

Sierra Leone

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Airey Study 1980

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Tony Airey - study done Summer - August 1980

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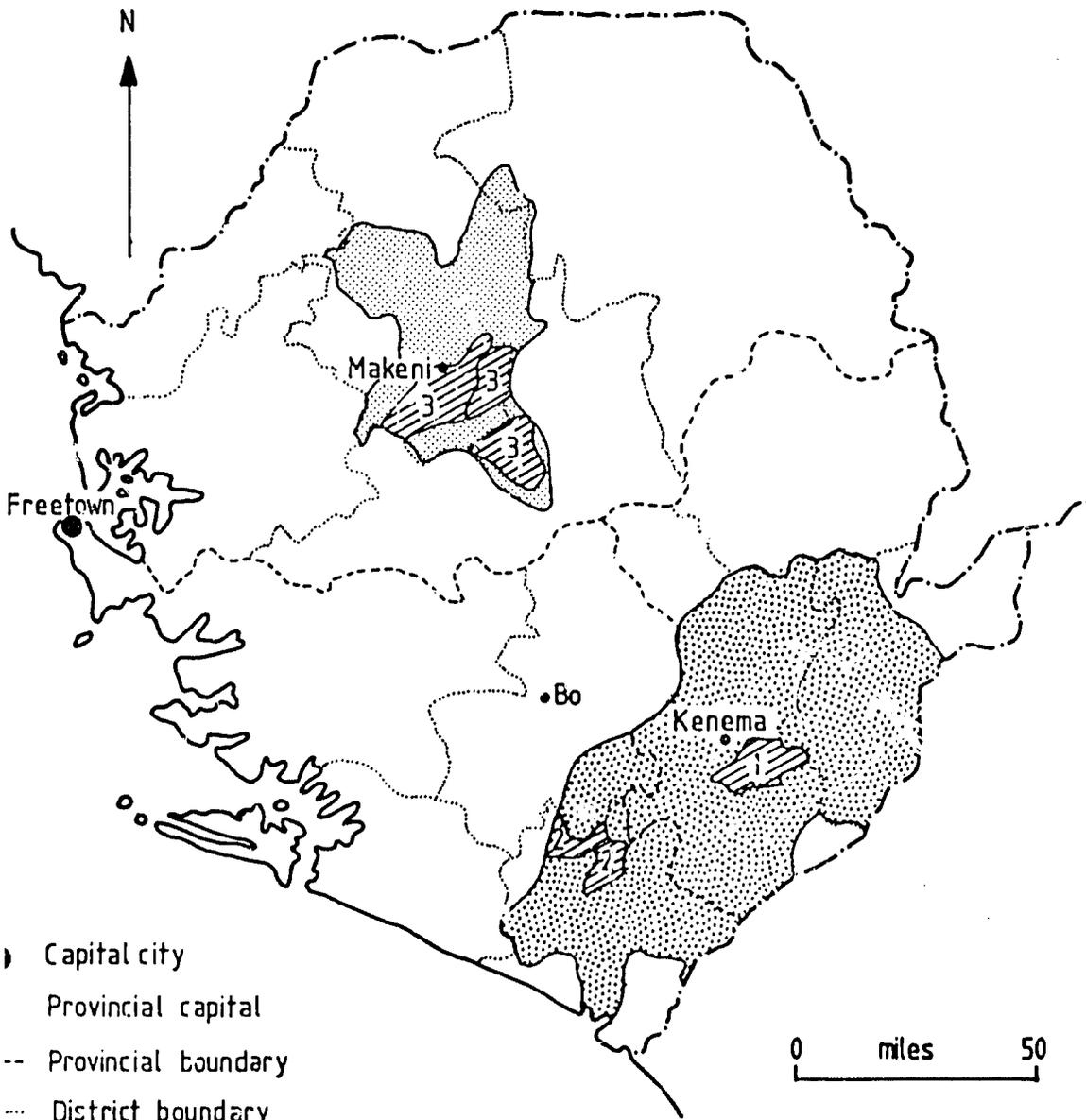
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Introduction

This is the third and final socio-economic evaluation of the CARE Feeder Road Building Programme funded by USAID. It contains an analysis of rural surveys in three areas affected by the FRBP, identified on the map opposite. The first evaluation area in Dama chiefdom is the product of a resurvey of villages originally surveyed as baseline data in 1978. It represents therefore a methodologically more satisfactory longitudinal survey. The other two evaluation areas represent a compromise between the need for an immediate evaluation of newly completed rural roads and the establishment of baseline data for future comparison. A less reliable with - without evaluative framework is adopted for these two areas and the resultant analysis is consequently more tentative and speculative.

Similarly the whole exercise is based on the limited interview technique and the limitations of this technique, highlighted in previous years, are still applicable.

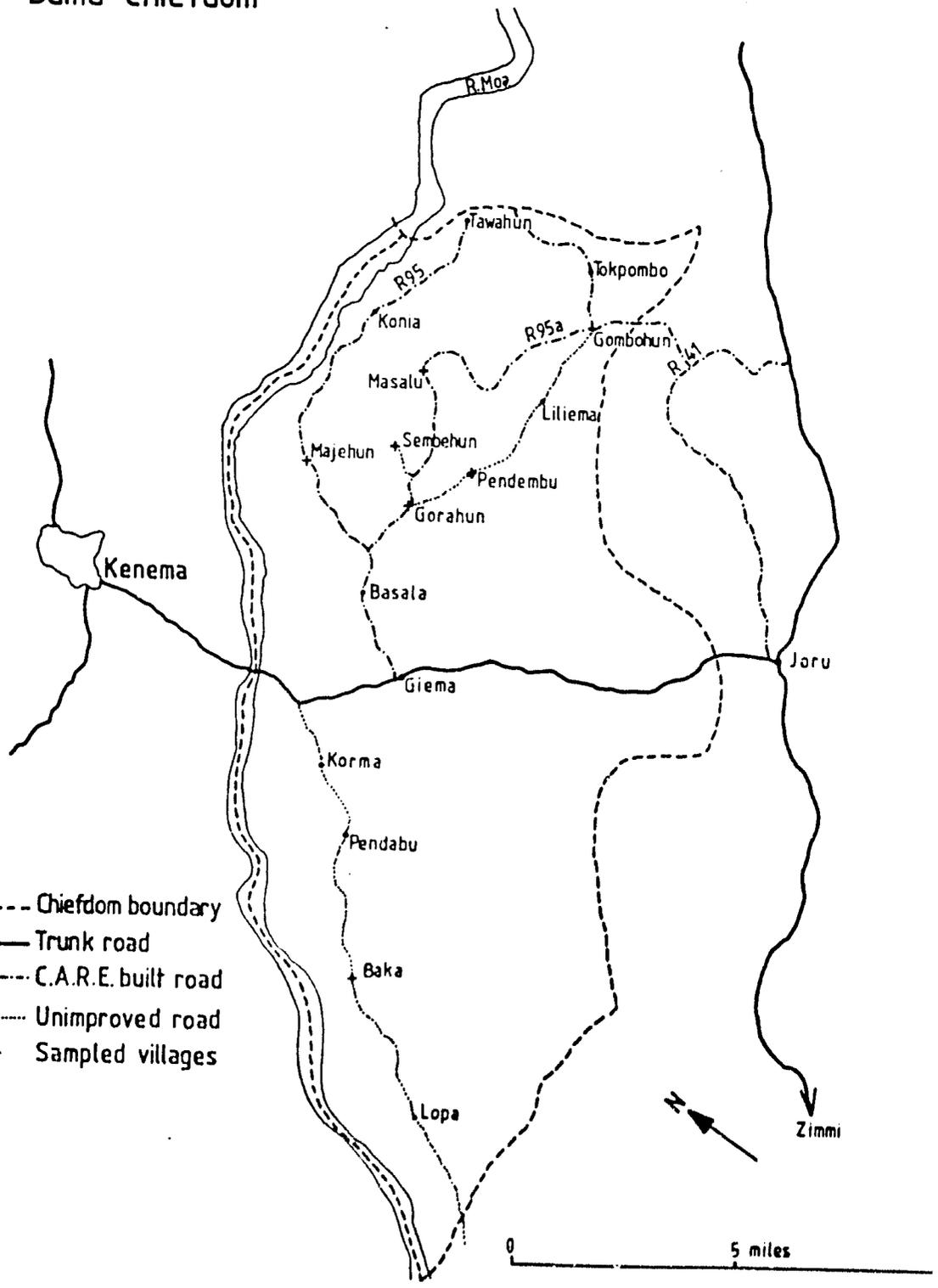


- Capital city
- Provincial capital
- Provincial boundary
- ⋯ District boundary
- ▨ Evaluation areas
- ▤ I.A.D.P. Eastern area
- ▥ I.A.D.P. Northern area

