

What's Not There When You Can't Get There From Here
A Socio-economic Study of Transportation
in the Gorgol and Guidimaka Regions of Mauritania

by Lucie Colvin Phillips

Final Report for U.S.A.I.D., Nouakchott,
contract no. 682-0214-S-00-5017-00. October 1985.

Table 3. Localities Surveyed

Village Number	Locality Name	Departement	and Ques. Number	1977 Census Number	Ethnic Groups (1977 Population)
1	Moloum Nere, Kaedi, 002		xx		Poular 1037, Maure 8
2	Rindiaw Belimadi, Kaedi, 007		xx		Poular 847, Maure 21
3	Belinabe, Kaedi, 008		xx		Poular 1140, Maure 15
4	Kaedi, Kaedi, 000		401		Poular 10151, Maure 6225, Soninke 3384, Wolof 339, other 257
5	Gourdiouma, Kaedi, 012		xx		Poular 238, Maure 174
6	Seyyene Gababe, Kaedi, 016		402		Poular 205
7	Seyyene Mouro Molo, Kaedi, 017		403		Poular 258, Maure 65
8	Toulde Bally, Kaedi, n.a.		404		Poular
9	Sanki, Kaedi, 018		405		Poular 513, Maure 144
10	Lexeiba, Kaedi, 019		406		Poular 2369, Maure 340, Soninke 46, other 1
11	Winde Boki, Kaedi, 053		407		Poular 333, Maure 129
12	Mouro Sabbar, Kaedi, 052		408		Maure 150, Poular 92
13	Duld Raay, Kaedi, 050		409		Poular 230, Maure 150
14	Tinrame, Kaedi, 049		410		Poular 23, Maure
15	Zreikat Badiane, Kaedi, 043		xx		Temporary village on the road. Inhabitants not there.
16	Siloul, Kaedi, 043		xx		Maure 216, Poular 203. No one present when we arrived.
17	Ndam, Kaedi, n.a.		411		Maure, Poular (no 1977 census info)
18	Kow Dinje, Mbout, 021		412		Maure 350, Poular 51
19	Mbout, Mbout, 000		413		Maure 3221, Poular 918, Baabara 213, Soninke 83, Wolof 32.
20	Diadjibine Gandega, Mbout, 088		414		Soninke 881, Poular 44, Maure 40, Baabara 2.
21	Boudama Safalbe, Mbout, 089		415		Maure 769, Poular 29.
22	Boudama Abou Dioulde, Mbout n.a		416		Poular (no 1977 census info)
23	Boudama Mouro Soibe, Mbout n.a		417		Poular (no 1977 census info)
24	Boudama Mouro Deaba, Mbout n.a		418		Poular (no 1977 census info)
25	Agoynit, Selibaby, 050		419		Soninke 1256, Maure 156, Poular 38
26	Artouma, Selibaby, 068		420		Soninke 495, Maure 5, Poular 3
27	Tachott Birane, Selibaby, 056		421		Soninke 1250, Poular 28, Maure 11
28	Tachott Botokholo, Selibaby, 057		422		Soninke 1404, Maure 107, Poular 53, Baabara 3
29	Hel Saloua, Selibaby, 059		423		Maure 238
30	Zreigatt, Selibaby, 063		424		Maure 278
31	Keninkourou, Selibaby, 060		425		Soninke 806, Poular 100, Maure 81
32	Selibaby, Selibaby, 000		425		Maure 2005, Soninke 1677, Poular 1623, Baabara 120, Wolof 24
33	Toumbere Dingue, Kaedi, 026		427		Poular 290, Maure 28
34	Talhaya, Kaedi, 023		428		Poular 742, Maure 98, Baabara 4, Soninke 1
35	Tetiane, Kaedi, 032		429		Poular 643, Maure 8
36	Koundel Rea, Kaedi, 036		430		Poular 1063, Maure 22
37	Mouro Seno, Kaedi, 051		431		Poular 70, Maure 2
38	Foua Gleita, Mbout, 032		432		Poular, Maure, Wolof, Soninke (no 1977 census info)
39	Kerkedaye, Mbout, 086		433		Maure 49, Poular 7
40	Bouilly N'Guira, Mbout, 568		434		Poular 210, Maure 8
41	Boudama Sarningues, Mbout, 097		435		Poular 143, Maure 8
42	Ouloubone Soninke, Selib, 069		436		Soninke 711, Poular 84, Maure 27
43	Gourel Dialoubes, aband (Veling		xx		Poular 41 in 1977. Abandoned today. All went to Velingara, S
44	Arsane, Selibaby, 040		437		Poular 84
45	Hel Aly Niarwal, Selibaby, 045		438		Maure 223, Poular 8
46	Hassi Bagara, Selibaby, 035		439		Soninke 374, Poular 130, Maure 55
47	Windou Goby, Selibaby, 106		xx		Poular 86
48	Samba Kandji, Selibaby, 104		xx		Soninke 255, Poular 16, Maure 6
49	Ecuraye, Selibaby, 005		xx		Poular 220, Maure 152, Soninke 145, Baabara 34
50	Mounpou, Selibaby, 020		xx		Soninke 1038, Poular 92, Maure 27, Baabara 5, Wolof 2
51	El Islao, Selibaby, 016		xx		Poular 66
52	Mouliissi Ngo, Selibaby, 100		xx		Soninke 89, Poular 3
53	Guenou, Selibaby, 098		xx		Soninke 548. Poular 90, Maure 12, Baabara 1, Other 1

Table 5. Indices of Size for Remaining Villages*

Vill. No.	Locality	Population 1977	Households in 1977	Residential Structures 1985
28	Tachott Botokholo, Selibaby, 057	1567	189	59
50	Woumpou, Selibaby, 020	1165	142	
3	Belinabe, Kaedi, 008	1158	185	35
36	Koundel Reo, Kaedi, 036	1085	165	25
1	Woloum Nere, Kaedi, 002	1045	185	40
31	Keninkourou, Selibaby, 060	987	134	
20	Diadjibine Gandega, Mbout, 088	967	120	80
2	Rindiauw Belimadi, Kaedi, 007	859	138	20
53	Guemou, Selibaby, 098	662	79	
35	Tetiane, Kaedi, 032	651	108	19
49	Gouraye, Selibaby, 005	554	93	
26	Artouma, Selibaby, 068	503	60	24
11	Winde Boki, Kaedi, 053	462	69	2
16	Siloul, Kaedi, 043	420	59	
18	Kow Dimje, Mbout, 021	401	63	11
17	Ndam, Kaedi, n.a.	397	70	3
13	Ould Ramy, Kaedi, 050	380	54	3
48	Samba Kandji, Selibaby, 104	279	34	
30	Zreigatt, Selibaby, 063	278	55	
29	Hel Saloum, Selibaby, 059	238	50	2
45	Hel Aly Niarwal, Selibaby, 045	231	39	3
40	Bouilly N'Guero, Mbout, 568	218	28	1
6	Seyyene Gababe, Kaedi, 016	205	29	6
41	Boudama Sarningues, Mbout, 097	177	25	7
52	Moulissi Ngo, Selibaby, 100	92	12	
44	Arsane, Selibaby, 040	84	13	3
37	Wouro Semo, Kaedi, 051	72	10	
39	Kerkedaye, Mbout, 086	56	10	22
43	Gourel Dialoubes, aband (Velng	41	5	
47	Windou Goby, Selibaby, 106	36	10	
38	Foum Gleita, Mbout, 032	27	3	125
14	Tintrame, Kaedi, 049	23	4	
5	Gourdiouma, Kaedi, 012	0	0	
8	Toulde Bally, Kaedi, n.a.	0	0	2
15	Zreikat Bodiane, Kaedi, 043	0	0	1
22	Boudama Abou Dioulde, Mbout n.a	0	0	
23	Boudama Wouro Soibe, Mbout n.a	0	0	
24	Boudama Wouro Demba, Mbout n.a	0	0	
**	TOTAL **	15320	2240	504

Table 4. Population Growth 1977-85 in Sample Localities*

Vill. No.	Locality	Population 1977	Population 1985	Annual Growth Rate %	Households in 1977	Households in 1985	Residential Structures 1985
4	Kaedi, Kaedi, 000	20356	25182	2.70	2832	3856	0
32	Selibaby, Selibaby, 000	5451	10317	8.30	772	1277	0
19	Mbout, Mbout, 000	4467	6632	5.10	785	1001	1814
10	Lexeiba, Kaedi, 019	2756	5414	8.80	380	740	1304
25	Agoynit, Selibaby, 050	1450	2290	5.90	150	161	600
27	Tachott Birane, Selibaby, 000	1289	1497	1.90	118	109	300
34	Talhaya, Kaedi, 023	845	1040	2.60	118	132	269
42	Ouloumbone Soninke, Selib, 069	823	1321	6.10	82	84	210
21	Boudana Safalbe, Mbout, 089	798	1000	2.90	145	193	62
9	Ganki, Kaedi, 018	657	139	-17.70	92	24	108
46	Hassi Bagara, Selibaby, 035	559	576	0.40	33	35	120
7	Seyyene Kouro Molo, Kaedi, 017	323	289	-1.40	48	48	114
33	Toumbere Dingue, Kaedi, 026	318	366	1.80	48	49	135
12	Nouro Sabbar, Kaedi, 052	242	149	-5.90	37	29	11
51	El Islam, Selibaby, 016	66	244	17.80	10	30	0
**	TOTAL **	40400	56456		5650	7768	5047

List of Acronyms

DRIG	Guidimaka Integrated Rural Development Project
ECU	European Currency Units
FAO	(UN) Food and Agriculture Organization
FAC	Fonds d'Aide et de Cooperation (French)
FADES	Fonds Arab pour le Developpement Economique et Social
FED	Fonds Europeen de Developpement
GIRM	Government of the Islamic Republic of Mauritania
IDA	International Development Agency (IBRD)
IBRD	International Bank for Reconstruction and Development (World Bank)
KFW	Kredit fuer Wiederaufbau (West German)
ONC	Office Mauritanien des Cereals
OMVS	Organisation pour la Mise en Valeur du Fleuve Senegal
RAMS	Rural Assessment/Manpower Survey Project
SONADER	Societe Nationale pour le Developpement Rural
SONIMEX	Societe National Importation et Exportation
UNDP	United National Development Program
UM	Mauritanian Monetary Unit (May 1985, UM 75=US\$ 1)

Summary

This is a socio-economic baseline survey of the area affected by the USAID road rehabilitation project connecting Kaedi with Mbout and Selibaby. It comprises a transport industry survey and a study of fifty-three sample villages and towns. It is designed to be repeated in five years to evaluate socio-economic changes accompanying road rehabilitation.

The Gorgol and Guidimaka are the southernmost regions of Mauritania, lying along the north bank of the Senegal River 400-700 kilometers inland from the coast. Their inland location has isolated them from the capital and the main north-south transportation axis of the country, the Rosso-Nouakchott-Akjoujt paved road. The seasonally flooded and severely eroded tracks in the region have hampered every development and food relief program. The USAID road project will alleviate this, linking the three departmental capitals to Nouakchott via all-weather gravel road to Boghe. From Boghe to Nouakchott the road is paved.

The most immediate benefit of the road project will be to facilitate the distribution of food relief, which is currently the major traffic on the road. The long term development impact is expected to include attraction of people and commerce to settlements along the road, growth of private business, and improved access to education, health, secure water supply, and the consumer economy. The economic viability of the road and the transport industry using it will be enhanced by investments planned for the region by the GIRM and other donors, notably in irrigation. The irrigation projects require reliable roads for provisioning, and for marketing the harvest.

Most travel in the region is currently on foot. The next most common mode is mule-back, and third come animal-drawn carts. Motorized traffic is estimated at 10 or less vehicles per day between Kaedi and Fom Gleita, and 5 or less between Mbout and Selibaby.

Travel times and costs vary substantially from one locality to another. Villagers living off the road may spend two to seven days to get to Nouakchott or Kaedi, while those living in towns with car parks average only a few hours. Short distances cost passengers on average three times as much per kilometer traveled as long distances. Local cargo rates are about four times the long-distance rates.

Basic services and amenities are substantially better in villages on the road than in those off the road. While the first two years of primary education are equally available to the two, schooling beyond that level is practically limited to residents of departmental capitals (on the road).

The transport industry and consumer economy have developed rapidly in the last five years, since the paved road north of the region was built. The transport industry operates on free market principles; government regulations and fixed prices obtain only on the paved road between Nouakchott and Aleg. It is a high risk, high return, high status business. Entrepreneurs typically buy their vehicles in cash, or in one to two years time payments.

If they have no major accidents or repairs, the vehicle can pay for itself in one to two years. An accident or breakdown, on the other hand, can mean instant bankruptcy. Owners diversify their investments in trade, other vehicles, livestock, etc.

The agricultural economy has changed little since the first major study in 1957, except for the approximately 2000 ha. of irrigation projects built since 1975. The hoe and pick are still the only universal tools. Only one fourth of the villages have a plow. Manuring is practiced rarely, chemical fertilizers are used only on irrigated rice. Farmers prepare their own seed stocks.

A complete inventory was done of non-agricultural economic activities: commerce, artisanal activities and services. The remittances of urban and overseas migrant workers have stimulated the cash economy in the last five years. That growth can be expected to continue with road improvement.

Difficulties with transport for shopping are a frequent, but previously unstudied problem of rural populations. Section 5.4 and Table 30 detail the situation in the Gorgol and Guidimaka. Construction materials, or even ordinary household utensils, often require time and transport costs that multiply purchase prices.

Baseline data was also collected on quality of life indicators such as water supply, housing type, communications, and religious life and education.

The only area in which negative effects of road improvements are foreseen is traffic accidents. As traffic volume increases, the accident rate will likely go up. The road might contribute to deforestation by permitting the charcoal industry to spread, but natural deforestation outweighs this danger at present. The major economic questions concerning the internal rate of return of the road construction, and of the impact of recurrent costs of road maintenance on the government budget are dealt with in separate documents. Road maintenance is to be the subject of a nationwide study.

Table of Contents

1. Introduction.....	1
2. Geographic Context and Potential Development Impact...2	2
3. Methodology of Transport and Village Surveys.....9	9
4. Transport Industry Survey.....13	13
4.1 Availability of Transport to Sample Localities....16	16
4.2 Transport and the Availability of Basic Services..17	17
4.3 Competition in the Transport Industry.....18	18
5. Life with Limited Transport: A Portrait of the Gorgol and Guidimaka.....22	22
5.1 Demographics of the Gorgol and Guidimaka.....26	26
5.2 Agriculture and Livestock.....28	28
5.3 The Non-agricultural Economy: Migration, Commerce Artisanal Activities, and Services.....34	34
5.4 Quality of Life Indicators.....36	36
Reference Notes.....42	42
Maps 1-5.....43	43
Appendix A. Sample Questionnaires.....48	48
Appendix B. Curriculum Vitae of Research Team Members...53	53

List of Tables

Table 1. Other Investment in the Gorgol and Guidimaka.....	8
Table 2. Central Government Projects and Facilities in the Area.	9
Table 3. Localities Surveyed.....	13
Table 4. Population Growth 1977-85 in Sample Localities.....	13
Table 5. Indices of Size for Remaining Villages.....	13
Table 6. Long Distance Transportation Costs.....	14
Table 6.1 Long Distance Transportation Costs (Cargo).....	14
Table 6.2 Long Distance Transportation Costs (Passenger).....	14
Table 7. Transport Costs from Sample Localities to Kaedi.....	14
Table 8. Transport Costs from Sample Localities to Nouakchott..	14
Table 9. Long Distance Tavel Times.....	14
Table 10. Travel Times from Sample Localities to Kaedi.....	14
Table 11. Travel Times from Sample Localities to Nouakchott....	14
Table 12. Availability of Transport in Sample Localities.....	17
Table 12.1 Availability of Transport in Sample Localities on the Road.....	17
Table 12.2 Availability of Transport in Sample Localities with over 1000 Population.....	17
Table 12.3 Availability of Transport in Sample Localities Off the Road.....	17
Table 13. Access to Primary Schooling.....	18
Table 13.1 Access to Primary Schooling for Localities on the Road.....	18
Table 13.2 Access to Primary Schooling for Localities Off the Road.....	18
Table 14. Access to Secondary Schooling.....	18
Table 14.1 Access to Secondary Schooling on the Road.....	18
Table 14.2 Access to Secondary Schooling Off the Road.....	18
Table 15. Access to Modern Health Care.....	18

Table 15.1 Access to Modern Health Care on the Road.....	18
Table 15.2 Access to Modern Health Care Off the Road.....	18
Table 16. Crop Production in Sample Localities.....	29
Table 17. Food Gathering and Milk Production.....	29
Table 18. Agricultural Implements, Janure and Fertilizer Use...	29
Table 19. Livestock Holdings.....	29
Table 20. Women's Work.....	29
Table 21. Land Tenure Patterns.....	29
Table 22. Agricultural Support Facilities.....	29
Table 23. Livestock Support Facilities.....	29
Table 24. In-Migration in Sample Localities.....	35
Table 25. Out-Migration from Sample Localities.....	35
Table 26. Markets and Shops.....	35
Table 27. Transportation Related Sales and Services.....	35
Table 28. Food Services.....	35
Table 29. Other Craftsmen and Services.....	35
Table 30. Consumers' Retail Purchases.....	38
Table 31. Communications.....	38
Table 32. Domestic Water Supply and Electricity.....	38
Table 33. Housing Types.....	38
Table 34. Mosques and Quranic Teachers.....	38
Table 35. Road Accidents in Last 12 Months.....	38

List of Maps

- Map 1. Southern Mauritania: Irrigation**
- Map 2. Internal Population Migration in Mauritania**
- Map 3. Population Density in Mauritanian Departments**
- Map 4. Occupational Distribution**
- Map 5. Literacy Rates**

What's Not There When You Can't Get There From Here:

A Socio-economic Study of Transportation

in the Gorgol and Guidimaka Regions of Mauritania

by Lucie Colvin Phillips*

1. Introduction

The United States Agency for International Development is rehabilitating the road linking the southeastern departmental capitals of Kaedi, Mbout, and Selibaby in an attempt to relieve the isolation of the Gorgol and Guidimaka Regions. The seasonally flooded and severely eroded tracks in the region have hampered every development and food relief program in the past, and cut the area off economically and politically from the center. The local population, 80% of whom are small farmers and herders, have had little access to education, services, supplies and markets. The current study is a socio-economic baseline survey scheduled to be repeated in five years. It comprises two parts: a community survey and a transport industry survey. Comparison of the results five years hence should permit more accurate than usual evaluation of the socio-economic impact of the road improvement.

*The author wishes to thank the personnel of USAID/Nouakchott who provided efficient support for the intense field-work phase of this project, and the Mauritanian Center for Economic and Demographic Studies, Central Statistics, Ministry of the Economy and Finance, and the Ministry of Rural Development, Agricultural Statistics, for their gracious and effective collaboration. Abdoul Aziz Niang was a demanding supervisor of field work, and enumerators Diadie Gandega and Houssein Ould Greigui did careful, reliable interviewing. Without them the study would not have been possible. The results do not represent official views of the government of Mauritania nor the US government or its agencies or personnel. Errors of fact or interpretation are exclusively the responsibility of the author.

2. Geographic Context and Potential Development Impact

The Gorgol and Guidimaka are the southernmost regions of Mauritania, lying along the north bank of the Senegal River 400-700 kilometers inland from the coast. Their inland location has isolated them from the capital and the main north-south transportation axis of the country, the Rosso-Nouakchott-Akjoujt paved road.

Plans for an east-west paved road in the 1970s considered three possible axes, the northernmost of which (Nouakchott-Aleg-Kiffa-Ayouun el-Atrous) was chosen. Construction was completed in 1980. Traffic, trade and population have grown very rapidly along that road, but this has improved the situation of the Gorgol and Guidimaka only marginally. The Aleg-Kaedi-Mbout, Kiffa-Mbout-Selibaby, and Kiffa-Ould Yenge-Selibaby-Gouraye tendrils down to the river valley remained practicable in the dry season only by four-wheel drive vehicles and were flooded out periodically in the rainy season.

The southernmost of the three east-west axes lies right along the river, traversing the most populous and agriculturally productive towns. It is barely passable in the dry season by four-wheel drive vehicle, and not at all during the rains.

The USAID-funded all-weather road Kaedi-Mbout-Selibaby is part of a continuing effort to rehabilitate and maintain an all-weather gravel road serving the Senegal River Valley. The USAID project concerns one of the three major east-west axes. The northernmost axis, which is paved, is too far from the valley. The southernmost route links the villages actually in the valley, but cannot be made into an all-weather road because large

portions are periodically flooded. The middle route, passing through the market towns, is therefore the only hope for the densely populated river basin area. It is linked to the northern route via a recently paved spur from Aleg to Boghe. An all-weather gravel road from Boghe to Kaedi built in 1982 was supposed to have connected the AID project to the paved road. It has deteriorated badly since it was built in 1982, due to a lack of drainage structures, leading to complaints of a "missing link." USAID has therefore made rehabilitation of this segment a condition-precedent to further work on the Kaedi-Selibaby stretch. The GIRM is working with FADES on project design and funding for the Boghe-Kaedi road.

The road from Selibaby to Gouraye is another missing link from the point of view of the regional economic geography. The Mauritanian government is constructing a car-ferry from Gouraye to Bakel, Senegal, which will tie into the Senegalese paved road network. The ferry was planned on the assumption that it would connect with Selibaby, allowing development of irrigation projects along that portion of the river and making a circuit useful to the whole Guidimaka region. This segment, however, had to be dropped from the current USAID project due to cost overruns. Restoring it is a priority of officials and communities in the Guidimaka.

Other future priorities are sections of the river valley route, notably Kaedi-Maghama, Rosso-Kaedi, and east and west from Gouraye.

After two and a half decades of unremitting drought, it is

clear that Mauritania must rely on irrigation to relieve escalating food imports. The rainfed agricultural zone has shrunk to a few hundred square kilometers. The Guidimaka has the only remaining rainfed agricultural potential in Mauritania, and even that is rather meagre. The region used to be traversed by the 600 mm rainfall isohyet, but in the last five years has averaged only 200 mm. Food imports, which averaged about 20,000 tons in the late 1960s reached 150,000 MT in 1980.³ The cost of the U.S. emergency food relief program alone in 1984 reached \$23 million per year,¹ with no respite in sight.

The cereals production capacity of all Mauritania by the year 2000 is estimated at 52000 metric tons if only traditional technology is used.² With modest improvements to traditional technology (animal traction and improved inputs), the potential is estimated at 97,000 T. Irrigated rice production in the river valley and the oueds could add another 101,000 to 313,000 T., depending on the pace of development and yields.

Improved transport in south-eastern Mauritania is a sine qua non to improved food production, whether from rainfed or irrigated agriculture. Both require access to agricultural implements, selected seeds, pesticides, fuel and extension programs, as well as to markets. The sample village study shows how rare these are today.

In the meantime, under current conditions, food relief supplies are the main traffic on the road. Kaedi and Selibaby serve as depots for the trucking networks in their regions. Imports into the region by CAA and OCM in 1982 totaled about 870 tons and by SONIMEX 1200 tons.⁴ Officials this year (1985) in

both regions reported that once the rains started, the arrival of further stocks would be complicated by delays and mishaps. They had not been able to stock locally any food for the "soudure," the season of hunger that marks the first three months of the agricultural cycle. Since the whole population of the area (including visitors such as the research team) now depends on food relief, the immediate benefits of an all-weather road will be widely felt.

The development impact of the USAID road project will also depend on:

- road characteristics and technical effectiveness,
- road maintenance,
- development investment in the project area by other donors,
- GIRM investment and economic policies in the region, and
- growth of the cash economy. This, in turn, is related to population density, current trends in the regional economy, and capital and labor availability. This report bears mainly on the last point, the regional economy. The project paper discusses the others more fully, so only brief observations are made here.

Revised specifications call for an all-weather gravel road a minimum of 4 meters wide, and in most places 5.5 meters wide. Since the current road is passable in the dry season, this project would be categorized as rehabilitation rather than new construction.

The USAID rule of thumb for rehabilitation projects is that they reduce the cost and increase the convenience of transport, but do not generate significant new traffic or economic

5
activities. Only new roads, in areas previously inaccessible to motorized vehicles generate major economic growth. A similar estimate was expressed often by interviewees in the region, who, while welcoming any road improvement, believed that only a paved road would markedly improve their situation.

The conditions found during the present study suggest that AID's rule of thumb may be too conservative for the situation in southeastern Mauritania. The lack of measurable new traffic on an improved road probably reflects the conservatism of a stable peasant population, which keeps people from moving where opportunities are not substantially better than their current home. This natural stability has been upset throughout Mauritania by the dramatic climatic changes since 1968. Throughout the study area we found people and whole villages forced to move by the drought, and gravitating towards any hope of opportunity--the river, the roads, and the towns. Adult male out-migration to cities or overseas is also accelerating. New businesses, particularly in Kaedi, are being started in great numbers. Our interview with transport owners and drivers showed that the transport industry based in Kaedi, Mabout and Selibaby has seen rapid growth in the last five years despite the poor roads. Moreover, the growth visible in the last five years along the Aleg-Nema road since it was paved is extraordinary. Traffic volume before that road was paved can be estimated at less than 20 vehicles per day. In November 1984 it was measured at 271.5 veh/d.⁶ Similar growth can be seen in commerce, population, and urban construction in the towns along the route. Kiffa seems to

have grown most rapidly, from a town of 10,703 in 1977 to about 40,000 today. It has an advantage that most towns on that route lack: an agricultural base along the nearby coast. Yet even in Aleg and Boutilimit where neither herding nor farming are practicable, population, commerce and informal sector activities have increased dramatically. Thirty percent of the population served by the Nouakchott-Aleg road lives in the Gorgol and Guidimaka. With an improved road link to Nouakchott, it would not be surprising to see traffic volumes of 100 or more vehicles per day through Kaedi within five years.

Maintenance, or lack thereof, will be a critical factor determining whether transport times and costs show any improvement in the next five years after rehabilitation. Only two years AID funding of maintenance is included in the project. Public works has not been able to do an adequate job on existing roads; private transporters and villagers complain that they do most of the road maintenance themselves. Flash flood damage and blowing sand render roads impassible within days of maintenance work, creating problems beyond the capacity of maintenance budgets or systems. Villagers discussed this at length with our team, and expressed willingness to clean drains and do other maintenance within their means. These are, however, limited by their lack of tools and transport. Without motorized transport, they cannot realistically do maintenance beyond a radius of five kilometers from their villages. Our questionnaire on tools showed very few shovels in the area--mostly hand hoes and picks.

Other donor and GIRM investment is likely to add pressure to

improve roads and maintenance throughout the region. These are summarized in Table 1. The subsequent table shows GIRM facilities in the area that need transport to Nouakchott in order to function.

Table 1. Other Investment in the Gorgol and Guidimaka

Project	Locality	Goals	Funding
Irrigation	Foum Gleita	3,600 ha. (2,500 ha. unless rainfall improves)	FED/RFA, 9.6 million ECU, + IDA in past
Irrigation	Kaedi- Selibaby	300 ha. small peri- meters	FED
Irrigation	Kaedi	700 ha. since 1980	FED
Irrigation	Kaedi	750 ha. Gorgol Noir	FAC/IBRD
Irrigation	Gorgol Reg.	5,600 ha. planned	IBRD
Harvest storage	Selibaby	Training and Silos	FAO, ongoing
Seed production	Kaedi	Produce and distri- bute improved var- ieties	FAO/FF/Neth.
Urban Water	Selibaby	Potable water supply	FED
Crop Protection	Regional	Rainfed crop protection	FED, 1 million ECU
Reforestation	Woumpou	Village wood and fruit lots, dieri and gonake reforestation	FED
Reforestation	Boghe HQ, 5 regions	Gum arabic restoration	FED, 1.15 million ECU
Hospital exten- sion	Kaedi	Increase from 58 to 114 beds	FED, 2.325 million ECU
Small Dams	South from Kiffa	Develop 22 small dams and 2 springs	UNDP, \$4.3 million
Integrated Rural Development			CARITAS/ CEBEMO, UM53 million
Reintegration of Migrants	Kerikouro	Return migrants, reduce exode	G.R.D.R., 47,800 ECU

Table 2. Central Government Projects and Facilities in the Area

Agency	Localities	Distance to Road
SONADER, Sector HQs	Kaedi	0 km.
	Gouraye	45 km. to Selibaby
Forestry, management posts	Selibaby	0
	Khabou	70 km. to Selibaby
	Ould Yenge	140 km to Selibaby
Livestock Inspection HQ Sector post	Selibaby	0
	Ould Yenge	140 km to Selibaby
ONC Storage facility	Selibaby, 500 T.	0
	Mbout, 400 T.	0
Purchase points for local surplus grains	Hassi Chaggar	Selibaby-NDieo, 0
	Danqueremou	Mbout-Selibaby, 2.5
	Bouly	Selib.-Ould Y., 0
	Zenegas-Touc.	Mbout-Selibaby, 5
	Soufi	Selib.-Ould Y., 0
	Mbaidi Achar	Selibaby-NDieo, 0
	Dafort	Selibaby-NDieo, 0
	Tachott Botokholo	Mbout-Selibaby, 0
	Tachott Birane	Mbout-Selibaby, 0
	Keninkourou	Mbout:Selibaby, 0
Agoynit	Mbout-Selibaby, 0	

3. Methodology of Transport and Village Surveys

USAID recently completed a world-wide study of rural roads evaluations, which sets standard criteria and procedures. It categorizes and describes the changes found elsewhere in developing countries, providing the working hypotheses and comparative context for the present study. Its checklist of points for evaluation groups them under the rubrics of: road characteristics, road construction effectiveness, economic impact, social impact, and transport costs, prices, and travel times (Detailed breakdowns for each category are in Appendix A). The main purpose of the socio-economic and transport industry

studies is to determine to what extent there are savings in transport times and costs, and whether these are passed on to consumers or retained by transporters.

