved in each case, but the percentage of licensees interviewed varied in each case, and indeed was hard to determine, as many licensees were found to have packed their bags and their plots were unworked by the time of intended interview, an inevitable consequence of the fluid nature of this section of the industry. The undernoted figures summarise the situation, the first column indicating the number of licences issued, listed in order of issue, from which the random sample of licensees was drawn.

	Licences listed	Licensees required (assuming 5%)	Licensees interviewed	Visited licensees not working	Tributers interviewed
Nongowa	95	5	10	21	125
Simbaru	146	7 - 8	10	24	125
Yomandu	188	9 - 10	9	8	125

Anticipatably less licensees had given up working in the boom area than in the less active ones, and hence the rate of substitution was less there, but overall the level of substitution was very high. In addition, in the less active conditions of Kenema District, the average number of tributers per plot was less, and the target of 125 interviews could not be achieved without raising the percentage of listed licensees to nearer 10% (and this would be a higher proportion still of active licensees). At any rate the target of 375 interviews was achieved, 250 in Kenema District and 125 in Kono, and the principle of a census of any selected plots found active was followed. The short unstructured interviews with the licensees (or their managers) proved most useful in analysing the economics of the A.D.M.S. and contributed majorly to the breakdown of distribution of diamond profits. The aggregation of the three sub-strata may be questionable, but the purpose of selecting the three areas was to achieve overall representation of the A.D.M.S. sector of the industry, and summation has produced the A.D.M.S. figures throughout the text, despite the varying (and indeed uncertain) sampling fractions.

Sampling: I.D.M. For the illicit diamond miners, there was no possibility of any formal sampling, and instead the cooperation of the Commissioner of Police was

solicited and obtained to allow interview of persons held by the police on suspicion of diamond-related charges. On each day of interview, as many such persons held as could be conveniently interviewed, were included in the sample. The sample could thus be described as a 'police determined quota', although it should be emphasised that the arresting officers knew nothing of the study, and hence the basis of sampling did not influence in any way the pattern of arrests. However, a bias may have crept into the study in that the police are supposedly particularly on the look-out for possible non-Sierra Leoneans, amongst which the Fulas are visually the most easily distinguishable. The 15% of the sample who were Fulas, therefore, may exaggerate the involvement of this group in I.D.M., in which nevertheless they do play a significant part. The author also felt that there might be a bias exaggerating the youth of I.D.M., as on several occasions it seemed the interviewee was very freshly arrived in Kono - still 'wet enough behind the ears' to get caught in fact. The sample manifestly was far from perfect, but did produce a quota of 75 interviews from Sefadu Goal in Kono District, and 62 interviews from Kenema Prison. In the latter case, there was not a large enough intake to fulfil the quota, and this may in fact represent a self-weighting feature, as there seemed to be much more illicit mining activity in Kono District, where the goal was packed to capacity. There was no question of substitution in this sample, as the prison officer merely brought each prisoner, together with details of his charge, until the day's intake was complete, or time would not allow further interviews.

It is only possible to hazard a guess at the percentage of I.D.M. 137 interviewees represent, but it

is probably of the order of 0.5%. Of course as their cases had not been tried, there is nothing to say that they were all truly involved in I.D.M.!

INTERVIEWS

Number. As can be deduced from the above sampling framework, a total of 716 interviews were conducted, 204 with S.L.S.T. employees, 375 with A.D.M.S. tributers, and 137 with I.D.M. suspects. Only 13 targeted interviews were in fact not completed because of lack of suitable 'candidates' in Kenema Prison. In all 360 interview schedules were administered in Kono District and 356 in Kenema District, and it is therefore fair to say that the coverage was of the diamond areas of the Eastern Province.

Schedules. A questionnaire was originally designed for administration to S.L.S.T. employees, having first been pre-tested on the labour force at the Rokupr Rice Research Station. The author used the results of that pre-test to produce an article on labour turnover at the Station (Blair, 1971) and subsequently redesigned the questionnaire substantially. Further pre-testing was then undertaken at the Wellington Distillery outside Freetown on an in-migrant labour force there, and some extra minor amendments were made thereafter. The final instrument (see Appendix 1.1) was in English, in which language the author phrased the questions to an interpreter. Both open-ended and limited-answer questions were utilised, and although a coding column was provided, no pre-coding was attempted and there was no field coding done. The questionnaire was designed to cover the basic demographic and socio-economic facts about the interviewee and his family, including his

employment history; the details of his migratory history; the motivations underlying his migration; his relations with his home area and his future plans and intentions.

Apart from minor re-wording to fit the different circumstances of A.D.M.S. tributers and I.D.M. suspects, the same instrument was used to interview these samples as well; and the scope for inter-group comparison was thus maximised.

Dates. Interviews with S.L.S.T. employees began in September 1968 and were largely completed by the end of the year. Because of the necessity of concentrating interviewing outwith university teaching terms, A.D.M.S. interviews commenced only in December 1968 in Yomandu, while Nongowa interviews were partly carried out in January 1969, and partly in May 1969. Simbaru interviews took place in June 1969. In the interim, I.D.M. interviews were conducted at Sefadu Goal in April 1969 and at Kenema Prison in May. Thus the study covered the 1968/69 mining season and interviews were spread over some ten months.

Environment. During the period covered by the survey, times were hardly normal in Kono, although the amazing persistence of the migrant miner phenomenon should not be clouded by the frequency of political and other events. During the author's preliminary visit to Kono in March 1968, the military government was still in power (the National Reformation Council) and the visit immediately succeeded a large scale drive by the army against I.D.M. By the time the main survey commenced later in the year, the A.P.C. Government was well installed after the April 1968 coup. However elections

were imminent in Kono with violence breaking out on nomination day. Generally it was felt that miners were delaying the start of new season operations until the elections were over, and the army was very much in evidence.

In November 1968, when the S.L.S.T. Tongo Field interviews were undertaken, the intended Kenema District elections were cancelled and tribal feelings were running very high. A state of emergency was declared and interviews had to be postponed on a few days when arrests of S.L.S.T. staff carried the tension even into the Company compound. The state of emergency continued into 1969 when Nongowa A.D.M.S. interviews commenced, but by then tension had eased.

The Yomandu A.D.M.S. interviews in December 1968 were conducted during the peak mining season in an atmosphere of near-normalcy, although some miners were back home during the Muslim fasting month of *Ramadan*. For the remainder of the survey, political events were of a fairly low key, but a coincidental, but very intensive, army drive in April 1969 in Koidu ensured that the goal at Sefadu was well-supplied with a 'fresh daily stock' of potential interviewees. While the events of Sierra Leone's history that were being enacted during the period of the field survey rarely impinged directly on the progress of the research, it is inevitable that the fairly turbulent scene had its effect on the presence or absence of many miners. However, so varied is the mining scene and so transient its nature, that it is probably true to say that no point-in-time survey of a group of miners could produce a typical picture. Inevitably the findings have been influenced by events, but they report what was actually the situation at a point of time in an ever-changing scene.