- 1 Dama chiefdom
- 2 Sowa and Peje chiefdoms
- 3 Tane, Paki Maszong and Bombali Seboro chiefdoms

PART ONE
SOCIO-ECONOMIC EVALUATION
OF
DAMA CHIEFDOM

Dama Chiefdom



Resurvey of Dama Chiefdom Two Years after the Building of the C.A.R.E. Roads and the Baseline Survey of 1978

Objectives

1. To identify and quantify changes that have taken place in communities first affected by the C.A.R.E. Building Programme in 1978.
2. To broaden the terms of reference and methodology in order to try and understand and measure the impact of the roads on "equity, income, land distribution, sex roles, and demography".

Methodology

A survey of the villages affected by the CARE FRBP was organised so that all those Heads of Households interviewed in 1978 were reinterviewed using a modified interview schedule. The data drawn up could be used on a comparative road - non road basis, in a longitudinal rather than a cross sectional manner. Thus changes occurring in the CARE affected communities (hereafter designated A. communities) were compared with those of the unaffected communities (hereafter designated B. communities). Significant differences identified could then be attributed to the different levels of road accessibility since the communities have experienced similar socio-economic forces in the ensuing two years.

Findings

The intermediate goals established by the CARE Director in 1978 provide a suitable framework for this analysis. The headings used have been modified to incorporate the U.S.A.I.D. suggestions of 1978 with the addition of two more intermediate goals:-

9. The impact on women
10. The impact on income distribution

1. Increased agricultural extension activity

a) Increased knowledge of the availability of this service

Table I Indicators of Extension Activity

	No. Inter-viewed	Know-ledge of ex-tension officer	Visits by Agric Teachers	Visits in past 4 weeks	Knowledge of Fertilizer	Use of Fertilizer
1A Majehun	26	16	19	5	23	4
2A Gorahun	10	10	10	6	7	2
3A Masalu	13	1	4	1	7	2
	49	27(55%)	33(67%)	12(24%)	37(76%)	8(16%)
1B Baka	22	20	8	0	7	1
2B Pendembu	15	0	6	0	6	1
3B Sembehun	12	0	2	2	11	3
	49	20(42%)	16(33%)	2	24(50%)	5(6%)

Communities affected by the FRBP (category A) have a consistently higher performance on all five indicators of increased agricultural extension activity. This suggests that their superior accessibility has improved the lagging variables (knowledge of the extension officer) as well as reinforcing the advantages that these communities had in 1978 e.g. visits by agricultural teachers has improved 100% (from 31% of farmers in 1978 to 67% in 1980). The only disappointing feature is the falloff in the use of fertilizer which reflects the poor availability and higher price in 1980, but even here the A communities still maintain a better standing.

b) Increased visitation rates

As Table I shows category A communities have a much higher proportion of their farmers (67% vis a vis 33%) being visited by agricultural teachers (extension workers). 12 of the 33 A. farmers (36%) being visited by an extension officer were visited in the past 4 weeks. In contrast only 2 of the 16 B. farmers (13%) enjoyed this level of frequent visiting.

So the extension work bias noted in 1978 is confirmed and has in fact slightly intensified in 1980.

Table 2. Range and Average Amounts of Marketed Crops

No. Inter-viewed	Coffee ¹		Cacau ¹		Rice ¹		Cassava ²		Orange ²		Kola ³	
	Units sold	No. of farmers	Units sold	No. of farmers	Units sold	No. of farmers	Units sold	No. of farmers	Units sold	No. of farmers	Units sold	No. of farmers
1A Majehun(26)	247½	26	229½	18	18	1	73	6	442½	11	173	12
2A Gorahun(10)	76	10	34	6	8	2	10	2	42	4	68	7
3A Masalu (13)	13	8	2	2	9	2	0	0	8½	2	2	1
Total (49)	326½	44	265½	26	35	5	83	8	493	17	243	20
Average per farmer	7.4		10.2		7.0		10.4		29.0		12.2	
1B Uaka (22)	61½	23	26	12	4	3	7	3	15	4	30½	11
2B Pendembu(15)	77	13	109	12	0	0	4	1	65	2	90	8
3B Sembahun(12)	159	11	61½	7	4	1	11	3	125	7	92	3
Total (49)	297½	47	206½	31	8	4	22	7	205	13	212½	22
Average per farmer	6.3		6.7		2.		3.1		15.8		9.6	

1 = bushel 2 = bags 3 = kettles

1 bushel = unit of capacity weighing approx. 65lbs. though weight varies with the crop measured.

2. Increased Marketing of Agricultural Crops

a) Increase in types of crops harvested

The wider range of crops marketed is confirmed in Table 2. by the addition of pineapple to the crops marketed in category A communities.

Similarly the enhanced sale of annual crops, notably rice and cassava, from category A. communities indicates the importance of accessibility to these crops. Oranges too have been marketed far more intensely in the A. communities. There has been a 295% increase in bags sold in these communities compared with the 115% increase in the B. communities. Even this latter increase is attributed to the B. communities adjacent to the CARE feeder roads.

Importantly there has been a rapid increase in the reported sales of the high value crops, coffee, cacao and Kola, 286%, 172%, and 252% respectively, compared with 10%, 116% and 93% increases for the same crops in category B. communities. This enhanced marketing of these tree products implies a rehabilitation of old or neglected farms in response to the ease of marketing and good prices paid for these crops. In addition there is a suggestion that the A. communities are trading in these crops, buying from outside the village and then reselling the crop as their own. Thus in Majahun 2 villages⁵ have reported becoming traders since 1972 receiving income from this activity, and their sale of farm produce has shown an increase over that of 1978 (from 11 bushels to 34 bushels of coffee and cacao). One supposes that there are several other farmers conducting similar activity who have not reported this as trading.

Finally sale of firewood is a continuing feature of the A. communities though the level of sales seem to be similar to those noted in 1978.

b) Increased marketing of rice

The sale of rice in the 1979/80 season showed a marked drop compared with the 1977/78 season. This reflects a poor harvest and naturally brought about the need to import some 68,000 tons of rice in 1979¹. Interestingly the drop in sales was greatest in the B. communities, confirming the propensity of A. communities to sell rice even in times of shortage.

¹ Assessment of the need, impact and proposed uses of 1980 PL480 Title I Rice Sales to Sierra Leone - C. Hugo + K.L.Casavant. USAID Report No. 80 December 1979

3. Increased Transportation Services

a) More frequent transport services

The number of all purpose Mazdas based in the villages of Dama has increased by 3 from 7 in 1979 to 10 in 1980. This represents in one case an expansion of an existing operator and in 2 cases the generation of 2 new operators, one with a new rural base at Konjo². In view of this increase in rural transport provision we can safely assume that the category A. communities have improved their accessibility in terms of vehicle provision by some 40%.