Our fieldwork team comprised two interviewers, a supervisor, and the project director. Teams of two, an interviewer and a supervisor, conducted interviews in car-parks, private transporters homes or shops, and villages. The whole team reviewed the questionnaires each evening for completeness and consistency, allowing dubious entries to be rechecked. In towns the interviews were with the Governor and Prefet and their staffs. In villages we were usually directed to the home of the chief, but the main spokesman for the men who assembled was the Representative of the recently instituted quasi-party institution called the "Structure de Base pour l'Education des Masses."

The transport industry survey involved interviewing transport users about costs and travel times (48 in car-parks and 46 in sample villages), plus 21 private transporters (vehicle owners) and 22 drivers. Since we found no one who kept written accounts, statistical analysis of budgets proved impossible. The information nevertheless gives baseline price information and a good assessment of transport industry functioning.

A traffic volume survey remains to be done. It was not included in the terms of reference for the present study, so the author assumed that it had been done as part of the road project design. It turned out that there is a nationwide lack of traffic volume studies, and a growing awareness of the need for them. Since volumes vary seasonally, especially in the river valley, this requires a full year study. A study of road maintenance

problems in Mauritania is currently being planned, and should include traffic volumes. Hopefully the data will be available for the follow-up to this present study. In the meantime, our field work observations suggest volumes close to the estimates used in the project paper, 10 or less motorized vehicles per day on the Kaedi-Foum Gleita-Mbout axis, and 5 vehicles or less per day on the Mbout-Selibaby axis. Most trips in the region are made on foot, and the next most common transport is mule-back, followed by donkey or horse cart. Volumes could not be measured, but questions on means of transport for goods and services unavailable locally showed this to be the case. Our vehicle and livestock ownership inventories are another good index of means of transport in the area.

The community survey concerned 53 villages, 32 of them on the main road, and a control group of 21 off the road. Since individuals and whole villages tend to move close to newly improved roads, we did an inventory of villages lying within 1000 meters of the road. Services and facilities tend to improve faster in villages lying along a main road, so a complete inventory of housing type, water supply, vehicle ownership, and amenities and services was conducted, comparing villages on the road with the control group and preparing the way for a repeat inventory five years hence. The sample for the control group was chosen from the maps used in the 1977 population census, selecting the off-road villages closest to each intersection of latitude and longitude lines in the three departments concerned. This gave a random geographic distribution, which was then

adjusted slightly to assure representation of all ethnic groups, and of villages on the river as opposed to the plains. Table 1 shows the localities in the sample. The first 32 are in order west to southeast along the road, from just before Kaedi to Selibaby. Numbers 33 to 53 are the off-road villages, also listed from west to southeast.

Three of the villages in the initial sample were found abandoned (all were off the main road). In one case we were able to learn where the villagers had gone, and the case was retained. The two others were replaced by neighboring villages with similar characteristics.

Six new villages were found on the main road, for which we had no 1977 census data. Three others were found to have moved to the road from nearby off-road sites since 1977.

No single index of size or population growth was available for the localities. An agricultural census was conducted in 1984-1985 on fifteen of the localities in our sample, which permitted calculation of growth rates shown in Table 2.⁸

Table 3 shows indices of size for localities on which 1985 census data was not available, i.e. 1977 census data and/or a count of residential structures that was done at the time of the questionnaire administration and should be repeated in the follow-up study. Seven villages in the River valley of Selibaby department could not be visited during field work, because they were quarantined with a cholera epidemic. They are nevertheless an important part of the survey because of their potential for irrigated agriculture, and were retained in the sample with spotty data from the censuses and from interviews done in

Selibaby with officials working in the valley. Where no questionnaire was administered, an "xx" appears as the questionnaire number in the tables.

4. Transportation Industry Survey

The transportation survey establishes baseline data from which to measure any transport time and cost savings. It also assesses the degree of competition in the transport industry today, as a predictor of whether savings can be expected to be passed on to consumers.

Tables 6 through 8 show passenger fares and freight rates for the region. Tables 9 through 11 show travel times. The villages which lack motorized transport experience the longest travel times, as residents must go by animal cart or on foot to the nearest town with transport. This applies to most of the villages located off the main road, except Fom Gleita, plus some of the smallest ones on the road.

How many transfers passengers and freight make is the next major factor in costs and times. Car parks are located at Kaedi, Lexeiba, Mbout, and Selibaby. There is a fairly widespread minimum charge for freight, 200 UM per 100 kilos, regardless of the distance traveled. It amounts to a fixed trip charge. This compensates transporters for loading time and some other fixed costs that they incur.

This practice puts an enormous cost-burden on local intra-regional freight in the Gorgol and Guidimaka. Table 7 shows the cargo cost per metric ton per kilometer for communities in our sample. Those located less than 100 km. from Kaedi pay the

Table 3. Localities Surveyed

Village Locality Name, Department, and Ques. Number	1977 Census Number	Ethnic Groups (1977 Population)
1 Woloum Nere, Kaedi, 002	xx	Poular 1037, Maure 8
2 Rindiam Belimadi, Kaedi, 007	xx	Poular 847, Maure 21
3 Belinabe, Kaedi, 008	xx	Poular 1140, Maure 15
4 Kaedi, Kaedi, 000	401	Poular 10151, Maure 6225, Soninke 3384, Wolof 339, other 257
5 Gourdiouma, Kaedi, 012	xx	Poular 238, Maure 174
6 Seyyene Gababe, Kaedi, 016	402	Poular 205
7 Seyyene Nouro Molu, Kaedi, 017	403	Poular 258, Maure 65
8 Toulde Bally, Kaedi, n.a.	404	Poular
9 Ganki, Kaedi, 018	405	Poular 513, Maure 144
10 Lexeiba, Kaedi, 019	405	Poular 2369, Maure 340, Soninke 46, other 1
11 Winde Boki, Kaedi, 053	407	Poular 333, Maure 129
12 Nouro Sabbar, Kaedi, 052	408	Maure 150, Poular 92
13 Ould Raay, Kaedi, 050	409	Poular 230, Maure 150
14 Tintrane, Kaedi, 049	410	Poular 23, Maure
15 Zreikat Bodiame, Kaedi, 043	xx	Temporary village on the road. Inhabitants not there.
16 Siloul, Kaedi, 043	xx	Maure 216, Poular 203. No one present when we arrived.
17 Ndam, Kaedi, n.a.	411	Maure, Poular (no 1977 census info)
18 Kow Dimje, Mbout, 021	412	Maure 350, Poular 51
19 Mbout, Mbout, 000	413	Maure 3221, Poular 918, Bambara 213, Soninke 83, Wolof 32.
20 Diadjibine Gandega, Mbout, 088	414	Soninke 881, Poular 44, Maure 40, Bambara 2.
21 Boudama Safalbe, Mbout, 089	415	Maure 769, Poular 29.
22 Boudama Abou Dioulde, Mbout n.a	416	Poular (no 1977 census info)
23 Boudama Nouro Soibe, Mbout n.a	417	Poular (no 1977 census info)
24 Boudama Nouro Demba, Mbout n.a	418	Poular (no 1977 census info)
25 Agoynit, Selibaby, 050	419	- Soninke 1256, Maure 156, Poular 38
26 Artouma, Selibaby, 068	420	- Soninke 495, Maure 5, Poular 3
27 Tachott Birane, Selibaby, 056	421	- Soninke 1250, Poular 28, Maure 11
28 Tachott Botokholo, Selibaby, 057	422	- Soninke 1404, Maure 107, Poular 53, Bambara 3
29 Hel Saloum, Selibaby, 059	423	Maure 238
30 Zreigatt, Selibaby, 063	424	Maure 278
31 Keninkourou, Selibaby, 060	425	- Soninke 806, Poular 100, Maure 81
32 Selibaby, Selibaby, 000	425	Maure 2005, Soninke 1677, Poular 1623, Bambara 120, Wolof 24
33 Toumbere Dingue, Kaedi, 026	427	Poular 290, Maure 28
34 Talhaya, Kaedi, 023	428	Poular 742, Maure 98, Bambara 4, Soninke 1
35 Tetiane, Kaedi, 032	429	Poular 643, Maure 8
36 Koundel Reo, Kaedi, 036	430	Poular 1063, Maure 22
37 Nouro Semo, Kaedi, 051	431	Poular 70, Maure 2
38 Foum Gleita, Mbout, 032	432	Poular, Maure, Wolof, Soninke (no 1977 census info)
39 KerkeDaye, Mbout, 086	433	Maure 49, Poular 7
40 Bouilly N'Guero, Mbout, 568	434	Poular 210, Maure 8
41 Boudama Sarningues, Mbout, 097	435	Poular 143, Maure 34
42 Ouloumbone Soninke, Selib, 069	436	Soninke 711, Poular 84, Maure 27
43 Bourel Dialoubes, aband (Veling xx		Poular 41 in 1977. Abandoned today. All went to Velingara, S
44 Arsane, Selibaby, 040	437	Poular 84
45 Hel Aly Niarwal, Selibaby, 045	438	Maure 223, Poular 8
46 Hassi Bagara, Selibaby, 035	439	Soninke 374, Poular 130, Maure 55
47 Windou Goby, Selibaby, 106	xx	Poular 86
48 Samba Kandji, Selibaby, 104	xx	Soninke 255, Poular 16, Maure 6
49 Gcuraye, Selibaby, 005	xx	Poular 220, Maure 152, Soninke 145, Bambara 34
50 Woumpou, Selibaby, 020	xx	Soninke 1038, Poular 92, Maure 27, Bambara 5, Wolof 2
51 El Islam, Selibaby, 016	xx	Poular 66
52 Moulissi Ngo, Selibaby, 100	xx	Soninke 89, Poular 3
53 Gueou, Selibaby, 098	xx	Soninke 568, Poular 80, Maure 12, Bambara 1, Other 1

Table 4. Population Growth 1977-85 in Sample Localities*

Vill. No.	Locality	Population 1977	Population 1985	Annual Growth Rate %	Households in 1977	Households in 1985	Residential Structures 1985
4	Kaedi, Kaedi, 000	20356	25182	2.70	2832	3856	0
32	Selibaby, Selibaby, 000	5451	10317	8.30	772	1277	0
19	Mbout, Mbout, 000	4467	6632	5.10	785	1001	1814
10	Lexeiba, Kaedi, 019	2756	5414	8.80	380	740	1304
25	Agoynit, Selibaby, 050	1450	2290	5.90	150	161	600
27	Tachott Birane, Selibaby, 056	1289	1497	2.70	118	109	300
34	Talhaya, Kaedi, 023	845	1040	2.60	118	132	269
42	Oulouebone Soninke, Selib, 069	923	1321	6.10	82	84	210
21	Boudana Safalbe, Mbout, 089	798	1000	2.90	145	193	62
9	Ganki, Kaedi, 018	57	139	-17.70	92	24	108
46	Hassi Bagara, Selibaby, 035	159	576	0.40	33	35	120
7	Seyyene Mouro Molo, Kaedi, 017	323	289	-1.40	48	48	114
33	Toumbere Dingue, Kaedi, 026	318	366	1.80	48	49	135
12	Mouro Sabbar, Kaedi, 052	242	149	-5.90	37	29	11
51	El Islam, Selibaby, 016	66	244	17.80	10	30	0
**	TOTAL **	40400	5456		5650	7768	5047

Table 5. Indices of Size for Remaining Villages*

Vill. No.	Locality	Population 1977	Households in 1977	Residential Structure 1985
28	Tachott Botokholo, Selibaby, 057	1567	189	5
50	Woumpou, Selibaby, 020	1165	142	
3	Belinabe, Kaedi, 008	1158	185	3
36	Koundel Reo, Kaedi, 036	1085	165	2
1	Woloum Nere, Kaedi, 002	1045	185	4
31	Keninkourou, Selibaby, 060	987	134	
20	Diadjibine Gandega, Mbout, 088	967	120	6
2	Rindiauw Belimadi, Kaedi, 007	859	138	2
53	Guemou, Selibaby, 098	662	79	
35	Tetiane, Kaedi, 032	651	108	1
49	Gouraye, Selibaby, 005	554	93	
26	Artouma, Selibaby, 068	503	60	;
11	Winde Boki, Kaedi, 053	462	69	
16	Siloul, Kaedi, 043	420	59	
18	Kow Dimje, Mbout, 021	401	63	
17	Ndam, Kaedi, n.a.	397	70	
13	Ould Ramy, Kaedi, 050	380	54	
48	Samba Kandji, Selibaby, 104	279	34	
30	Zreigatt, Selibaby, 063	278	55	
29	Hel Saloum, Selibaby, 059	238	50	
45	Hel Aly Niarwal, Selibaby, 045	231	39	
40	Bouilly N'Guero, Mbout, 568	218	28	
6	Seyyene Gababe, Kaedi, 016	205	29	
41	Boudama Sarningues, Mbout, 097	177	25	
52	Moulissi Ngo, Selibaby, 100	92	12	
44	Arsane, Selibaby, 040	84	13	
37	Wouro Semo, Kaedi, 051	72	10	
39	Kerkedaye, Mbout, 086	56	10	
43	Gourel Dialoubes, aband (Velng	41	5	
47	Windou Goby, Selibaby, 106	36	10	
38	Foum Gleita, Mbout, 032	27	3	1
14	Tintrame, Kaedi, 049	23	4	
5	Gourdiouma, Kaedi, 012	0	0	
8	Toulde Bally, Kaedi, n.a.	0	0	
15	Zreikat Bodiane, Kaedi, 043	0	0	
22	Boudama Abou Dioulde, Mbout n.a	0	0	
23	Boudama Wouro Soibe, Mbout n.a	0	0	
24	Boudama Wouro Demba, Mbout n.a	0	0	
**	TOTAL **	15320	2240	5

Table 6. Long Distance Transportation Costs

From	To	Distance	Transfers	Transfer Points	Passenger Fare UM/pers.	Passenger Cost (UM/km.)	Cargo Cost UM/kg	Cargo Cost/kg/km
Selibaby	Nouakchott	688	0		2000	2.90	4.50	6.540
Lexeiba	Dakar	680	1	Kaedi (Riv)	1400	2.05	2.00	2.941
Kaedi	Dakar	640	1	Kaedi (Riv)	1275	1.99	0.00	0.000
Foum Gleita	Nouakchott	579	1	Kaedi	1500	2.59	4.00	6.908
Mbout	Nouakchott	568	0		1000	1.76	4.00	7.042
Nouakchott	Koundel Reo	500	1	Kaedi	1300	2.60	4.00	8.000
Lexeiba	Nouakchott	490	0		900	1.83	4.50	9.183
Kaedi	Nouakchott	450	0		1025	2.27	3.00	6.666
Nouakchott	Kaedi	450	0		1025	2.27	2.25	5.000
Nouakchott	Mbout	450	0		1500	3.33	5.75	12.777
Lexeiba	Kiffa	268	0		2000	7.46	6.00	22.388
Kaedi	Selibaby	238	1	Mbout	1000	4.20	2.00	8.403
Selibaby	Kaedi	238	1	Mbout	1000	4.20	2.00	8.403
Mbout	Kiffa	190	0		1000	5.26	2.00	10.526
Foum Gleita	Selibaby	154	0		500	3.24	2.00	12.987
Foum Gleita	Kaedi	129	0		500	3.87	2.00	15.503
Kaedi	Maghama	120	0		500	4.16	3.00	25.000
Mbout	Selibaby	120	0		500	4.16	2.00	16.666
Selibaby	Mbout	120	0		600	5.00	2.00	16.666
Boghe	Kaedi	118	0		300	2.54	2.00	16.949
Kaedi	Boghe	118	0		425	3.60	2.00	16.949
Kaedi	Mbout	118	0		500	4.23	3.00	25.423
Mbout	Kaedi	118	0		450	3.81	2.00	16.949
Selibaby	Diadjibine	80	0		400	5.00	0.50	6.250
Lexeiba	Mbout	78	0		400	5.12	3.50	44.871
Selibaby	Agoynit	55	0		300	5.45	0.50	9.090
Kaedi	Koundel Reo	50	0		310	6.20	2.30	46.000
Koundel Reo	Kaedi	50	0		300	6.00	2.00	40.000
Lexeiba	Kaedi	40	0		200	5.00	2.00	50.000
Foum Gleita	Mbout	34	0		200	5.88	1.00	29.411

Table 62: Long Distance Transportation Costs *

From	To	Distance	Trans- fers	Transfer Points	Passenger Fare UM/pers.	Passenger Cost (UM/km.)	Cargo Cost UM/kg	Cargo Cost/kg/km
Lexeiba	Kaedi	40	0		200	5.00	2.00	50.000
Kaedi	Koundel Reo	50	0		310	6.20	2.30	46.000
Lexeiba	Mbout	78	0		400	5.12	3.50	44.871
Koundel Reo	Kaedi	50	0		300	6.00	2.00	40.000
Foum Gleita	Mbout	34	0		200	5.88	1.00	29.411
Kaedi	Mbout	118	0		500	4.23	3.00	25.423
Kaedi	Maghama	120	0		500	4.16	3.00	25.000
Lexeiba	Kiffa	268	0		2000	7.46	6.00	22.388
Boghe	Kaedi	118	0		300	2.54	2.00	16.949
Kaedi	Boghe	118	0		425	3.60	2.00	16.949
Mbout	Kaedi	118	0		450	3.81	2.00	16.949
Mbout	Selibaby	120	0		500	4.16	2.00	16.666
Selibaby	Mbout	120	0		600	5.00	2.00	16.666
Foum Gleita	Kaedi	129	0		500	3.87	2.00	15.503
Foum Gleita	Selibaby	154	0		500	3.24	2.00	12.987
Nouakchott	Mbout	450	0		1500	3.33	5.75	12.777
Mbout	Kiffa	190	0		1000	5.26	2.00	10.526
Lexeiba	Nouakchott	490	0		900	1.83	4.50	9.183
Selibaby	Agoynit	55	0		300	5.45	0.50	9.090
Kaedi	Selibaby	238	1	Mbout	1000	4.20	2.00	8.403
Selibaby	Kaedi	238	1	Mbout	1000	4.20	2.00	8.403
Nouakchott	Koundel Reo	500	1	Kaedi	1300	2.60	4.00	8.000
Mbout	Nouakchott	568	0		1000	1.76	4.00	7.042
Foum Gleita	Nouakchott	579	1	Kaedi	1500	2.59	4.00	6.908
Kaedi	Nouakchott	450	0		1025	2.27	3.00	6.666
Selibaby	Nouakchott	688	0		2000	2.90	4.50	6.540
Selibaby	Diadjibine	80	0		400	5.00	0.50	6.250
Nouakchott	Kaedi	450	0		1025	2.27	2.25	5.000
Lexeiba	Dakar	680	1	Kaedi (Riv)	1400	2.05	2.00	2.941
Kaedi	Dakar	640	1	Kaedi (Riv)	1275	1.99	0.00	-0.000

*Trips are ranked according to relative cargo costs per kilometer travelled.

Table 6.2 Long Distance Transportation Costs*

From	To	Distance	Trans- fers	Transfer Points	Passenger Fare UM/pers.	Passenger Cost (UM/km.)	Largo Cost UM/kg	Largo Cost/kg/km.
Lexeiba	Kiffa	268	0		2000	7.46	6.00	22.388
Kaedi	Koundel Reo	50	0		310	6.20	2.30	46.000
Koundel Reo	Kaedi	50	0		300	6.00	2.00	40.000
Foum Gleita	Mbout	34	0		200	5.88	1.00	29.411
Selibaby	Agoynit	55	0		300	5.45	0.50	9.090
Mbout	Kiffa	190	0		1000	5.26	2.00	10.526
Lexeiba	Mbout	78	0		400	5.12	3.50	44.871
Lexeiba	Kaedi	40	0		200	5.00	2.00	50.000
Selibaby	Diadjibine	80	0		400	5.00	0.50	6.250
Selibaby.	Mbout	120	0		600	5.00	2.00	16.666
Kaedi	Mbout	118	0		500	4.23	3.00	25.423
Kaedi	Selibaby	238	1	Mbout	1000	4.20	2.00	8.403
Selibaby	Kaedi	238	1	Mbout	1000	4.20	2.00	8.403
Kaedi	Maghana	120	0		500	4.16	3.00	25.000
Mbout	Selibaby	120	0		500	4.16	2.00	16.666
Foum Gleita	Kaedi	129	0		500	3.87	2.00	15.503
Mbout	Kaedi	118	0		450	3.81	2.00	16.949
Kaedi	Boghe	118	0		425	3.60	2.00	16.949
Nouakchott	Mbout	450	0		1500	3.33	5.75	12.777
Foum Gleita	Selibaby	154	0		500	3.24	2.00	12.987
Selibaby	Nouakchott	688	0		2000	2.90	4.50	6.540
Nouakchott	Koundel Reo	500	1	Kaedi	1300	2.60	4.00	8.000
Foum Gleita	Nouakchott	579	1	Kaedi	1500	2.59	4.00	6.908
Boghe	Kaedi	118	0		300	2.54	2.00	16.949
Kaedi	Nouakchott	450	0		1025	2.27	3.00	6.666
Nouakchott	Kaedi	450	0		1025	2.27	2.25	5.000
Lexeiba	Dakar	680	1	Kaedi (Riv)	1400	2.05	2.00	2.941
Kaedi	Dakar	640	1	Kaedi (Riv)	1275	1.99	0.00	0.000
Lexeiba	Nouakchott	490	0		900	1.83	4.50	9.183
Mbout	Nouakchott	568	0		1000	1.76	4.00	7.042

*Trips are ranked according to relative cost per passenger kilometer travelled.

Table 7. Transport Costs from Sample Localities to Kaedi

Locality	Dist. Trans- to KDI (km.)	Trans- fers	Transfer Points	Passenger Fare (UM) to Kaedi	Passenger Cost/km to Kaedi	Cargo to KDI UM/kg.	Cargo Cost/T/km to Kaedi
Woloum Nere, Kaedi, 002	21	1	Kaedi	100	4	2.0	95.2
Rindiaw Belinadi, Kaedi, 007	6	1	Kaedi	100	16	2.0	333.3
Belinabe, Kaedi, 008	5	1	Kaedi	100	20	1.0	200.0
Sourdjouma, Kaedi, 012	12	2	Seyn.Gababe, Kaedi	100	8	2.0	166.6
Seyyene Gababe, Kaedi, 016	16	1	Kaedi	100	6	2.0	125.0
Seyyene Nouro Molo, Kaedi, 017	19	1	Kaedi	100	5	2.0	105.2
Toulde Bally, Kaedi, n.a.	23	2	Ganki, Kaedi	200	8	2.0	86.9
Ganki, Kaedi, 018	29	1	Kaedi	200	6	2.0	68.9
Lexeiba, Kaedi, 019	40	1	Kaedi	200	5	2.0	50.0
Winde Boki, Kaedi, 053	52	1	Kaedi	400	7	2.0	38.4
Nouro Sabbar, Kaedi, 052	54	2	Winde Boki, Kaedi	400	7	2.0	37.0
Ould Raay, Kaedi, 050	56	2	Winde Boki, Kaedi	400	7	2.0	35.7
Tinrame, Kaedi, 049	60	1	Kaedi	300	5	2.0	33.3
Zreikat Bodiane, Kaedi, 043	63	2	Tinrame, Kaedi	300	4	2.0	31.7
Siloul, Kaedi, 043	68	2	Tinrame, Kaedi	400	5	2.0	29.4
Wdan, Kaedi, n.a.	70	2	Tinrame, Kaedi	400	5	2.0	28.5
Kow Diøje, Mbout, 021	104	1	Kaedi	400	3	2.0	19.2
Mbout, Mbout, 000	118	1	Kaedi	400	3	2.0	16.9
Diadjibine Gandega, Mbout, 088	158	1	Kaedi	700	4	3.0	18.9
Boudama Safalbe, Mbout, 089	164	1	Selibaby	1200	7	4.0	24.3
Boudama Abou Dioulde, Mbout n.a	166	1	Selibaby	1200	7	4.0	24.0
Boudama Nouro Soibe, Mbout n.a	168	1	Selibaby	1200	7	4.0	23.8
Boudama Nouro Deaba, Mbout n.a	170	1	Selibaby	1200	7	4.0	23.5
Agoynit, Selibaby, 050	183	1	Selibaby	1300	7	4.0	21.8
Artouma, Selibaby, 068	193	1	Selibaby	1250	6	3.0	15.5
Tachott Birane, Selibaby, 056	203	1	Selibaby	1200	5	4.0	19.7
Tachott Botokholo, Selibaby, 057	205	1	Selibaby	1200	5	4.0	19.5
Hel Saloum, Selibaby, 059	220	2	Keninkourou, Selibaby	1100	5	3.0	13.6
Zreigatt, Selibaby, 063	220	2	Keninkourou, Selibaby	1100	5	3.0	13.6
Keninkourou, Selibaby, 060	224	1	Selibaby	1200	5	4.0	17.8
Selibaby, Selibaby, 000	238	0	Sometimes Kaedi	1000	4	2.0	8.4
Toumbere Dingue, Kaedi, 026	21	1	Kaedi	100	4	1.0	47.6
Talhaya, Kaedi, 023	35	1	Kaedi	200	5	2.0	57.1
Tetiane, Kaedi, 032	31	1	Kaedi	250	8	2.0	64.5
Koundel Reo, Kaedi, 036	50	1	Kaedi	300	6	3.0	60.0
Nouro Semo, Kaedi, 051	62	1	Kaedi	400	6	2.0	32.2
Foum Gleita, Mbout, 032	132	0	Occas. Mbout, Kaedi	600	4	2.0	15.1
Kerkedaye, Mbout, 086	172	3	Djiad., Mbout, Kaedi	400	2	4.0	23.2
Bouilly N'Guero, Mbout, 568	136	2	Mbout, Kaedi	400	2	4.0	29.4
Boudama Sarningues, Mbout, 097	175	3	B. Safalbe, Mbt., Kaedi	700	4	5.0	28.5
Ouloumbone Soninke, Selib, 069	177	1	Kaedi or Selibaby	400	2	4.0	22.5
Arsane, Selibaby, 040	211	2	Artouma, Selibaby	1250	5	5.0	23.6
Hel Aly Niarwal, Selibaby, 045	223	2	Artouma, Selibaby	1250	5	5.0	22.4
Hassi Bagara, Selibaby, 035	238	2	Hel Saloum, Selibaby	1100	4	5.0	21.0
Windou Goby, Selibaby, 106	258	1	Selibaby	1300	5	4.0	15.5
Samba Kandji, Selibaby, 104	266	1	Selibaby	1300	4	4.0	15.0
Gouraye, Selibaby, 005	283	1	Selibaby	1300	4	5.0	17.6
Woumpou, Selibaby, 020	319	1	Maghama	1300	4	5.0	15.6
El Islam, Selibaby, 016	309	2	Gouraye, Selibaby	1300	4	5.0	16.1
Mouliissi Ngo, Selibaby, 100	294	2	Gouraye, Selibaby	1300	4	5.0	17.0
Suenou, Selibaby, 098	276	1	Selibaby	1300	4	5.0	18.1

Table 8.