Administration. The author personally conducted almost all the interviews, with the exception of some few A.D.M.S. tributers who were interviewed by Mr. Don Samuels, an American Peace Corps Assistant in the Institute of African Studies. Obviously an interpreter was necessary on all occasions, and it was unfortunately financially impossible to retain one person throughout. In any case interviews were conducted variously in Krio, Mende, Temne, Kono, Limba and Koranko, and no one interpreter could have handled all these languages. The persons involved in interviewing varied from undergraduate students to mines wardens; from holidaying schoolboys to prison officers; from S.L.S.T. clerks to office messengers. Every effort was made throughout by the author to monitor the (to him) partially understood dialogue and to ensure that the full and true meanings of both question and answer were duly conveyed.

Nevertheless a certain degree of external influence was bound to creep into the interview situation, if not in the form of the political and security climate of the time, then in the form of the presence of a European interrogator. A choice had to be made between close involvement in the study and monitoring from afar, and financial considerations pushed the decision towards the former. The author's presence meant little to some interviewees, but more to others e.g. S.L.S.T. employees were accustomed to white officers, but regarded them as a source of authority, and interviews tended to proceed on a superordinate-subordinate relationship. On the other hand in the case of I.D.M. pending trial, a hope for justice arose from the presence of a stranger and the relationship became almost patron - beggar. Uniformed mines wardens and prison officers do not make ideal neutral enumerators,

but they do produce answers in circumstances where respectively mining fever and fear or truculence would otherwise make interviewing difficult. In no case was there a problem of refusal to respond. While every effort was made to explain the purpose of the survey, it would be false and foolish to pretend that the interviews proceeded uninfluenced by such factors, but it would be equally specious to hypothesise a 100% success rate without the close supervision and persistence of the author, coupled with the courteous and willing efforts of those in authority in the various sectors of the industry. S.L.S.T. interviews were often with older men with longer employment and migratory histories, and tended to be of 1½ hours duration. It was quite common later in the survey for a young A.D.M.S. tributer or I.D.M. to be interviewed successfully in half that time.

Location. Interview location had to be for all groups at 'place of work', but the actual interview situation varied considerably from sector to sector of the industry. In the case of I.D.M. suspects, 'place of work' was temporarily goal. For most S.L.S.T. interviews, a desk and chair set-up was possible, very often in a small private office. Usually well-meaning friends and officers could be persuaded to leave, and while not always ideal the interview situation was generally advantageous. In a few high security areas, the session was conducted under surveillance, but usually fairly unobtrusively. Machinery noise was the only serious distraction in some cases.

In the case of A.D.M.S. tributers, conditions were far from ideal. Especially in Yomandu, the intensively mined area meant a high density of tributers, and of

noisy pumps. The latter made interviewing wearisome, while the former were naturally inquisitive about the nature of the enquiry. A small crowd of listeners tended to be in attendance much of the time, and were sometimes inclined to add their comments unasked. Inevitably prospective interviewees tended to be amongst the most interested listeners. In addition, the entire landscape at Yomandu was devoid of shade, and the interviews usually had to be conducted in a tiny *simbek* or under a piece of corrugated iron, designed as a shade, but often giving the effect of an oven (Illustration 28). At Nongowa and Simbaru, the more scattered nature of the mine sites, meant that interviews tended to take place in a more calm and relaxed atmosphere, with the probability of farm chairs and a shady grove amongst the licensees adjoining coffee bushes or whatever, as there was a greater tendency in this area for licensees to be local.

I.D.M. interview conditions *per se* were generally better than those for A.D.M.S. tributers, in that the obvious authority over prisoners wielded by prison officers ensured complete privacy. However, in neither prison could they be described as happy. In Sefadu, the tiny guard-room was used, and this necessitated interruptions to handover keys and the like, and, in the over-crowded conditions that prevailed in the goal at that time, the passage of a seemingly unending, but malodorous, stream of sanitary pails. In Kenema prison, confidentiality was maintained as the author and his interpreter sat with the interviewee in the open air (in dull weather) in the centre of the prison square. This was regarded necessary for 'safety', but meant that many hundreds of bored eyes were staring down upon us from behind barred apertures - a slightly disconcerting effect to say the least.

Illustration 27: The new Tonkolili-Kono highway built to first class standards now passes through open de-forested country, as intensive farming in the vicinity of the road has prevented regeneration of secondary forest. Light traffic allows high speeds to be maintained: between Makali and Masingbe, Tonkolili District (April 1974).