A similar vehicle operator survey along the Baka road failed to show a similar increase in poda poda provision. The pattern of rainy season surcharge was also confirmed for this non CARE route.

b) Greater range of vehicles using the roads

Observations made during the stay in Dama confirmed the 1978 pattern of greater vehicle usage of the CARE roads particularly by motor cycles and taxis.

c) Vehicle ownership

In terms of the distribution of transport operators the CARE affected communities are twice as likely to have a poda poda in their villages. A good example is afforded by one operator based in Lilema who on the completion of the CARE roads increased his operation by one vehicle which he based in Madina (a CARE road community) rather than his home village. In contrast operators expanding in A. communities are likely to retain their direct control of the vehicle by retaining their A. community base. Thus in Tokpombo (a CARE road community) there are based, at present, 4 vehicles.

In terms of ownership of private transport the situation in the A. communities has remained the same i.e. 1 Honda in Majehun and 1 bicycle ownership in Gorahun. There has been a slight increase in bicycle ownership in Pendembu, 2 households reported owning bicycles there. However this does not dramatically change the very low vehicle ownership pattern.

² The Konjo operator was temporarily out of business but I was assured that he would resume business in the near future.

4. Changes in Socio-Economic Status

a) Population more materialistic

Use of the radio as a source of the official buying price for export crops again is higher in the A. communities than the B. communities. Both show an increase in farmers using the radio since 1978 but those in the A. communities have increased their usage from 44% to 50% (+6%) compared with no increased use of the radio in the B. communities. We can assume that farmers in A. communities are more likely to know the official buying price for their produce, and one assumes, less likely to be cheated.

Table 3 Percentage change/increase in ownership of consumer durables.

	Umbrellas	Plastic Buckets	Watches	Radios	Charcoal Irons
A. communities	+26%	+ 6%	+97%	+32%	+47%
B. communities	+51%	-48%	+16%	-10%	-12%

In terms of ownership of consumer durables A. communities have consistently increased their possession of the five indicator variables which suggests that their economic status/spending power has increased. On the other hand the B. communities have barely been able to maintain their economic status, their being only slight increases in the ownership levels of plastic buckets, radios and charcoal irons.

Again we can tentatively suggest that A. communities have a greater opportunity to participate in the monetarized economy.

b) Increased contact with the monetarized economy

There has been a dramatic reversal of the position regarding the sale of crops. Category A. communities have increased their income from the sale of crops from Le. 255 to Le.685* (+169%). In contrast category B. farmers have increased their income from Le. 415 to Le. 549* (+32%). There is probably an element of under reporting implied in the increase. But in spite of this suspicion, the dramatic improvement of rural incomes from sale of farm produce seems to be an enhanced feature of farmers in category A. communities. With less dramatic increases accruing to farmers in category B. communities.

* Standardized to 1978 prices

5. Increase in other Community Services

a) Increased number of visitors

There is no evidence that the visitors to individual households varies significantly between category A. and B. communities.

In terms of official visitors the activities of the IDA extension workers were noted by the chiefs of both A. and B. communities. However these visits were frequent and four times per month in the A. communities compared with just once a month in the B. communities.

One other post 1978 development has been the initiation of a Maternity and Under Five's Clinic Programme. Of the 9 centres planned only 3 seem to have established themselves and these 3 are situated on the CARE feeder roads at Tokpomba (est. late 1978), Sandaru (est. 1979), Majehun (1980). The Nurse/midwife at Tokpombo confirmed the value of the CARE roads in both referring difficult cases and maintaining her monthly visits to Kenema to restock her drug supply.

An independent verification of this is provided by the Chief of Majehun who reported visits by both Health Inspectors and a dispenser presumably on an initial inspection of the newly established clinic there.

b) New mosques, churches, schools and stores

Since the general improvements noted in 1978 there have been other developments and in most cases these are most evident in the A. communities. Thus each of the A. communities has a rice mill compared with only one rice mill in Baka, the large B. community. The influx of rice mills, we can safely deduce is a consequence of good road facilities both for the maintenance of the mill, the input of husk rice and the out flow of clean rice.

In terms of schools the Primary school at Majehun has been extended and has more than doubled the number of pupils enrolled from 24 in 1978 to 62 in 1980. In contrast the Primary school at Baka (an equivalent sized village) has closed due to lack of support. Whilst the absence of a CARE road cannot be held responsible for this retrogressive development Baka's poor communications have obviously exacerbated the situation.

Finally in terms of the provision of stores. The B. community Baka has in 1980 the same number of stores as in 1978. In contrast

Majehun has increased its number of stores from 3 to 4 (twice the Baka level of store provision) and indeed one enterprising individual has opened up a store in Gorahun, another A. community. The importance of accessibility can be seen in the provisioning of these stores. All 4 of the A. community stores had visited Kenema for supplies in the previous four weeks. In contrast one of the Baka stores had not visited Kenema since May.

6. Changes in Community Size and Building

The spate of house building noted in 1978 has continued in the A. communities where 14 houses were at the stage of being built (12.7% of the existing stock), this compares with only 8 houses (6% of the B community's housing stock). The use of cement is characteristic of this rebuilding in the A. communities where 3 of the houses being built are of cement block construction. However there has not been sufficient use of cement to improve the lower level of cement housing in the A. communities.

In terms of population changes the A. sampled households have increased their population by 4% i.e. 2% per annum (above average for Kenema district which was reported to be 1.4% per annum in 1974*). In contrast the B. sample households have virtually the same population in 1980 as 1978. We can deduce therefor that the CARE affected communities are increasing in size in contrast to the rather static B. communities.

7. Changes in agricultural systems

Elaboration of the scenario postulated in 1978 was felt to be necessary in the follow up survey. The results suggest that A. communities are experiencing greater pressure on the land. Fallows for upland rice farms have been reduced from 6.6yrs in 1978 to 4.2yrs. in 1980, and these farms are situated even further from the village. 67% of farmers confirmed that this decrease in fallows and increasing distance to upland rice farms has been brought about by tree crop farms (coffee and cacao) replacing upland rice farm bush.

B. communities have a slightly longer bush fallow period of 6.1 years (compared with 6.9% in 1978) and land pressure can be seen as being less intense. Nevertheless the tendency to decrease fallows and push rice farms further away from the village is just as characteristic of these communities.

* 1974 Population Census

Similarly whilst the difference in swamp rice cultivation remains the same i.e. 20% of Majehun farmers had a swamp rice farm compared with 59% in Baka. The gap is narrowing as the shortage of upland forces all farmers to utilize the "vacant" swamps.

Finally a close examination of the land tenure system confirms its basic flexibility. The majority of farmers in both sets of communities were utilizing family land, but renting of land usually for one, but occasionally for more than one farm season, was common. 47% of A. households and 53% of B. households had rented land to non family members. However there was a decline in willingness to rent land by A. communities since only 35% of households were willing to rent their land in the future compared with 55% in the B. communities. This unwillingness was also reinforced by the proviso placed by the majority of A. community farmers that land could only be rented for one year. B. communities seemed less restrictive in their renting practice. In all cases the concept of renting is more akin to borrowing i.e. the rentor buys or borrows (for the return of 1 bushel of rice at harvest time) a rice farm for the growing season. The land reverts to the family once the crops have been harvested. Rarely was renting of land for tree crops mentioned, and when it was the terms were much more businesslike e.g. one household wanted Le. 100 rent for a coffee farm.

8. Changes in Population

The above average population growth of the A. communities has already been noted in Section 6. In terms of the dynamics of this growth, in migration and natural increase would seem to be the likely causes since both A. and B. communities have a similar rate of out migration i.e. an average of 2.9 people are living away from the household in both communities.

The ratio of children per household is greater in the A. communities, 1.96 children per household, compared with 1.7 children per B. household. This suggests a higher natural increase. Similarly there has been a slightly higher increase in wives in the A. communities, 14% more wives than 1978 compared with 8% more in the B. communities. This suggests higher in-migration into the A. communities.

9. Impact on Women

There are several areas of rural life which are suitable indicators of the changing role of women in response to improved communication and development.

a) Participation by women in schooling

In terms of formal education the participation levels of women in primary and secondary education are lamentably low, 19 out of 61 children receiving primary education were girls (32%) and this level fell to 12% in terms of secondary schooling. In terms of the A. and B. communities girls form 28% of primary school attenders in the A. communities and 33% in the B. communities.