Transport Costs from Sample Localities to Nouakchott

Locality	Dist. to NKC	Transfers	Transfer Points	Passenger Fare (UN) to NKC	Passenger Cost/km to NKC	Cargo to NKC UM/kg.	Cargo Cost/T/km to NKC
Moloum Nere, Kaedi, 002	429	1	Kaedi	1150	2	4.5	10.4
Rindiaa Belimadi, Kaedi, 007	444	1	Kaedi	1150	2	4.5	10.1
Belinabe, Kaedi, 008	445	1	Kaedi	1150	2	4.5	10.1
Kaedi, Kaedi, 000	450	0		1050	2	2.8	6.2
Gourdiouma, Kaedi, 012	462	2	Seyn.Gababe, Kaedi	1150	2	4.5	9.7
Seyyene Gababe, Kaedi, 016	466	1	Kaedi	1000	2	4.5	9.6
Seyyene Mouro Molo, Kaedi, 017	469	1	Kaedi	1150	2	4.8	10.2
Toulde Bally, Kaedi, n.a.	473	2	Ganki, Kaedi	1250	2	4.8	10.1
Ganki, Kaedi, 018	479	1	Kaedi	1250	2	4.0	8.3
Lexeiba, Kaedi, 019	490	1	Kaedi	1200	2	4.0	8.1
Winde Boki, Kaedi, 053	502	1	Kaedi	1450	2	5.0	9.9
Mouro Sabbar, Kaedi, 052	474	2	Winde Boki, Kaedi	1400	2	5.0	10.5
Ould Ramy, Kaedi, 050	506	2	Winde Boki, Kaedi	1250	2	5.0	9.8
Tinrame, Kaedi, 049	510	1	Kaedi	1350	2	5.0	9.8
Zreikat Bodiane, Kaedi, 043	513	2	Tinrame, Kaedi	1350	2	6.5	12.6
Siloul, Kaedi, 043	518	2	Tinrame, Kaedi	1450	2	6.5	12.5
Ndaa, Kaedi, n.a.	520	2	Tinrame, Kaedi	1400	2	5.5	10.5
Kou Diaje, Mbout, 021	554	1	Kaedi	1500	2	4.0	7.2
Mbout, Mbout, 000	568	1	Kaedi	1400	2	3.5	6.1
Diadjibine Gandega, Mbout, 088	608	1	Kaedi	1700	2	5.0	8.2
Boudama Safalbe, Mbout, 089	614	1	Selibaby	2200	3	6.5	10.5
Boudama Abou Dioulde, Mbout n.a	616	1	Selibaby	2200	3	6.5	10.5
Boudama Mouro Soibe, Mbout n.a	618	1	Selibaby	2200	3	6.5	10.5
Boudama Mouro Deaba, Mbout n.a	620	1	Selibaby	2200	3	6.5	10.4
Agoynit, Selibaby, 050	633	1	Selibaby	2300	3	6.5	10.2
Artouma, Selibaby, 068	643	1	Selibaby	2250	3	5.5	8.5
Tachott Birane, Selibaby, 056	653	1	Selibaby	2200	3	6.5	9.9
Tachott Botokholo, Selibaby, 057	655	1	Selibaby	2200	3	6.5	9.9
Hel Saloua, Selibaby, 059	670	2	Keninkourou, Selibaby	2200	3	7.5	11.1
Zreigatt, Selibaby, 063	670	2	Keninkourou, Selibaby	2200	3	7.5	11.1
Keninkourou, Selibaby, 060	674	1	Selibaby	2200	3	6.5	9.6
Selibaby, Selibaby, 000	688	0	Sometimes Kaedi	2000	2	4.5	6.5
Touabere Dingue, Kaedi, 026	471	1	Kaedi	1150	2	3.8	8.0
Talhaya, Kaedi, 023	486	1	Kaedi	1250	2	4.0	8.2
Tetiane, Kaedi, 032	481	1	Kaedi	1300	2	4.8	9.9
Koundel Reo, Kaedi, 036	500	1	Kaedi	2100	4	5.8	11.6
Mouro Semo, Kaedi, 051	512	1	Kaedi	1450	2	5.0	9.7
Foua Gleita, Mbout, 032	582	0	Occas. Mbout, Kaedi	1500	2	4.0	6.8
Kerkedaye, Mbout, 086	620	3	Djiad., Mbout, Kaedi	1400	2	5.5	8.8
Bouilly N'Guero, Mbout, 568	586	2	Mbout, Kaedi	1500	2	5.5	9.3
Boudama Sarningues, Mbout, 097	625	3	B.Safalbe, Mbt., Kaedi	1400	2	5.5	8.8
Ouloumbone Soninke, Selib, 069	627	1	Kaedi or Selibaby	1400	2	3.5	5.5
Arsane, Selibaby, 040	661	2	Artouma, Selibaby	2250	3	7.5	11.3
Hel Aly Miarwal, Selibaby, 045	673	2	Artouma, Selibaby	2250	3	7.5	11.1
Hassi Bagara, Selibaby, 035	688	2	Hel Saloua, Selibaby	2100	3	7.5	10.9
Windou Goby, Selibaby, 106	708	1	Selibaby	2300	3	6.5	9.1
Samba Kandji, Selibaby, 104	716	1	Selibaby	2300	3	6.5	9.0
Gouraye, Selibaby, 005	733	1	Selibaby	2300	3	7.5	10.2
Woumpou, Selibaby, 020	769	1	Maghama	2300	2	7.5	9.7
El Islam, Selibaby, 016	759	2	Gouraye, Selibaby	2300	3	7.5	9.8
Moulisti Ngo, Selibaby, 100	744	2	Gouraye, Selibaby	2300	3	7.5	10.0
Guemou, Selibaby, 098	726	1	Selibaby	2300	3	7.5	10.3

Table 9. Long Distance Travel Times

From	To	Distance in km.	Trans- fers	Transfer Points	Normal Time hrs.	Maximum Time hrs.	Minimum Time hrs.	Ave. Speed km/hr
Lexiba	Dakar	680	1	Kaedi (Riv)	12.00	48.00	10.00	56.66
Kaedi	Nouakchott	450	0		9.63	63.00	7.75	46.72
Nouakchott	Kaedi	450	0		10.75	72.00	8.00	41.86
Nouakchott	Koundel Reo	500	1	Kaedi	12.50	96.00	8.50	40.00
Foum Gleita	Selibaby	154	0		4.00	24.00	3.00	38.50
Selibaby	Agoynit	55	0		1.50	24.00	1.00	36.66
Kaedi	Maghama	120	0		3.30	48.00	2.50	36.36
Kaedi	Boghe	118	0		3.25	48.00	2.75	36.30
Foum Gleita	Nouakchott	579	1	Kaedi	16.00	48.00	14.00	36.18
Selibaby	Nouakchott	688	0		20.00	168.00	12.00	34.40
Mbout	Kaedi	118	0		3.50	96.00	2.50	33.71
Koundel Reo	Kaedi	50	0		1.50	12.00	1.00	33.33
Foum Gleita	Kaedi	129	0		4.00	24.00	3.00	32.25
Mbout	Nouakchott	568	0		18.00	192.00	16.00	31.55
Kaedi	Mbout	118	0		4.00	48.00	3.17	29.50
Nouakchott	Mbout	450	0		15.75	120.00	11.33	28.57
Kaedi	Selibaby	238	1	Mbout	8.50	96.00	6.17	28.00
Kaedi	Koundel Reo	50	0		1.83	12.00	1.17	27.32
Mbout	Selibaby	120	0		4.50	96.00	3.00	26.66
Selibaby	Kaedi	238	1	Mbout	9.00	120.00	6.00	26.44
Boghe	Kaedi	118	0		5.00	24.00	3.00	23.60
Selibaby	Mbout	120	0		5.50	72.00	4.00	21.82
Lexeiba	Mbout	78	0		3.75	19.00	3.25	20.80
Lexeiba	Nouakchott	490	1	Kaedi	24.00	48.00	20.00	20.41
Selibaby	Diadjibine	80	0		4.00	48.00	3.50	20.00
Mbout	Kiffa	190	0		10.00	96.00	5.75	19.00
Lexeiba	Kiffa	268	0		15.00	48.00	14.00	17.86
Foum Gleita	Mbout	34	0		2.00	8.00	1.50	17.00
Lexeiba	Kaedi	40	0		3.25	9.00	2.75	12.30
Kaedi	Bamako, Mali	0	0		20.00	168.00	19.00	0.00
Kaedi	Dakar	640	1	Kaedi (Riv)	0.00	0.00	0.00	0.00
Kaedi	Kayes, Mali	0	0		9.00	84.00	8.00	0.00
Kaedi	Nioro, Mali	0	0		72.00	168.00	60.00	0.00

Table 10. Travel Times from Sample Localities to Kaedi

Locality	Dist. to KDI km	Transfers	Transfer Points	Ave. Time hrs.	Ave. Speed km/hr
Moloua Hara, Kaedi, 002	21	1	Kaedi	0.75	28.00
Rindaw Belinadi, Kaedi, 007	6	1	Kaedi	0.50	12.00
Belinabe, Kaedi, 008	5	1	Kaedi	0.50	10.00
Gourdiouma, Kaedi, 012	12	2	Seyn.Gababe, Kaedi	1.50	8.00
Seyyene Gababe, Kaedi, 016	16	1	Kaedi	0.50	32.00
Seyyene Mouro Molo, Kaedi, 017	19	1	Kaedi	0.50	38.00
Toulde Bally, Kaedi, n.a.	23	2	Ganki, Kaedi	2.00	11.50
Ganki, Kaedi, 018	29	1	Kaedi	1.00	29.00
Lexeiba, Kaedi, 019	40	1	Kaedi	2.00	20.00
Minde Boki, Kaedi, 053	52	1	Kaedi	3.00	17.33
Mouro Sabbar, Kaedi, 052	54	2	Minde Boki, Kaedi	6.80	7.94
Ould Rany, Kaedi, 050	56	2	Minde Boki, Kaedi	9.00	6.22
Tinrame, Kaedi, 049	60	1	Kaedi	2.00	30.00
Zreikat Boudiane, Kaedi, 043	63	2	Tinrame, Kaedi	3.00	21.00
Siloul, Kaedi, 043	68	2	Tinrame, Kaedi	4.00	17.00
Ndam, Kaedi, n.a.	70	2	Tinrame, Kaedi	10.00	7.00
Kow Diwje, Mbout, 021	104	1	Kaedi	3.50	29.71
Mbout, Mbout, 000	118	1	Kaedi	4.00	29.50
Diadjibine Gandega, Mbout, 088	158	1	Kaedi	5.00	31.60
Boudama Safalbe, Mbout, 089	164	1	Selibaby	13.00	12.61
Boudama Abou Dioulde, Mbout n.a	166	1	Selibaby	13.00	12.76
Boudama Mouro Soibe, Mbout n.a	168	1	Selibaby	12.50	13.44
Boudama Mouro Deaba, Mbout n.a	170	1	Selibaby	12.50	13.60
Agoynit, Selibaby, 050	183	1	Selibaby	11.50	15.91
Artouma, Selibaby, 068	193	1	Selibaby	11.50	16.78
Tachott Birane, Selibaby, 056	203	1	Selibaby	11.00	18.45
Tachott Botokholo, Selibaby, 057	205	1	Selibaby	11.00	18.63
Hel Saloua, Selibaby, 059	220	2	Keninkourou, Selibaby	32.00	6.87
Zreigatt, Selibaby, 063	220	2	Keninkourou, Selibaby	11.00	20.00
Keninkourou, Selibaby, 060	224	1	Selibaby	10.50	21.33
Selibaby, Selibaby, 000	238	0	Sometimes Kaedi	9.00	26.44
Toumbere Dingue, Kaedi, 026	21	1	Kaedi	1.50	14.00
Talhaya, Kaedi, 023	35	1	Kaedi	1.50	23.33
Tetiane, Kaedi, 032	31	1	Kaedi	0.80	38.75
Koundel Reo, Kaedi, 036	50	1	Kaedi	2.00	25.00
Mouro Semo, Kaedi, 051	62	1	Kaedi	3.00	20.66
Foum Sleita, Mbout, 032	132	0	Occas. Mbout, Kaedi	2.00	66.00
Kerkedaye, Mbout, 086	172	3	Djiad., Mbout, Kaedi	28.00	6.14
Bouilly M'Guire, Mbout, 568	136	2	Mbout, Kaedi	26.00	5.23
Boudama Sarningues, Mbout, 097	175	3	B.Safalbe, Mbt., Kaedi	15.00	11.66
Ouloumbone Scninke, Selib, 069	177	1	Kaedi or Selibaby	16.50	10.72
Arsane, Selibaby, 040	211	2	Artouma, Selibaby	14.50	14.55
Hel Aly Niarwal, Selibaby, 045	223	2	Artouma, Selibaby	35.50	6.28
Hassi Bagara, Selibaby, 035	238	2	Hel Saloua, Selibaby	56.00	4.25
Windou Goby, Selibaby, 106	258	1	Selibaby	33.00	7.81
Samba Kandji, Selibaby, 104	266	1	Selibaby	33.00	8.06
Gouraye, Selibaby, 005	283	1	Selibaby	33.00	8.57
Moumpou, Selibaby, 020	319	1	Maghana	33.00	9.66
El Islam, Selibaby, 016	309	2	Gouraye, Selibaby	33.00	9.36
Moullissi Ngo, Selibaby, 100	294	2	Gouraye, Selibaby	33.00	8.90
Guemou, Selibaby, 09E	276	1	Selibaby	33.00	8.36

Table 11. Travel Times from Sample Localities to Nouakchott

Locality	Dist. to NKC km	Trans- fers	Transfer Points	Ave. Time hrs.	Ave. Speed km/hr
Moloum Nere, Kaedi, 002	429	1	Kaedi	12.00	35.75
Rindiam Belimadi, Kaedi, 007	444	1	Kaedi	12.00	37.00
Belinabe, Kaedi, 008	445	1	Kaedi	12.00	37.08
Kaedi, Kaedi, 000	450	0		9.00	50.00
Gourdiouaa, Kaedi, 012	462	2	Seyn.Gababe, Kaedi	12.50	36.96
Seyyene Gababe, Kaedi, 016	466	1	Kaedi	9.00	51.77
Seyyene Nouro Molo, Kaedi, 017	469	1	Kaedi	10.00	46.90
Toulde Bally, Kaedi, n.a.	473	2	Ganki, Kaedi	10.00	47.30
Ganki, Kaedi, 018	479	1	Kaedi	10.00	47.90
Lexeiba, Kaedi, 019	490	1	Kaedi	10.00	49.00
Minde Boki, Kaedi, 053	502	1	Kaedi	13.00	38.61
Nouro Sabbar, Kaedi, 052	474	2	Winde Boki, Kaedi	16.80	28.21
Duld Rany, Kaedi, 050	506	2	Winde Boki, Kaedi	33.00	15.33
Tintrame, Kaedi, 049	510	1	Kaedi	12.00	42.50
Zreikat Bodiiane, Kaedi, 043	513	2	Tintrame, Kaedi	13.00	39.46
Siloul, Kaedi, 043	518	2	Tintrame, Kaedi	14.00	37.00
Ndam, Kaedi, n.a.	520	2	Tintrame, Kaedi	40.00	13.00
Kow Dimje, Mbout, 021	554	1	Kaedi	14.50	38.20
Mbout, Mbout, 000	568	1	Kaedi	16.00	35.50
Diadjibine Gandega, Mbout, 088	608	1	Kaedi	18.00	33.77
Boudana Safalbe, Mbout, 089	614	1	Selibaby	52.00	11.80
Boudana Abou Dioulde, Mbout n.a	616	1	Selibaby	56.00	11.00
Boudana Wouro Soibe, Mbout n.a	618	1	Selibaby	56.00	11.03
Boudana Wouro Deaba, Mbout n.a	620	1	Selibaby	56.00	11.07
Agoynit, Selibaby, 050	633	1	Selibaby	30.00	21.10
Artouaa, Selibaby, 068	643	1	Selibaby	30.00	21.43
Tachott Birane, Selibaby, 056	653	1	Selibaby	30.00	21.76
Tachott Botokholo, Selibaby, 057	655	1	Selibaby	30.00	21.83
Hel Saloua, Selibaby, 059	670	2	Keninkourou, Selibaby	50.00	13.40
Zreigatt, Selibaby, 063	670	2	Keninkourou, Selibaby	28.00	23.92
Keninkourou, Selibaby, 060	674	1	Selibaby	30.00	22.46
Selibaby, Selibaby, 000	688	0	Sometimes Kaedi	20.00	34.40
Toumberé Dingué, Kaedi, 024	471	1	Kaedi	11.50	40.95
Talhaya, Kaedi, 023	486	1	Kaedi	17.00	28.58
Tetiane, Kaedi, 032	481	1	Kaedi	10.80	44.53
Koundel Reo, Kaedi, 036	500	1	Kaedi	12.00	41.66
Nouro Semo, Kaedi, 051	512	1	Kaedi	30.00	17.06
Foum Gleita, Mbout, 032	582	0	Occas. Mbout, Kaedi	11.00	52.90
Kerkedaye, Mbout, 086	620	3	Djiad., Mbout, Kaedi	38.00	16.31
Bouilly N'Guero, Mbout, 568	586	2	Mbout, Kaedi	38.00	15.42
Boudana Sarningues, Mbout, 097	625	3	B.Safalbe, Mbt., Kaedi	53.00	11.79
Ouloumbone Soninke, Selib, 069	627	1	Kaedi or Selibaby	52.50	11.94
Arsane, Selibaby, 040	661	2	Artouaa, Selibaby	33.00	20.03
Hel Aly Niarwal, Selibaby, 045	673	2	Artouaa, Selibaby	54.00	12.46
Hassi Bagara, Selibaby, 035	688	2	Hel Saloua, Selibaby	74.00	9.29
Windou Goby, Selibaby, 106	708	1	Selibaby	44.00	16.09
Samba Kandji, Selibaby, 104	716	1	Selibaby	44.00	16.27
Gouraye, Selibaby, 005	733	1	Selibaby	44.00	16.65
Moumpou, Selibaby, 020	769	1	Maghama	44.00	17.47
El Islam, Selibaby, 016	759	2	Gouraye, Selibaby	50.00	15.18
Mouliissi Ngo, Selibaby, 100	744	2	Gouraye, Selibaby	50.00	14.88
Guemou, Selibaby, 098	726	1	Selibaby	44.00	16.50

equivalent of 28.5 to 333.3 UM/T./km., while those over 100 km. distant average 15 to 20 UM/T./km. The figures for the villages from Boudama Safalbe south to Selibaby are misleading, because freight has usually to be taken first to Selibaby and then transferred. Thus the distance traveled is longer than the direct distance from those villages to Kaedi. Table 6.2 shows that loads travelling on long-distance routes, but less than 100 km. pay 29.4 to 50 UM/T./km., while long distance traffic to Nouakchott pays only 5 to 7 UM/T./km. Thus short-distance loads are paying six or more times the long-distance mostly paved road costs. The lowest rate of all, 2.9 UM/T./km. is from Lexeiba to Dakar, where once one crosses the river, there is paved road all the way.

Passengers do not pay additional for transfers unless they have to redouble their route to get to a car park. They lose at least an hour, and often several hours or even days in the transfer process, however.

The highest costs per kilometer traveled by passengers are incurred on short intraregional trips, particularly on the tracks in the worst condition (those into the river basin, the oueds, or to Kiffa). (See Table 6.1) They range from a high of UM 7.5/km. between Lexeiba and Kiffa (with one transfer), to a low around UM2/km. on the long distances. In other words passengers on the dirt tracks of the Gorgol and Guidimaka are paying on average about three times the cost of transport on the paved road network. Such high local transport costs can only be a disincentive to local production and trade. They are also a heavy consumer burden on the local population.

Travel times vary even more than prices. The estimated normal, maximum and minimum times in table 9 and those given by community leaders for travel from their villages to Kaedi (Table 10.) are only indicative. The maximum time was interpreted as the longest a passenger remembered having spent on that trip within the last five years. The times, up to a week on what was meant to be a direct trip, reflect the cost of breakdowns, lack of spare parts and lack of towtrucks.

Travel times also show the predominance of animal and foot traffic in most rural areas. Table 10.2 shows the dilemma of villages located more than a kilometer from a main road. There is a small circle around Kaedi where horsecarts are common, and travel speeds average 14-25 km./hr. Then there is Fom Gleita, which with its dam and irrigation project, has the best modern transport capacity in the region next to Kaedi and Selibaby, despite its off-road location. Direct transport in new vehicles is available to any major city, and time to Kaedi averages 68 km/hr. Finally there are the less-advantaged off-road villages where a combination of walking, donkey-riding, and motorized transport is necessary. People average 4.25 to 14.55 km/hr on those trips, assuming they do not encounter more than an hour's wait for transfers. They frequently do, of course, but we were unable to measure average waiting time at each point.

Travel times to Nouakchott tend to depend primarily on how long it takes to get from one's village to one of the main car-parks, at Selibaby, Mbout, or Kaedi. From Kaedi a direct trip takes about 9 hours, from Mbout about 16, and from Selibaby

around 20. All of these times are for light vehicles; trucks take 18 hours to Nouakchott, 20-24 to Mbout, and 24-36 to Selibaby. From either Mbout or Selibaby passengers may spend the night in Kaedi, making the trip in two days. Many villagers in the Guidimaka would also have to spend a night in Selibaby.

4.1 Availability of Transport to Sample Localities

The availability of transport in localities in our community sample was also measured by inventorying vehicle ownership and by asking where and how often transporters stopped in each locality. The results are shown in Table 12, and the comparative situations of on-road vs. off-road localities in Tables 12.1 and 12.3. There were a total of 238 motorized vehicles owned by residents of the localities in the sample. This is probably the total vehicle ownership of the three departments concerned, as all large towns were in the sample.

Villages off the road accounted for less than 1% of vehicle ownership, if one excepts Fom Gleita, whose favored situation has already been mentioned. They had 14% of the total population of villages in the sample. (1977 census) They received 7% of the transit stops, however, and owned 15% of the horse and mule-carts.

Thirteen vehicles were recorded in Fom Gleita, all belonging to SONADER plus one to an AID-financed study team. That comparable to the total found in Mbout (15) or Lexeiba (13), the third and fourth ranked car-parks on the main road. The difference is that the vehicles in the latter towns are privately owned.

Motor vehicle ownership is concentrated in the large towns.

Annex 14. Availability of Transport in Sample Localities

Locality	Private Transporters (# Serving)	Stops #/yr	Personal Vehicles Owned	Long Distance Taxis Owned	Pick-up Trucks Owned	10 Ton Trucks Owned	20 Ton Semis Owned	Horse Carts Owned
Woloua Nere, Kaedi, 002	0	0	0	0	0	0	0	0
Rindiam Belimadi, Kaedi, 007	0	0	0	0	0	0	0	0
Belinabe, Kaedi, 008	0	0	0	0	0	0	0	0
Kaedi, Kaedi, 000	20	2920	70	22	36	13	4	100
Gourdiouma, Kaedi, 012	0	0	0	0	0	0	0	0
Seyyene Gababe, Kaedi, 016	3	156	0	0	0	0	0	0
Seyyene Mouro Molo, Kaedi, 017	2	104	0	0	1	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0	0	0	0	0	0
Ganki, Kaedi, 018	3	308	0	0	0	0	0	1
Lexeiba, Kaedi, 019	3	412	6	0	4	3	0	50
Winde Boki, Kaedi, 053	1	365	0	0	0	0	0	0
Mouro Sabbar, Kaedi, 052	0	0	0	0	0	0	0	0
Ould Rany, Kaedi, 050	0	0	0	0	0	0	0	2
Tintrame, Kaedi, 049	1	12	0	0	0	0	0	2
Zreikat Bodiane, Kaedi, 043	0	0	0	0	0	0	0	0
Siloul, Kaedi, 043	0	0	0	0	0	0	0	0
Ndam, Kaedi, n.a.	0	0	0	0	0	0	0	0
Kow Diaje, Mbout, 021	1	52	0	0	0	0	0	0
Mbout, Mbout, 000	3	900	6	0	2	6	1	60
Diadjibine Gandega, Mbout, 088	3	154	0	0	1	0	0	6
Boudama Safalbe, Mbout, 089	0	0	0	0	0	0	0	0
Boudama Abou Dioulde, Mbout n.a	1	104	0	0	0	0	0	0
Boudama Mouro Soibe, Mbout n.a	1	52	0	0	0	0	0	0
Boudama Mouro Demba, Mbout n.a	1	52	0	0	0	0	0	0
Agoynit, Selibaby, 050	1	52	0	0	0	0	0	10
Artouma, Selibaby, 068	2	208	0	0	0	0	0	0
Tachott Birane, Selibaby, 056	2	208	0	0	0	0	0	5
Tachott Botokholo, Selibaby, 057	2	104	0	0	0	1	0	10
Hel Saloum, Selibaby, 059	0	0	0	0	0	0	0	0
Zreigatt, Selibaby, 063	0	0	0	0	0	0	0	0
Keninkourou, Selibaby, 060	3	108	0	0	0	0	0	5
Selibaby, Selibaby, 000	14	1585	31	8	4	4	0	30
Toumbere Dingue, Kaedi, 026	2	104	0	0	1	0	0	0
Talhaya, Kaedi, 023	4	365	0	0	0	0	0	13
Tetiane, Kaedi, 032	1	30	0	0	0	0	0	5
Koundel Reo, Kaedi, 036	0	0	0	0	0	0	0	15
Mouro Semo, Kaedi, 051	0	0	0	0	0	0	0	1
Foum Gleita, Mbout, 032	2	400	2	2	3	6	0	20
Kerkedaye, Mbout, 086	0	0	0	0	0	0	0	0
Bouly N'Guero, Mbout, 568	0	0	0	0	0	0	0	0
Boudama Sarningues, Mbout, 097	0	0	0	0	0	0	0	1
Duloumbone Soninke, Selib, 069	1	48	1	0	0	0	0	10
Gourel Dialoubes, aband (Veing	0	0	0	0	0	0	0	0
Arsane, Selibaby, 040	0	0	0	0	0	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0	0	0	0	0	0
Hassi Bagara, Selibaby, 035	0	12	0	0	0	0	0	5
Windou Goby, Selibaby, 106	0	0	0	0	0	0	0	0
Samba Kandji, Selibaby, 104	0	0	0	0	0	0	0	0
Gouraye, Selibaby, 005	0	0	0	0	0	0	0	0
Moumpou, Selibaby, 020	0	0	0	0	0	0	0	0
El Islam, Selibaby, 016	0	0	0	0	0	0	0	0
Mouliissi Ngo, Selibaby, 100	0	0	0	0	0	0	0	0
Guemou, Selibaby, 098	0	0	0	0	0	0	0	0
** TOTAL **	77	8815	116	32	52	33	5	351

40

Table 12.1 Availability of Transport in Sample Localities on the Road

Locality	Private Transporters (# Serving)	Stops #/yr	Personal Vehicles Owned	Long Distance Taxis Owned	Pick-up Trucks Owned	10 Ton Trucks Owned	20 Ton Semis Owned	Horse Carts Owned
Moloum Nere, Kaedi, 002	0	0	0	0	0	0	0	0
Rindian Belimadi, Kaedi, 00.	0	0	0	0	0	0	0	0
Belinabe, Kaedi, 008	0	0	0	0	0	0	0	0
Kaedi, Kaedi, 000	20	2920	70	22	36	13	4	100
Gourdicoua, Kaedi, 012	0	0	0	0	0	0	0	0
Seyyene Sababé, Kaedi, 016	3	156	0	0	0	0	0	0
Seyyene Mouro Molo, Kaedi, 017	2	104	0	0	1	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0	0	0	0	0	0
Ganki, Kaedi, 018	3	308	0	0	0	0	0	1
Lexeiba, Kaedi, 019	3	412	6	0	4	3	0	50
Minde Boki, Kaedi, 053	1	365	0	0	0	0	0	0
Mouro Sabbar, Kaedi, 052	0	0	0	0	0	0	0	0
Ould Rany, Kaedi, 050	0	0	0	0	0	0	0	2
Tintrame, Kaedi, 049	1	12	0	0	0	0	0	2
Zreikat Bodiane, Kaedi, 043	0	0	0	0	0	0	0	0
Siloul, Kaedi, 043	0	0	0	0	0	0	0	0
Ndam, Kaedi, n.a.	0	0	0	0	0	0	0	0
Kow Dimje, Mbout, 021	1	52	0	0	0	0	0	0
Mbout, Mbout, 000	3	900	6	0	2	6	1	60
Diadjibine Gandega, Mbout, 088	3	154	0	0	1	0	0	6
Boudama Safalbe, Mbout, 089	0	0	0	0	0	0	0	0
Boudama Abou Dioulde, Mbout n.a	1	104	0	0	0	0	0	0
Boudama Mouro Soibe, Mbout n.a	1	52	0	0	0	0	0	0
Boudama Mouro Demba, Mbout n.a	1	52	0	0	0	0	0	0
Agoynit, Selibaby, 050	1	52	0	0	0	0	0	10
Artouma, Selibaby, 068	2	208	0	0	0	0	0	0
Tachott Birane, Selibaby, 056	2	208	0	0	0	0	0	5
Tachott Botokholo, Selibaby, 057	2	104	0	0	0	1	0	10
Hel Saloua, Selibaby, 059	0	0	0	0	0	0	0	0
Zreigatt, Selibaby, 063	0	0	0	0	0	0	0	0
Keninkourou, Selibaby, 060	3	108	0	0	0	0	0	5
Selibaby, Selibaby, 000	14	1583	31	8	4	4	0	30
** TOTAL **	67	7856	113	30	48	27	5	281

Table 12.2 Availability of Transport in Sample Localities with over 1000 Population

Locality	Private Transporters (# Serving)	Stops #/yr	Personal Vehicles Owned	Long Distance Taxis Owned	Pick-up Trucks Owned	10 Ton Trucks Owned	20 Ton Semis Owned	Horse Carts Owned
Molous Nere, Kaedi, 002	0	0	0	0	0	0	0	0
Bellnaba, Kaedi, 008	0	0	0	0	0	0	0	0
Kaedi, Kaedi, 000	20	2920	70	22	36	13	4	100
Lexeiba, Kaedi, 019	3	412	6	0	4	3	0	50
Mbout, Mbout, 000	3	900	6	0	2	6	1	60
Agoynit, Selibaby, 050	1	52	0	0	0	0	0	10
Tachott Birane, Selibaby, 056	2	208	0	0	0	0	0	5
Tachott Botokholo, Selibaby, 057	2	104	0	0	0	1	0	10
Selibaby, Selibaby, 000	14	1585	31	8	4	4	0	30
Koundel Reo, Kaedi, 036	0	0	0	0	0	0	0	15
Woumpou, Selibaby, 020	0	0	0	0	0	0	0	0
** TOTAL **	45	6181	113	30	46	27	5	280

Table 12.3 Availability of Transport in Sample Localities Off the Road

Locality	Private Transporters (# Serving)	Stops #/yr	Personal Vehicles Owned	Long Distance Taxis Owned	Pick-up Trucks Owned	10 Ton Trucks Owned	20 Ton Semis Owned	Horse Carts Owned
Touabare Dingué, Kaédi, 026	2	104	0	0	1	0	0	0
Talhaya, Kaédi, 023	4	365	0	0	0	0	0	13
Tetiâne, Kaédi, 032	1	30	0	0	0	0	0	5
Koundel Reo, Kaédi, 036	0	0	0	0	0	0	0	15
Mouro Semo, Kaédi, 051	0	0	0	0	0	0	0	1
Foum Gleita, Mbout, 032	2	400	2	2	3	6	0	20
Kerkedaye, Mbout, 086	0	0	0	0	0	0	0	0
Bouilly N'Guirô, Mbout, 568	0	0	0	0	0	0	0	0
Boudana Sarningues, Mbout, 097	0	0	0	0	0	0	0	1
Ouloumbone Soninke, Selib, 069	1	48	1	0	0	0	0	10
Gourel Dialoubes, aband (Velng)	0	0	0	0	0	0	0	0
Arsane, Selibaby, 040	0	0	0	0	0	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0	0	0	0	0	0
Hassi Bagara, Selibaby, 035	0	12	0	0	0	0	0	5
Windou Soby, Selibaby, 106	0	0	0	0	0	0	0	0
Samba Kandji, Selibaby, 104	0	0	0	0	0	0	0	0
Gouraye, Selibaby, 005	0	0	0	0	0	0	0	0
Woumpou, Selibaby, 020	0	0	0	0	0	0	0	0
El Islaa, Selibaby, 016	0	0	0	0	0	0	0	0
Mouliissi Ngo, Selibaby, 100	0	0	0	0	0	0	0	0
Guemou, Selibaby, 098	0	0	0	0	0	0	0	0
** TOTAL **	10	959	3	2	4	6	0	70

Those with over 1000 population in 1977 had 88.4% of the vehicles (excluding Fom Gleita), against 75% of the sample population. Kaedi alone had 133 of the 225 (59%). Selibaby was next with 47 (27%). Horse and mule carts are more widely distributed, but 22 of the 39 localities we were able to inventory lacked even that means of transport.