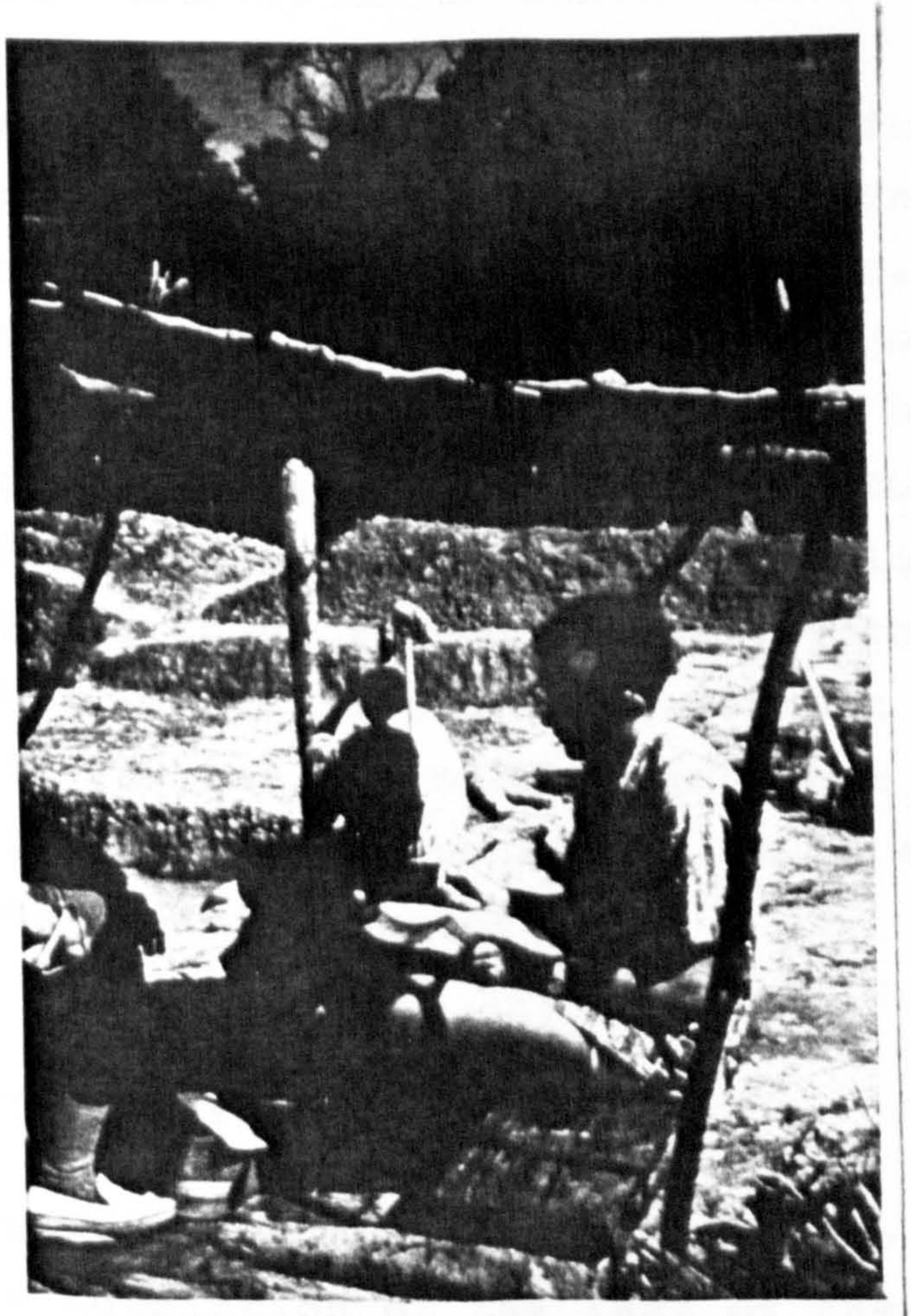


Illustration 28:

The author conducting an interview in a crude shelter beside a mining plot: a mines warden translates (off left), while the interviewee squats centre: Yomandu, Sando Chiefdom, Kono District (January 1969).

The completion of successful interviews was not aided by the scattered nature of the diamond industry, both the S.L.S.T. operations and the A.D.M.S. plots being widely dispersed. Poor road conditions throughout the mining areas did not aid the task of reaching these two groups of miners at their place of work, and it was not uncommon for the journey to take more than twice as long a time as the interview. A fairly high rate of substitution has been noted, and if not detected by an officer (e.g. a mines warden who knew a plot had been abandoned) before departure to the location, could result in much wasted time. Although all company employees could be reached by road, many licensed plots had to be approached on foot, the maximum return distance of 11 foot miles being covered in Nongowa Chiefdom to obtain only a handful of interviews. Such factors contributed majorly to the limited overall size of the sample.

The conditions under which the interviews took place are stressed here, not to underline any hardship or unpleasantness for the researcher, but because it is important to point out that the weaknesses in the resultant data may in many cases be attributable to the circumstances prevailing in the study area generally, and during interviews in particular. An information gap had to be filled concerning the nature of the labour force in the three sectors of the diamond mines. This gap has not been filled, but at least a temporary bridge has been run across it, as a result of this questionnaire survey.

DATA ANALYSIS

Opportunely, the author sailed to U.K. a few days after the completion of the last of the interviews in Simbaru

Chiefdom, and this provided the opportunity to code the information in preparation for computer processing. The preparation of the code list and the coding itself was undertaken between July and October 1969 by the author, with considerable assistance from a friend, Mr. J.R. Landles, then an undergraduate in the University of Glasgow. The data were later punched on to two cards for each record, and the requested listing of frequency distributions and cross-tabulations prepared under the guidance of Mrs. A. Carey, who then organised the use of computing facilities by social scientists in the University of Glasgow. The punching and analysis were undertaken after the author's return to Sierra Leone, and the resultant tables were received by him during the first half of 1970.

An increasing teaching, administrative, and research burden in the University of Sierra Leone, prevented fast progress with the interpretation of these data, and by mid-1971, it had become apparent that an exciting opportunity existed to study both ends of the migratory phenomenon. For the Institute of African Studies was beginning to turn its attention to the idea of scrutinising various aspects of development in Tonkolili District, which adjoined Kono District but remained predominantly rural. Deliberate procrastination therefore was adopted to allow a much broader look into the phenomenon of rural-urban migration and its effects on economic development than had originally been envisaged.

By November 1975, when the author left Sierra Leone, a wealth of material had been gathered, both in Tonkolili District and in Kono District itself. The opportunity was taken, while on sabbatical leave at

the University of Glasgow in 1976, to rework much of the miners' data within the framework of the Statistical Package for the Social Sciences, and the useful facility for application of statistical tests that this provided.

KONO ROAD PROJECT

BACKGROUND

In April 1971, it was determined that the Institute of African Studies, University of Sierra Leone, of which the author was then one of the two full-time research fellows, should launch an interdisciplinary research project, utilising the limited funds available within the University of Sierra Leone to help establish the Institute's research viability. The genesis of the idea that became the Kono Road Project was already in the author's mind. Professor John Peterson in his paper to the Seminar, held in Freetown in 1975 and based on the project, described the origins in this way:

> "The idea of the project sprang quite naturally from the research experience and no doubt the hardships of travel of the Institute's Research Fellow in Economics, Mr. J.A.S. Blair. Mr. Blair's primary research interest had been in studies of labour migration and its effects on the modern mining sector of the Sierra Leone economy. These studies had naturally taken him many times over the earlier, very dusty and rough laterite roads to Kono. One doesn't really know at which point the idea of our study was actually born, but it may well have been one day as Mr. Blair went bumping along in his well worn Hillman, between Makali and

> Masingbe, looking enviously and hopefully at the new road construction going on along side." (Peterson, 1975, 4)

From this rather humble beginning a sizeable project was developed involving at different times no less than fiften graduate faculty members at Fourah Bay College. However, it fell to the author, as full-time staff in the Institute of African Studies, to design and organise the field studies, plan and supervise the analysis, and produce the regular newsletter. The project was officially launched in January 1972, after a preliminary visit involving the author in November 1971. The Kono Road Project involved many surveys, but the major of these was the contemporary demographic survey of 77 villages in Tonkolili and Kono Districts in the rains of 1972. The scope and objectives of the whole Project are best seen in the three volumes of papers arising from the Project and presented at the seminar on Implications of Development on Population, held in Freetown in July 1975 (with the author as organiser). This seminar marked the conclusion of the Kono Road Project and the final dispersal of the team involved in it: the names of members can be seen in the acknowledgements.

In this appendix, the important methodological aspects of the 77 village survey and the traffic surveys only will be highlighted. For it is these two aspects that have made the greatest contribution to aspects of this thesis - respectively, lifestyles in rural areas and out-migration thence, and the impact of communications on migration rates.