Secondary schooling is another matter, however, since the A. households reported that no women were receiving secondary education compared with 3 females in the B. communities. Whether this is part of a trend is difficult to say as yet, but the implications are serious for as Hart notes "the main cause of any deterioration in the position of women in West Africa is..... that the overwhelming share of modern especially higher education opportunities have gone to men."³

b) Agricultural impact

Without a detailed intensive continuous survey it is difficult to postulate the changing role of women as agricultural labour. The study by Spencer of household labour demands under the IADP scheme suggest that "female labour input is not significantly changed by participation in the IADP scheme."⁴

One area of impact on women's labour input has been the diffusion of rice mills into the A. communities. Hand pounding of the household's staple occupies several hours of a women's time. The replacement of hand pounding for milling in 76% of A. households compared with 57% in the B. communities represents a considerable easing of the women's time spent preparing food.

c) Travel patterns

The restricted life of the female member of the West African household depicted by Hart (op cit.) is probably being moderated by the ease of communication along the CARE roads. Of the household journeys made in the past four weeks 40% of them were by the wife of

3 K. Hart - The Development of Commercial Agriculture in West Africa 1979

4. Spencer D.S.C. + Byerlee D. - Technical Change, Land Use and Small Farmer Development: Evidence from Sierra Leone 1976

the A. communities household head, compared with 37% of the B. community counterpart. Wives in A. communities were also more likely to travel by vehicle than their B. counterparts. The differences are however too marginal to be significant as yet.

10. Income Distribution

Table 4. Income distribution characteristics

	Mean Income		Standard Deviation		Range		Gini Coefficient	
	1978	1980	1978	1980	1978	1980	1978	1980
1A.Majehun	Le.421	1214	470	1045	50-2122	59-4160	55	51
2A.Gorahun	204	745	155	446	0-472	315-1586	45	32
3A.Masalu	182	88	228	146	16-662	0-441	63	64
1B.Baka	557	256	657	208	0-2946	0-834	60	47
2B.Pendembu	326	715	264	435	50-798	24-1630	51	49
3B.Sembehun	663	1079	860	851	146-2932	0-2151	46	34

* Standardised to 1978 prices

The use of consumption expenditure by Byerlee and King⁵ as an indicator of income distribution is clearly not possible in the single interview situation utilised by this research. Thus the sale of agricultural produce is taken as an indicator of household income. Table 4 summarises the mean income from the sale of agricultural produce for the Dama villages in 1978 and 1980. The general pattern is one of increasing income, though Baka and Masalu show a sharp decline. In all situations there is a marked negative skew in the distribution of income reflecting the occurrence of one or more "big men" selling much larger than average quantities of farm produce. This inequality in income distribution is quantified by the Gini coefficient which is a statistical indication of inequality (the closer the figure approaches 100 the more unequal the income distribution so perfect equality would give a figure of 0.)

In 1978 inequality is very high with no discernable difference between A. and B. communities. In 1980 average income has increased dramatically, and the lower Gini coefficient suggests that this

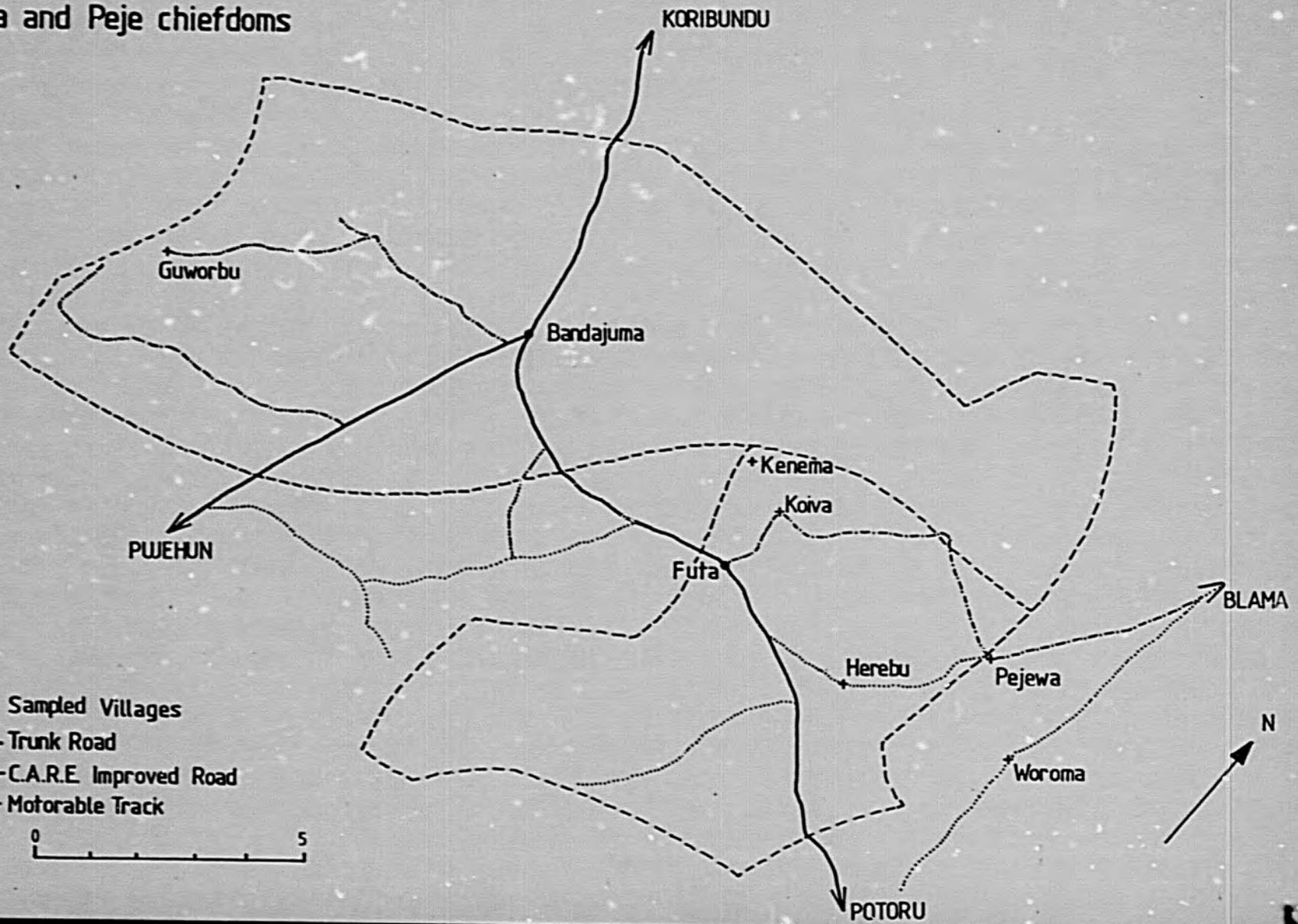
5 R.P. King and D. Byerlee

Income Distribution, Consumption Patterns and Consumption Linkages in Rural Sierra Leone. African Rural Economy Paper No.16.

increase has been shared by a number of individuals in the village. However the A. communities have not lowered their Gini coefficient as much as the B. communities. This suggests that roads may not be aiding a more equal distribution of income from crop sales. One of the ways they may be reinforcing inequality is in the encouragement of traders rather than producers of crops, since it is the traders who tend to have higher than average incomes. This poses a problem in the use of crop sales as an indicator of income since clearly the traders income from crop sales will be a profit margin rather than the selling price.

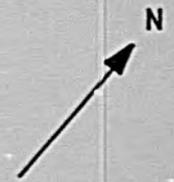
PART TWO
SOCIO-ECONOMIC EVALUATION
OF
SOWA AND PEJE CHIEFDOMS

Sowa and Peje chiefdoms



18

- + Sampled Villages
- Trunk Road
- C.A.R.E. Improved Road
- Motorable Track



Baseline Survey of CARE Feeder Roads Completed During FY80
in Southern Province

Objectives

1. To measure the achievement of intermediate goals established in previous evaluations.
2. To identify other social, economic and agricultural characteristics of the CARE affected communities as baseline data for future evaluations.