4.2 Transport and the Availability of Basic Services

Poor transport has limited the access of the populations of Guidimaka and Gorgol to education and health services in the past. In fact, in the attached census map of literacy rates, they seem to radiate out like light from Nouakchott and Nouadhibou. (See Map 5) Our study found that rapid progress seems to have been made in the last 5 years to correct the situation. Many villages had primary schools and several had dispensaries that had not been there for the 1977 census.

We expected a correlation between schools and on-road or off-road location, but there is none for primary schools (See Table 13.1 vs. 13.2) Two thirds of the villages on the road have primary schools, and two thirds of those off the road.

Most of the primary schools have only two classes, however, and the problems of transport show up quickly when one looks at access to secondary schooling, in Tables 14 through 14.2. The high schools in Kaedi and Selibaby theoretically serve the whole region. In practice, all of the students lived within 40 kilometers of the school except those from Ouloumbone Soninke. The great majority of students come from the cities with schools. Those living more than 5 kilometers away have to board with

Table 13. Access to Primary Schooling

Localities	Nearest Primary School	Means of Transport to P.S.	Distance	Time to	Attende
			to P.S. km	P.S. hrs	dance %
Moloum Nere, Kaedi, 002	here	On foot.	0	0	7
Rindiaw Belimadi, Kaedi, 007	here	On foot.	0	0	16
Belinabe, Kaedi, 008	Rindiao Belimode	On foot or donkey.	1	1	16
Kaedi, Kaedi, 000	here	On foot or by car.	0	0	38
Sourdjouma, Kaedi, 012	Kaedi	None.	7	2	0
Seyyene Gababe, Kaedi, 016	Seyyene Mouro Molo	On foot.	2	1	17
Seyyene Mouro Molo, Kaedi, 017	here	On foot.	0	0	15
Toulde Bally, Kaedi, n.a.	Kaedi	Donkey.	23	5	0
Ganki, Kaedi, 018	here	On foot.	0	0	5
Lexeiba, Kaedi, 019	here	On foot.	0	0	25
Winde Boki, Kaedi, 053	Lexeiba	Must board.	20	7	10
Mouro Sabbar, Kaedi, 052	Ould Raay	On foot.	3	1	5
Ould Raay, Kaedi, 050	here	On foot.	0	0	20
Tintraze, Kaedi, 049	here	On foot.	0	0	20
Ireikat Bodiame, Kaedi, 043			0	0	0
Siloui, Kaedi, 043			0	0	0
Ndam, Kaedi, n.a.	No child in school.	None.	0	0	0
Kou Dimje, Mabout, 021	Mabout	Donkey, or board.	17	3	10
Mabout, Mabout, 000	here	On foot.	0	0	43
Diadjibine Gandega, Mabout, 088	here	On foot.	0	0	37
Boudama Safalbe, Mabout, 089	Kerekedaye	On foot.	6	4	2
Boudama Abou Dioulde, Mabout n.a.	Diadjibine Gandega	None.	6	2	10
Boudama Mouro Soibe, Mabout n.a.	Diadjibine Chorfou	On foot.	3	1	10
Boudama Mouro Demba, Mabout n.a.	Diadjibine Chorfou	On foot.	3	1	10
Agonyit, Selibaby, 050	here	On foot.	0	0	50
Artouma, Selibaby, 068	here	On foot.	0	0	40
Tachott Birane, Selibaby, 056	Tachott Botokholo	On foot.	1	1	30
Tachott Botokholo, Selibaby, 057	here, but no teacher	On foot.	0	0	50
Hel Saloum, Selibaby, 059	None.	None.	0	0	0
Zreigatt, Selibaby, 063	Selibaby	Must board.	20	6	11
Keninkourou, Selibaby, 060	here	On foot.	0	0	2
Selibaby, Selibaby, 000	here	On foot.	0	0	50
Touabere Dingue, Kaedi, 026	Kaedi	Must board.	21	2	57
Talhaya, Kaedi, 023	here	On foot.	0	0	50
Tetiane, Kaedi, 032	here	On foot.	0	0	50
Koundel Reo, Kaedi, 036	here	On foot.	0	0	40
Mouro Seno, Kaedi, 051	Sitiane--1 child	On foot.	7	2	0
Foum Gleita, Mabout, 032	here	On foot.	0	0	75
Kerkedaye, Mabout, 086	here	On foot.	0	0	25
Bouilly M'Guero, Mabout, 568	Mabout	Must board.	40	12	30
Boudama Sarningues, Mabout, 097	Djadjibine	Charette.	15	3	2
Oulouabone Soninke, Selib, 069	here	On foot.	0	0	40
Gourel Dialoubes, aband (Velng			0	0	0
Arsane, Selibaby, 040	None.	None.	0	0	0
Hel Aly Niarwal, Selibaby, 045	Hel Aly Seno	On foot.	2	1	2
Hassi Bezara, Selibaby, 035	None.	None.	0	0	0
Windou Goby, Selibaby, 106	Selibaby in 1977.	No current info. Cholera quar.	20	1	0
Samba Kandji, Selibaby, 104	Selibaby in 1977.	No current info. Cholera quar.	28	1	0
Gouraye, Selibaby, 005	here	On foot.	0	0	50
Mouapou, Selibaby, 020	here	On foot.	0	0	30
El Islam, Selibaby, 016	Gouraye	No current info. Cholera quar.	25	3	0

Table 13. Access to Primary Schooling

	Nearest Primary School	Means of Transport to P.S.	Distance to P.S. km	Time to P.S. hrs	Attendance %
Moullissé Ngo, Selibaby, 100	None in 1977.	No current info. Cholera quar.	0	0	0
Guemou, Selibaby, 098	here in 1977	No current info. Cholera quar.	0	0	0

Table 131. Access to Primary Schooling for Localities on the Road

Locality	Nearest Primary School	Means of Transport to P.G.	Distance Time to Attendance		
			to P.G. km	P.G. hrs	%
Moloum Nere, Kaedi, 002	here	On foot.	0	0	7
Rindian Belinadi, Kaedi, 007	here	On foot.	0	0	16
Belinabe, Kaedi, 008	Rindiao Belimode	On foot or donkey.	1	1	16
Kaedi, Kaedi, 000	here	On foot or by car.	0	0	38
Gourdiouma, Kaedi, 012	Kaedi	None.	7	2	0
Seyyene Gababe, Kaedi, 016	Seyyene Nouro Molo	On foot.	2	1	17
Seyyene Nouro Molo, Kaedi, 017	here	On foot.	0	0	15
Toulde Bally, Kaedi, n.a.	Kaedi	Donkey.	23	5	0
Ganki, Kaedi, 018	here	On foot.	0	0	5
Lexeiba, Kaedi, 019	here	On foot.	0	0	25
Winde Boki, Kaedi, 053	Lexeiba	Must board.	20	7	10
Nouro Sabbar, Kaedi, 052	Ould Rany	On foot.	3	1	5
Ould Rany, Kaedi, 050	here	On foot.	0	0	20
Tinrame, Kaedi, 049	here	On foot.	0	0	20
Zreikat Bodiane, Kaedi, 043			0	0	0
Siloul, Kaedi, 043			0	0	0
Ndam, Kaedi, n.a.	No child in school.	None.	0	0	0
Kou Dimje, Mbout, 021	Mbout	Donkey, or board.	17	3	10
Mbout, Mbout, 000	here	On foot.	0	0	43
Diadjibine Gandega, Mbout, 088	here	On foot.	0	0	37
Boudama Safalbe, Mbout, 089	Kerekedaye	On foot.	6	4	2
Boudama Abou Dioulde, Mbout n.a	Diadjibine Gandega	None.	6	2	10
Boudama Nouro Soibe, Mbout n.a	Diadjibine Chorfou	On foot.	3	1	10
Boudama Nouro Demba, Mbout n.a	Diadjibine Chorfou	On foot.	3	1	10
Agoynit, Selibaby, 050	here	On foot.	0	0	50
Artouma, Selibaby, 068	here	On foot.	0	0	40
Tachott Birane, Selibaby, 056	Tachott Botokholo	On foot.	1	1	30
Tachott Botokholo, Selibaby, 057	here, but no teacher	On foot.	0	0	50
Hel Saloua, Selibaby, 059	None.	None.	0	0	0
Zreigatt, Selibaby, 063	Selibaby	Must board.	20	6	11
Keninkourou, Selibaby, 060	here	On foot.	0	0	2
Selibaby, Selibaby, 000	here	On foot.	0	0	50

Table 132 Access to Primary Schooling for Localities Off the Road

Locality	Nearest Primary School	Means of Transport to P.S.	Distance Time to Attendance		
			to P.S. km	P.S. hrs	%
Toumbere Dingue, Kaedi, 026	Kaedi	Must board.	21	2	57
Talhaya, Kaedi, 023	here	On foot.	0	0	50
Tetiane, Kaedi, 032	here	On foot.	0	0	50
Koundel Rec, Kaedi, 036	here	On foot.	0	0	40
Mouro Seno, Kaedi, 051	Sitiane--1 child	On foot.	7	2	0
Foum Gleita, Mabout, 032	here	On foot.	0	0	75
Kerkedaye, Mabout, 086	here	On foot.	0	0	25
Bouilly N'Guero, Mabout, 568	Mabout	Must board.	40	12	30
Boudama Sarningues, Mabout, 097	Djadjibine	Charette.	15	3	2
Ouloumbone Soninke, Selib, 069	here	On foot.	0	0	40
Gourel Dialoubes, aband (Veing			0	0	0
Arsane, Selibaby, 040	None.	None.	0	0	0
Hel Aly Niarwal, Selibaby, 045	Hel Aly Seno	On foot.	2	1	2
Hassi Bagara, Selibaby, 035	None.	None.	0	0	0
Windou Goby, Selibaby, 106	Selibaby in 1977.	No current info. Cholera quar.	20	1	0
Samba Kandji, Selibaby, 104	Selibaby in 1977.	No current info. Cholera quar.	28	1	0
Gouraye, Selibaby, 005	here	On foot.	0	0	50
Mouapou, Selibaby, 020	here	On foot.	0	0	30
El Islam, Selibaby, 016	Gouraye	No current info. Cholera quar.	25	3	0
Moulisti Ngo, Selibaby, 100	None in 1977.	No current info. Cholera quar.	0	0	0
Guenou, Selibaby, 098	here in 1977	No current info. Cholera quar.	0	0	0

48

Table 14. Access to Secondary Schooling

Locality	Nearest Secondary School	Means of Transport to S.S.	Distance	Time to Attendance	Total # of Pupils
			to S.S. km	S.S. hrs	
Noloum Nera, Kaedi, 002	Kaedi	None. Must board.	21	5	0
Rindiak Belinadi, Kaedi, 007	Kaedi	Car, donkey, or foot.	6	1	0
Belinabe, Kaedi, 008	Kaedi	On foot, donkey or car.	5	2	0
Kaedi, Kaedi, 000	here	On foot or by car.	0	0	2000
Bourdiouma, Kaedi, 012	Kaedi	None.	7	2	0
Seyyene Gababe, Kaedi, 016	Kaedi	By car.	16	1	2
Seyyene Nouro Molo, Kaedi, 017	Kaedi	By car.	19	1	2
Toulde Bally, Kaedi, n.a.	Kaedi	Donkey	23	5	0
Ganki, Kaedi, 018	Kaedi	By car.	35	1	0
Lexeiba, Kaedi, 019	Kaedi	Must board.	40	2	5
Minde Boki, Kaedi, 053	Kaedi	Must board.	52	20	0
Nouro Sabbar, Kaedi, 052	Kaedi	None.	54	20	0
Ould Rany, Kaedi, 050	Kaedi	None.	56	24	0
Tintrare, Kaedi, 049	Kaedi	Must board.	60	3	0
Zreikat Boudiane, Kaedi, 043			0	0	0
Siloul, Kaedi, 043			0	0	0
Ndoo, Kaedi, n.a.	None.	None.	0	0	0
Kou Diouje, Mbout, 021	Mbout/Rosso	Donkey, or board.	17	3	0
Mbout, Mbout, 000	here	On foot.	0	0	0
Diadjibine Gandega, Mbout, 088	Mbout	By car, or board.	40	1	0
Boudama Safalbe, Mbout, 089	None.	None.	0	0	0
Boudama Abou Dioulde, Mbout n.a	None	n.a.	0	0	0
Boudama Nouro Soibe, Mbout n.a	None.	None.	0	0	0
Boudama Nouro Demba, Mbout n.a	None.	None.	0	0	0
Agoynit, Selibaby, 050	Selibaby	Must board.	55	24	0
Artouma, Selibaby, 068	None.	None.	0	0	0
Tachott Birane, Selibaby, 056	Selibaby	Must board.	35	1	6
Tachott Botokholo, Selibaby, 057	Selibaby	Must board.	34	3	20
Hel Saloua, Selibaby, 059	n.a.	None.	0	0	0
Zreigatt, Selibaby, 063	None.	None.	0	0	0
Keninkourou, Selibaby, 060	Selibaby	None.	18	2	0
Selibaby, Selibaby, 000	here	On foot.	0	0	763
Toumbere Dingue, Kaedi, 026	Kaedi	Must board.	21	2	31
Talhaya, Kaedi, 023	Kaedi	Must board.	36	2	0
Tetiane, Kaedi, 032	Kaedi	Must board.	31	4	5
Koundel Reo, Kaedi, 036	Kaedi	Must board.	55	2	30
Nouro Sero, Kaedi, 051	None.	None.	0	0	0
Foua Gleita, Mbout, 032	Kaedi	None.	116	2	0
Kerkedaye, Mbout, 086	None.	None.	0	0	0
Bouilly M'Guire, Mbout, 588	Mbout	Must board.	40	12	1
Boudama Sarningues, Mbout, 097	None.	None.	0	0	0
Doulouabone Soninke, Selib, 069	Selibaby	Must board.	70	2	5
Gourel Dialoubes, aband (Veing			0	0	0
Arsane, Selibaby, 040	None.	None.	0	0	0
Hei Aly Niarwal, Selibaby, 045	None.	None.	0	0	0
Haesi Bagara, Selibaby, 035	None.	None.	0	0	0
Windou Goby, Selibaby, 106	Selibaby	None.	20	1	0
Samba Kandji, Selibaby, 104	Selibaby.	None.	0	0	0
Gouraye, Selibaby, 005	Selibaby	Must board.	45	3	0
Noumpou, Selibaby, 020	Selibaby or Kaedi	Must board.	75	48	0
El Islam, Selibaby, 016	None.	No child in school in 1977.	0	0	0
Moulissi Ngo, Selibaby, 100	None in 1977.	No child in school in 1977.	0	0	0

Table 14. Access to Secondary Schooling .

Locality	Nearest Secondary School	Means of Transport to S.S.	Distance to S.S. km	Time to S.S. hrs	Attendance Total # of Pupils
Suendu, Selibaby, 098	None in 1977.	School non-functional in 1977.	0	0	0

Table 14.1 Access to Secondary Schooling on the Road

Locality	Nearest Secondary School	Means of Transport to S.S.	Distance		Attendance Total # of Pupils
			to S.S. km	S.S. hrs	
Noloum Mera, Kaedi, 002	Kaedi	None. Must board.	21	5	0
Rindian Belinadi, Kaedi, 007	Kaedi	Car, donkey, or foot.	6	1	0
Belinabe, Kaedi, 008	Kaedi	On foot, donkey or car.	5	2	0
Kaedi, Kaedi, 000	here	On foot or by car.	0	0	2000
Gourdiouaa, Kaedi, 012	Kaedi	None.	7	2	0
Seyyene Gababe, Kaedi, 016	Kaedi	By car.	16	1	2
Seyyene Nouro Molo, Kaedi, 017	Kaedi	By car.	19	1	2
Toulde Bally, Kaedi, n.a.	Kaedi	Donkey	23	5	0
Ganki, Kaedi, 018	Kaedi	By car.	35	1	0
Lexeiba, Kaedi, 019	Kaedi	Must board.	40	2	5
Winde Boki, Kaedi, 053	Kaedi	Must board.	52	20	0
Nouro Sabbar, Kaedi, 052	Kaedi	None.	54	20	0
Ould Ramy, Kaedi, 050	Kaedi	None.	56	24	0
Tintrane, Kaedi, 049	Kaedi	Must board.	60	3	0
Zreikat Badiane, Kaedi, 043			0	0	0
Siloul, Kaedi, 043			0	0	0
Ndaa, Kaedi, n.a.	None.	None.	0	0	0
Kou Dimje, Mbout, 021	Mbout/Rosso	Donkey, or board.	17	3	0
Mbout, Mbout, 000	here	On foot.	0	0	0
Diadjibine Gandega, Mbout, 088	Mbout	By car, or board.	40	1	0
Boudana Safalbe, Mbout, 089	None.	None.	0	0	0
Boudana Abou Dioulde, Mbout n.a	None	n.a.	0	0	0
Boudana Nouro Soibe, Mbout n.a	None.	None.	0	0	0
Boudana Nouro Demba, Mbout n.a	None.	None.	0	0	0
Agoynit, Selibaby, 050	Selibaby	Must board.	55	24	0
Artouma, Selibaby, 068	None.	None.	0	0	0
Tachott Birane, Selibaby, 056	Selibaby	Must board.	35	1	6
Tachott Botokholo, Selibaby, 057	Selibaby	Must board.	34	3	20
Hel Saloua, Selibaby, 059	n.a.	None.	0	0	0
Zreigatt, Selibaby, 063	None.	None.	0	0	0
Keninkourou, Selibaby, 060	Selibaby	None.	18	2	0
Selibaby, Selibaby, 000	here	On foot.	0	0	763

Table 14.2 Access to Secondary Schooling off the Road

Locality	Nearest Secondary School	Means of Transport to S.S.	Distance to S.S. km	Time to S.S. hrs	Attendance Total # of Pupils
Touabere Dingue, Kaedi, 026	Kaedi	Must board.	21	2	31
Falhaya, Kaedi, 023	Kaedi	Must board.	36	2	0
Tetiane, Kaedi, 032	Kaedi	Must board.	31	4	5
Koundel Rec, Kaedi, 036	Kaedi	Must board.	55	2	30
Mouro Seno, Kaedi, 051	None.	None.	0	0	0
Foua Gleita, Mbout, 032	Kaedi	None.	116	2	0
Kerkedaye, Mbout, 086	None.	None.	0	0	0
Bouly M'Guire, Mbout, 568	Mbout	Must board.	40	12	1
Boudama Sarningues, Mbout, 097	None.	None.	0	0	0
Oulouabone Scrinke, Selib, 069	Selibaby	Must board.	70	2	5
Gourel Dialoubes, aband (Velng			0	0	0
Arsane, Selibaby, 040	None.	None.	0	0	0
Hel Aly Niarwal, Selibaby, 045	None.	None.	0	0	0
Hassi Bagara, Selibaby, 035	None.	None.	0	0	0
Windou Goby, Selibaby, 106	Selibaby	None.	20	1	0
Saaba Kandji, Selibaby, 104	Selibaby.	None.	0	0	0
Gouraye, Selibaby, 005	Selibaby	Must board.	45	3	0
Wouepou, Selibaby, 020	Selibaby or Kaedi	Must board.	75	48	0
El Islam, Selibaby, 016	None.	No child in school in 1977.	0	0	0
Mouliissi Ngo, Selibaby, 100	None in 1977.	No child in school in 1977.	0	0	0
Guenou, Selibaby, 098	None in 1977.	School non-functional in 1977.	0	0	0

Table 15. Access to Modern Health Care

Locality	Distance to Clinic	Time to Clinic hrs	Nearest Hospital	Hospital Distance	Time to Hospital hrs
Moloun Nere, Kaedi, 002	15	2	Kaedi	21	5
Rindiam Belieadi, Kaedi, 007	0	0	Kaedi	6	1
Belinabe, Kaedi, 008	1	1	Kaedi	5	2
Kaedi, Kaedi, 000	0	0	here	0	0
Gourdiouwa, Kaedi, 012	7	2	Kaedi	7	2
Seyyene Gababe, Kaedi, 016	16	1	Kaedi	16	1
Seyyene Mouro Molo, Kaedi, 017	19	1	Kaedi	19	1
Toulde Bally, Kaedi, n.a.	23	5	Kaedi	23	5
Ganki, Kaedi, 018	10	1	Kaedi	35	1
Lexeiba, Kaedi, 019	0	0	Kaedi	40	2
Winde Boki, Kaedi, 053	20	7	Kaedi	52	20
Mouro Sabbar, Kaedi, 052	14	3	Kaedi	54	20
Ould Rany, Kaedi, 050	20	4	Kaedi	56	24
Tinrame, Kaedi, 049	22	4	Kaedi	60	3
Zreikat Bodiane, Kaedi, 043	0	0		0	0
Siloul, Kaedi, 043	0	0		0	0
Ndam, Kaedi, n.a.	21	1	Kaedi	100	2
Kow Dimje, Mbout, 021	17	3	Kaedi	104	0
Mbout, Mbout, 000	0	0	Kaedi	120	3
Diadjibine Gandega, Mbout, 088	0	0	Kaedi	160	4
Boudama Safalbe, Mbout, 089	6	5	Selibaby	75	1
Boudama Abou Dioulde, Mbout n.a	6	2	Selibaby	74	2
Boudama Mouro Soibe, Mbout n.a	6	1	Do not use.	0	0
Boudama Mouro Demba, Mbout n.a	55	2	Selibaby	65	2
Agoynit, Selibaby, 050	55	24	Selibaby	55	24
Artouma, Selibaby, 068	7	2	Selibaby	45	22
Tachott Birane, Selibaby, 056	1	1	Selibaby	35	4
Tachott Botokholo, Selibaby, 057	0	0	Selibaby	34	3
Hel Saloum, Selibaby, 059	20	6	Selibaby	20	6
Zreigatt, Selibaby, 063	20	6	Selibaby	20	6
Keninkourou, Selibaby, 060	18	2	Selibaby	18	2
Selibaby, Selibaby, 000	0	0	here	0	0
Toumbere Dingue, Kaedi, 026	14	1	Kaedi	21	1
Talhaya, Kaedi, 023	0	0	Kaedi	36	2
Tetiane, Kaedi, 032	15	1	Kaedi	31	4
Koundel Reo, Kaedi, 036	0	0	Kaedi	55	2
Mouro Semo, Kaedi, 051	8	1	Kaedi	60	3
Foum Gleita, Mbout, 032	0	0	Kaedi	116	2
Kerkedaye, Mbout, 086	20	4	Kaedi	178	14
Bouilly N'Guero, Mbout, 568	40	12	No knowledge.	0	0
Boudama Sarningues, Mbout, 097	60	48	No knowledge.	0	0
Ouloumbone Soninke, Selib, 069	70	2	Selibaby	70	2
Gourel Dialoubes, aband (Velng	-0-	0		0	0
Arsane, Selibaby, 040	9	2	Tachott Bot. (clinic)	23	4
Hel Aly Niarwal, Selibaby, 045	5	2	Selibaby	60	12
Hassi Bagara, Selibaby, 035	35	4	Selibaby	35	4
Mindou Goby, Selibaby, 106	20	1	Selibaby	20	1
Samba Kandji, Selibaby, 104	28	1	Selibaby	28	1
Gouraye, Selibaby, 005	0	0	Selibaby	45	3
Moumpou, Selibaby, 020	0	0	Selibaby or Kaedi	75	48
El Islam, Selibaby, 016	75	48	Selibaby	75	48
Moulissi Ngo, Selibaby, 100	25	3	Selibaby	65	48
Guemou, Selibaby, 098	45	24	Selibaby	45	24

Table 15.1 Access to Modern Health Care on the Road

Locality	Distance to Clinic	Time to Nearest Hospital	Hospital Distance	Time to Hospital
	hrs	hrs	hrs	hrs
Moloun Nere, Kaedi, 002	15	2 Kaedi	21	5
Rindiaw Belimadi, Kaedi, 007	0	0 Kaedi	6	1
Belinabe, Kaedi, 008	1	1 Kaedi	5	2
Kaedi, Kaedi, 000	0	0 here	0	0
Gourdiouma, Kaedi, 012	7	2 Kaedi	7	2
Seyyene Gababe, Kaedi, 016	16	1 Kaedi	16	1
Seyyene Wouro Molo, Kaedi, 017	19	1 Kaedi	19	1
Toulde Bally, Kaedi, n.a.	23	5 Kaedi	23	5
Ganki, Kaedi, 018	10	1 Kaedi	35	1
Lexeiba, Kaedi, 019	0	0 Kaedi	40	2
Winde Boki, Kaedi, 053	20	7 Kaedi	52	20
Wouro Sabbar, Kaedi, 052	14	3 Kaedi	54	20
Ould Ramy, Kaedi, 050	20	4 Kaedi	56	24
Tinrane, Kaedi, 049	22	4 Kaedi	60	3
Zreikat Bodiane, Kaedi, 043	0	0	0	0
Siloul, Kaedi, 043	0	0	0	0
Ndam, Kaedi, n.a.	21	1 Kaedi	100	2
Kow Dimje, Mbout, 021	17	3 Kaedi	104	0
Mbout, Mbout, 000	0	0 Kaedi	120	3
Diadjibine Gandega, Mbout, 088	0	0 Kaedi	160	4
Boudana Safalbe, Mbout, 089	6	5 Selibaby	75	1
Boudana Abou Dioulde, Mbout n.a	6	2 Selibaby	74	2
Boudana Wouro Soibe, Mbout n.a	6	1 Do not use.	0	0
Boudana Wouro Demba, Mbout n.a	55	2 Selibaby	65	2
Agoynit, Selibaby, 050	55	24 Selibaby	55	24
Artouaa, Selibaby, 068	7	2 Selibaby	45	22
Tachott Birane, Selibaby, 056	1	1 Selibaby	35	4
Tachott Botokholo, Selibaby, 057	0	0 Selibaby	34	3
Hel Saloun, Selibaby, 059	20	6 Selibaby	20	6
Zreigatt, Selibaby, 063	20	6 Selibaby	20	6
Keninkourou, Selibaby, 060	18	2 Selibaby	18	2
Selibaby, Selibaby, 000	0	0 here	0	0

Table 15.2 Access to Modern Health Care off the Road

Locality	Distance to Clinic	Time to Clinic hrs	Nearest Hospital	Hospital Distance	Time to Hospital hrs
Toumbere Dingué, Kaedi, 026	14		1 Kaedi	21	1
Talhaya, Kaedi, 023	0		0 Kaedi	36	2
Tetiane, Kaedi, 032	15		1 Kaedi	31	4
Koundel Reo, Kaedi, 036	0		0 Kaedi	55	2
Nouro Seno, Kaedi, 051	8		1 Kaedi	60	3
Foua Gleita, Mbout, 032	0		0 Kaedi	116	2
Kerkedaye, Mbout, 086	20		4 Kaedi	178	14
Bouilly N'Guero, Mbout, 568	40		12 No knowledge.	0	0
Boudama Sarningues, Mbout, 097	60		48 No knowledge.	0	0
Ouloubone Soninke, Selibaby, 069	70		2 Selibaby	70	2
Gourel Dialoubes, aband (Veing)	0		0	0	0
Arsane, Selibaby, 040	9		2 Tachott Bot. (clinic)	23	4
Hel Aly Niarwal, Selibaby, 045	5		2 Selibaby	60	12
Hassi Bagara, Selibaby, 035	35		4 Selibaby	35	4
Windou Goby, Selibaby, 106	20		1 Selibaby	20	1
Samba Kandji, Selibaby, 104	28		1 Selibaby	28	1
Gouraye, Selibaby, 005	0		0 Selibaby	45	3
Moumpou, Selibaby, 020	0		0 Selibaby or Kaedi	75	48
El Islam, Selibaby, 016	75		48 Selibaby	75	48
Moulisti Ngo, Selibaby, 100	25		3 Selibaby	65	48
Guemou, Selibaby, 098	45		24 Selibaby	45	24

relatives in the town.

Modern health care is also increasingly widely available, although emergencies often cannot get help in time. Fourteen of the fifty-two villages in the sample had dispensaries. The two hospitals in Kaedi and Selibaby were both being expanded. Most residents along the road could get to a hospital within a few hours. Only the small villages where transporters do not stop reported long delays. Off the road, however, it could take up to two days to get to the nearest hospital, and several communities reported no knowledge of hospitals. Several times interviewees remarked that people who were taken there died. Evacuation to Nouakchott is often desirable for critical cases, but difficult or impossible.

4.2 Competition in the Transport Industry

The transport industry serving the Guidimaka and Gorgol is a high risk, high return, high status business operating along nearly pure free enterprise principles. Men work their way into the profession of driver through long poorly paid apprenticeships, or learn driving during military service. Owners save the money for their first vehicle through migrant labor (often overseas), commerce, or long service as drivers. They amortize vehicles quickly if there is no major accident, and keep them on the road indefinitely, as long as they have cash to meet escalating repair bills. All ethnic groups are represented among both drivers and owners. There are transporters' unions in Nouakchott and Mabout, but neither seems to operate in restraint of competition. The Government fixes prices, but the rules are in effect only in Nouakchott and on the paved road.

The 22 drivers we interviewed were mostly in their thirties and forties, although five were in their late twenties and a few were older. It is a very stable profession; most reported periods of five to fifteen years service. Their salaries ranged from 4-12,000 UM/mo. (1985 US\$53-160) for small vehicles (land rovers, pick-ups, and Peugeot 504 taxis), and 10-20,000 UM/mo. (1985 US\$75-150) for the 10-30 Ton Trucks. In both cases, the median was nearer the upper end of the scale.