CENSUS OF 77 VILLAGES

Purpose of the survey. The greater proportion of the population living in proximity to the new Tonkolili-Kono road was known (from the 1963 census) to be living in communities of less than 1,000 persons. It was therefore decided that any assessment of the effect of the new road on the area through which it passed had to include an examination of its effect on village communities in the area. It was decided therefore to attempt a broad demographic and socio-economic survey of a sample of villages to allow an assessment of the impact of the road on village communities and village life to be made, and to provide a basis from which more detailed sociological and agricultural studies could be undertaken.

Stratification of sample. As one of the primary objectives of the study was to examine the effect of the construction of a new highway on the rural area through which it passed, it was essential to identify this change in as much detail as possible, and to isolate it from change resulting from other influences. As the survey was a point in time study, and the only other available information (in the 1963 census) limited in its coverage, it was decided to establish control areas, remote from the influence of the new road (or of any modern lines of communication), and by comparing and contrasting the patterns that emerged from the 'road' and control areas, assess the extent of road-motivated change. Four strata were thus introduced into the sample: defined as road and control areas for each of the two main ethnic groups - Temne and Kono.

It was decided that ten miles represented a reasonable maximum distance over which the road's effect could be expected to be felt, in the context of predominantly foot movement and head-loading. An area was thus defined as the road area, and was marked-off on the 1:50,000 map sheets of the area (i.e. the area within ten direct miles of the new road).

Sample drawing. From the same 1:50,000 sheets, every named community was listed. Communities of over 1,000 persons were omitted because of the limited manpower of the survey teams, and because of the atypicality of these communities in the area in question. Chiefdom towns and known mining boom communities were likewise omitted because of their specialised functions, and because such communities were being examined as another aspect of the Kono Road Project. In all some 30 communities were therefore omitted from the survey and 683 were listed in alphabetical order, numbered and random sampled.

A 10% sample was drawn - 68 communities in all. These sampled communities were plotted on the 1:50,000 sheets, and produced a rather skewed distribution and it was felt likely that the pattern had been influenced by the preponderance of place names beginning with B in Kono and with Ma in Temne. However, the research teams were fielded in their respective areas, and in both cases 'hit trouble' with their first community. In Kono, the first community proved to be of an estimated 5,000 population, having recently become a centre of diamond mining activity. In Tonkolili, the Temne team discovered no village of the name of the one drawn in the area of the recorded grid reference, but learnt that due to flooding part of the population had moved to a neighbouring village (already drawn),

while others had moved and formed a new community some miles distant. The team leader was uncertain of how to proceed in the circumstances.

After considerable discussion and re-examination of the plotted sample, it was found preferable to abandon the random sample selected, and instead to proceed on the basis of a quota sample. There were various factors weighing the balance in this decision, and these included:

1. the unavailability of the latest (aerial photographically based) survey sheets for part of the area;

2. the dissection of the area by two large rivers (Pampana and Sewa), which meant that in some cases road-area villages were isolated from the road to a considerable extent; and

3. the previously existing network of roads and urban centres meant that many of the villages drawn in the sample had been exposed for considerable periods to the influences of reasonable lines of communications.

The possibility of a grid sample had previously been discarded because of the very varied population density within the area, and especially because of the extensive areas of forest reserve.

It was generally felt that too many sub-strata would have to be introduced to the study to allow a meaningful random sample to be drawn and that over and above this there would still be problems in operationalising the communities for random sampling.

A quota sample was thus decided upon, and for practical convenience trek routes were determined through the key areas of potential change and through remote areas for control purposes and the quota was in this way obtained. It was intended that 54 villages (8% of communities) should be allocated, 30 for Tonkolili and road and 24 for Kono road areas respectively (based approximately on the proportion of the road length in each District), and half this number for each control area, totalling 81 communities in all. During the survey, the quota was one short in both the Tonkolili and Kono road areas, three short in the Kono control area and one in excess in the Tonkolili control area. The final total of villages sampled was therefore 77. It was intended that if this survey produced less than 5,000 resident persons of 10 years of age or more, then an additional quota would be allocated to each of the four strata. In fact the households were large, and the total number of D schedules completed was 5,960.

Questionnaire design. As the research team engaged in the study of the impact of the new road was at least multi-disciplinary in its composition, and was aimed towards an interdisciplinary study, it was agreed that the questionnaire should be a composite one, structured on the question listings, of each participant in the Project. The questionnaire which eventually emerged was, inevitably perhaps, a long one and it was felt that it could most purposefully be administered by sub-dividing the areas of investigation into several different questionnaires to be administered at various levels. Thus the final instrument which was administered emerged as five schedules - A, B, C, D and E. Schedules A and B were administered at the village level, usually to the headman of the village, or, in his

absence, to a representative of the village elders. While schedule A contained only objective and verifiable information, schedule B was largely subjective and contained sections on attitudes and reactions (e.g. to the coming of the new road).

Schedule C was administered to the head of every household surveyed, and related to characteristics of his household. Schedule E was also filled mostly from information supplied by the household head on absentees from his household, whom he regarded as normal members of the household. The second-hand information thus gathered might therefore be expected to be less complete than that in the other schedule.

Schedule D was filled for every adult (10 and over) in the surveyed households, information usually being supplied by the person himself/herself. This schedule is attached as an example (see Appendix 1.2).

Where possible, preclassified answers to questions were set out to facilitate processing, but in the absence of detailed information about the area, many of the questions were open-ended. No field coding was attempted. The questionnaires were in English.

Administration. The questionnaires were administered in July, August, and September 1972 by teams of interviewers, recruited mostly from the under-graduate body of Fourah Bay College. These interviewers were arranged in two groups, one Kono speaking and one Temne speaking, each group being under the leadership of an under-graduate 'team-leader' who had responsibilities for ensuring uniformity of interpretation, comprehensive coverage and internal consistency. The team leaders personally administered all A and B schedules, while

each interviewer, had responsibility for a number of households in each community.

All interviewers received training in the techniques of questionnaire surveys, special attention being paid to the need to avoid leading questions. This training was undertaken by the author, who also ensured, by frequent spot editing, uniformity of interpretation during the surveys, especially between the two teams. The team leaders spent considerable time ensuring the accurate translation of the English questions into the tribal languages. The Temne team had Koranko and Limba interpreters appended to it, while the Kono team had one Kissi speaker, to take account of ethnic mixing in border areas.

Village response. To ensure cooperation, the author visited each Paramount Chief in turn, explained the nature of the work and requested that news of the survey be passed in advance to the relevant communities. The author then visited almost all the selected villages to introduce the survey. In many cases a chiefdom policeman was allotted to accompany him on his round of the villages. In this way, a preliminary explanation was given to every community surveyed, usually in the presence of an official of the traditional authority, and time was allowed for the elders of the communities to consider the matter. In all cases, there was a full response to the survey and no refusals were recorded.