Methodology

Three CARE roads were completed in 1980, R136, R131 and R58. A cross-sectional, with - without framework was established for the purposes of this report. The with situation (denoted as A. villages) reflected a range of villages recently affected by the CARE FRBP. The without situation (denoted as B. villages) was reflected by two villages situated as laterite roads similar to the pre CARE situation and one village inaccessible in normal times to four wheeled vehicles. These villages are summarised below and identified on the map opposite:-

1. Large 'section' villages of approximately 500 people with a politico-administrative function
 - 1A. Pejewa (pop. in 1974 482 people)
 - 1B. Helebu (pop. in 1974 607 people)
2. Medium sized villages of over 300 people
 - 2A. Koiva (pop. in 1974 366 people)
 - 2B. Woroma (pop. in 1974 301 people)
3. Small villages
 - 3A. Guworbu (pop. in 1974 59 people)
 - 3B. Kenema (pop. in 1974 79 people)

A random sample of households varying from 25% in the largest village to 50% in the smallest was selected for interview by trained Mende speaking interviewers.

Findings

1 a) Increased agricultural extension activity

Table 1. Number of positive responses to questions concerning extension service activity

	Nc. Interviewed	Knowledge of extension officer	Visits by Ag. teacher	% visits in past 4 weeks	Knowledge of fertilizer	Use of fertilizer	Knowledge of IDA
1A Pejewa	20	14	8	5	18	6	20
2A Koiva	23	5	8	3	12	3	20
3A Guworbu	4	0	1	1	3	0	3
Total	47	19(40%)	17(36%)	9(19%)	33(70%)	9(19%)	43(91%)
1B Helebu	29	22	27	2	25	5	28
2B Woroma	16	11	13	0	10	2	15
3B Kenema	8	3	3	0	8	0	8
Total	53	33(62%)	43(81%)	2(4%)	43(81%)	7(13%)	51(96%)

The surprising feature about these results is that the B. communities consistently score higher on the knowledge aspects of agricultural extension activities. However they lose this advantage in the practical application of this knowledge particularly in recent visits by extension officers, less so in the use of fertilizer. Here the greater accessibility of the A. communities appears to be an important factor. However visits and usage levels are so low that one questions the vitality of the agricultural extension effort in these chiefdoms.

1 b) Increased visitation rates

Some 53% of category A. farmers who were visited by an extension officer were visited in the past 4 weeks. This contrasts with the B. situation where of 43 farmers who reported seeing an extension officer only 2 had done so in the past 4 weeks(5%).

Another instance of this bias is afforded by a Peace Corps volunteer involved in the promotion of swamp rice farming. In the pre CARE 1979 season 13 farmers were aided in 3 villages, 69% of these were in villages situated on the planned CARE roads. In the 1980 season with excellent accessibility these two villages provided 83% of this volunteers new farmers. The ability of the

motorcycle dependent extension worker to visit his farmers frequently, speedily and safely is undoubtedly responsible for this unconscious bias in farmer selection.

2. Increased Marketing of Agricultural Crops

It was not possible to quantify the quality of agricultural crops marketed by the villages surveyed this year due to exaggeration of volumes of crops marketed by the B. villages. The chiefs of two of these villages made a great effort to welcome this survey and ensure that their agricultural productivity was 'high enough' to warrant the building of a CARE road to their villages. One elder even took me to see crops that had been spoiled for want of transport, these proved to be fermented cocoa beans.

3. Increased Transportation Facilities

a) More frequent transport services

The building of 136S from Gandorhun to Futa reorientated transport routes to the west of Potoru. The old route from Futa was via Helebu and Pejewa to Gandorhun and then to Blama and Kenema. Now the route runs via Koiva to Pejewa and Helebu has been bypassed and abandoned. This has resulted in the Helebu based poda poda being transferred to Futa and as the owner of this vehicle states "The road is very bad so most often I tend to avoid coming up there until it is completed". The Pejewa poda poda is however still based in that village and in fact has increased its frequency of travel, now returning to Pejewa twice a day. In addition one vehicle operator from Potoru suggests that the CARE road, because it has radically improved the journey to Blama and Kenema, has attracted more passengers and vehicles, diverting them away from Pujehun to the south. Traders in Kenema and Blama were thus cited as additional beneficiaries of CARE's roads by several vehicle operators.

These examples of the impact of the CARE roads reconfirms the hypothesis that increased transportation facilities is a characteristic of improved roads.

b) Greater range of vehicles using the roads

It was not possible to conduct a thorough traffic survey on the roads completed this year so the range of vehicles using the roads could not be ascertained.

c) Vehicle ownership more common in communities linked by new roads
 Ownership of poda podas has not changed since the building of the CARE roads. However there has been, as noted above, a reinforcement of those based in the A. communities in this case at the expense of those based in B. communities. This probably reflects the increased travel pattern of the A. communities - "more people travel now, because that the road is good" - a Komende vehicle owner.

Ownership of more personal vehicles is low only two vehicles being noted among 108 farming households(2%). These vehicles belonged to high status individuals in the B. communities so the hypothesis does not hold in this post road survey.

4. Changes in Socio-Economic Status

a) Population more materialistic

Using the criteria used in other evaluations the A. communities appear to be less materialistic than their B. counterparts. Thus 36% of B. community households reported using a radio to gain information about crop prices. In contrast only 21% of A. communities used this medium.

Similarly in terms of possessions, as Table 2. shows that B. households have a consistently higher rate of ownership of the six common consumer durables than their A. counterparts.

Table 2. Level of ownership of six consumer durables

	Umbrella	Plastic bucket	Watch	Radio	Charcoal iron	Honda or Bicycle
A. communities	34(72%)	12(26%)	17(36%)	3(6%)	14(30%)	0(0%)
B. communities	43(81%)	43(81%)	19(36%)	17(32%)	26(49%)	2(4%)

It follows that in terms of material possessions category B. households are wealthier than their A. counterparts enjoying an average of Le. 37.58 worth of possessions compared with Le. 17.89 worth in the A. communities.

b) Increased contact with the monetarized economy

In the absence of unreliable farmer income it is not possible to suggest an increase in contact with the monetarized economy.

5. Increase in other Community Services

a) Increased number of visitors

There is some evidence that there has been an increase of visitors to category A. communities. Thirty seven A. households (79% of the total) reported receiving an average of three visitors in the four weeks prior to the interview. In contrast a lower proportion of B. community households (69%) reported receiving an average of four visitors in the four weeks prior to the interview. Family visitors account for more than half the visits to the surveyed villages.

Official visits confirm the good road bias of officials visiting rural areas since the A. communities had seven official visits (varying from Sanitary Inspectors, Social Workers to IDA officials) compared with only three in the B. communities.

b) New mosques, churches, schools and stores

In terms of community buildings there is no real evidence that the A. communities have been stimulated into communal building activity vis a vis their B. counterparts. Thus though a new cement mosque is being built in Koiva, its equivalent B. community has already built one in 1978.

In contrast there is some evidence that CARE has stimulated local entrepreneurial activity in the form of part time stores/shops. Thus four householders in the A. communities have established small businesses since 1979; a two fold increase over the pre 1979 situation and the contemporary B. communities where there are still only two stores.

6. Evidence of New House Construction

There is as yet no evidence of increased house construction, nor the greater use of cement in villages on CARE roads vis a vis their non CARE counterparts.