Drivers have to be mechanics and businessmen as well. They set their own schedules within broad limits set by proprietors (often only an expectation of a certain number of trips per month). They pick up their business on the spot in the car park, and sometimes even decide on a new itinerary. They conduct routine maintenance (oil change, tire inspection) before each trip and handle breakdowns en route. They collect revenues, buy fuel, and pay travel expenses for the vehicle, themselves, and the apprentices. Clearly the owner has to have substantial trust in a salaried driver, to carry out all of these responsibilities. More than one owner commented on the risk of ruin with an irresponsible driver. This may be another factor in the stability of service we found among practicing drivers.

Apprentices are used on all large trucks, often two at a time. They are paid 2,000-5,000 UM/mo each. Only two of the thirteen drivers of small vehicles reported carrying apprentices, and in one case it was a relative of the owner. They were paid 1500 UM/mo.

Both drivers and owners were asked for budget information, with mixed results. The owners tended to assure us that it was

difficult to find two dimes to rub together in this business, even though it usually turned out that they had paid off their vehicles within two years. Only one assured us candidly that if one drove his own vehicle prudently and worked hard, a new Toyota pick-up could pay for itself in a year. He was also the only one to comment on the escalation of unpredictable repair bills with older vehicles. He recommended selling a new vehicle after two years. This is in accord with the experience of the construction field team that has worked on the AID road project for the last two years. They have found that their four-wheel drive vehicles have to be replaced in 6 months to two years.

The itemized breakdowns of costs and revenues allowed us to make some rough estimates of vehicle budgets, but the unpredictable repair bills are an unknown to everyone concerned. Vehicles also cannot estimate the proportions of different types of loads that they carry, as it varies from one trip to the next.

Some examples of 10 Ton Mercedes truck budgets will illustrate. These trucks always originate a trip in Nouakchott, where they can fuel up at the government price of 32.5 UM/liter, or at least at 33.5 UM/l. For Selibaby they need 700 liters round trip, for Kaedi 400 l. If they ran short of fuel in Selibaby, or operated only locally there, they would have to pay 40-75 UM/l. on the free market, depending on the season. They usually depart fully loaded with 10-13 T. of food and consumer goods, for which they charge 3-4.5 UM/k.=30,000-58,500 UM. They make three to six trips per month in the dry season, which means 900,000-351,000 UM gross monthly revenue for the one-way trip

out. In the rainy season most cut back to two trips a month, and some stop traveling except on the paved road.

On the return trip vehicles sometimes travel empty, or they may make one-third to one-half the outward bound revenue. From Naghama they can carry charcoal back, for about 1/3 the outgoing rate. From other points they try to pick up passengers or sheep.

In most cases gross revenues seem to be between 200,000 and 300,000 UM/mo. (1985 US\$2,700-4,000) Predictable expenses such as fuel, salaries, routine maintenance and road and car-park fees amount to about 2/3 that amount. The remainder is divided between repairs, income, and reinvestment with complete fluidity--"The only accountant is my pocket," commented one owner. The large trucks tend to carry insurance and pay their license fees. Small and decrepit ones sometimes do not. In any case, insurance covers only liability. A major accident or breakdown can ruin a beginning transporter.

Most owners, particularly of large trucks, have other investments in transport, commerce, or livestock. A few are from large land-owning families, and consider agriculture (flood recession or irrigation) an investment or are building urban housing. Most owners are in their forties and fifties, and are prominent in the community. They are largely self-made men, although family members often contribute to the capital needed to acquire a first vehicle. They, in turn, often have very large family responsibilities.

Purchase prices of 10T Mercedes trucks varied from 1.7 million to 3.4 million UM. Most were bought used for around 2 million (1985 US\$ 267,000). Only one informant reported

receiving a bank loan, based on his possession of a property title--others mentioned that they could not get a loan because they lacked a property title. Most acquired the necessary capital by starting in commerce, saving wages while working overseas, and/or tapping family members. Several were started in business by older brothers. At least half the total price was usually paid down, and the rest within two years. The creditor in the case of installment payments is usually the former owner.

Owners of smaller vehicles, Land Rover 109s, Peugeot and Japanese pick-up trucks, and Peugeot 404-504 taxis are on a lower rung of the transport business. They paid anywhere from 50,000 UM for a ten year old Peugeot 403 bought in 1974 to 900,000 UM for a new Land Rover in 1984. Many drive their own vehicles. Those who employ drivers pay them an average of 6000-9000 UM/mo. They carry rice, flour, sugar, oil and passengers in a diverse mix on local intraregional routes. They make seven to twenty short trips, or 4-6 long ones per month in the dry season. In the rainy season they cut back as the roads become impassible and fuel prices rise. Some focus on farming, others wait for the opportunity to travel between rains, and raise their prices fifty percent or more. Their budgets are too diverse for statistical analysis.

5. Life with Limited Transport: A Portrait of the Gorgol and Guidimaka.

The sad irony of the Gorgol and Guidimaka today is that they are inhabited by some of the most dynamic and sophisticated peoples in West Africa, the descendents of the ancient empires of

Tekrur and Ghana respectively. Yet today they have one of the lowest per capita incomes in the world, reflecting a very difficult life. They have become known primarily as the places that people leave.

Changing transportation patterns and borders converted the Senegal River Valley from an avenue of trade and regional breadbasket to an isolated border region, divided among three protectorates by the turn of the twentieth century. As the Dakar-Bamako railroad replaced the river trade after 1923, the valley lost its economic raison d'etre.

Accustomed to being in the forefront, Soninke and Tukolor¹⁰ began to respond in the only way left to them--outmigration. The first became merchant seamen or found work in colonial towns. The generation of the late 1950s were recruited en masse to come to France and relieve a post-war labor shortage. Now that they are no longer wanted in France, but are accustomed to European wage scales, they travel in search of opportunities elsewhere in Europe, the OPEC states, or in Africa. Most of their families remain home, tending the farms in so far as possible, but depending on remittances to live.

Until the late 1970s out-migration could only be regarded as a make-do solution. Remittances kept families alive, if separated, but contributed no productive investment to the region.

Since that time there has been a marked turn-around. It was set off by development initiatives undertaken to combat the great drought, not the least of which is the construction of the east-west paved road and improvement of some secondary roads down to

the river valley. Irrigation projects, which were also introduced only after the drought, have spread, largely on local initiative, to nearly four hundred villages in the valley since 1975. Their yield is mainly locally consumed. They have yet to produce a reliable marketable surplus. They serve an important function, however, in providing a drought secure food supply locally.

Transport and commerce are the other areas into which capital and returned migrants are going. Farmers are moving into the towns to work at petty trade and services. Herders are moving south into the river valley or east into Mali. The business districts of Kaedi and Selibaby have boomed in the last five years.

All this in the midst of an ongoing drought that has not let up since 1968. Agriculture is certainly not fueling this boom--in fact, desperation is driving people into new paths. The abandoned villages in our sample survey were mute testimony to this. Like the dwindling ones still holding out, they were all away from the roads and in exclusively rainfed agricultural zones; those that showed growth were on the main road, in oueds or the river valley itself where flood recession and irrigated agriculture are possible.

Our community survey provides the first detailed census of economic activities in the region. It complements an even more detailed agricultural sample census, the field work for which was completed in spring 1985 by the Statistical Service of the Ministry of Rural Development. The results of their survey are

being manually tabulated, and are not yet available. They should, if available, be used by the five-year follow-up study to this one.

The following sections begin with a demographic portrait of the Gorgol and Guidimaka. Then there is the new data on agriculture, including crops and their prices, tools, use of fertilizer and other modern agricultural practices, livestock holdings, rainfed, flood recession and irrigated agriculture, the organization of agricultural labor (including women's work), and land tenure patterns. Next comes the non-agricultural economy (excluding transport, which is discussed above): commerce, artisanal activities, services, and trends regarding migrant labor. Finally, quality of life indicators are analyzed: housing materials, water supply, and access to markets. Access to basic health and education services, which was discussed along with transport questions, should also be considered a measure of quality of life.

5.1 Demographics of the Gorgol and Guidimaka

The population of Mauritania is densest in the Senegal River Basin (See Maps 1 and 3). Trade and agriculture attracted people to this area above all others in the Western Sahel for over a millennium. It was one of the two main east-west trade routes for the whole western Sahel (the Gambia River to the south was its rival). The flood recession agricultural possibilities gave its people a fresh harvest to trade each year just as neighboring rainfed farmers and herders began the "hungry season." It is not surprising that, according to the 1977 census, the four river basin provinces contain 45% of the population of Mauritania. About three quarters of the population of Nouakchott also comes from the basin (See Map 2).

The population of the two provinces served by the USAID road was 232,663, or 17.8% of the total Mauritanian population. To get an estimate of what proportion of Mauritania's farmers lived in the Guidimaka and Gorgol, one can look at the "rural sedentary population," 33.8% of whom are in those two regions.

The towns of the area are small, but growing rapidly. Urban growth in Mauritania shows a strong primate-city pattern. Nouakchott is five times or more the size of the next largest city. Nevertheless, of the secondary cities, the area served by the USAID road includes important ones:

Rank	Town	1977 Pop.	1985 Pop.*
------	------	-----------	------------

in 1977

3rd	Kaedi	20,356	25,182
14th	Selibaby	5,451	10,317
18th	Mbout	4,467	6,632

*These figures are from the 1984-85 Agricultural Census conducted by the Statistical Service of the Ministry of Rural Development. Another census, conducted by the Structure de Base pour l'Education des Masses, had just been completed. It suggested much higher populations, particularly for Kaedi and Selibaby, but since tallies had been completed only for household numbers and the data was being used for food relief distribution, we used the above tallies. The expected 1987 population census should clarify the situation.

Outmigration is a major fact of life in the Gorgol and Guidimaka. It begins as an adult male venture, which is reflected in the 1977 sex ratios of the two regions: 93 men for every 100 women in the Gorgol, 93.5 in the Guidimaka. Among the Tukulor, emigration often ends with a move for the entire family.¹¹ Two out of three Tukulor lived outside the original homeland by the time of the 1976-77 Senegalese and Mauritanian censuses, with concentrations in Dakar, Kaolack, and Nouakchott. In contrast, Soninke men tend to migrate alone, and overseas. A stint as a migrant laborer has become an expected proof of manhood in Soninke society. An overall average of 30% of active-aged (15-64 year old) Soninke males are absent at any one time, and more than half of the 15-25 year olds. More than 80% emigrate at one point during their lifetime.

The effect of such substantial outmigration on development potential is debated. A number of authors have argued that it saps the area of its manpower, depriving it of its most dynamic workers. Remittances, it is argued, bring welcome foreign exchange to the government and consumer imports to the families, but create a dependent economy with no internal dynamism. The

positive side of the picture was brought out recently in a study of the role of migrants in initiating, investing in, and managing development projects in the region, particularly irrigation.¹²

It was also clear from our study of the transport industry that experience and capital accumulated abroad had provided a start for many successful transporters.

5.2 Agriculture and Livestock

Food production and consumption in the regions studied are at bare subsistence levels. One sees no mass starvation like the harrowing images from Ethiopia, partly because food relief trucks are arriving daily. The drought continues to take its toll, however. With rainfall averaging 1/4 to 1/3 of pre-1968 levels, vegetation belts shift southward every year. Skeletons of trees, cattle, and sheep litter the countryside where one can still remember seeing woods and grasslands only five years ago.

The planned-for "post-drought" improvement in rainfed agriculture has not reached many of the localities in our study. Tables 16 through 20 show what is produced today and how. Little has changed since the first major socio-economic study of the area done in 1957, when camel caravans were the most common means of reaching it.¹³ The hoe and pick are still the only universal tools. Despite the widespread presence of potential draft animals, only one quarter of the villages had a plow. The only modern agricultural inputs are at the big projects in Kaedi and Fom Gleita. There are also agricultural agencies or projects at Mbout, Selibaby, Tachott Birane, and Wouro Semo, but only one village reported receiving regular outreach visits (See Table

22). Interviewees in Selibaby and the villages north to the Tachotts regretted the closing down of the USAID financed Integrated Rural Development Project (DRIG), and asked us to intercede for its resumption.

In crop production millets and sorghums still predominate, complemented by the traditional niebe beans and melons. Improved seed varieties exist, but no one in our sample reported using them--all were using their own seed stores.

Crop prices are reported as they were given. They are too spotty for analysis, except to comment that they reflect the weakness of marketing and rarity of surpluses. The moude is a traditional volume measure akin to the peck, whose weight varies with the density of the contents and with market conditions--2.5 kilograms is a fair rule of thumb.

Corn production was not very important in the past, but is spreading rapidly. Peanut production has declined considerably--in the nineteenth century this area was considered a peanut basin.

Modern rice production by irrigation canals has been introduced since 1979 in Kaedi, Fom Gleita, Woumpou, and Moulissi Ngo. In addition to those irrigation projects, which fell within our sample, there are 300 ha. of small perimeters in outlying villages in the Kaedi sector of SONADER and four more in the Gouraye sector totalling 94 ha. Traditional rice cultivation by women in oued bottoms has nearly disappeared--Diadjibine Gandega and Selibaby were the only places it was mentioned.

Vegetable gardening is one new practice that is spreading, and markedly improving diets. Fifteen years ago gardens were

Table 16. Crop Production in Sample Localities

Locality	Malo Irrig. # ha.	Large Grain Millet	Sorghum	Small Grain Millet	Red Sorghum	Corn	Niebe Beans	Melons	Peanuts	Vegetable Gardening	Rice
Kaedi, Kaedi, 000	y	1700 y	y	y	y	y	y	y	y	y	y
Gourdicoua, Kaedi, 012	n	0 n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Seyyene Gababe, Kaedi, 016	n	0 y	y	y			y	y		y	
Seyyene Mouro Molo, Kaedi, 017	y	0 y	y				y	y		y	
Toulde Bally, Kaedi, n.a.	y	0 y		y			y	y		y	
Ganki, Kaedi, 018	y	0 y, 25 UR/k		y, 20 UR/k		y, 25 UR/k	y, 120 UR/k	y, 30 UR/k			
Lexelba, Kaedi, 019	y	0 y				y					
Minde Bcki, Kaedi, 053	n	0			y						
Mouro Sabbar, Kaedi, 052	n	0		y	y	y					
Ould Raay, Kaedi, 050	n	0			y	y					
Tintraue, Kaedi, 049	n	0	y, 10 UR/k			y					
Zreikat Ecdiane, Kaedi, 043	n	0 n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Silcui, Kaedi, 043	n	0 n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Ndan, Kaedi, n.a.	n	0			y						
Kow Dinje, Mbout, 021	n	0 y, 70 ur/roude									
Mbout, Mbout, 000	y	0 y, 22.5 UR/k				y	y, 62.5 UR/k	y			
Diadibine Gandega, Mbout, 088	n	0 y	y				y	y			y
Boudana Safalbe, Mbout, 089	n	0			y	y			y		
Boudana Abou Dioulde, Mbout n.a	y	0			y		y	y			
Boudana Mouro Soibe, Mbout n.a	n	0	y		y						
Boudana Mouro Demba, Mbout n.a	n	0	y								
Agoynt, Selibaby, 050	n	0	y	y		y, 70 UR/roude					
Artouma, Selibaby, 068	n	0	y		y						
Tachott Birane, Selibaby, 056	oc	5 y	y, 60 UR/roude							y	
Tachott Botokholo, Selibaby, 057	n	1 y		y		y, 60 UR/roude				y	
Hel Salcou, Selibaby, 059	n	0 y									
Zreigatt, Selibaby, 063	n	0	y		y		y	y	y		
Keninkourou, Selibaby, 060	y	0	y, 60 UR/roude		y						
Selibaby, Selibaby, 000	y	20 y	y	y	y	y	y	y	y	y	y
Toumbere Dingue, Kaedi, 026	y	0 y, 70 UR/roude	y, 70 UR/roude	y, 70 UR/roude			y, 60 UR/roude	y, 70 UR/roude			
Talhaya, Kaedi, 023	y	0 y, 25 UR/k				y, 25 UR/k	y, 40 UR/k	y, 40 UR/k		y	
Tetiane, Kaedi, 032	y	0 y	y							y	
Koundel Reo, Kaedi, 036	y	0	y	y	y	y				y	
Mouro Seno, Kaedi, 051	n	0			y					y	
Foue Gleita, Mbout, 032	n	250 y, 25-35-100/k				y, 40 UR/k	y, 30-120UR/k			y	y, 25 UR/k
Kerkedaye, Mbout, 086	n	0			y			y			
Pouilly M'Euro, Mbout, 568	n	0			y		y	y			
Boudana Sarninques, Mbout, 097	n	0			y						
Oulouabone Soninke, Selib, 069	y	0		y	y	y					
Gourel Dialoubes, aband (Veing		0									
Arsane, Selibaby, 040	y	0 y				y					
Hel Aly Niarwal, Selibaby, 045	n	0	y		y						
Hassi Bagara, Selibaby, 035	n	0 y	y, 60 UR/roude								
Mingou Goby, Selibaby, 106		0									
Samba Kanoyi, Selibaby, 104		0									
Gouraye, Selibaby, 065		0									
Moumpou, Selibaby, 020	y	36									
El isias, Selibaby, 016		0									
Mouli:si Ngo, Selibaby, 100	y	16									
Guezou, Selibaby, 098		0									

Table 17. Food Gathering and Milk Production

Locality	Foods and Resins Gathered	Milk Production
Kaedi, Kaedi, 000	Baobab leaf & fruit, mur-au-blanc, jujube, gum arabic	y
Gourdiouma, Kaedi, 012	n.a.	n.a.
Seyyene Gababe, Kaedi, 016	Baobab leaf & fruit, mur-au-blanc, jujube	y
Seyyene Nouro Molo, Kaedi, 017	n	y
Toulde Bally, Kaedi, n.a.	Mur-au-blanc, jujube	y
Ganki, Kaedi, 018	Mur-au-blanc, jujube	y
Lexeiba, Kaedi, 019	n	
Winde Boki, Kaedi, 053	y	
Nouro Sabbar, Kaedi, 052	Mur-au-blanc, jujube	
Ould Rany, Kaedi, 050	n	
Tintrame, Kaedi, 049	n	
Zreikat Badiane, Kaedi, 043	n.a.	n.a.
Siloul, Kaedi, 043	n.a.	n.a.
Ndam, Kaedi, n.a.	y	
Kow Dimje, Mbout, 021	n	y
Mbnut, Mbout, 000	Baobab leaf & fruit, mur-au-blanc, jujube	y
Diadjibine Gandega, Mbout, 088	y	y
Boudama Safabe, Mbout, 089	y	y
Boudama Abou Dioulde, Mbout n.a	n	
Boudama Nouro Soibe, Mbout n.a	n	y
Boudama Nouro Demba, Mbout n.a	n	
Agoynit, Selibaby, 050	n	y
Artouma, Selibaby, 068	n	y
Tachott Birane, Selibaby, 056	n	y
Tachott Botokholo, Selibaby, 057	y	y
Hel Saloua, Selibaby, 059	n	y
Zreigatt, Selibaby, 063	n	y
Keninkourou, Selibaby, 060	y	y
Selibaby, Selibaby, 000	?	y
Touberne Dingue, Kaedi, 026	mur-au-blanc, jujube, baobab leaf & fruit	y
Talhaya, Kaedi, 023	mur-au-blanc, jujube	y
Tetiane, Kaedi, 032	n	y
Koundel Reo, Kaedi, 036	y	y
Nouro Seno, Kaedi, 051	n	
Foua Sleita, Mbout, 032	n	y
Kerkedaye, Mbout, 086	y	y
Bouilly M'Guire, Mbout, 568	y	y
Boudama Sarningues, Mbout, 097	Mur-au-blanc, jujube	y
Oulouabone Soninke, Selib, 069	n	y
Gourel Dialoubes, aband (Velng		
Arsane, Selibaby, 040	n	y
Hel Aly Niarwal, Selibaby, 045	y	y
Hassi Bagara, Selibaby, 035	y	y
Windou Goby, Selibaby, 106		y
Samba Kandji, Selibaby, 104		
Gouraye, Selibaby, 005		
Mouspou, Selibaby, 020		
El Islam, Selibaby, 016		
Moulessi Ngo, Selibaby, 100		
Guenou, Selibaby, 098		

Table 18. Agricultural Implements, Manure and Fertilizer Use

Locality	Hoe	Pick	Plow	Seeder	Manure	Fertilizer
Kaedi, Kaedi, 000	y	y	y	y	y	y
Eourdiouma, Kaedi, 012	na	na	na	na	na	n.a.
Seyyene Gababe, Kaedi, 016	y				n	n
Seyyene Nouro Molo, Kaedi, 017	y	y	y			n
Toulde Bally, Kaedi, n.a.	y	y				
Ganki, Kaedi, 018	y	y				n
Lexelba, Kaedi, 019	y	y				n
Winde Boki, Kaedi, 053	y					0
Mouro Sabbar, Kaedi, 052	y					n
Guld Ramy, Kaedi, 050	y					n
Tinrame, Kaedi, 049	y	y				n
Zreikat Bodiane, Kaedi, 043	na	na	na	na	na	n.a.
Siloul, Kaedi, 043	na	na	na	na	na	n.a.
Ndam, Kaedi, n.a.	y					n
Kow Dinje, Mbout, 021	y					n
Mbout, Mbout, 000	y	y	y			n
Diadjibine Gandega, Mbout, 088	y	y				n
Boudaana Safalbe, Mbout, 089	y	y				n
Boudaana Abou Dioulde, Mbout n.a	y				y	n
Boudaana Mouro Soibe, Mbout n.a	y	y				n
Boudaana Mouro Demba, Mbout n.a	y	y				n
Agoynit, Selibaby, 050	y	y				n
Artouma, Selibaby, 068	y	y				n
Tachott Birane, Selibaby, 056	y	y				n
Tachott Botokholo, Selibaby, 057	y	y	5			n
Hel Ssloum, Selibaby, 059	y					n
Zreigatt, Selibaby, 063	y	y				n
Keninkourou, Selibaby, 060	y	y	10			n
Selibaby, Selibaby, 000	y	y	y	y		little
Touberne Dingue, Kaedi, 026	y	y	5			n
Talhaya, Kaedi, 023	y	y	y	y		n
Tetiane, Kaedi, 032	y					n
Koundel Reo, Kaedi, 036	y					n
Nouro Semo, Kaedi, 051	y					n
Foum Gleita, Mbout, 032	y	y	y	y		y, rice
Kerkedaye, Mbout, 086	y	y				n
Bouilly M'Guero, Mbout, 568	y	y				n
Boudaana Sarningues, Mbout, 097	y	y				n
Ouloumbone Soninke, Selib, 069	y	y				n
Gourel Dialoubes, aband (Velng						
Arsane, Selibaby, 040	y	y				
Hel Aly Niarwal, Selibaby, 045	y	y				n
Hassi Bagara, Selibaby, 035	y	y	5			n
Mindou Goby, Selibaby, 106						
Samba Kandji, Selibaby, 104						
Gouraye, Selibaby, 005						
Moumpou, Selibaby, 020						
El Islam, Selibaby, 016						
Mouliissi Ngo, Selibaby, 100						
Gueou, Selibaby, 098						

Table 19. Livestock Holdings

Locality	Cattle	Sheep	Goats	Donkeys	Horses	Camels
Kaedi, Kaedi, 000	0	0	0	0	0	0
Bourdiouma, Kaedi, 012	0	0	0	0	0	0
Seyyene Gababe, Kaedi, 016	50	60	140	15	3	0
Seyyene Mouro Molo, Kaedi, 017	100	120	100	50	1	0
Toulde Bally, Kaedi, n.a.	100	70	60	10	0	0
Ganki, Kaedi, 018	40	30	40	15	2	0
Lexeiba, Kaedi, 019	1500	2000	2500	600	50	0
Ninde Boki, Kaedi, 053	65	3	100	10	1	0
Mouro Sabbar, Kaedi, 052	0	0	12	4	0	0
Ould Rany, Kaedi, 050	0	0	150	4	2	0
Tintrae, Kaedi, 049	2	20	200	35	3	7
Zreikat Bodiane, Kaedi, 043	0	0	0	0	0	0
Siloul, Kaedi, 043	0	0	0	0	0	0
Mdam, Kaedi, n.a.	0	0	75	8	5	0
Kow Diøje, Mbout, 021	20	20	250	40	2	2
Mbout, Mbout, 000	90	30	160	8	10	0
Diadjibine Gandega, Mbout, 088	800	400	1600	600	400	0
Boudana Safalbe, Mbout, 089	30	45	50	30	1	0
Boudana Abou Dioulde, Mbout n.a	10	10	5	2	0	1
Boudana Mouro Soibe, Mbout n.a	8	10	0	2	0	0
Boudana Mouro Deaba, Mbout n.a	6	12	15	3	0	0
Agoynit, Selibaby, 050	400	20	500	300	40	0
Artouma, Selibaby, 068	100	50	200	30	20	0
Tachott Birane, Selibaby, 056	400	40	160	20	10	0
Tachott Botokholo, Selibaby, 057	200	80	250	20	20	0
Hel Saloua, Selibaby, 059	40	4	50	6	0	0
Zreigatt, Selibaby, 063	150	20	130	30	2	0
Keninkourou, Selibaby, 060	500	300	400	50	10	0
Selibaby, Selibaby, 000	0	0	0	0	0	0
Toumbere Dingue, Kaedi, 026	64	200	100	34	16	0
Talhaya, Kaedi, 023	100	120	130	30	4	0
Tetiane, Kaedi, 032	200	100	200	100	2	0
Koundel Rec, Kaedi, 036	40	20	200	50	0	0
Mouro Semo, Kaedi, 051	1	0	20	0	1	0
Foum Gleita, Mbout, 032	10000	500	500	300	6	0
Kerkedaye, Mbout, 086	9	0	40	30	4	0
Bouilly N'Guero, Mbout, 568	60	20	120	6	1	0
Boudana Sarningues, Mbout, 097	100	20	100	40	3	2
Ouloumbone Soninke, Selib, 069	300	150	200	40	20	0
Gourel Dialoubes, aband (Velng	0	0	0	0	0	0
Arsane, Selibaby, 040	200	200	300	30	0	2
Hel Aly Niarwal, Selibaby, 045	31	0	65	5	5	0
Hassi Bagara, Selibaby, 035	80	0	100	30	20	0
Windou Goby, Selibaby, 106	0	0	0	0	0	0
Saaba Kandji, Selibaby, 104	0	0	0	0	0	0
Bouraye, Selibaby, 005	0	0	0	0	0	0
Moumpou, Selibaby, 020	0	0	0	0	0	0
El Islam, Selibaby, 016	0	0	0	0	0	0
Moulissi Ngo, Selibaby, 100	0	0	0	0	0	0
Suenou, Selibaby, 098	0	0	0	0	0	0
** TOTAL **	15796	4674	9222	2587	664	14

Table 20. Women's Work

Locality	Women's Work
Kaedi, Kaedi, 000	agriculture, veg. gardening, mats, milk sales, diverse
Gourdiouana, Kaedi, 012	n.a.
Seyyene Gababe, Kaedi, 016	market gardening, milk sales
Seyyene Wouro Molo, Kaedi, 017	Market gardening (90% of them)
Toulde Bally, Kaedi, n.a.	Milk sale
Ganki, Kaedi, 018	Only housekeeping.
Lexeiba, Kaedi, 019	Do the same work as men.
Winde Boki, Kaedi, 053	Do only housekeeping.
Wouro Sabbar, Kaedi, 052	Do the same work as men.
Ould Rany, Kaedi, 050	Do the same work as men.
Tintrame, Kaedi, 049	Do the same work as men, plus gather fonio in dry seas
Zreikat Bodiane, Kaedi, 043	n.a.
Siloul, Kaedi, 043	n.a.
Mdam, Kaedi, n.a.	Weave mats.
Kow-Dimje, Mbout, 021	Nothing specific.
Mbout, Mbout, 000	Do the same work as men.
Diadjibine Gandega, Mbout, 088	Grow peanuts, rice, cotton and dye cloth.
Boudana Safalbe, Mbout, 089	Make mats for the family.
Boudana Abou Dioulde, Mbout n.a	None special.
Boudana Wouro Soibe, Mbout n.a	None specific.
Boudana Wouro Demba, Mbout n.a	None specific.
Agoynit, Selibaby, 050	None mentioned.
Artouma, Selibaby, 068	Do the same work as men, plus market gardening.
Tachott Birane, Selibaby, 056	Do the same work as men, plus market gardening.
Tachott Bctokholo, Selibaby, 057	Housekeeping, plus garden plots.
Hel Saloum, Selibaby, 059	Weave mats.
Zreigatt, Selibaby, 063	Weave mats.
Keninkourou, Selibaby, 060	Do the same work as men.
Selibaby, Selibaby, 000	Diverse urban situation.
Touabere Dingue, Kaedi, 026	Do the same work as men.
Talhaya, Kaedi, 023	Sewing, embroidery, pottery, cloth dying and sales.
Tetiane, Kaedi, 032	Vegetable gardening began in 1985.
Koundel Reo, Kaedi, 036	Do the same work as men, plus braiding hair.
Wouro Senc, Kaedi, 051	Only housekeeping.
Foua Gleita, Mbout, 032	Market gardening.
Kerkedaye, Mbout, 086	Do the same work as men.
Bouilly N'Guero, Mbout, 568	Housekeeping.
Boudana Sarningues, Mbout, 097	Housekeeping, hair braiding.
Ouloumbone Soninke, Selib, 069	n.a.
Gourel Dialoubes, aband (Velng	
Arsane, Selibaby, 040	None specific.
Hel Aly Niarwal, Selibaby, 045	Weave mats.
Hassi Bagara, Selibaby, 035	Do the same work as men.
Windou Goby, Selibaby, 106	
Samba Kandji, Selibaby, 104	
Gcuraye, Selibaby, 005	
Woumpou, Selibaby, 020	
El Islam, Selibaby, 016	
Moulistsi Ngo, Selibaby, 100	
Guemou, Selibaby, 098	

77

Table 21. Land Tenure Patterns

	Walo Irrigation	Comments on Land Tenure Patterns
	ha.	
Kaedi, Kaedi, 000	y	1700 Walo lands largely owned by several prominent families. There has been controversy over distribution of irrigated lands, and long waits for urban homesites. Rainfed farmland is better distributed.
Gourdiouma, Kaedi, 012	n	0 n.a.
Seyyene Gababe, Kaedi, 016	n	0 All households own land. Women may own land.
Seyyene Nouro Molo, Kaedi, 017	y	0 99% of households rent land, at 1000 UM to 2000 UM(per ?) or by sharing the crop 50:50 with the proprietor.
Toulde Bally, Kaedi, n.a.	y	0 All households are sharecroppers. The land is owned by Hel Tagant Moors.
Ganki, Kaedi, 018	y	0 All households own land.
Lexeiba, Kaedi, 019	y	0 90% of households own land. 10% sharecrop on a 50:50 basis. Some women own land.
Winde Boki, Kaedi, 053	n	0 87% of households borrow land (sharecrop) only 13% own land. Women do not own land.
Wouro Sabbar, Kaedi, 052	n	0 All households own land. Women do not own land and do not farm.
Ould Rany, Kaedi, 050	n	0 All households own land. Women can own land just like men.
Tintrane, Kaedi, 049	n	0 All household own land. Four women own land.
Zreikat Badiane, Kaedi, 043	n	0 n.a.
Siloul, Kaedi, 043	n	0 n.a.
Ndam, Kaedi, n.a.	n	0 All households own land.
Kna Dimje, Mbout, 021	n	0 All households own land. Women can also.
Mbout, Mbout, 000	y	0 80% of farm households own land. 10% sharecrop with 2/3 for selves and 1/3 for proprietor.
Diadjibine Gandega, Mbout, 088	n	0 All households borrow at least some land, own a little. Women do not own land.
Boudama Safalbe, Mbout, 089	n	0 All households own land. Women can also.
Boudama Abou Dioulde, Mbout n.a	y	0 All household own land. Women can also.
Boudama Wouro Soibe, Mbout n.a	n	0 All households own land. Women do not.
Boudama Wouro Deaba, Mbout n.a	n	0 Villagers do not own the land, but are allowed to farm it without sharing the crop. Women do not own land.
Agoynit, Selibaby, 050	n	0 All households own land. Women can inherit land.
Artouma, Selibaby, 068	n	0 All households own land. Women can inherit land.
Tachott Birane, Selibaby, 056	oc	5 75% of households own land. Those who rent it pay 1/10 to proprietor. Women can inherit land.
Tachott Botokholo, Selibaby, 057	n	1 All households own land. Women do not.
Hel Saloum, Selibaby, 059	n	0 All households own land. Women can also.
Zreigatt, Selibaby, 063	n	0 All households own land. Women can also.
Keninkourou, Selibaby, 060	y	0 All households own land. Women can inherit it.
Selibaby, Selibaby, 000	y	0 No information.
Toumbere Dingue, Kaedi, 026	y	0 All households own land. Women can also.
Talhaya, Kaedi, 023	y	0 All households own land. Women do not.
Tetiane, Kaedi, 032	y	0 Only half of the families own walo land. Others rent or sharecrop. Women can own land.
Koundel Reo, Kaedi, 036	y	0 All households own land. Women can also.
Wouro Sano, Kaedi, 051	n	0 All households own land. Women can also.
Foum Gleita, Mbout, 032	n	0 70% of households own land. 30% borrow it. Women have garden plots, 80% of which are owned, 20% borrowed.
Kerkedaye, Mbout, 086	n	0 All households own land. Women can also.