Coverage within the village. While the present author and his party were able to undertake a house count in advance of the progress of the main research teams, it was decided not to sample within the village for two reasons:

1. a census meant a surer basis for comparison through time with the 1963 census: and

2. some villages were very small - in some cases as small as three or four houses - and the sample size would have been absurdly small.

A census was therefore undertaken in each of the 77 sampled villages, using the household-housing definition of the household, which generally in fact coincided with the cooking pot unit. The total number of households and persons covered in each of the four areas is shown in Table A - 3. The location of the communities surveyed is best seen in Blair, 1978, 51.

TABLE A - 3

COVERAGE OF 77 VILLAGE CENSUS

Area	Number of households	Number of persons	Number of adults (10 years and over)
Tonkolili Road	340	4,423	2,514
Tonkolili Control	237	3,039	1,678
Tonkolili District	577	7,462	4,192
Kono Road	277	2,082	1,410
Kono Control	107	556	358
Kono District	384	2,638	1,768
Kono District	961	10,100	5,960

Analysis. The questionnaires, once completed and edited, were transferred to the Institute of African

Studies, where coding was undertaken and the data were prepared for computer processing under the supervision of the author (household and individual schedules), and analysed manually under the supervision of Dr. L.R. Mills (absentee schedules). The Central Statistics Office, Government of Sierra Leone, under the overall supervision of Mr. Max Macarthy, produced the tabulations requested.

Logistics. It is appropriate to make reference to the fact that all the communities studied were rural, and that to obtain the services of university students as enumerators it was necessary to undertake the survey during the rainy season. In addition the control-area villages were by definition inaccessible by motor vehicle, and long treks on foot were necessary to reach them, involving the head-porterage of all research papers and other supplies, Many of the communities in these remote areas were isolated from administration, and 'the survey' was an unfamiliar phenomenon. In some cases, the author was the first European many of the villagers could recall meeting. Due attention to traditional courtesies ensured that cooperation was forthcoming, although the necessary 'palavers' were often excessively time-consuming. Living conditions for the research teams were arduous, usually in the village houses described in the text. It is all the more creditable that despite the immense logistical difficulties of such a survey, Peterson (1975, 6) was able to comment as follows:

"The data collected has turned into a tremendously significant reservoir of detailed information especially on population. Scholars from as far away as New York have come to use it, and it is generally regarded as

the best collection of statistics, for example, on infant mortality in the Provinces, that exists in the country."

In this thesis, the author has been able to utilise this demographic reservoir to provide a framework for analysis of economic patterns in Sierra Leone.

TRAFFIC SURVEYS

Introduction. Of vital significance to the impact of any highway, is the extent of its utilisation. Therefore the Kono Road Project encompassed several traffic surveys. It was not possible for reasons of finance to maintain week-long surveys, which are the minimum desirable to avoid the influence of daily fluctuations, at more than one locality, but nevertheless a fairly clear picture of the overall pattern was developed.

Annual Makali surveys. From 1972 until 1976, it proved possible to assign research assistants to the chiefdom town of Makali in Tonkolili District, where the Kono Road Project had its research base. The assistants were usually unemployed school leavers, who were provided with tally sheets classified by direction of travel and type of vehicle (e.g. bus, lorry, car). A 24-hour observation post was then set-up for one week and manned on a shift-basis to record all vehicle movement through (rather than in) the town. The season of coverage (with one exception) was the rains. The choice of Makali was based on the paucity of feeder roads in the neighbourhood, which could potentially confuse the picture of through traffic flows. This series of surveys was able to produce the trend of traffic 'growth' through time, and in fact revealed decline!

1972 multiple-location survey. In the rains of 1972, a series of 24-hour checks were made at a number of points on the main Tonkolili-Kono highway and on roads leading to it. At a few key-points the surveys covered several days. Because of shortage of enumerators, there was some time-spread of dates of survey, but Sundays and public holidays were avoided. There is probably a wide margin of error associated with these short duration surveys, but the pattern that emerged was very clear and has been discussed in Blair (1978, Table 3). The intention of these surveys was to determine the degree of variation in intensity of usage of various sectors of the highway, and the clear finding was of increasing intensity eastwards into the diamond areas, which generated much local traffic.

Origin and destination study. From mid-June to mid-July 1972, with cooperation from the Sierra Leone Police Force, it was possible to administer a short survey form to drivers of vehicles passing in or out of Kono by any of the three routes to that District. The police posts were established to control movement of non-permit holders into Kono and of diamonds illegally out, and were therefore ideal localities to conduct a traffic survey. To avoid delaying the flow of vehicles, every fifth vehicle in each direction was stopped, and the driver asked about his starting point, destination, purpose of travel, frequency of travel, and loads. Because of shortage of manpower, the survey covered only 9.00 am - 6.00 pm daily for one month. At Mambodu, on the busiest route, a total of 1,126 interviews were conducted. These surveys provided the information necessary both to identify the source and destination of vehicles travelling to and from Kono and also to establish the fact that the great majority of vehicles on the new highway was passenger carrying.

From information of this nature (as well as a survey of feeder roads), it proved possible to identify the broad pattern of traffic flows in and around the new highway, and from this pattern to deduce the economic effects of 'the Kono road'. This road is of especial importance in the context of the present thesis because of its role as the link between rural and urban areas - the migrant channel.

EFFECTS OF MIGRATION STUDY

Background. As a result of the attention aroused by the Kono Road Project, additional funds flowed in from the Population Dynamics Programme of the University of Ghana at Legon, to conduct investigations into two topics, for one of which the author was the principal investigator. This topic was entitled "The effects of migration on fertility and household size in the Tonkolili and Kono Districts of Sierra Leone." Approval was granted in September 1973. This study is pertinent to this thesis in that it allowed change in population through time to be determined and in particular was helpful in establishing the general levels of infant mortality. Only main features of the study are outlined here.

Longitudinal Study. In the first instance the opportunity arose to undertake additional computer analysis of the 1972 data already collected, at least insofar as it related specifically to the topic funded. But more importantly it allowed re-survey of eight selected communities in Tonkolili District, which had already been surveyed in 1972. The villages were selected because they were amongst the larger of those earlier

surveyed with 250 - 500 persons each, and were therefore of a viable size. Nevertheless for the most part they were sources of migrants, and the consequences of this drainage of population had to be assessed both in terms of demography and of agriculture. The eight villages re-studied fell into two categories, four on the main highway and four at least six miles from it, this latter group including Dandaya, which is the object of special study in this thesis. Thus the intention was to compare change in these two areas, earlier shown to be experiencing varying migration trends.