7. Changes in the Agricultural Systems

Fallow and land tenure characteristics for the surveyed villages are summarized in Table 3. below

Table 3. Selected characteristics of the village agricultural systems

	Age of bush cleared	No. + % of farm- ers with Upland Rice farms	No.+ % of farm- ers with Swamp Rice farms	No.+ % with de crease in fallows	No.+ % with in crease in dis- tance to farms	No.+ % willing to rent land
Pejawa	11	9(45%)	17(85%)	18(90%)	7(35%)	16(80%)
Koiva	8.9	16(70%)	13(57%)	21(91%)	9(39%)	9(39%)
Guworbu	9.3	4(100%)	3(75%)	4(100%)	3(75%)	4(100%)
	9.2	29(62%)	33(70%)	43(91%)	19(40%)	29(62%)
Helebu	8.8	25(90%)	19(66%)	25(86%)	27(93%)	23(79%)
Woroma	14.9	15(94%)	16(100%)	15(94%)	13(81%)	10(63%)
Kenema	8.6	8(100%)	5(63%)	8(100%)	8(100%)	8(100%)
	10.5	49(92%)	40(75%)	48(91%)	48(91%)	41(77%)

There is a much lower positive correlation (+.27) between the number and percentage of farmers with swamps and those who recognise that their fallows have decreased. This and the lack of a clear pattern in the tabled results suggest that the agricultural pattern of the survey area is rather complex, with some villages such as Woroma able to maintain both upland and swamp rice farm systems, and others such as Pejawa moving into swamp rice cultivation, with a declining interest in upland rice. Clearly more work is required in this area if any meaningful picture is to emerge.

In terms of renting land, farmers in both communities appear to be willing to rent land, but the concept of renting here is best described as 'begging land'. As such a farmer begs the usufruct of family or community land usually for one rice season in return for a nominal rent (a bushel of the harvested rice plus a fowl are commonly stated as the rent paid). The commercial and monetary transactions we understand as renting have only a limited application in such a situation. Nevertheless this suggests that the land tenure situation is inherently flexible in both types of communities.

8. Changes in Population

In both situations out-migration is strongly in evidence with A. households reporting some 3 people living away and B. households reporting some 5.3 people living away. In both situations male migration exceeds female migration by almost 2 to 1.

9. Impact on Women

a) Educational opportunities

The ratio of male to female educated children of the A. households is 2.3 to 1, this ratio drops to 3.5 to 1 in the B. households. Female disadvantage is obvious, whether CARE roads will influence this we can only speculate.

b) Agricultural impacts

In terms of rice milling, this easing of the womens' household burden is confined to the large section towns of Pejewa and Helebu, where 85% and 90% of households mill their rice in the village mills. In the remaining villages rice milling is rare as yet.

c) Journey characteristics

In terms of overall journey characteristics A. households made an average of 3.3 journeys in the four weeks prior to the interview. Of these the head of household was one and a half more times likely to travel than his wife.

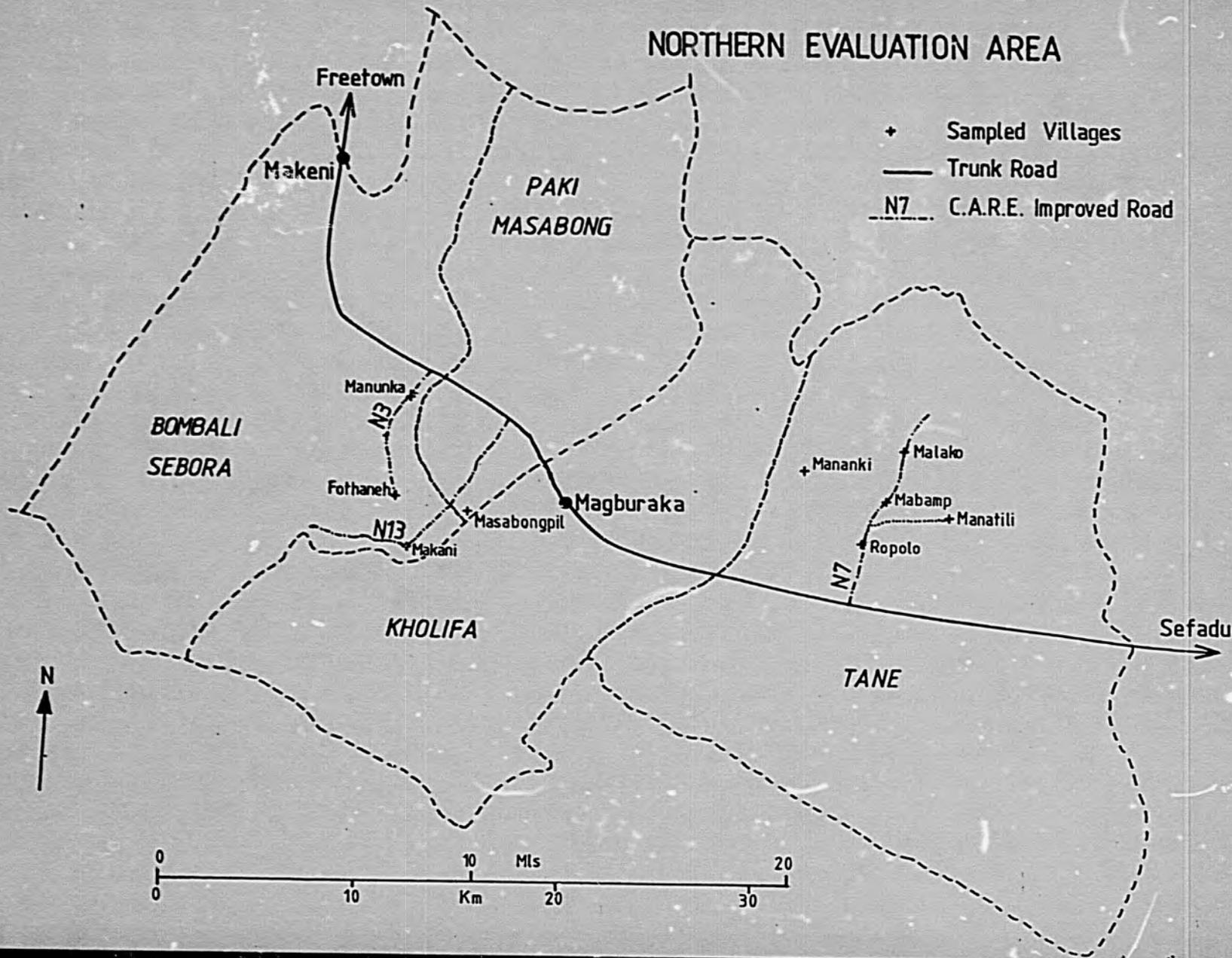
B. households travelled less, only 2.9 journeys and the head of household travelled 1.3 times for every journey made by the wife.

10. Income Distribution

Due to the poor validity of the income data from some of the villages surveyed it is not possible to draw any conclusion about income distribution in this area.

PART THREE
SOCIO-ECONOMIC EVALUATION
OF
TANE, PAKI MASABONG AND
BOMBALI SEBORA CHIEFDOMS

NORTHERN EVALUATION AREA



Baseline Survey of CARE feeder roads completed during FY80 in the IADPNA

Objectives

1. To measure the achievement of intermediate goals established in previous evaluation.
2. To identify other social, economic and agricultural characteristics of the CARE affected communities as baseline data for future evaluations.

Methodology

Three CARE roads have been completed in 1980, N3, N7 and N13. These roads are situated in the southern part of the IADPNA and affect Timne villages.

A cross-sectional/with - without framework was established for the purposes of this report. The with situation (denoted as A. villages) reflected a range of villages recently affected by the CARE FRBP. The without situation (denoted as B. villages) was reflected by one village inaccessible to four wheeled vehicles and two villages situated on rough tracks which were barely used by four wheeled vehicles. These villages are summarised below and in the map opposite.

- | | | | | |
|-----|-----|--------------|--------------------------|------------------------|
| 1A. | (1) | Ropolo | (314 people 1974 census) | a large village |
| | (2) | Manunko | (326 " " ") | " " " |
| 2A. | (1) | Makani | (190 " " ") | a medium sized village |
| | (2) | Mabamp | (218 " " ") | " " " " |
| 3A. | (1) | Malako | (147 " " ") | a small village |
| | (2) | Fothaneh | (160 " " ") | " " " |
| 1B. | | Masabongp'il | (359 people 1974 census) | a large village |
| 2B. | | Mananki | (214 " " ") | a medium sized village |
| 3B. | | Manantili | (121 " " ") | a small village |

A 50% sample of households in each village was randomly selected for interview by trained Timne speaking interviewers.