Table 21. Land Tenure Patterns

Locality	Walo Irrigation ha.	Comments on Land Tenure Patterns
Bouilly N'Guero, Mbout, 568	n	0 All households own land. Women do not.
Boudama Sarningues, Mbout, 097	n	0 No villagers own land, all rent or sharecrop. Women do not own land either.
Douloubone Soninke, Selib, 069	y	0 All households own land. Women can inherit it.
Gourel Dialoubes, aband (Velng		0 Abandoned. Whole village moved to join Mamadu Saydu Ba, marabout at Medina-Gonasse near Velingara, Casamance, Senegal.
Arsane, Selibaby, 040	y	0 All households own land. About 2% of women do also.
Hel Aly Niarmal, Selibaby, 045	n	0 All households own land. Women do not.
Hassi Bagara, Selibaby, 035	n	0 30% of households own land, the rest borrow.
Windou Goby, Selibaby, 106		0
Samba Kandji, Selibaby, 104		0
Gouraye, Selibaby, 005		0
Mouspou, Selibaby, 020	y	36
El Islam, Selibaby, 016		0
Moulisti Ngo, Selibaby, 100	y	16
Guemou, Selibaby, 098		0

Table 22. Agricultural Support Facilities

Locality	Agricultural Extension or Research Agcy	Agricultural Extension Visits/yr.	Grain Warehouse
Kaedi, Kaedi, 000	3	365	2
Gourdiouma, Kaedi, 012	0	0	0
Seyyene Gababe, Kaedi, 016	0	3	0
Seyyene Wouro Molo, Kaedi, 017	0	1	0
Toulde Bally, Kaedi, n.a.	0	1	0
Ganki, Kaedi, 018	0	0	0
Lexeiba, Kaedi, 019	0	0	0
Winde Boki, Kaedi, 053	0	0	0
Wouro Sabbar, Kaedi, 052	0	0	0
Ould Ramy, Kaedi, 050	0	0	0
Tintrame, Kaedi, 049	0	0	0
Zreikat Bodiane, Kaedi, 043	0	0	0
Siloul, Kaedi, 043	0	0	0
Ndam, Kaedi, n.a.	0	0	0
Kow Dimje, Mbout, 021	0	0	0
Mbout, Mbout, 000	1	365	1
Diadjibine Gandega, Mbout, 088	0	260	1
Boudama Safalbe, Mbout, 089	0	0	0
Boudama Abou Dioulde, Mbout n.a	0	0	0
Boudama Wouro Soibe, Mbout n.a	0	0	0
Boudama Wouro Demba, Mbout n.a	0	0	0
Agoynit, Selibaby, 050	0	1	1
Artouma, Selibaby, 068	0	1	1
Tachott Birane, Selibaby, 056	1	365	1
Tachott Botokholo, Selibaby, 057	0	1	0
Hel Saloum, Selibaby, 059	0	0	0
Zreigatt, Selibaby, 063	0	0	0
Keninkourou, Selibaby, 060	0	260	0
Selibaby, Selibaby, 000	2	260	1
Toumbere Dingue, Kaedi, 026	0	1	0
Talhaya, Kaedi, 023	0	5	0
Tetiane, Kaedi, 032	0	0	0
Koundel Reo, Kaedi, 036	0	0	0
Wouro Semo, Kaedi, 051	0	0	0
Foum Gleita, Mbout, 032	1	365	1
Kerkedaye, Mbout, 086	0	0	0
Bouilly N'Guero, Mbout, 568	0	0	0
Boudama Sarningues, Mbout, 097	0	0	0
Ouloumbone Soninke, Selib, 069	0	0	1
Gourel Dialoubes, aband (Velng	0	0	0
Arsane, Selibaby, 040	0	0	0
Hel A.y Niarwal, Selibaby, 045	0	0	0
Hassi Bagara, Selibaby, 035	0	0	0
Windou Goby, Selibaby, 106	0	0	0
Samba Kandji, Selibaby, 104	0	0	0
Gouraye, Selibaby, 005	0	0	0
Woumpou, Selibaby, 020	0	0	0
El Islam, Selibaby, 016	0	0	0
Mouliissi Ngo, Selibaby, 100	0	0	0
Guemou, Selibaby, 098	0	0	0
** TOTAL **	8	2254	

Table 23. Livestock Support Facilities

Locality	Water Trough	Vaccination Pen	Slaughter Facility	Butcher
Kaedi, Kaedi, 000	20	3	1	9
Gourdiouma, Kaedi, 012	0	0	0	0
Seyyene Gababe, Kaedi, 016	0	1	1	0
Seyyene Wouro Molo, Kaedi, 017	0	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0	0
Ganki, Kaedi, 018	0	0	0	0
Lexeiba, Kaedi, 019	0	1	5	0
Winde Boki, Kaedi, 053	0	0	0	0
Wouro Sabbar, Kaedi, 052	0	0	0	0
Ould Ramy, Kaedi, 050	0	0	0	0
Tintrame, Kaedi, 049	0	0	0	0
Zreikat Bodiane, Kaedi, 043	0	0	0	0
Siloul, Kaedi, 043	0	0	0	0
Ndam, Kaedi, n.a.	0	0	0	0
Kow Dimje, Mbout, 021	0	1	0	0
Mbout, Mbout, 000	0	1	1	1
Diadjibine Gandega, Mbout, 088	0	1	2	1
Boudama Safalbe, Mbout, 089	0	0	0	0
Boudama Abou Dioulde, Mbout n.a	0	0	0	0
Boudama Wouro Soibe, Mbout n.a	0	0	0	0
Boudama Wouro Demba, Mbout n.a	0	0	0	0
Agoynit, Selibaby, 050	0	1	0	0
Artouma, Selibaby, 068	0	0	0	0
Tachott Birane, Selibaby, 056	0	1	0	0
Tachott Botokholo, Selibaby, 057	0	1	1	0
Hel Saloum, Selibaby, 059	0	0	0	0
Zreigatt, Selibaby, 063	0	0	0	0
Keninkourou, Selibaby, 060	1	1	1	0
Selibaby, Selibaby, 000	1	1	1	7
Toumbere Dingue, Kaedi, 026	0	0	0	0
Talhaya, Kaedi, 023	1	1	0	1
Tetiane, Kaedi, 032	1	1	0	1
Koundel Reo, Kaedi, 036	0	1	0	0
Wouro Semo, Kaedi, 051	0	0	0	0
Foum Gleita, Mbout, 032	0	1	1	1
Kerkedaye, Mbout, 086	0	0	0	0
Bouilly N'Guero, Mbout, 568	0	0	0	0
Boudama Sarningues, Mbout, 097	0	0	0	0
Ouloumbone Soninke, Selib, 069	0	0	2	0
Gourel Dialoubes, aband (Velng	0	0	0	0
Arsane, Selibaby, 040	0	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0	0
Hassi Bagara, Selibaby, 035	0	0	0	0
Windou Goby, Selibaby, 106	0	0	0	0
Samba Kandji, Selibaby, 104	0	0	0	0
Gouraye, Selibaby, 005	0	0	0	0
Woumpou, Selibaby, 020	0	0	0	0
El Islam, Selibaby, 016	0	0	0	0
Moulissi Ngo, Selibaby, 100	0	0	0	0
Guemou, Selibaby, 098	0	0	0	0
** TOTAL **	24	17	16	21

limited to bitter tomatoes, onions, and a few herbs. It used to be said that country people would not eat "European" vegetables like carrots, tomatoes, and lettuce. That clearly is not true. Wherever people have an adequate water supply, they are growing and eating a wide variety of vegetables and fruits. Producing good quality vegetables for the urban market, however, requires fertilizer and pesticides. A glance at Table 18 shows how rare these are. The irrigation projects at Kaedi and Fom Gleita were the only ones to have any this year, and their supplies were inadequate. Urban consumers in Mbout and Selibaby are importing Senegalese fruits and vegetables from Bakel and Matam where the markets are better. Traditional gathering of wild fruits continues to be a significant activity, both from the point of view of the small urban market it serves and from a dietary perspective as a source of vitamins (See Table 17).

In the 1957 river basin study, milk and fish were the main sources of protein in the diet. Meat was rarely consumed. Although our project was too short to study diets, some observations on changes can be made. 1) The fish have died out, since the drought killed the walo grasses on which they used to feed during flood season. Only one village mentioned doing a little fishing, complaining that it was poor. 2) Meat is still rarely consumed, except by a small urban elite. Livestock are still considered mainly an investment, and secondarily a source of milk. 3) Milk seems to have become the major source of protein. It may be supplemented by corn and beans, which when consumed together are fairly rich in protein. Overall one would

hypothesize that diets which were low in protein in 1957 have become even lower.

The figures for livestock holdings shown in Table 19 should not be taken literally. They are off-the-cuff estimates by one or a few men about a very sensitive subject--the wealth of others. They are subject to error because the informants simply did not know. Or they could be exaggerated in order to elevate the status of the village a little, or deflated in order to avoid taxes. The only conclusions that it seems safe to draw from them is that livestock holdings are more diverse and widespread than cropping patterns. The widespread ownership of horses, and nearly universal presence of donkeys, is worth underlining in a transportation study, as they are used almost exclusively for transport.

Agricultural work is mainly organized around cooperative family labor on small holdings. Average family size is about 7 persons (7.15 for our sample in 1977; 7.26 in 1985). Women's work within the family and women's land rights have been the subject of recent interest. They should properly be studied in the context of children's and other adults' roles and rights. Since such studies inevitably concentrate on a tiny sample, it seemed worthwhile to see what would come of superficial questions posed over a wide geographic area. The results, shown in Tables 20 and 21, are interesting and may be more interesting if repeated five years hence. They are insufficient grounds for sweeping interpretations, however, and the following comments derive more from knowledge of the previous literature and field observations than from the questionnaire results. Most villages

reported that women do the same work as men, or do such tasks as milk sales, mat weaving, and vegetable gardening in addition to farm work. Among Moors and some Tukulor, high status is attached to having wives not have to work outside the home. Among Soninke and other Tukulor, in contrast, work tends to be regarded as a virtue, for both men and women. The diverse descriptions of women's work in Table 20 may reflect more the aspirations of our (male) informants for their wives than the reality in the villages. In our experience, the vast majority of women do agricultural labor, particularly weeding on family fields, in addition to housekeeping and the other women's tasks mentioned.

Land tenure questions evoked the response that women cannot own land from 8 villages and that they can or do in 19 others. This has to be put in the traditional context that family farms are held and managed by male household heads. Islamic law provides for daughters to inherit a half share of real estate, and sons a full share. It is often argued that women receive the other half of their support from their husbands. Customary law in Soninke and Tukulor households has overridden the Islamic rules of division in the case of common fields of a family, passing them on intact to the next head of family. Only individual fields of the deceased are divided. Interpretations of both Islamic and traditional law are varying widely in response to contemporary trends. With male outmigration and some reduction in traditional extended family sizes, more and more women are finding themselves heads of household. On the other hand, knowledge of Islamic law is spreading. Egalitarian ideas

are also, sometimes as a result of migrant labor experiences overseas, sometimes as a "modern" interpretation of Islamic teaching, and sometimes as a result of central government influence. The result is a very fluid situation.

Share-cropping continues an important factor in agricultural production, despite having been made illegal. No land distribution accompanied the outlawing of crop and labor prestations, so landless families and villages are not in a position to oppose the system and landed families have no compensation for relinquishing it. Six of the villages in our survey reported few or no families owned land, most sharecropped. In another six, share-cropping reportedly concerned half or less of the families. Twenty-five reported that all families own land. This does not necessarily mean that some families do not share-crop additional land; it indicates only the prevailing mode.

Government policy has opposed discrimination against former slave, serf and artisan castes since independence. The only practical alternative that it has been possible to offer to those who wish to escape traditional obligations and yet remain farmers is plots in irrigation projects. The other alternative is to leave, go to the city or overseas. Or south in hopes of finding a new home where origins will matter less and rainfall is better. People are doing all of these things, and slowly the old obligations in the home communities are declining.

The obligation of former slaves to work on the lord's land 1-4 days per week is still in fulfilled by some individuals, but is disappearing. Spread of the cash economy is monetizing labor

relations, and the experience of slave and master working side by side as migrant laborers makes it difficult to enforce the old system at home. Paying for the use of land, on the other hand, is regarded by owners, borrowers, and the law as normal. It is only the fifty percent share that is considered excessive. In our survey, the shares involved were not always mentioned. The practice of 50:50 sharing seemed to be found on the Gorgol Noir floodplain and plains east of Kaedi. At Mabout it was a 1/3 share, and in the Guidimaka 10%. In one case a whole village used land rent free.

5.3 The Non-Agricultural Economy: Migration, Commerce, Artisanal Activities, and Services

Out-migration touches every locality in our sample, except two small villages (See Table 25). Most migrants send home money, and sometimes whole truckloads of food and consumer goods are purchased in Nouakchott for the home village. The earnings of migrants are used first of all for food for the family. Any additional savings usually go into preparations for marriage (bridewealth, gifts) if a man is unmarried, or into building a family house. Livestock purchases are a common form of investment for those who expect to continue to be absent. An earlier study showed that emigrants stayed a good part of their active life-span overseas, with bi-annual visits home. The proportion who returned for good only reached 50% at age 50, and 90% by age 65.¹⁴

Those who return home earlier typically bring a nest-egg with which to set up in trade or transport. Migrants also are

the main source of capital and initiative for community projects, such as irrigation schemes, dispensary and school buildings, and mosques.

Wherever there is substantial out-migration, there is usually also some in-migration. Adult male labor is lacking for many families of migrants, and they hire some tasks done. Most of the in-migration described in Table 24, however, is traditional seasonal or itinerant work: masons, smiths, well-diggers and bakers. The trend was widely reported as increasing, even moreso than with out-migration. This may reflect increasing local use of cash-wage employment and only a small inflow of settlers into the region.

The commercial economy of the region seems to have expanded rapidly in the last five years. Kaedi in 1980 had a small, poorly stocked market selling mainly local produce. Today one can buy appliances, tools, books, and fresh cheeses in the supermarket, and a whole new market place is being opened. There are a total of 430 shops and stalls registered with the tax office (See Table 26). Selibaby experienced a similar growth spurt, but some informants expressed a fear that it had overexpanded. Many of the shiny new stalls were closed, or only opened part-time. In Mabout, despite a 5.1% population growth rate since 1977, the commercial sector appears much more lethargic.

Other types of businesses found in the region are shown in Tables 27 through 29. They tell more about what is lacking than anything else. (N.B. The zeroes in some categories, particularly in larger towns like Kaedi, may indicate that these businesses

Table 24. In-Migration to the Gorgol and Guidimaka

Locality	Work Done by In-Migrants	Places of Origin	Trend
Kaedi, Kaedi, 000	Petty trade, construction and misc. education	Gorgol, Brakna, Guidimaka (all Mauritania)	Increasing
Seyyene Gababe, Kaedi, 016	Herders esp. in dry season	Neighboring villages and Senegal	Increasing
Seyyene Nouro Molo, Kaedi, 017	Farmers and Herders	Brakna	Increasing
Toulde Bally, Kaedi, n.a.	None	n.a.	
Ganki, Kaedi, 018	None	n.a.	Increasing
Lexeiba, Kaedi, 019	Trade, sell millet, manual labor	Aleg, Boutilimit, Monguel (all Mauritania)	Constant
Winde Boki, Kaedi, 053	None	n.a.	Constant
Nouro Sabbar, Kaedi, 052	None	n.a.	Increasing
Ould Raay, Kaedi, 050	None	n.a.	Increasing
Tintrane, Kaedi, 049	None	n.a.	Dep. on harvest
Ndam, Kaedi, n.a.	Farming	Neighboring villages	Seasonal
Kow Dinje, Mbout, 021	None	n.a.	Increasing
Mbout, Mbout, 000	Commerce, livestock, manual labor	Mali, Senegal, rest of Mauritania	Constant
Diadjibine Gandega, Mbout, 088	Seasonal labor	Neighboring villages	Increasing
Boudana Safalbe, Mbout, 089	None	n.a.	Increasing
Boudana Abou Dioulde, Mbout n.a.	None	n.a.	Constant
Boudana Nouro Soibe, Mbout n.a.	None	n.a.	Increasing
Boudana Nouro Deaba, Mbout n.a.	None	n.a.	Seasonal
Agoynit, Selibaby, 050	Blacksmiths, leatherworkers	Neighboring village and Mali	Increasing
Artouaa, Selibaby, 068	Bakers, smiths	Neighboring village and Mali	Increasing
Tachott Birane, Selibaby, 056	Bakers	Neighboring villages	Increasing
Tachott Botokholo, Selibaby, 057	Construction, well digging	Mali, neighboring villages	Increasing
Hel Saloum, Selibaby, 059	None	n.a.	Increasing
Zreigatt, Selibaby, 063	None	n.a.	Increasing
Keninkourou, Selibaby, 060	Bakers	Mali, neighboring villages	Increasing
Selibaby, Selibaby, 000	Herders	Interior of Mauritania	Increasing
Touabere Dingue, Kaedi, 026	Masons, blacksmiths	Neighboring villages	Increasing
Talhaya, Kaedi, 023	15 families settled	Monguel and departement	Increasing
Tetiane, Kaedi, 032	None	n.a.	Increasing
Koundel Reo, Kaedi, 036	Masons, Bakers, Blacksmiths, Carpenters	Senegal	Increasing
Nouro Seno, Kaedi, 051	None	n.a.	n.a.
Foun Gleita, Mbout, 032	Butcher, traders, laborers	All Mauritania	Increasing
Kerkedaye, Mbout, 086	None	n.a.	Increasing
Bouilly N'Guire, Mbout, 568	None	n.a.	n.a.
Boudana Sarningues, Mbout, 097	Farmers	Nearby	Constant
Douloubone Soninke, Selib, 069	Construction	Mali, Neighboring villages	Increasing
Gourel Dialoubes, aband (Veing)			
Arsane, Selibaby, 040	None	n.a.	Constant
Hel Aly Niarwal, Selibaby, 045	None	n.a.	Decreasing
Hassi Bagara, Selibaby, 035	Blacksmiths	Neighboring villages	Increasing

Table 25. Out-Migration from the Gorgol and Guidinaka

Locality	Work Done	Destinations	Trend	Uses of Remittances
Kaedi, Kaedi, 000	Trade, agr. and mfg. labor, services education	France, NKTT, ZRT, NDB, DK R, Libya, Afr, Eur, ME	Increasing	Food, housing, marriage, commerce, livestock, agriculture
Seyyene Gababe, Kaedi, 016	Commerce, manual labor education	France, Sen., Gabon, ZRT, NDB, NKTT, I.C., Mali		Food, construction, marriage, livestock
Seyyene Mouro Molo, Kaedi, 017	Commerce, manual labor	Sen., Libya, France, Congo, NKTT, NDB, ZRT		Food, construction, marriage
Toulde Bally, Kaedi, n.a.	Commerce, manual labor	Senegal, HKTT, NDB, Seilibaby		Food, livestock, marriage
Banki, Kaedi, 018	Commerce, manual labor	NKTT, NDB, Congo, Gabon, France, I.C.		Food, marriage
Lexeiba, Kaedi, 019	Commerce	Gabon, I.C., Mali, Sen., Libya, Zaire		Construction, food & clothing for family, marriage
Ninde Boki, Kaedi, 053	Manual labor	Nouakchott		Food
Nouro Sabbar, Kaedi, 052	Commerce, manual labor	Nouakchott, NDB, Zouerat, Atar		Food, marriage
Ould Rany, Kaedi, 050	Commerce, manual labor	Nouakchott, Nouadhibou, Kaedi		Food
Tintrame, Kaedi, 049	Manual labor	Nouakchott, Nouachibou, Senegal		Food
Ndam, Kaedi, n.a.	Manual labor	Nouakchott, Senegal	Increasing	Food
Kou Dimje, Mbout, 021	Bakers, manual labor	NKTT, NDB, Zouerat, Kaedi, Senegal	Increasing	Food
Mbout, Mbout, 000	Manual labor, education	Nouakchott, Nouadhibou, Zouerat	Increasing	Food and clothing for family
Diadjibine Gandega, Mbout, 088	Manual labor	France, Libya, Gabon, NKTT, NDB, ZRT		Buy livestock, construction, food
Boudama Safalbe, Mbout, 089	Manual labor	Nouakchott, Maghama		Clothing, sometimes a transistor radio
Boudama Abou Dioulde, Mbout n.a.	Civil servant	Atar		n.a.
Boudama Mouro Soibe, Mbout n.a.	Herding	Mali		None
Boudama Mouro Deeba, Mbout n.a.	Herding	Neighboring villages		Food, livestock
Agoynit, Selibaby, 050	Commerce, manual labor	France, Gabon, Libye, NKTT, NDB, ZRT		Food, construction, livestock purch., marriage
Artouma, Selibaby, 068	Commerce, manual labor	France, Gabon, Libye, NKTT, NDB, ZRT		Food, construction, marriage
Tachott Birane, Selibaby, 056	Commerce, manual labor	France, Libya, NKTT, NDB, Congo		Food, construction, livestock purchases
Tachott Botokholo, Selibaby, 057	Manual labor	Fr, Gabon, Libya, Zaire, Mal, Sen, NKTT, NDB, ZRT		Food, construction, marriage
Hel Saloua, Selibaby, 059	Manual labor	Nouakchott, Nouadhibou, Zouerat		None
Zreigatt, Selibaby, 063	Manual labor	NKTT, Libya, Bakel, Selibaby		Food, livestock purchases
Keninkourou, Selibaby, 060	Commerce, manual labor	France, Libya, Gabon, NKTT, NDB		Food, construction (housing)
Selibaby, Selibaby, 000	Manual labor, commerce	France, Libya, Gabon, Senegal, Mali		Construction, support family, trade, buy livestock

Table 25. Out-Migration from the Gorgol and Guidimaka

Locality	Work Done	Destinations	Trend	Uses of Remittances
Touabere Dingue, Kaedi, 026	Diverse	Cities and overseas		Construction, food, marriage
Talhaya, Kaedi, 023	40 emigrants working, jobs not known	NKTT, NDB, ZRT, Sen., Fr., Lby., Burk.Fs..		Construction, marriage, food
Tetiane, Kaedi, 032	Commerce, manual labor, herding	Sen,Cgo, Fr,Gabn,Cam.,NKTT,NDB, ZRT,Zamb.		Food, housing construction
Koundel Rec, Kaedi, 036	Laborers	France, Nouakchott, Nouadhibou		Food, construction, marriage
Nouro Sano, Kaedi, 051	None	n.a.		n.a.
Foum Gleita, Mbout, 032	Laborers	NKTT,Kaedi,Sen.,Boghe, Mataa,Mali,ZRT,NDB		Not known
Kerkedaye, Mbout, 086	Laborers, servants	Kaedi, NKTT, NDB, Zouerat, Senegal		Food, clothing
Bouilly N'Guero, Mbout, 568	None	n.a.		n.a.
Boudana Sarningues, Mbout, 097	Commerce	I.C., NKTT, NDB, Senegal		Food and clothing
Oulouabone Soninke, Selib, 069	Commerce, manual labor	Fr., Libya, Gabon, NKTT, NDB, ZRT		Food, housing (without migr. we could not live)
Gourel Dialoubes, aband (Velng	Whole village left,joined marabout Mamadu Saydu Ba	at Medina-Gonasse, nr. Velingara, Sen.		
Arsane, Selibaby, 040	Herders	Mali, Senegal, Nouakchott		Food
Hel Aly Niarwal, Selibaby, 045	Manual laborers	Fr., I.C., NKTT and Fieuve Region (Sen?)		Food, Marriage
Hassi Bagara, Selibaby, 035	Manual labor	France, Libya, Nouakchott, Nouadhibou		Food, construction

Table 26. Markets and Shops

Locality	Local Market	Times Held/yr	Shops	Items Available
Kaedi, Kaedi, 000	1	365	430	Full range of retail trade, including appliances, stationery, farm machinery, books, cheese, fruits
Seyyene Gababe, Kaedi, 016	0	0	0	Rice, sugar, tea, oil, tomato, soap, vegetables, salt, sou r milk
Seyyene Mouro Molo, Kaedi, 017	0	0	0	Sugar, tea, oil, tomato, etc.
Toulde Bally, Kaedi, n.a.	0	0	0	None
Ganki, Kaedi, 018	0	0	5	Basic foods, fish, milk, tobacco, childrens clothes, shoes, tea, niebe
Lexeiba, Kaedi, 019	1	365	5	Basic foods and necessities, shoes, cloth, soap
Winde Boki, Kaedi, 053	0	0	0	Rice
Wouro Sabbar, Kaedi, 052	0	0	0	Nothing
Ould Rany, Kaedi, 050	0	0	4	Sugar, tea, coffee, rice, oil and other basic foods, cloth
Tinrane, Kaedi, 049	0	0	0	A little sugar and tea
Ndam, Kaedi, n.a.	0	0	0	Nothing
Kow Dimje, Mabout, 021	0	0	0	Sugar, tea, rice, cookies, millet
Mabout, Mabout, 000	1	365	4	All basics, wheat, millet, corn, cloth, butter, coffee, shoes, mats, tobacco, cigarettes
Diadjibine Gandega, Mabout, 088	1	250	0	Basic necessities and foods, some clothing
Boudana Safalbe, Mabout, 089	0	0	0	A little tea and sugar
Boudana Abou Dioulde, Mabout n.a	0	0	0	None
Boudana Mouro Soibe, Mabout n.a	0	0	0	None
Boudana Mouro Demba, Mabout n.a	0	0	0	None
Aqcynt, Selibaby, 050	0	0	0	Sugar, rice, oil, flour, tea and other basic food items.
Artouaa, Selibaby, 068	0	0	0	Sugar, tea, milk, rice, millet, oil
Tachott Birane, Selibaby, 056	0	0	4	Rice, sugar, oil, etc.
Tachott Botokholo, Selibaby, 057	0	0	4	Basic necessities
Hel Saloun, Selibaby, 059	0	0	0	Sugar, tea, milk
Ireigatt, Selibaby, 063	0	0	0	Sugar, tea, sometimes rice
Keninkourou, Selibaby, 060	0	0	0	Basic foods and necessities, some clothing
Selibaby, Selibaby, 000	1	365	64	SONIMEX items, foodstuffs (retail), radios, mattresses, cloth, shoes, flour, fuel, soap, soft drinks
Touabere Dingue, Kaedi, 026	0	0	0	Rice, Sugar, tea, oil, coffee, macaroni, salt, onions, beans, milk, tomato, soap, tobacco
Talhaya, Kaedi, 023	1	365	0	Sugar, rice, millet, oil, cloth, soap
Tetiane, Kaedi, 032	0	0	0	Sugar, tea, rice, canned foods
Koundel Reo, Kaedi, 036	1	0	0	sugar, rice, oil, etc.
Wouro Semo, Kaedi, 051	0	0	0	None
Foum Gleita, Mabout, 032	1	365	10	rice, oil, tomato, cloth, dried fish, onions, vegetables, shoes, tobacco
Kerkedaye, Mabout, 086	0	0	0	A little tea and sugar
Bouilly M'Guero, Mabout, 568	0	0	0	Very little tea, sugar, soap
Boudana Sarningues, Mabout, 097	0	0	0	None
Douloubone Soninke, Selib, 069	0	0	5	Sugar, oil, rice, tea, etc.
Gourel Dialoubes, aband (Vainq	0	0	0	
Arsane, Selibaby, 040	0	0	0	None
Hel Aly Niarwal, Selibaby, 045	0	0	0	None
Hassi Bagara, Selibaby, 035	0	0	0	Sugar, tea, oil, etc.
** TOTAL **	8		535	