Fieldwork. The fieldwork was conducted under supervision of the author between June and August 1974, some two years after the Kono Road Project's visits. Thus only summary household, resident individual and absentee individual schedules had to be administered to households and persons, who were in the same category as in 1972. However, for returning absentees, new residents, and children who had reached adulthood (again defined for economic reasons as ten years of age and over) fuller details were recorded on schedules of the original design.

Analysis. The analysis of the data collected is aimed at establishing the change in the age and sex structure of the populations that had occurred in the previous two years; at scrutinising the emigrants during that period to determine their destination and function there; at examining the motivations for departure and return of those former emigrants who had returned after a period of absence; and at establishing the mobility during the intervening two years of those resident in both 1972 and 1974. This information is clearly of considerable relevance to the present study, where

emphasis is placed on analysing both ends of the migrant spectrum. However, for the most part shortage of space in this thesis does not allow the consideration of the trends established and their interpretation, although specific items are referred to from time to time. Therefore only the briefest sketch of the methods of data collection has been given here, as the study in any case follows very closely the methodology of the Kono Road Project.

PATTERNS AND IMPLICATIONS OF POPULATION MOBILITY SURVEY

Background. The author submitted a proposal in early 1974 to the 'Program in Support of Population Policy Research in the Social Sciences' run jointly by the Rockefeller and Ford Foundations. The programme was designed "to generate greater awareness and understanding of the multiplicity of factors that influence population dynamics and population policy." The project paper submitted was entitled "Patterns and Implications of Population Mobility in Central Sierra Leone," and intimation of the award was made in August 1974.

Purpose. It was the overall purpose of the investigation to complete the picture of population mobility in central Sierra Leone. In particular the study aimed at determining the extent to which rural centres stimulated migration by serving as a staging post in the migratory process. The age-sex-occupational selectivity of the step process was regarded as of particular interest. A second goal was the study of the differences in economic and demographic behaviour between out-migrants from a rural area now living in town, and the same age group still rurally resident. A third objective was the administration of mobility

registers in two remote communities to determine the extent of in and out-movement and its exact duration.

Local centre study. Makali, the chiefdom town of Kunike Barina Chiefdom in Tonkolili District, was selected because:

i. it is a chiefdom town:

ii. it is on the line of a new main road:

iii. it has a primary and a secondary school:

iv. it has a market and a number of shops:

v. it is beyond the sphere of diamond activity: and

vi. no local politican disturbances confused the situation.

It was determined to undertake a full census rather than a sample survey to allow the data to be used alongside 1963 and 1974 national census information, and also because the survey was intended as a case study, and hence detailed coverage was desirable and possible. The questionnaires used were modelled on those designed for the Kono Road Project, but it was intended to conduct three surveys to ascertain seasonal variation and summary questionnaires were designed for the subsequent rounds. In fact the 1974 National Census occurred in the dry season when farming was slack, and only the other two surveys were conducted under the supervision of the present author - the first in April 1975 to cover the 'brushing' season in upland rice farming, and the latter in July 1975 to coincide with planting. These surveys were successfully administered to around 130 households following the same logistical plans as in the case of the Kono Road Project, and were subsequently coded and the data prepared for analysis by

computer at the University of Glasgow. The statistical Package for the Social Sciences was utilised for this work.

Koidu in-migrant study. The Koidu - New Sembehun Town Council assisted in the compilation of a listing of all dwelling units in the town area and from this was drawn a random sample. Assistants went to the sampled units and asked a few preliminary questions to ascertain whether or not anyone resided in that house from one of the five Tonkolili District chiefdoms in which villages had previously been surveyed, and for which therefore a rural group was available for comparison. In the event of a positive response, a questionnaire was administered about the household (see Appendix 1.3), and individual questionnaires were also administered to adults. One problem with the survey was that a very large number of dwellings had to be visited before the necessary number of in-migrant households from the narrowly defined source area were identified, but in the end the target of 250 households was achieved. The data, once coded, was analysed by computer in the University of Glasgow.

Mobility registers. The technique of the mobility register is well described in Chapman, 1975. A research assistant (changed from time to time to relieve boredom) resided in each of the two villages studied (Dandaya and Nerekoro, both remote roadless villages) for a period of three months. By calling on every household each evening during that period, he was able to record all absences of residents from, and visits of strangers to, the community. This covered residence on the outlying farms, and a very detailed picture of the mobility pattern is thus obtained. Analysis was completed manually.

CONCLUSION

Some indication is given here about each of the main surveys, whose findings are reported in this thesis, and it is thought that the detail given will suffice to indicate the validity of the findings insofar as this depends on the basis of their collection. More details of the methods used have been, and are still being, reported in articles focussed on particular aspects of the surveys (see for example Blair, 1978). It was not possible to debate at length the advantages and disadvantages of each technique used, but major problems have been pointed out when they occurred. It was from this wealth of data, that the author had to select the most pertinent aspects to present in this thesis.

Labour Migration Study - S.L.S.T. Question Schedule

Interviewee's Identification ..... Schedule No. .....

I Personal Data.

1/1.	Age	15-20 21-25 26-30 31-35 36-40 41-45 46-50 51-55 56-60 61-65 over 65	.....
1/2.	Sex	M F	.....
1/3.	Religion	Christian Muslim Pagan Other	.....
1/4.	Tribe	.....	.....
1/5.	Education	Primary I-IV Primary V-VII Secondary I-III Secondary IV-VI Arabic Uncertain None	.....
1/6.	Marital Status	English Law Single Customary Polygynous Separated Customary Monogamous Divorced Muslim Polygynous Widowed Muslim Monogamous	.....
1/7.	Marital Form	Polygynous Monogamous	.....

1/8. Monogamous, more wives — yes / probably — no / uncertain — .....

1/9. Polygynous,
a) How many — .....
b) More wives — yes / probably — no / uncertain — .....

1/10. a) Other women — yes / irregular — no — .....

b) Where
i) .....
ii) .....
iii) ....

IF SINGLE,

1/S. Father of children — yes / no
If yes, how many ....

1/F. Yengema family — alone / male relatives / friends / other..... / family — .....

1/R. Remarks .....
.....

II Family Data. (for married men only)

2/1.	Male children	1 2 3 4 5 6 7 8 9 10 11 12 or more	.....
2/2.	Female children	1 2 3 4 5 6 7 8 9 10 11 12 or more	.....
2/3.	Dead children	1 2 3 4 5 6 7 8 9 10 11 12 or more	.....
2/4.	a) Outside children	1 2 3 4 5 6 7 8 9 10 11 12 or more	.....
	b) Other dependent	1 2 3 4 5 6 7 8 9 10 11 12 or more	.....
2/5.	Male children over 15 (location)	i) ..... ii) ..... iii) ..... iv)	.....
2/6.	Wife(ves)'s residence	i) ..... ii) ..... iii) ..... iv)	.....