Findings

1. Increased Agricultural Extension Activity

a) Increased knowledge of the availability of this service

The agricultural extension service is chiefly concerned with the development of upland rice, swamp rice and groundnuts as part of

the general aims of the Integrated Agricultural Development Project, Northern Area (I.A.D.P.N.A.). Table 1. below summarises the indicators used to quantify the impact of CARE roads.

Table 1. Number of positive responses to extension service activity

Settlement Category	No. Inter-viewed	Know- ledge of ex tension officer	Visits by Ag. teacher	Visits in past 4 weeks	Know- ledge of fert- ilizer	Use of Knowledge fert- ilizer	of IADPNA
1A(1) Ropolo	18	2	7	2	17	8	13
1A(2) Manunko	12	0	11	7	12	11	12
2A(1) Makani	9	0	9	9	9	9	9
2A(2) Mabamp	10	0	0	0	9	6	9
3A(1) Malako	5	0	0	0	4	0	4
3A(2) Fothaneh	7	0	5	5	6	6	6
Total	61	2(3.3%)	32(52%)	23(38%)	57(94%)	40(66%)	58(95%)
1B Masabongpil	14	0	3	0	14	0	14
2B Mananki	10	1	0	0	9	2	10
3B Manantili	6	0	0	0	3	0	0
	30	1(3%)	3(10%)	0	26(87%)	2(7%)	24(80%)

These findings indicate the crucial role that roads play in the extension service. They are the key to the link between agricultural knowledge and the practise of that knowledge. Thus knowledge of the use of fertilizer is very high in the area but in the application of fertilizer 66% of the farmers of the A. communities are currently using fertilizer compared with only 7% of the B. communities.

Similarly the visitation rates by extension officers is much higher in the A. communities. Thus 52% of A. farmers reported being visited by an extension worker, and of these 38% were visited in the past four weeks. In contrast B. community farmers were singularly neglected by the extension staff, only 10% reported being visited and none of these were recent visits. Incidentally the figures suggest that the farmers in the Tane chiefdom are more neglected than those closer to Makeni. The extension staff in Tane do not appear to have taken advantage of the opportunities

Table 2. Range and Average Amounts of Marketed Crops

	Coffee ¹		Rice ¹		Orange ²		Kola ²		Banga ²		Others	
	No.	Total of amount Farmers										
	1A(1)Ropolo	8	3	1	15	1	1	4	0.5	2		4
1A(2)Manunko	1	1½			4	22½			6	6	5	1362 lbs tobacco 2 1 bag banana 1 can Palm oil
2A(1)Makani					3	3			1	2	2	30lbs. tobacco 1 bag banana
2A(2)Mabamp	6	8.7	6	71	2	83	10	9½	3	8	2	6 bags cassava 2 3 bags banana
3A(1)Malako	2	13					1	3				
3A(2)Fothaneh	1	1	1	1	2	2						
Total	18	27.2	8	87	18	111½	15	13	12	20		
Average per farmer		1.5		10.9	6.2	0.87		1.7				
1B.Masabongpil	4	1			3	30						
2B Mamanki	3	1.75			2	5	1	0.25	2	3		
3B Manantili	3	2.75	3	5			3	½				
Total	10	5.5	3	5	5	35	4	0.58	2	3		
Average per farmer		0.55	1.7		7	0.15		1.5				

1 = bushels

2 = bags

that the CARE roads have created.

2. Increased Marketing of Agricultural Crops

Table 2. indicates the range and amounts of crops marketed by the farmers in the surveyed villages. The A. communities tend to be more involved in marketing crops, both in terms of the number of farmers and amounts marketed, and in the range of crops sold. The general conclusion as noted in 1979, still holds in these newly surveyed villages (e.g. the role of tobacco along CARE roads) and the overall lack of farm income is confirmed. The overall income from reported sales of crops averaged Le63 (at 1978 prices). The A. communities averaged nearly Le.84 whilst the B. communities only averaged Le.21. This difference is statistically significant and underlines the benefit of road accessibility to villagers in the marketing of their crops.

3. Increased Transport Facilities

a) More frequent transport services

Traffic surveys conducted on the three roads being evaluated suggested that there has not been an immediate increase in transport services to the population living alongside the road. The majority of the traffic using the roads was developmental i.e. generated by IDA, Rokel Leaf Tobacco Development Company (RLTDC), Plan International and the African Land Development Company (A.L.D.C.) There was little movement of private passenger vehicles, so increased transport services are not in evidence as yet.

b) Greater range of vehicles using the roads.

The traffic surveys indicate that all types of vehicles are utilizing the roads compared with the restricted range of vehicles using the improved rural roads noted elsewhere.

c) Vehicle ownership more common in villages linked by new roads

Only one bicycle was noted in this survey and this was owned by a resident of Fothaneh situated on N13

Ownership of public transport vehicles was not associated with the rural areas but characteristically was concentrated in the major towns of the area (in contrast to Dama chiefdom). Thus all 7 vehicle owners in Tane chiefdom based their vehicle in Matotoko the chiefdom town. Other vehicle operators interviewed were from Makeni. It remains to be seen whether a good rural road

network will disperse this concentrated pattern of vehicle ownership.

4. Changes in Socio-Economic Status

There is a complete dependence on the traders/buyers of farm produce as sources of information on crop prices. No one interviewed used the radio as a means of finding out the official buying price.

In terms of material goods Table 3. indicates that there is a low level of ownership of the common consumer durables of rural Sierra Leone.

Table 3. Ownership of consumer durables

	Umbrella	Plastic Bucket	Watch	Radio	Charcoal Iron	Honda/Bicycle
A villages	21(35%)	22(37%)	11(18%)	7(12%)	14(25%)	1(2%)
B villages	7(23%)	6(19%)	2(6%)	2(6%)	1(3%)	0

The value of these possessions is not surprisingly much lower than previously encountered, the A. communities having on average some Le.17 worth of goods and the B. communities only Le.7 worth. The poverty of the northern households is confirmed.

b) Increased contact with the monetarized economy

In terms of income and expenditure the level of contact with the external economy by northern farmers is very low. Roadside communities do seem to have more farm produce to sell and have more possessions but more longitudinal surveys are necessary to ascertain if this is attributable solely to roadside influences.

House construction is also rather rudimentary, reflecting greater use of local resources rather than external supplies of cement and zinc. Thus only 6% of community A. housing stock and 3% of B's has used cement in its construction. Similarly there is a greater use of local grass or palm leaf thatch, 13% of A. community houses and 23% of B's. In both cases A. communities tend to use more cement and zinc than B. communities and this may reflect greater contact with the monetarized economy.

Levels of schooling are much lower than those reported last year. The average number of household children given formal education is 1.65 in A. communities and 1.5 in the B. communities. The difference is not as marked as that noted last year.

5. Increases in Other Community Services

a) Increased number of visitors

60% of A. community households reported receiving an average of 3.8 visitors in the past four weeks. A similar percentage of B. community households (61%) received an average 2.7 visitors in the past four weeks. Thus there is little difference in rates of households receiving visitors, although there is a suggestion that the A. communities are receiving a greater number perhaps due to ease of accessibility. Family affairs were the most commonly stated reason for these outside visits.

In contrast the pattern of official visits to the surveyed villages confirms the greater range of outside visitors and development officials visiting the A. communities. Thus the Bombali Primary Health Care Programme was noted in two of the A. communities, and Plan International had recently visited another A. village. But of the B. communities only one, Masabongpil noted that an I.D.A. official had paid a visit to the village in the past 4 weeks.