Table 27. Transportation Related Sales and Services

Locality	Gas Station	Mechanic	Spare Parts	Black-smith
Kaedi, Kaedi, 000	2	8	5	0
Seyyene Gababe, Kaedi, 016	0	0	0	0
Seyyene Wouro Molo, Kaedi, 017	0	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0	0
Ganki, Kaedi, 018	0	0	0	0
Lexeiba, Kaedi, 019	0	0	0	1
Winde Boki, Kaedi, 053	0	0	0	0
Wouro Sabbar, Kaedi, 052	0	0	0	0
Ould Ramy, Kaedi, 050	0	0	0	1
Tintrame, Kaedi, 049	0	0	0	2
Ndam, Kaedi, n.a.	0	0	0	0
Kow Dimje, Mbout, 021	0	0	0	0
Mbout, Mbout, 000	1	0	1	1
Diadjibine Gandega, Mbout, 088	0	1	0	2
Boudama Safalbe, Mbout, 089	0	0	0	1
Boudama Abou Dioulde, Mbout n.a	0	0	0	0
Boudama Wouro Soibe, Mbout n.a	0	0	0	0
Boudama Wouro Demba, Mbout n.a	0	0	0	0
Agoynit, Selibaby, 050	0	0	0	2
Artouma, Selibaby, 068	0	0	0	1
Tachott Birane, Selibaby, 056	0	0	0	1
Tachott Botokholo, Selibaby, 057	0	0	0	1
Hel Saloum, Selibaby, 059	0	0	0	0
Zreigatt, Selibaby, 063	0	0	0	0
Keninkourou, Selibaby, 060	0	0	0	1
Selibaby, Selibaby, 000	1	1	5	3
Toumbere Dingue, Kaedi, 026	0	0	0	0
Talhaya, Kaedi, 023	0	0	0	1
Tetiane, Kaedi, 032	0	0	0	0
Koundel Reo, Kaedi, 036	0	0	0	0
Wouro Semo, Kaedi, 051	0	0	0	0
Foum Gleita, Mbout, 032	2	1	1	2
Kerkedaye, Mbout, 086	0	0	0	0
Bouilly N'Guero, Mbout, 568	0	0	0	0
Boudama Sarningues, Mbout, 097	0	0	0	0
Duloumbone Soninke, Selib, 069	0	0	0	2
Gourel Dialoubes, aband (Velng	0	0	0	0
Arsane, Selibaby, 040	0	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0	0
Hassi Bagara, Selibaby, 035	0	0	0	0
** TOTAL **	6	11	12	22

Table 28. Food Services

Locality	Restaurant /Snack Bar	Baker	Butcher	Flour Mill
Kaedi, Kaedi, 000	3	32	9	0
Seyyene Gababe, Kaedi, 016	0	0	0	0
Seyyene Wouro Molo, Kaedi, 017	0	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0	0
Ganki, Kaedi, 018	0	1	0	0
Lexeiba, Kaedi, 019	0	1	0	0
Winde Boki, Kaedi, 053	0	0	0	0
Wouro Sabbar, Kaedi, 052	0	0	0	0
Ould Ramy, Kaedi, 050	0	1	0	0
Tintrame, Kaedi, 049	0	0	0	0
Ndam, Kaedi, n.a.	0	0	0	0
Kow Dimje, Mbout, 021	0	0	0	0
Mbout, Mbout, 000	1	1	1	0
Diadjibine Gandega, Mbout, 088	0	2	1	0
Boudama Safalbe, Mbout, 089	0	0	0	0
Boudama Abou Dioulde, Mbout n.a	0	0	0	0
Boudama Wouro Soibe, Mbout n.a	0	0	0	0
Boudama Wouro Demba, Mbout n.a	0	0	0	0
Agoynit, Selibaby, 050	0	1	0	0
Artouma, Selibaby, 068	0	1	0	0
Tachott Birane, Selibaby, 056	0	1	0	0
Tachott Botokholo, Selibaby, 057	1	3	0	0
Hel Saloum, Selibaby, 059	0	0	0	0
Zreigatt, Selibaby, 063	0	0	0	0
Keninkourou, Selibaby, 060	0	1	0	0
Selibaby, Selibaby, 000	5	14	7	9
Toumbere Dingue, Kaedi, 026	0	0	0	0
Talhaya, Kaedi, 023	0	1	1	0
Tetiane, Kaedi, 032	0	0	1	0
Koundel Reo, Kaedi, 036	0	3	0	0
Wouro Semo, Kaedi, 051	0	0	0	0
Foum Gleita, Mbout, 032	0	2	1	0
Kerkedaye, Mbout, 086	0	0	0	0
Bouilly N'Guero, Mbout, 568	0	0	0	0
Boudama Sarningues, Mbout, 097	0	0	0	0
Ouloumbone Soninke, Selib, 069	0	1	0	0
Gourel Dialoubes, aband (Velng	0	0	0	0
Arsane, Selibaby, 040	0	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0	0
Hassi Bagara, Selibaby, 035	0	0	0	0
** TOTAL **	10	66	21	9

Table 29. Other Craftsmen and Services

Locality	Tailor	Barber	Laundry	Black-smith	Carver/ Carpenter	Cobbler	Photo-grapher	Match Repair
Kaedi, Kaedi, 000	75	2	2	0	13	0	3	0
Seyyene Gababa, Kaedi, 016	0	1	0	0	0	0	0	0
Seyyene Mouro Molo, Kaedi, 017	0	0	0	0	0	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0	0	0	0	0	0
Ganki, Kaedi, 018	0	1	0	0	1	0	0	0
Lexwiba, Kaedi, 019	1	0	1	1	0	1	0	0
Minde Boki, Kaedi, 053	0	0	0	0	0	0	0	0
Mouro Sabbar, Kaedi, 052	0	0	0	0	0	0	0	0
Duld Rany, Kaedi, 050	1	0	0	1	0	0	0	0
Tinrame, Kaedi, 049	0	0	0	2	0	0	0	0
Ndam, Kaedi, n.a.	0	0	0	0	0	0	0	0
Kow Dimje, Mbut, 021	0	0	0	0	0	0	0	0
Mbut, Mbut, 000	1	0	0	1	0	1	0	0
Diadjibine Gandega, Mbut, 088	1	0	0	2	0	1	0	0
Boudama Safalbe, Mbut, 089	0	0	0	1	0	0	0	0
Boudama Abou Dioulde, Mbut n.a	0	0	0	0	0	0	0	0
Boudama Mouro Soibe, Mbut n.a	0	0	0	0	0	0	0	0
Boudama Mouro Deeba, Mbut n.a	0	0	0	0	0	0	0	0
Agoynit, Selibaby, 050	1	0	0	2	0	0	0	0
Artouma, Selibaby, 068	0	0	0	1	0	0	0	0
Tachott Birane, Selibaby, 056	1	0	0	1	0	0	0	0
Tachott Botokholo, Selibaby, 057	0	0	0	1	0	0	0	0
Hel Saloua, Selibaby, 059	0	0	0	0	0	0	0	0
Zraigatt, Selibaby, 063	0	0	0	0	0	0	0	0
Keninkourou, Selibaby, 060	0	0	0	1	0	0	0	0
Selibaby, Selibaby, 000	31	0	4	3	0	2	0	4
Touabere Dingue, Kaedi, 026	0	0	0	0	0	0	0	0
Talhaya, Kaedi, 023	0	1	1	1	0	1	0	0
Tetiane, Kaedi, 032	0	0	0	0	0	0	0	0
Koundel Reo, Kaedi, 036	0	10	0	0	0	0	0	0
Mouro Seno, Kaedi, 051	0	0	0	0	0	0	0	0
Foua Gleita, Mbut, 032	2	20	2	2	0	1	0	0
Kerkedaye, Mbut, 086	0	0	0	0	0	0	0	0
Bouilly M'Guire, Mbut, 568	0	0	0	0	0	0	0	0
Boudama Sarningues, Mbut, 097	0	0	0	0	0	0	0	0
Dulouabone Soninke, Selib, 069	0	0	0	2	0	0	0	0
Gourel Dialoubes, aband (Veing	0	0	0	0	0	0	0	0
Arsane, Selibaby, 040	0	0	0	0	0	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0	0	0	0	0	0
Hassi Bagara, Selibaby, 035	0	0	0	0	0	0	0	0
** TOTAL **	114	35	10	22	14	7	3	4

were included in the general category of retail shops, not that they do not exist. In the villages they do not exist.) Only at four points can one buy fuel, find a mechanic or buy spare parts. Still, this represents growth--a decade ago there were none.

Tailors and bakers seem to be the most widespread of recently developing professions. Wheat bread was available only in Kaedi five years ago, and not even there a decade earlier. Now its consumption is spreading quickly even in rural areas, with wheat flour coming in regularly as food aid. Since Mauritania has limited potential wheat growing capacity (wheat is an experimental irrigated winter crop), growing consumer demand for bread could have negative economic consequences.

Repeating the questions in Tables 26-29 five years from now will be the easiest way to measure trends in the non-agricultural economy.

5.4 Quality of Life Indicators

A better road is expected to improve the quality of life. Given that it cannot bring rain, which is what this area needs most, this section looks at other measures of basic human needs. Most of our inventory of villages facilities and amenities has already been discussed in connection with various areas of the economy. It is important to note, however, that local people see a shop or a restaurant as an amenity, a sign of progress, not just an economic activity of the proprietor. Turning our approach around the same way, the first aspect of quality of life to be discussed is the retail economy--from the shoppers perspective rather than the businessman's or economist's. Next

come communications, domestic water supply and electricity, housing types, and religious institutions. Finally, there is a discussion of possible negative side-effects of road improvement that will come with growth--increased road accidents and environmental degradation.

Table 30, showing items available vs. unavailable in local markets, and where people have to go to buy what is not there should be studied alongside Tables 7, 10, and 14, which show the distance, means of transport, time and cost of getting there. One sees, for example, in Table 30 that people living in Agoynit have to go to Selibaby if they want to buy fresh vegetables or fish. From Table 14, showing that the nearest secondary school is also in Selibaby, one can see that it is 55 km. away, and it takes 24 hours to get there. That means they go by horsecart or on a pack-animal. No one from Agoynit goes to secondary school. It is probably a rare treat to have fish or vegetables, too, even if a migrant is sending home money to buy food.

The two Tachott's are slightly better off. Two transporters occasionally stop there (Table 12), in which case one can go the 35 km. to Selibaby to buy cloth or construction materials in about an hour. There are also 15 horsecarts in the two villages; they take three hours each way. One can rent a cart for the day for 500 UM (\$6.67), or pay the truck driver 100-200 UM each way plus 100 UM (\$1.33) for each 50 kg. sack of cement. Overall it makes for rare shopping trips and slow construction.

We asked an open ended question as to the positive and negative expectations people had about the road project. The most common response was that it would open up the area. One

sensed that isolation weighs heavily psychologically. Table 31 helps understand the problems of communication in the region. There are three post offices, one in each departmental capital, and only one telephone line, at Kaedi. One can wait a day or more to get a call through. Development projects and administrative services use two-way radios that are not very effective even for them, and are not available to the public. Migrants, who are normally away for at least two years at a time, have no sure means of communicating with their families or sending them goods or money.

Emergency help cannot be called. A personal experience illustrates the problem. In 1980 while I was visiting the Gorgol Irrigation project run by SONADER at Kaedi, a storm weakened the dikes. Seven hundred hectares of rice were being cultivated for the first time after years of trying. The radio did not work, so I ended up hand carrying an SOS to headquarters in Nouakchott. The heavy equipment to repair the dikes could not be gotten there in time. The dike broke a week later, flooding out the whole project.

Domestic water supply is a more immediate daily problem. Table 32 shows water sources, their distance from the center of the village, the time spent drawing water each trip, and the number of months per year that a village can count on its water supply. Most villages draw from the river or from open earthen wells in oeds. Many have invested in cement wells, but pumps and water towers are still quite rare. Kaedi has a piped water system serving much of the city, and Selibaby is putting one in.

Table 30. Consumer's Retail Purchases

Locality	Items Available Locally	Items Unavailable	Where Bought
Kaedi, Kaedi, 000	Full range of retail trade, including appliances, stationery, farm machinery, books, cheese, fruits		Nouakchott, Dakar
Seyyene Gababe, Kaedi, 016	Rice, sugar, tea, oil, tomato, soap, vegetables, salt, sour milk	Cooking utensils, agricultural inputs, cloth	Kaedi
Seyyene Wouro Molo, Kaedi, 017	Sugar, tea, oil, tomato, etc.	Clothing, household utensils, agricultural inputs	Kaedi
Toulde Bally, Kaedi, n.a.	None	All purchases	Kaedi or Ganki
Ganki, Kaedi, 018	Basic foods, fish, milk, tobacco, childrens clothes, shoes, tea, niebe	Cloth, cement, corrugated metal, wood, blankets, incense	Kaedi or Lexeiba
Lexeiba, Kaedi, 019	Basic foods and necessities, shoes, cloth, soap	Cooking utensils	Kaedi, Nouakchott
Winde Boki, Kaedi, 053	Rice	Everything	Lexeiba
Wouro Sabbar, Kaedi, 052	Nothing	Sugar, tea, oil, rice, other foods, cloth	Guld Rany
Guld Rany, Kaedi, 050	Sugar, tea, coffee, rice, oil and other basic foods, cloth		Lexeiba or Kaedi
Tinrame, Kaedi, 049	A little sugar and tea	Rice, wheat, oil, butter, clothing	Foum Gleita or Lexeiba
Ndaa, Kaedi, n.a.	Nothing	Basic foods and necessities, household utensils, clothing	Mbout
Kow Dimje, Mbout, 021	Sugar, tea, rice, cookies, millet	Basic foods and necessities, household utensils, clothing	Mbout
Mbout, Mbout, 000	All basics, wheat, millet, corn, cloth, butter, coffee, shoes, mats, tobacco, cigarettes	Luxuries, appliances	Kaedi or Nouakchott
Diadjibine Gandega, Mbout, 088	Basic necessities and foods, some clothing	Household utensils, most clothing	Kaedi
Boudama Safalbe, Mbout, 089	A little tea and sugar	Basic foods and necessities, clothing, household utensils	Diadjibine, Mbout, Selibaby
Boudama Abou Dioulde, Mbout n.a	None	Basic foods and necessities, clothing	Diadjibine
Boudama Wouro Soibe, Mbout n.a	None	Basic foods and necessities, clothing	Diadjibine
Boudama Wouro Demba, Mbout n.a	None	Basic foods and necessities, clothing	Mbout, Diadjibines
Agoynit, Selibaby, 050	Sugar, rice, oil, flour, tea and other basic food items.	Fish, vegetables	Selibaby
Artouma, Selibaby, 068	Sugar, tea, milk, rice, millet, oil	Construction materials, cloth	Selibaby, KNTT, Kaedi
Tachott Birane, Selibaby, 056	Rice, sugar, oil, etc.	Construction materials, cloth	Nouakchott, Selibaby
Tachott Botokholo, Selibaby, 057	Basic necessities	Household utensils	Selibaby
Hel Saloue, Selibaby, 059	Sugar, tea, milk	Rice, oil, cloth	Selibaby
Zreigatt, Selibaby, 063	Sugar, tea, sometimes rice	Basic foods and necessities, cloth	Selibaby, Tachott
Keninkourou, Selibaby, 060	Basic foods and necessities, some clothing	Rice, oil, cloth	Selibaby

Table 30. Consumer's Retail Purchases

Locality	Items Available Locally	Items Unavailable	Where Bought
Selibaby, Selibaby, 000	SONIMEX items, foodstuffs (retail), radios, mattresses, cloth, shoes, flour, fuel, soap, soft drinks	wholesale foodstuffs and fuel, fresh vegetables, dairy products	Nouakchott, Bakel
Toumbere Dingue, Kaedi, 026	Rice, Sugar, tea, oil, coffee, macaroni, salt, onions, beans, milk, tomato, soap, tobacco	Cloth	Kaedi, Djeol
Talhaya, Kaedi, 023	Sugar, rice, millet, oil, cloth, soap	Sea fish, dried fish, vegetables, plows, seeds, peanuts	Kaedi, Senegal, Nouakchott, Mali
Tetiane, Kaedi, 032	Sugar, tea, rice, canned foods	Household utensils, clothing	Kaedi, Senegal
Koundel Rec, Kaedi, 036	sugar, rice, oil, etc.	Cloth, cooking utensils	Kaedi, Matan
Mouro Seno, Kaedi, 051	None	Everything purchased	Lexeiba, Kaedi
Foua Gleita, Mbout, 032	rice, oil, tomato, cloth, dried fish, onions, vegetables, shoes, tobacco	Household utensils	Kaedi, Matan
Kerkedaye, Mbout, 086	A little tea and sugar	Rice, oil, cloth, household utensils	Diadjibine, Mbout
Bouilly M'Guero, Mbout, 568	Very little tea, sugar, soap	Clothing, rice, oil, household utensils	Mbout
Boudana Sarningues, Mbout, 097	None	Sugar, tea, rice, oil, household utensils, clothing	Mbout, Selibaby
Duloumbone Soninke, Selib, 069	Sugar, oil, rice, tea, etc.	Construction materials, cloth, fresh fish, vegetables	Selibaby, Kaedi, Nouakchott
Gourel Dialoubes, aband (Velng Areane, Selibaby, 040	None	Basic foods, necessities, clothing	Atar
Hel Aly Niarwal, Selibaby, 045	None	Basic foods and necessities, clothing	Atar, Selibaby
Hassi Bagara, Selibaby, 035	Sugar, tea, oil, etc.	Rice, cloth	Selibaby

Table 31. Communications

Locality	Post Office	Transistor Radio Ownership %
Kaedi, Kaedi, 000	1	100
Seyyene Gababe, Kaedi, 016	0	70
Seyyene Wouro Molo, Kaedi, 017	0	50
Toulde Bally, Kaedi, n.a.	0	15
Ganki, Kaedi, 018	0	70
Lexeiba, Kaedi, 019	0	50
Winde Boki, Kaedi, 053	0	4
Wouro Sabbar, Kaedi, 052	0	18
Ould Ramy, Kaedi, 050	0	20
Tintrame, Kaedi, 049	0	100
Ndam, Kaedi, n.a.	0	100
Kow Dimje, Mbout, 021	0	15
Mbout, Mbout, 000	1	100
Diadjibine Gandega, Mbout, 088	0	100
Boudama Safalbe, Mbout, 089	0	30
Boudama Abou Dioulde, Mbout n.a	0	25
Boudama Wouro Soibe, Mbout n.a	0	10
Boudama Wouro Demba, Mbout n.a	0	12
Agoynit, Selibaby, 050	0	45
Artouna, Selibaby, 068	0	80
Tachott Birane, Selibaby, 056	0	30
Tachott Botokholo, Selibaby, 057	0	40
Hel Saloum, Selibaby, 059	0	20
Zreigatt, Selibaby, 063	0	30
Keninkourou, Selibaby, 060	0	40
Selibaby, Selibaby, 000	1	50
Toumbere Dingue, Kaedi, 026	0	15
Talhaya, Kaedi, 023	0	70
Tetiane, Kaedi, 032	0	10
Koundel Reo, Kaedi, 036	0	60
Wouro Semo, Kaedi, 051	0	20
Foum Gleita, Mbout, 032	0	90
Kerkedaye, Mbout, 086	0	3
Bouilly N'Guero, Mbout, 568	0	17
Boudama Sarningues, Mbout, 097	0	14
Ouloumbone Soninke, Selib, 069	0	20
Gourel Dialoubes, aband (Velng	0	0
Arsane, Selibaby, 040	0	20
Hel Aly Niarwal, Selibaby, 045	0	12
Hassi Bagara, Selibaby, 035	0	30
** TOTAL **	3	

Table 32. Domestic Water Supply and Electricity

Locality	Months/ Year of Water	Cement Well	Earth Well	River /Ouad	Pump or Water Tower	Distance to Source Km.	Electrical Generators
Kaedi, Kaedi, 000	12.00	20	20	20	1	0.000	25
Seyyene Sababe, Kaedi, 016	11.00	1	0	0	0	0.000	0
Seyyene Mouro Molo, Kaedi, 017	12.00	1	0	0	0	0.050	0
Toulde Bally, Kaedi, n.a.	9.00	0	1	0	0	0.400	0
Sanki, Kaedi, 018	12.00	2	1	0	0	0.000	0
Lexeiba, Kaedi, 019	12.00	7	0	0	0	0.000	0
Winde Bcki, Kaedi, 053	12.00	0	1	1	0	5.000	0
Mouro Sabbar, Kaedi, 052	3.00	0	1	0	0	3.000	0
Ould Raay, Kaedi, 050	2.80	0	1	0	0	2.000	0
Tinrane, Kaedi, 049	3.80	0	1	0	0	3.000	0
Ndam, Kaedi, n.a.	12.00	0	1	0	0	0.100	0
Kom Dimje, Mbout, 021	12.00	0	5	0	0	1.000	0
Mbout, Mbout, 000	12.00	2	0	0	1	0.300	0
Diadjibine Gandega, Mbout, 088	11.70	5	0	0	0	0.300	0
Boudama Safalbe, Mbout, 089	12.00	0	0	1	0	3.000	0
Boudama Abou Dioulde, Mbout n.a	12.00	0	0	1	0	3.000	0
Boudama Mouro Soibe, Mbout n.a	12.00	0	1	1	0	0.300	0
Boudama Mouro Demba, Mbout n.a	12.00	0	1	1	0	0.300	0
Agaynit, Selibaby, 050	11.90	4	5	0	0	0.000	0
Artouma, Selibaby, 068	12.00	2	0	0	0	0.500	0
Tachott Birane, Selibaby, 056	12.00	2	5	0	2	0.001	0
Tachott Botokholo, Selibaby, 057	12.00	1	7	0	0	0.400	0
Hel Saloua, Selibaby, 059	12.00	1	0	0	0	0.500	0
Zreigatt, Selibaby, 063	3.50	0	1	1	0	0.600	0
Keninkourou, Selibaby, 060	11.90	3	0	0	0	0.050	0
Selibaby, Selibaby, 000	12.00	2	10	1	1	0.000	6
Toumbere Dingue, Kaedi, 026	12.00	1	4	1	0	0.050	0
Talhaya, Kaedi, 023	12.00	2	0	1	0	0.000	0
Tetiane, Kaedi, 032	12.00	1	0	1	0	0.000	0
Koundel Reo, Kaedi, 036	12.00	0	0	1	0	0.000	0
Mouro Seno, Kaedi, 051	12.00	0	1	1	0	2.000	0
Foua Gleita, Mbout, 032	12.00	0	0	0	1	0.000	1
Kerkedaye, Mbout, 086	12.00	0	1	1	0	2.000	0
Bouilly M'Guire, Mbout, 568	12.00	0	1	1	0	0.600	0
Boudama Sarningues, Mbout, 097	12.00	0	1	1	0	1.000	0
Ouloumbone Soninke, Selib, 069	12.00	4	1	0	0	0.100	0
Gourel Dialoubes, aband (Veing	0.00	0	0	0	0	0.000	0
Arsane, Selibaby, 040	12.00	0	1	0	0	1.000	0
Hel Aly Niarwal, Selibaby, 045	12.00	0	1	1	0	0.500	0
Hassi Bagara, Selibaby, 035	12.00	2	0	0	0	0.100	0
** TOTAL **		63	73	36	6		52

Table 33. Housing Types

Locality	Cement Block	Mud Brick	Mud & Wattle	Tent	Leanto	All Types
Kaedi, Kaedi, 000	0	0	0	0	0	0
Seyyene Gababa, Kaedi, 016	0	4	58	0	0	62
Seyyene Wouro Molo, Kaedi, 017	0	1	105	8	0	114
Toulde Bally, Kaedi, n.a.	0	0	0	0	0	21
Ganki, Kaedi, 018	2	95	11	0	0	108
Lexeiba, Kaedi, 019	4	1000	50	250	0	1304
Winde Boki, Kaedi, 053	0	0	23	0	0	23
Wouro Sabbar, Kaedi, 052	0	0	11	0	0	11
Ould Ramy, Kaedi, 050	0	6	30	0	0	36
Tintrame, Kaedi, 049	0	0	8	1	0	9
Ndam, Kaedi, n.a.	18	15	0	0	0	33
Kow Dinje, Mbout, 021	0	60	50	0	0	110
Mbout, Mbout, 000	14	1800	0	0	0	1814
Diadjibine Gandeja, Mbout, 088	1	800	0	0	0	801
Boudama Safalbe, Mbout, 089	0	50	12	0	0	62
Boudama Abou Tioulde, Mbout n.a.	0	0	4	0	0	4
Boudama Wouro Soibe, Mbout n.a.	0	0	8	0	0	8
Boudama Wouro Demba, Mbout n.a.	0	0	8	0	0	8
Agoynit, Selibaby, 050	0	600	0	0	0	600
Artouma, Selibaby, 068	0	200	40	0	0	240
Tachott Birane, Selibaby, 056	0	300	0	0	0	300
Tachott Botokholo, Selibaby, 057	22	566	5	0	0	593
Hel Saloum, Selibaby, 059	0	17	6	0	0	23
Zreigatt, Selibaby, 063	0	0	0	0	0	0
Keninkourou, Selibaby, 060	0	0	0	0	0	0
Selibaby, Selibaby, 000	0	0	0	0	0	0
Toumbere Dingue, Kaedi, 026	0	55	80	0	0	135
Talhaya, Kaedi, 023	1	244	24	0	0	269
Tetiane, Kaedi, 032	2	10	178	0	0	190
Koundel Reo, Kaedi, 036	8	156	95	0	0	259
Wouro Semo, Kaedi, 051	0	0	5	0	0	5
Foum Gleita, Mbout, 032	72	1100	78	0	0	1250
Kerkedaye, Mbout, 086	0	220	0	0	0	220
Bouilly N'Guero, Mbout, 568	0	0	18	0	0	18
Boudama Sarningues, Mbout, 097	0	8	63	0	0	71
Duloumbone Soninke, Selib, 069	2	208	0	0	0	210
Gourel Dialoubes, aband (Velng	0	0	0	0	0	0
Arsane, Selibaby, 040	0	0	32	0	0	32
Hel Aly Niarwal, Selibaby, 045	0	19	20	0	0	39
Hassi Bagara, Selibaby, 035	0	100	20	0	0	120
** TOTAL **	146	7634	1042	259	0	9102

Table 34. Mosques and Quranic Teachers

Locality	Mosques	Quranic Teachers
Kaedi, Kaedi, 000	5	20
Seyyene Gababe, Kaedi, 016	1	2
Seyyene Wouro Molo, Kaedi, 017	1	1
Toulde Bally, Kaedi, n.a.	0	1
Ganki, Kaedi, 018	0	1
Lexeiba, Kaedi, 019	1	0
Winde Boki, Kaedi, 053	1	0
Wouro Sabbar, Kaedi, 052	0	0
Ould Ramy, Kaedi, 050	0	0
Tintrame, Kaedi, 049	1	0
Ndam, Kaedi, n.a.	1	0
Kow Dimje, Mbout, 021	1	2
Mbout, Mbout, 000	1	4
Diadjibine Gandega, Mbout, 088	2	3
Boudama Safalbe, Mbout, 089	1	0
Boudama Abou Dioulde, Mbout n.a	1	0
Boudama Wouro Soibe, Mbout n.a	1	0
Boudama Wouro Demba, Mbout n.a	0	0
Agoynit, Selibaby, 050	1	4
Artouma, Selibaby, 068	1	2
Tachott Birane, Selibaby, 056	2	6
Tachott Botokholo, Selibaby, 057	2	2
Hel Saloum, Selibaby, 059	1	0
Zreigatt, Selibaby, 063	0	4
Keninkourou, Selibaby, 060	2	4
Selibaby, Selibaby, 000	2	5
Toumberé Dingue, Kaedi, 026	1	1
Talhaya, Kaedi, 023	2	1
Tetiane, Kaedi, 032	1	1
Koundel Reo, Kaedi, 036	1	1
Wouro Semo, Kaedi, 051	0	0
Foum Gleita, Mbout, 032	1	1
Kerkedaye, Mbout, 086	1	0
Bouilly N'Guero, Mbout, 568	1	0
Boudama Sarningues, Mbout, 097	1	0
Ouloumbone Soninke, Selib, 069	1	3
Gourel Dialoubes, aband (Velng	0	0
Arsane, Selibaby, 040	1	0
Hel Aly Niarwal, Selibaby, 045	1	1
Hassi Bagara, Selibaby, 035	1	1
** TOTAL **	42	71

Table 35. Road Accidents in Last 12 Months

Locality	Accidents	Dead	Wounded
Kaedi, Kaedi, 000	10	0	7
Seyyene Gababe, Kaedi, 016	0	0	0
Seyyene Wouro Molo, Kaedi, 017	0	0	0
Toulde Bally, Kaedi, n.a.	0	0	0
Ganki, Kaedi, 018	4	2	3
Lexeiba, Kaedi, 019	3	0	3
Winde Boki, Kaedi, 053	0	0	0
Wouro Sabbar, Kaedi, 052	0	0	0
Ould Ramy, Kaedi, 050	0	0	0
Tintrame, Kaedi, 049	0	0	0
Ndam, Kaedi, n.a.	0	0	0
Kow Dimje, Mbout, 021	0	0	0
Mbout, Mbout, 000	8	1	13
Diadjibine Gandega, Mbout, 088	0	0	0
Boudama Safalbe, Mbout, 089	0	0	0
Boudama Abou Dioulde, Mbout n.a	0	0	0
Boudama Wouro Soibe, Mbout n.a	0	0	0
Boudama Wouro Demba, Mbout n.a	0	0	0
Agoynit, Selibaby, 050	0	0	0
Artouma, Selibaby, 060	0	0	0
Tachott Birane, Selibaby, 056	1	0	0
Tachott Botokholo, Selibaby, 057	0	0	0
Hel Saloum, Selibaby, 059	0	0	0
Zreigatt, Selibaby, 063	0	0	0
Keninkourou, Selibaby, 060	0	0	0
Selibaby, Selibaby, 000	1	0	0
Toumbere Dingue, Kaedi, 026	0	0	0
Talhaya, Kaedi, 023	2	0	2
Tetiane, Kaedi, 032	0	0	0
Koundel Reo, Kaedi, 036	2	0	2
Wouro Semo, Kaedi, 051	0	0	0
Foum Gleita, Mbout, 032	1	0	0
Kerkedaye, Mbout, 086	0	0	0
Bouilly N'Guero, Mbout, 568	0	0	0
Boudama Sarningues, Mbout, 097	0	0	0
Duloumbone Soninke, Selib, 069	0	0	0
Gourel Dialoubes, aband (Velng	0	0	0
Arsane, Selibaby, 040	0	0	0
Hel Aly Niarwal, Selibaby, 045	0	0	0
Hassi Bagara, Selibaby, 035	0	0	0
** TOTAL **	32	3	30

In general villages grow up on sites where there is water all year round. Column one of the table shows that there are exceptions. Several localities have not enough water towards the end of the dry season, and four small villages have no water available locally except in the flood season.