2/7. Wife(ves)'s Birthplace

i) .....
ii) .....
iii) .....
iv) .....

2/8 Birthplace of children

in his village at Yengema ..... in wife's village elsewhere.....

2/9. Yengema family

single man
wife, no children
part wife, no children
part wife, children
single man with friends
wife, children
extended
other.....

2/R. Remarks .....
.....
.....

III Employment History.

3/1. Father's Job .....

3/2. Farming experience .....

3/3. First Job

a) Grade of employment ....

b) Nature of employer ....

c) Location ....

d) Duration ....

e) Termination ....

f) Wage ....

3/4. Subsequent Jobs

1. a) Grade of employment ....

b) Nature of employer ....

c) Location ....

d) Duration ....

e) Termination ....

f) Wage ....

2. a) Grade of employment ....

b) Nature of employer ....

c) Location ....

d) Duration ....

e) Termination ....

f) Wage ....

3. a) Grade of employment ....
b) Nature of employer ....
c) Location ....
d) Duration ....
e) Termination ....
f) Wage ....

3/5. Present Job
a) Grade of employment ....
b) Duration to date ....
c) Wage ....

3/6. Since age 15, total
a) Wage employment
i) Birthplace ....
ii) Elsewhere ....
b) Not employed ....

3/7. Year of leaving birthplace ....

3/8. Age of leaving ....

3/9. Birthplace ....

3/R. Remarks .....
.....

IV Degree of Commitment. (for migrants only)

4/1.	Yengema land	no rented pledged owned borrowed	.....
4/2.	Home land	family rights individual legal personal within family none	.....
4/3.	Maintenance	.....	.....
4/4.	Intention of returning	yes no perhaps uncertain	.....
4/5.	Village house	yes no building family house	.....
4/6.	Last revisit	.....	.....
4/7.	How long	few days one week fortnight month quarter more	.....
4/8.	Last remittance	Less than a month ago less than three months ago less than one year ago more than one year ago never	.....
4/9.	How much	Le0-5 Le6-10 Le11-15 Le16-20 Le21-25 Le26 and over	.....
4/10.	To whom	.....	.....

4/11.	For what	school fees hospital other.....	farming function	tax living	.....
4/12.	Rice	yes	no	possibly	.....
4/13.	Local home tenancy	paternal home own house rental rent free		wife's house with friends with relatives other.....	.....
4/14.	Local house type	company lines wood pan thatched hut		stone-built mud other.....	.....
4/R.	Remarks	.....			

V Motivation. (for migrants only)

5/1.	Reason for leaving	.....	.....

5/2.	Dissatisfaction	i) Fear of witchcraft	VI	I	NI	
		ii) Clash with family	VI	I	NI	
		iii) Dislike of farming	VI	I	NI	
		iv) No suitable job	VI	I	NI	
		v) Clash with authority	VI	I	NI	
		vi) Boredom in village	VI	I	NI	
		vii) Feeding difficulty	VI	I	NI	
		viii) Woman trouble	VI	I	NI	
		ix) Clash over land	VI	I	NI	
5/3.	Attractions	i) City life	VI	I	NI	
		ii) Education	VI	I	NI	
		iii) Adventure	VI	I	NI	
		iv) Money to buy	VI	I	NI	
		v) Dowry for wife	VI	I	NI	
		vi) Quick profits	VI	I	NI	
		vii) Stories of friends	VI	I	NI	.....
5/4.	Chance	i) Death of a parent	VI	I	NI	
		ii) Trading trip	VI	I	NI	
		iii) Visit to relative	VI	I	NI	
		iv) Sent to school	VI	I	NI	
		v) Taken by a friend	VI	I	NI	.....

5/5. a) Target on departure — yes no uncertain

b) What — wife house radio school clothes cycle furniture utensil boat other..... ....

c) Achieved — yes no partly uncertain .....

5/6.	a) Target now	yes no uncertain wife house radio school clothes cycle furniture utensil boat other.....	.....
	b) How much	.....	.....
5/7.	Why S.L.S.T.	....	.....
5/8.	a) Freetown	yes no uncertain	.....
	b) Why	.....	.....
5/9.	a) Extra hour	yes no if uncertain	.....
	b) Amount	.....	.....
5/R.	Remarks	....	

Rural Communities Questionnaire

Schedule D - Individual Schedule

		Coding Column
500	Schedule Number	
501	Date of Interview.....	
502	Name of Enumerator.....	
503	Name of Village.....	.....
504	Household Identification Number	
505	Individual Identification Number.....	
506	What is your relationship to the head of this household? Self Wife Son Daughter Father Mother Sister Brother Ward Other (specify)	.....
507	What is your sex? Male Female	
508	How old are you?.....	.....
509	In which year were you born?.....	.....
510	What is your marital status now? English Law — Single Customary Monogamous — Divorced Customary Polygynous — Separated Muslim Polygynous — Widowed Muslim Monogamous	....
	If single move to question 529, if female married question 520	
511	How many wives do you have here now?	.....
512	How many other wives have you had in the past?	.....
513	How many wives are now divorced or separated?	.....

Schedule D

Coding Column

514 How many wives have died?..... .....

515 Of the wives you have now divorced or separated, how many took their children away with them?

....

516 How long have you been married?.....

517 Where were each of your wives born?

	Village	Chiefdom	Distance	
i)	.....	.....	.....	.....
ii)	.....	.....	.....	.....
iii)	.....	.....	.....	.....
iv)	.....	.....	.....	.....

518 How many children do you have?.

Girls..... Boys..... .....

519 For any wives not accounted for in 511, 513, and 514, can you say where they currently are?

.....

....

For males move to question 529

520 How long have you been married?..... .....

521 How many children have you born?

0 1 2 3 4 5 6 7 8 9 10 .....

522 How many of these children are still alive?

0 1 2 3 4 5 6 7 8 9 10 .....

523 Is your husband here with you now? Yes No .....

If 'yes' move to question 529

220

Schedule D

Coding Column

524 Where is your husband? ....

525 What is he doing there? ....

526 How long has he been away?..... .....

527 How soon do you expect him back?..... .....

528 Why do you not go to join him?.....

....

If born in this village, move to question 538

529 Where were you born?

In this village?

Elsewhere (specify) Village.....

Chiefdom..... .....

530 When did you come to this village?..... .....

531 Why did you choose to come to this village?.....

....

532 In how many places did you live before coming to this village?

....

533 Name these places and what you were doing there?

	Village	Chiefdom	Purpose	
i)	.....	.....	.....	.....
ii)	.....	.....	.....	.....
iii)	.....	.....	.....	.....
iv)	.....	.....	.....	.....
v)	.....	.....	.....	.....