Interviews with a number of development agencies confirms the value of good access to their work. Thus Dr. Juxon-Smith of the Bombali Primary Health Care Programme stated "We consider the roads very helpful to our Primary Health Care Programme". The deputy Project Manager of Plan International showed similar enthusiasm concerning the role that CARE roads play in improving access for a number of their projects. Finally the I.D.A. Wells Programme illustrates the crucial role good roads play in the realisation of project goals. Five wells are behind schedule in this programme, and two of these are delayed due to poor accessibility whilst the remaining three are halted due to premature encounters with rocky strata. These delays may or may not be crucial depending whether finances can be carried over into the next building season.

b) New mosques, schools and stores

Evidence for an invigorated self help programme following the building of the CARE roads is not apparent. Most of the infrastructural improvements affecting the surveyed villages are brought about by outside initiatives notably the IDA Wells Programme and Plan International School Building Programme. In both cases there is a decided bias of activity towards the CARE communities.

In terms of local entrepreneurial activity there are only two stores encountered in the nine villages, one in Ropollo and the other in Masabongpil, reflecting no doubt the greater purchasing power of these large communities. Both businesses were started before the CARE FRBP. Thus the immediate impact of CARE feeder roads on local businesses has been negligible. In one A. community a tailor had established a part-time business in response to the opening up of his previously, difficult to reach, birth place. But this was a speculative move, as much a product of familial ties as business acumen. It remains to be seen whether such local initiative will survive.

6. Changes in Community Size and Buildings

- a) Communities become larger and more permanent both locationally and structurally

In terms of population growth there is a wide variation in population changes since the 1974 census, as Table 4 indicates.

Table 4. Population changes in 1974 to 1980

	1974 Population	1980 est. Population	Absolute + % change	Annual change
1. Ropollo	314	370	+56 (18%)	+3%
2. Manunko	326	280	-46 (14%)	-2%
3. Makani	190	218	+28 (15%)	+2.5%
4. Mabamp	218	223	+ 5 (2%)	+0.3%
5. Malako	140	95	-52 (35%)	-6%
6. Fothaneh	160	188	+28 (18%)	+3%
1. Masabongpil	359	498	+167 (47%)	+8%
2. Mamanki	214	130	-28 (23%)	-4%
3. Manantili	120	94	-84 (39%)	-6.5%

These variations reflect both sampling errors in the 1980 survey i.e. populations were estimated from a 50% sample, and probably the low reliability of the 1974 census. Interestingly the widest variation occurs in the less accessible villages.

Structurally there is a general lack of cement usage in house construction reflecting the limited income of the average household.

b) Evidence of new housing construction

There is no real evidence yet of a resurgence in the renewal of housing stock following the completion of the CARE roads.

7. Changes in Agricultural Systems

	Age of Bush Cleared	No. + % of Upland Farming	No. + % Swamp Rice Farmers	No. + % with de-crease in Fallow	No. + % with an increase in dis-tance to rice farm	% willing to rent
1. Ropollo	5.6	15(83%)	14(78%)	18(100%)	6(33%)	4(22%)
2. Manunko	4.0	10(83%)	8(67%)	0(0%)	8(67%)	9(75%)
3. Makani	4.9	9(100%)	0(0%)	0(0%)	0(0%)	9(100%)
4. Mabamp	4.6	7(70%)	3(30%)	9(90%)	6(60%)	0(0%)
5. Malako	6.0	4(80%)	2(40%)	0(0%)	0(0%)	0(0%)
6. Fothaneh	5.9	7(100%)	7(100%)	0(0%)	0(0%)	6(86%)
Total		52(85%)	34(56%)	27(44%)	20(33%)	28(46%)
1. Masabongpil	3.7	8(57%)	11(79%)	13(93%)	13(93%)	0(0%)
2. Mamanki	4.9	9(90%)	1(10%)	9(90%)	6(60%)	3(30%)
3. Manantili	6.2	6(100%)	0(0%)	6(100%)	2(33%)	0(0%)
Total		23(77%)	12(40%)	28(93%)	21(70%)	3(10%)

Table 5. Land tenure characteristics

The low fallow cycle of the northern farmers is confirmed, many of them have reached the point where the ability of the land to renew its fertility is seriously impaired. Thus several farmers explained the increasing distance to their rice farms as the need to search for mature bush. However the association between swamp rice farming and upland rice farming is not a clear one due probably to the differing household familial land holdings. It is very difficult to estimate individual household land holding in a traditional society without resorting to a detailed ground survey. Nevertheless this data does give an indication of the complex nature of local land tenure.

In terms of willingness to rent land the A. communities seemed in general more willing to utilise family land in a more western fashion than their B. counterparts. A further instance of this more fluid land tenure situation is provided by the activities of the African Land Development Company. A private company which, using the authority of the Paramount Chief, has leased for 56 years some 3,000 acres of land to develop. The activities of this company dominates the traffic flow along N7 and indeed dominates much of the local land and labour market. It affords an example of capitalist entrepreneurial activity in the area. Whether it has arisen in response to the CARE road is debatable as indeed is its impact on local welfare and subsistence. Certainly several of the villages who have lost fallow land to the company appeared to be unaware of the implications to their own agricultural systems.

B. Changes in Population

Comparison with the 1974 census proves to be a disappointing exercise in terms of identifying population trends. Nevertheless the households reported high levels of out migration, nearly four people were living away from the A. households compared with over five in the B. households. This pattern is lower than that encountered last year. It also runs counter to the Blair thesis that roads encourage out migration.

Similarly in both situations male migration exceeds female migration.

In terms of household composition there is virtually no difference between the two types of communities as Table 6. shows.

Table 6. Demographic characteristics of the two community types

	Head of Household	Average No. of wives	Average No. of children 15yrs. and under	Average No. of adults 15yrs. and over	Average household size
A. Communities	1	1.9	4.0	4.5	11.4
B. Communities	1	1.8	4.1	4.7	11.6

9. Impact on Women

a) Educational opportunities

The ratio of male to female educated children of the A. households is 2:1. In contrast this ratio drops to 3.5:1 in the B. households. It is tempting to suggest that this reflects the greater educational opportunities afforded by the road situation. Only future resurveys will be able to confirm this.

b) Agricultural impacts

Without detailed analysis we must assume that the impact of the IADP improvements is neutral in terms of demands on male and female labour. There is evidence from the IADP returns that male inroads are being made on traditional womens roles. Thus groundnut farming is by tradition a womens activity. Yet analysis of the registered IADP groundnut farmers reveal that only 45% of these farmers were women. This implies that the women are losing cash opportunities as men take over one of their traditional activities. Time series analysis of future returns is needed if this suggestion is to be proved.

In terms of rice milling only two households reported milling their rice. Rice mills are rare in the north and confined to the largest towns.

c) Journey characteristics

In terms of overall journey characteristics A. households made an average of nearly four journeys in the four weeks prior to the interview. Of these four journeys the head of household was twice as likely to travel than his wife.

Journey characteristics of the B. households were much lower, on average only one journey being made in the four weeks prior to the interview. Moreover the head of household was four times as likely to travel outside as his wife.

10. Income Distribution

Table 7. Income distribution characteristics

	Mean Income	Standard Deviation	Range	Gini Coefficient
1. Ropollo	Le.26	44	Le.0-192	70
2. Manunko	Le.81	109	0-362	67
3. Makani	9	11	0-34	68
4. Mabamp	254	255	23-725	57
5. Malako	154	268	0-620	74
6. Fothaneh	38	90	0-240	85
1. Masabongpil	18	28	0-105	73
2. Mamanki	16	24	0-55	70
3. Manantili	20	15	0-36	39

* based on 1978 prices

The very low mean incomes in the northern villages is associated with a very unequal distribution of that income, as indicated by the standard deviation which often exceeds the mean and the very high Gini coefficients. Typically the modal class receives no income from the sale of crops and one or several households receive a high income from farm sales. This makes mean income and standard deviation less meaningful since there is a marked negative skew to income distribution. There is no apparent difference between A. and B. communities except for Manantili where low farm sales characterised the income of the majority of the interviewed households and this distribution can be likened to one of 'shared poverty'.