534 Did you have any relative living in this village before you moved here?

Yes..... No.....Cannot tell..... .....

Schedule D

Coding Column

535 How are you related to them?..... .....

536 Have any other relatives followed you to this village?

Yes No Cannot tell .....

If 'no' move to question 538

537 How are you related to them?..... .....

If answer to question 529 was 'elsewhere' move to question 540

538 Have you ever lived anywhere other than here?

Yes No Cannot tell .....

If 'no' move to question 540

539 Where else have you lived, for how long and why?

	Village	Chiefdom	Duration	Purpose	
i)	.....	.....	.....	.....	.....
ii)	.....	.....	.....	.....	.....
iii)	.....	.....	.....	.....	.....
iv)	.....	.....	.....	.....	.....
v)	.....	.....	.....	.....	.....

540 To what tribe do you belong?..... .....

541 To what tribe did your father belong?..... .....

542 To what tribe did your mother belong?..... .....

543 Did you go to Arabic school?

Yes No Short time

Cannot say .....

544 Did you go to primary school?

Yes No Cannot tell .....

Schedule D

Coding Column

If 'no' move to question 549

545 To what class did you study?..... .....

546 Which primary school(s) did you attend?

.....

547 Did you do any further studies? (specify)..... .....

548 Where did you undertake these further studies?... .....

549 Did your father have any education? (specify)..... .....

550 Did your mother have any education? (specify).... .....

551 Where was your father born?

Village.....Chiefdom..... .....

552 Where was your mother born?

Village.....Chiefdom..... .....

553 Which languages can you read?

English Arabic Temne Mende Fula

Other (specify)..... .....

554 Which languages can you write?

English Arabic Temne Mende Fula

Other (specify)..... .....

555 What is your religion?

Pagan Christian (specify denomination)...

Muslim Other (specify)..... .....

Schedule D

Coding Column

556 What was your father's religion?

Pagan Christian (specify denomination).....

Muslim Other (specify)..... .....

557 What was your mother's religion?

Pagan Christian (specify denomination).....

Muslim Other (specify)..... .....

558 What is your present job?..... .....

559 Who is your employer?..... .....

560 Where is this job?..... .....

561 How long have you had this job?..... .....

562 What is your monthly cash income?..... .....

563 How many previous jobs have you had?..... .....

564 For each of these previous jobs, can you specify the nature of the job, the employer, the location, the duration and the income?

i) Nature of job Employer Income

....

Location Duration

....

ii) Nature of job Employer Income

....

Location Duration

....

iii) Nature of job Employer Income

....

Location Duration

....

Schedule D

Coding Column

iv) Nature of job Employer Income

....

Location Duration

....

v) Nature of job Employer Income

....

Location Duration

....

vi) Nature of job Employer Income

....

Location Duration

....

vii) Nature of job Employer Income

....

Location Duration

....

viii) Nature of job Employer Income

....

Location Duration

....

565 Of the past ten years, how many years have you spent away from home?

....

Schedule D

Coding Column

566 Can you specify the reasons that made you leave any of your previous forms of employment?

i)..... .....

ii)..... .....

iii)..... .....

iv)..... .....

v)..... .....

vi)..... .....

vii)..... .....

viii)..... .....

567 Are you a member of any society?.....

Specify which..... .....

Remarks:.....

.....

.....

.....

.....

.....

.....

.....

Institute of African Studies

Rockefeller-Ford Project

Koidu Immigrant Household

Schedule I - Household Schedule

Coding column

700 Schedule Number..... .....

701 Date of Interview.....

702 Name of Enumerator.....

703 Address.....

704 Household Identification Number.....

705 What is the structure of the house?.....

Detached building Semi-detached Row .....

706 What shape is this structure?

Round Rectangular Other (specify)..... .....

707 How many storeys has the building?

1 2 3 Other (specify)..... .....

708 Of what material are the walls of this structure?

mud & wattle cemented mud & wattle

concrete blocks bricks wood pan

palm fronds other (specify)..... .....

709 Of what material is the roof of this structure?

pan thatch palm fronds other (specify)

....

710 Name of head of unit?.....

711 What is the informant's relationship to the head of the household?

Self Wife Son Daughter Father Mother

Sister Brother Ward Other (Specify)..... .....

712 Are your rooms owned or rented?

Owned Rented Rent free ....

713 Either - What is the rent of your rooms?..... .....

Or - How much did it cost to build this house?..... .....

714 How many rooms do you have in this house?..... .....

715 How many people (adults and children) are presently living in your rooms?

....

716 What is the name, sex, age and relationship to head of the household of each member of the household currently present?

	Name	Age	Sex	Relationship to Head
i)	.....			
ii)	.....			
iii)	.....			
iv)	.....			
v)	.....			
vi)	.....			
vii)	.....			
viii)	.....			
ix)	.....			
x)	.....			
xi)	.....			
xii)	.....			
xiii)	.....			
xiv)	.....			
xv)	.....			
xvi)	.....			
xvii)	.....			
xviii)	.....			
xix)	.....			
xx)	.....			

717 Of the above household members, which have not been resident for the whole of the past month and why?

Listing Number	Reason
a).....	.....
b).....	.....
c).....	.....
d).....	.....

718 Are there any persons who are "normally resident" in this household who are currently absent and if so how many?

0 1 2 3 4 5 6

Other (specify)..... .....

719 For each of these persons presently absent, what is his name, age and relationship to head of household?

	Name	Age	Relationship to Head
i)	.....		
ii)	.....		
iii)	.....		
iv)	.....		
v)	.....		
vi)	.....		

720 Is there a radio in the house?

Yes No Cannot tell .....

721 Is there a bicycle in the house?

Yes No Cannot tell .....

722 Is there a sewing machine in the house?

Yes No Cannot tell .....

723 Is there an iron in the house?

Yes No Cannot tell .....

724 Is there a pressure or mantle lamp in the house?

Yes No Cannot tell .....

725 Is there a taperecorder in the house?

Yes No Cannot tell .....

726 Is there a refrigerator in the house?

Yes No Cannot tell .....

727 How many beds are there in the house?

0 1 2 3 4 5 6

Other (specify)..... .....

728 What fuel is used for cooking?

electricity gas kerosene charcoal

other (specify)..... .....

729 What method of lighting is used in the house?

electricity gas lamp pressure lamp

mantle lamp kerosene lamp pan lamp candle

other (specify)..... .....

730 How many deaths have occurred in this house in the past year?

0 1 2 3 4 5 6 7 cannot tell .....

731 For each person who has died can you specify relationship to the head of the household, sex and age at the time of death.

Relationship to Head of Household	Sex	Age at death
i).....		
ii).....		
iii).....		
iv).....		
v).....		
vi).....		
vii).....		.....

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