Electricity is available only from generators, and only in Kaedi is electricity sold to the public. The other generators in the region belong to institutions.

Housing typology is difficult to approach from a strictly statistical point of view, despite Table 33. According to received wisdom, a tin-roofed cement block house is counted a sign of improved quality of life, compared to mud-brick adobe. Eighty-four percent of the housing surveyed was adobe, while only 1.4% was cement block. What that does not tell is how extraordinarily beautiful and solid are the spacious adobe homes of Keninkourou, with their sculpted patios. Even the more rudimentary mud-brick structures in poorer villages are cooler and quieter than the new type. So the statistics are merely presented, not interpreted as an index. We were not able to do housing censuses in Kaedi and Selibaby, but these were done a few months earlier by the Agricultural Census, whose data may be available soon.

Cultural life in the Gorgol and Guidimaka focuses around the mosque. Nearly every village has one. Several wealthier villages have built or are building new concrete mosques, more elaborate in architecture than the traditional Sahelian adobe. There are more Quranic teachers in our sample than any other profession except agriculture and trade. Many men, incidentally,

do all three. Eighty-two percent of the Mauritanian population has received only a rudimentary introduction to the Quran, 9.9% has completed the study of the Quran, and another 8.1% has done more advanced religious studies. (1977 Census, I: 61) There are no separate figures for religious education in the Gorgol and Guidimaka. In secular education, these two areas lagged far behind, with 9.2 and 6.9% literacy respectively, against a national average of 18.2%.

In open discussions of the road improvement, problems of maintenance, and possible negative side-effects, the reactions were universally strongly pro-road. One village had collected a fund to build its own road improvements. Others discussed how they might organize to clean drains to keep roads from washing away. The only negative comments concerned the technical quality of the construction, and whether it would resist erosion better than its predecessors. Some also commented that the steep shoulders on parts of the Mhout-Selibaby road were likely to cause avoidable accidents.

Road accidents have totalled 32 in the last year in sample localities, with three dead and thirty wounded. That total is likely to go up as traffic volume increases.

Environmental degradation seems to be a truly peripheral concern. The road bed will not take out much vegetation, even where it is moved to a new course--there are not many trees left. An ancillary degradation often occurs around roads in Africa, when they allow the charcoal industry to spread and cut into

woodlands. There is a charcoal industry, currently operating especially around Maghama. But there is so much dead wood lying on the ground along the roadside that it could fuel the charcoal industry a long time before live trees need be attacked. Given the acute natural environmental degradation taking place, the ideal would be to use the improved road link to facilitate the foresters' environmental protection work.

Reference Notes

1 United States Agency for International Development, "Mauritania Rural Roads Improvement, Project Paper," (Nouakchott, September 1982).

2 USAID/Nouakchott Food for Peace Office.

3 Ministere de l'Economic et des Finances, Projet RAMS, Mission d'etudes et d'evaluation du secteur rural et des ressources humaines: Production rurale, OP 5 (Nouakchott, 1981), pp. 34-41.

4 USAID/Nouakchott, "Mauritania Rural Roads, Project Paper," D.10.

5 G. William Anderson and Charles G. Vandervoort, Rural Roads Evaluation Summary Report, USAID program evaluation report no. 5 (Washington, D.C., March 1982).

6 Ministere du Developpement Rurale, Service Statistique, "Etude de la circulation a la sortie de Nouakchott," unpublished ms. November-December 1984.

7 Anderson and Vandervoort, Rural Roads Evaluation.

8 Ministere du Developpement Rurale, Service Statistique, "Recensement Agricole 1984-85." The raw data was graciously made available to us; data processing is now in progress.

9 Verbal communication, Lewis Eldridge, Morrison and Meierly, Inc., about construction camp.

10 The research literature on outmigration from the Senegal River Basin area is reviewed in Lucie G. Colvin, "When the Young Men Leave and the Old Return: Development Policy in an Area of Intense Outmigration, the Upper Senegal River Valley," in University of Delaware, Technological Change and Rural Development in Developing Countries, Proceedings of Title XII Conference May 3-4, 1982. (A copy is enclosed)

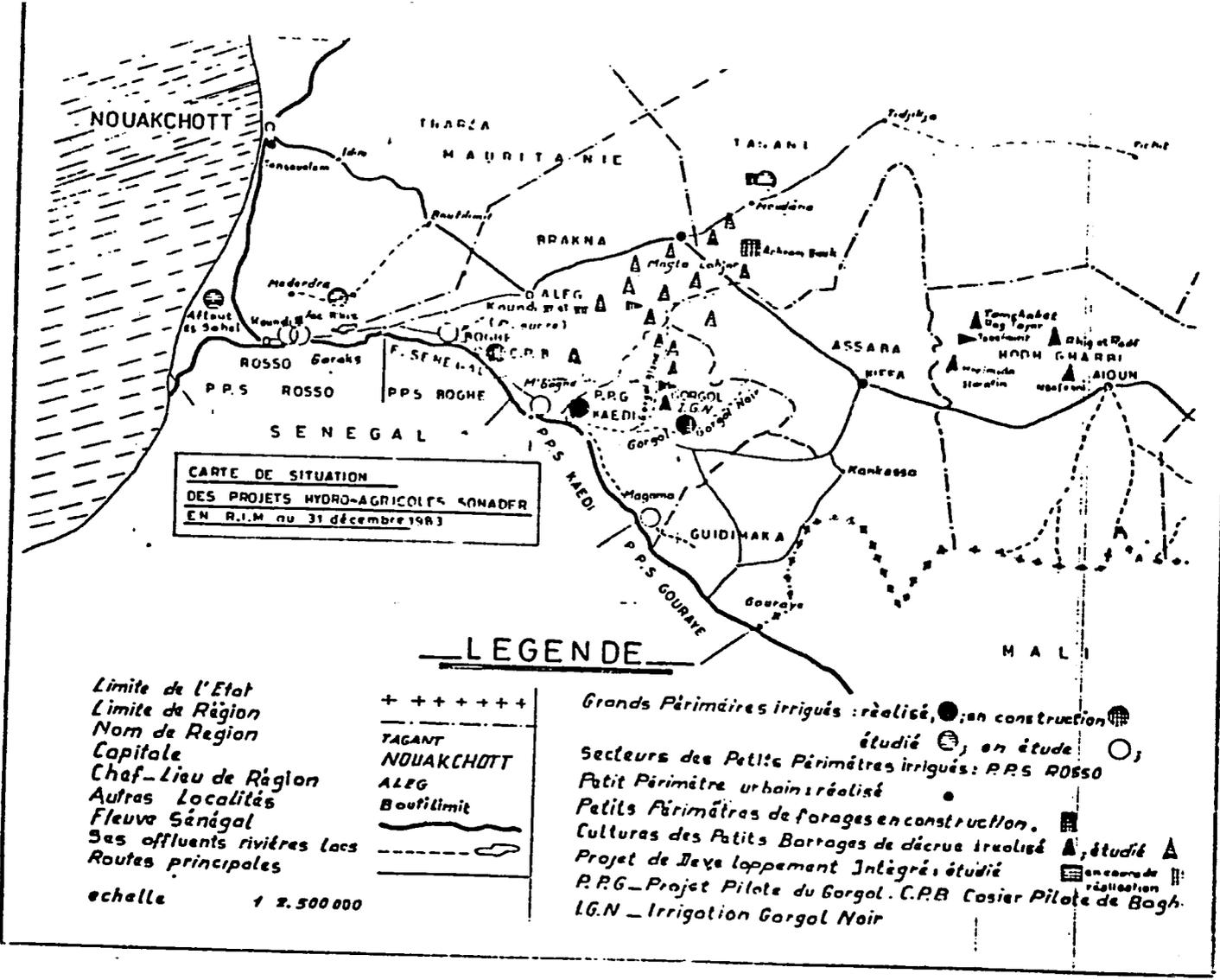
11 Ibid.

12 Ibid.

13 Boutilier, Jean et al. La Moyenne Vallee du Senegal: etude socio-economique, (Paris: INSEE/Presses Universitaires de France, 1962).

14 Jean Yves Weigel, "Mode de migration et systeme de production soninke," (Thesis, IIIe cycle, Univ. de Paris I, 1979), p. 42, graph in Colvin, p. 142.

MPA 1. Irrigation in the Senegal River Basin



CARTE DE SITUATION
DES PROJETS HYDRO-AGRICULTS SONADER
EN R.I.M au 31 décembre 1983

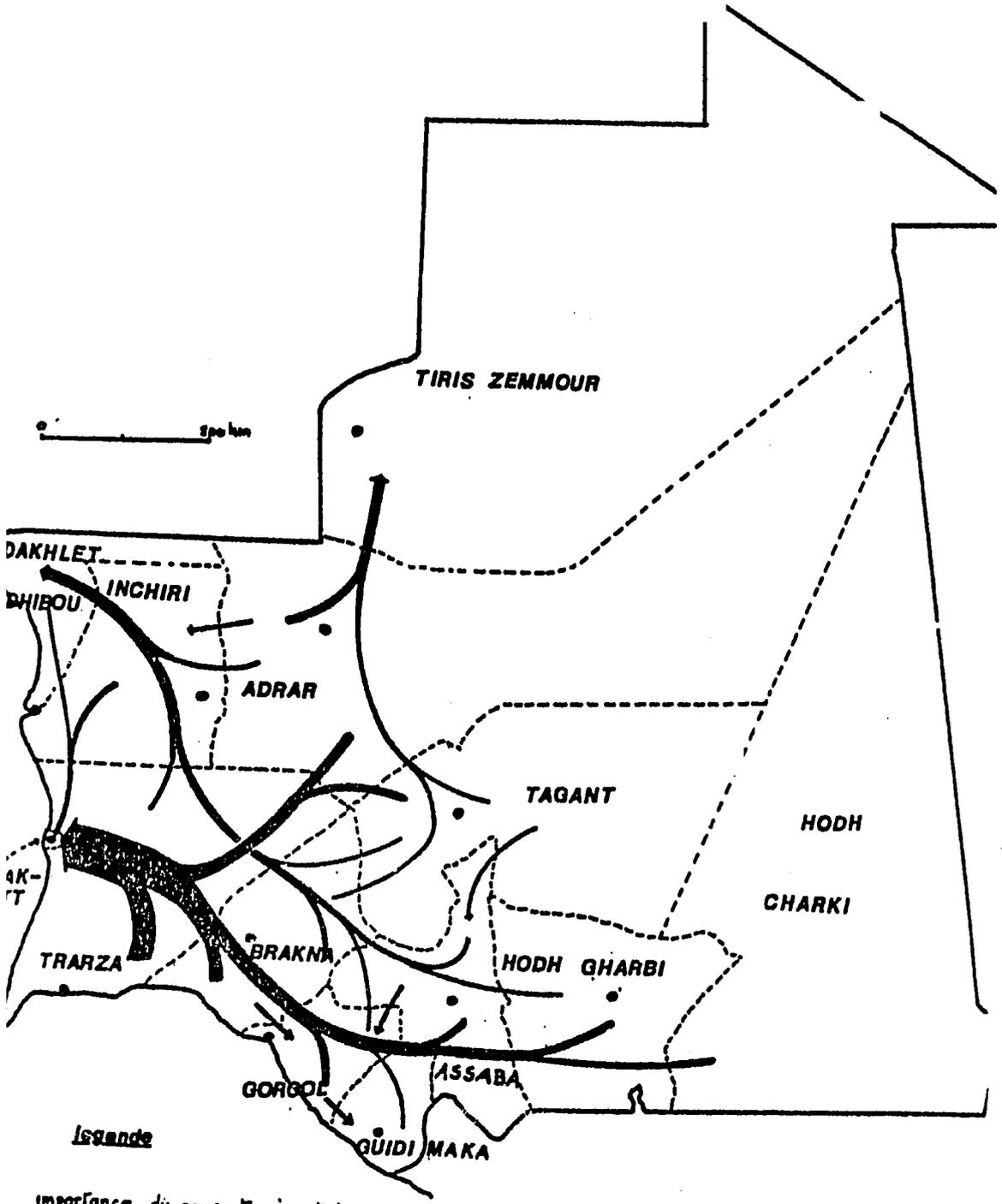
LEGENDE

Limite de l'Etat
 Limite de Région
 Norm de Region
 Capitale
 Chef-Lieu de Région
 Autres Localités
 Fleuve Sénégal
 Ses affluents rivières lacs
 Routes principales
 échelle 1 : 2.500.000

+ + + + + + + Grande Périmètres irrigués : réalisé, ● en construction, ○ étudié
 TAGANT
 NOUAKCHOTT
 ALEG
 Boufilitmit
 Secteurs des Petits Périmètres irrigués: P.P.S. ROSSO
 Petit Périmètre urbains réalisés ●
 Petits Périmètres de forages en construction, ■
 Cultures des Petits Barrages de dérue réalisés ▲, étudié ▲
 Projet de Devs loppement Intégrés étudié ■ en cours de réalisation ■
 P.P.G - Projet Pilote du Gorgol. C.P.B Casier Pilote de Bagh.
 I.G.N - Irrigation Gargol Noir

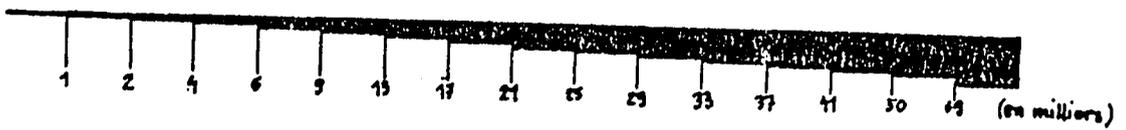
**COURANTS NETS ENTRE REGIONS DE RECENSEMENT
ET REGIONS ANTERIEURES DE RESIDENCE
(Personnes recensées sédentaires en 1977)**

MAP 2



Islande

importance du courant migratoire net en effectif

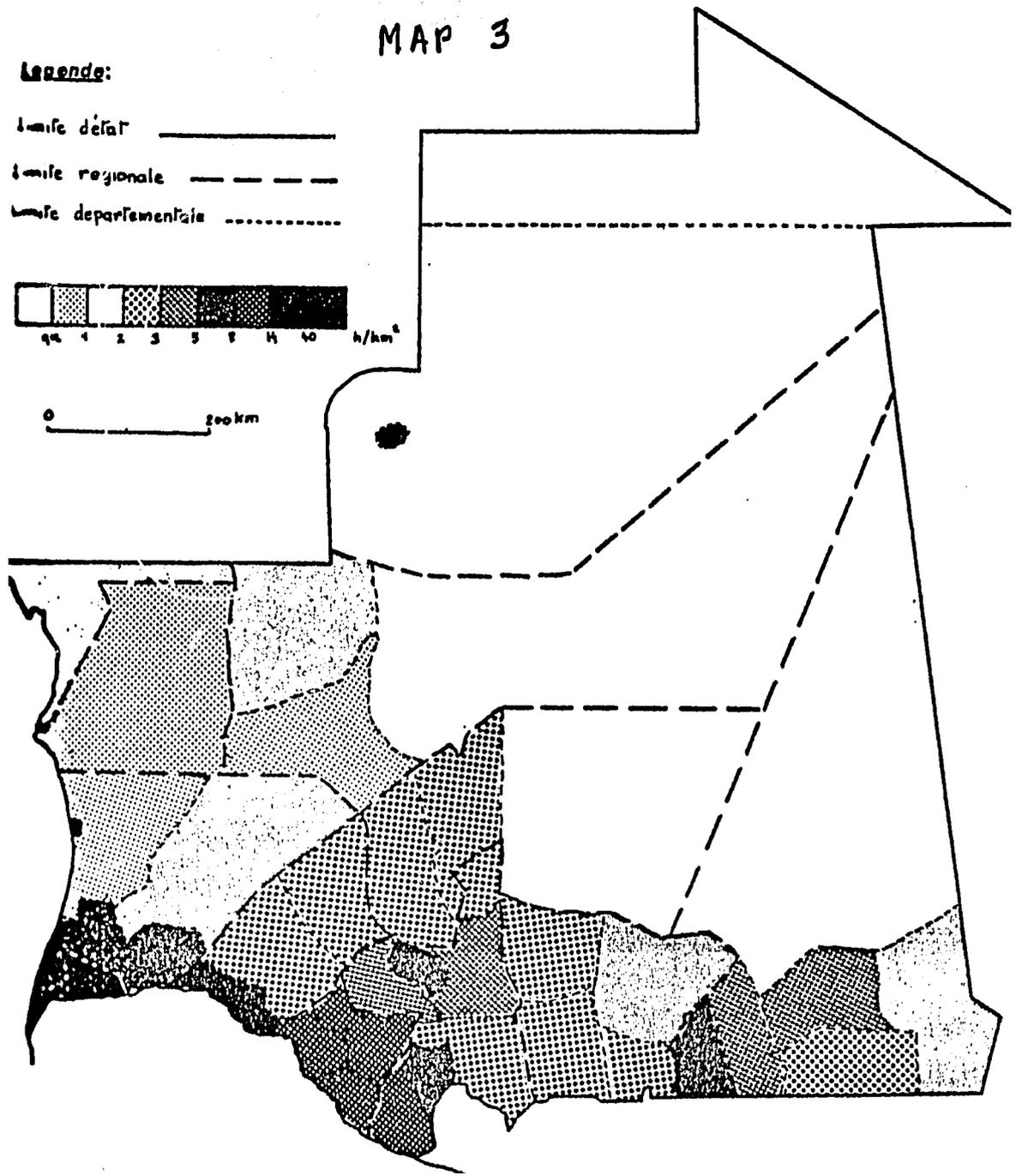
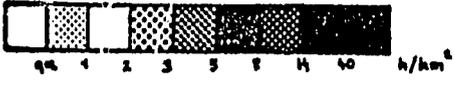


DENSITE DE POPULATION PAR DEPARTEMENT

MAP 3

Legende:

- Limite de l'état _____
- Limite régionale - - - - -
- Limite départementale ······



10
pl
i
on

sés
es
ial
eri
ini

Ti:
ion
ce

s

fec

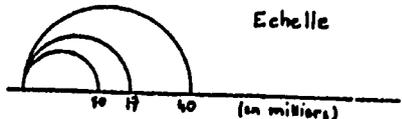
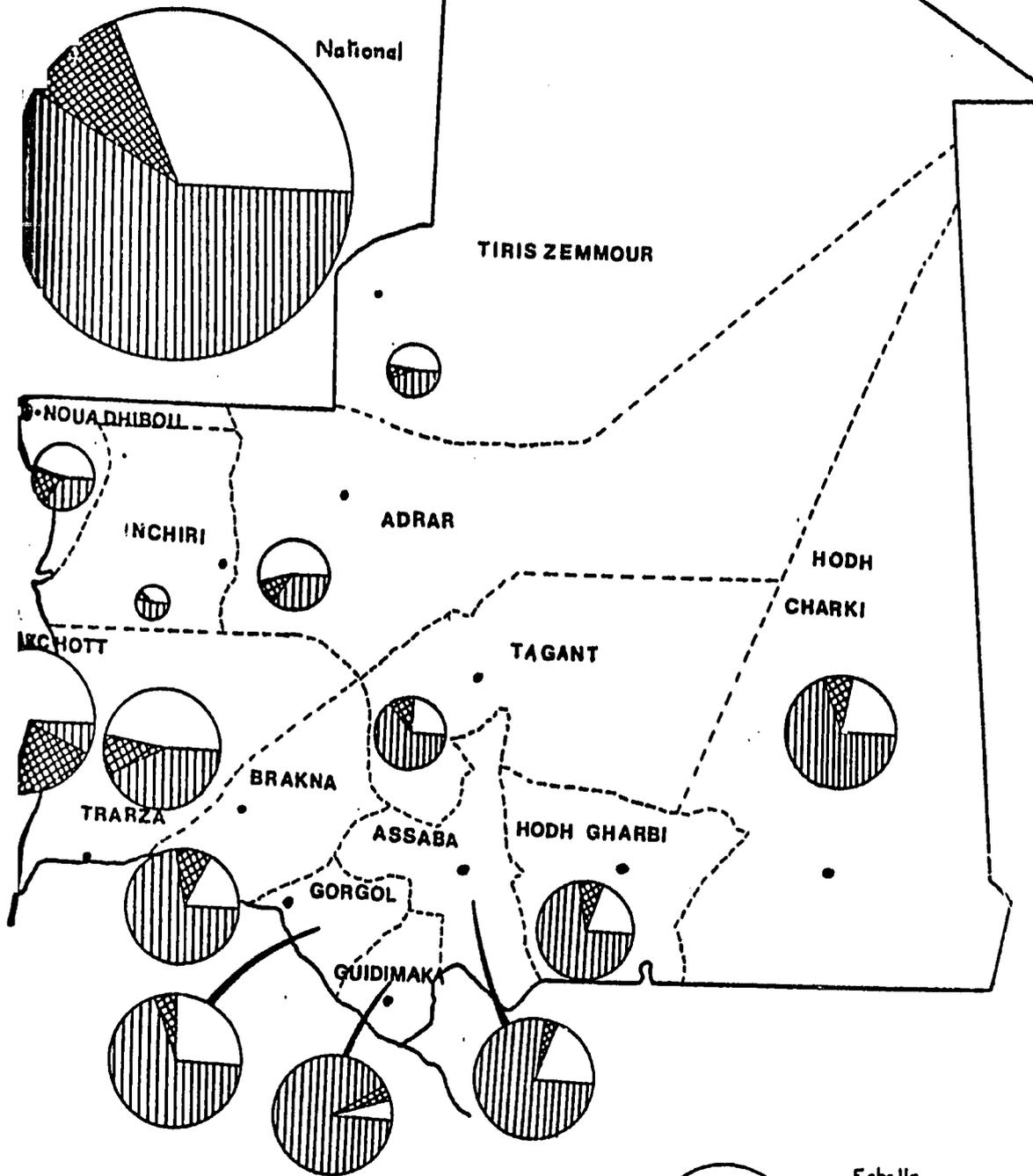
POPULATION SEDENTAIRE ACTIVE PAR GRAND SECTEUR D'ACTIVITE

MAP 4

Légende

-  Secteur primaire
-  Secteur secondaire
-  Secteur tertiaire

0 200 km



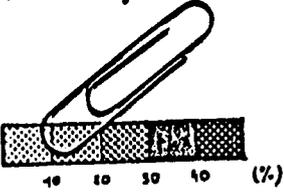
MAP 5

TAUX D'ALPHABETISME PAR REGION (%)
(pour les deux sexes)

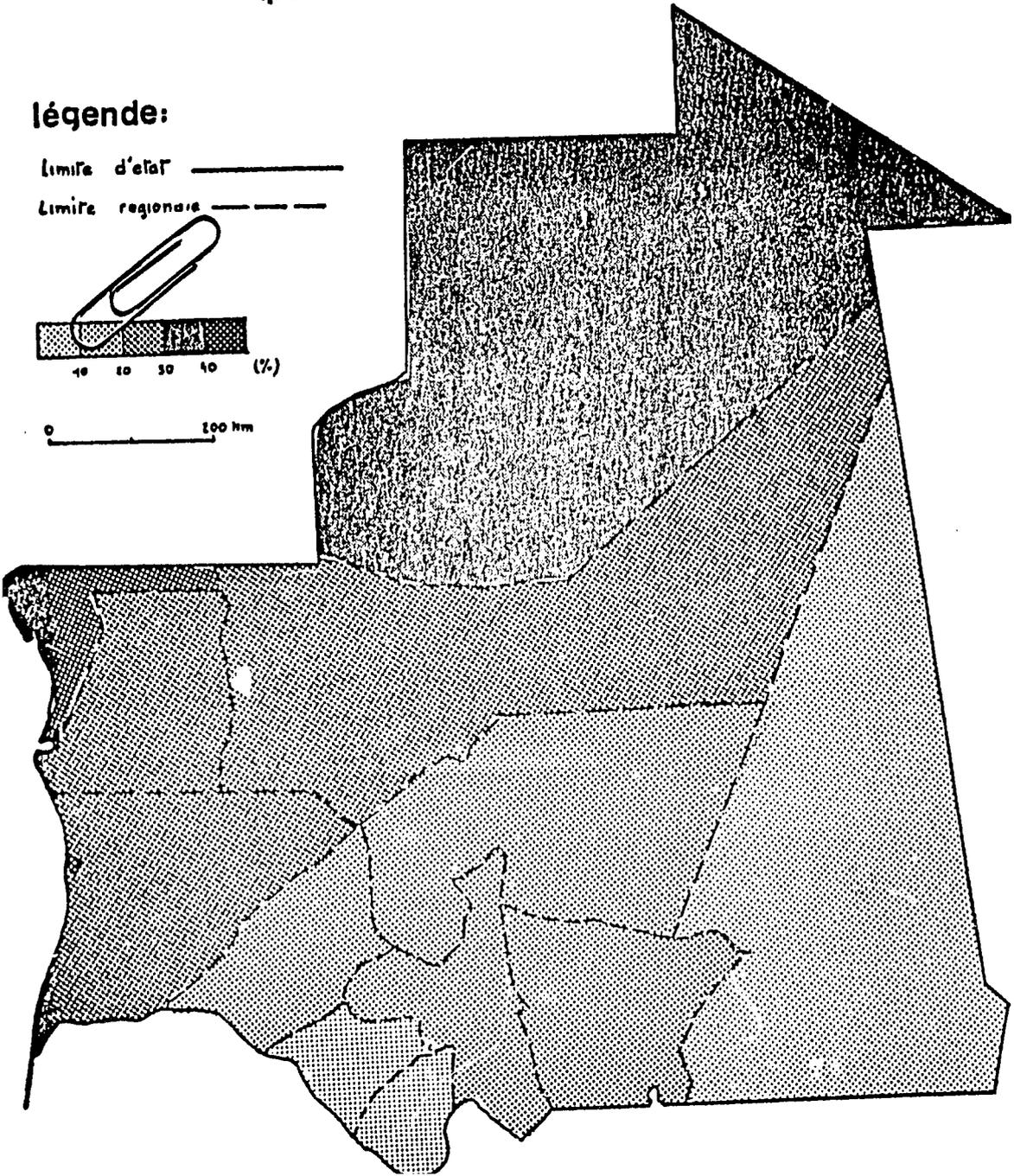
légende:

limite d'état _____

limite régionale - - - - -



0 100 km



Appendix A

**Indices of Socio-Economic
Impact of Roads**

ECONOMIC IMPACT

	Sierra Leone	Colombia	Liberia	Jamaica	Philippines	Thailand	Honduras	Kenya
A. Changes in Farm Technology	Some (248-30)	Significant increase in use of fertilizer and improved seed (6, 7).	Some.	No road impact (8).	Some increase in the use of fertilizer. Most impact seen when roads are accompanied by other rural development activities (11, 16).	Significant change in technology in some areas. Greater use of fertilizer, new seed varieties, mechanized farming increasing (10-11).	O.D.: Sugar cane production (6), multiple cropping encouraged (6) in some areas where IDA has developed cooperatives (8-9). W.D.: Multiple cropping declines in favor of corn; better irrigation needed (12).	RARs: Limited change in use of fertilizer or improved seed (8); multiple cropping indicated (7, 8); some on-farm mechanization observed (8).
B. Agricultural Production	Increased traffic indicates increased production (860-85); cultivation of cash crops intensified (852 ff, 854-55). Fallow periods decreasing.	More extensive and more intensive land cultivation (6, 7). Increased production of perishable products.	More extensive cash-crop cultivation; cultivation not more intensive, especially for subsistence crops (9, 10). Expansion of tree crops, marked increase in cash cropping, adverse effect on food production in the long run (10).	No road impact (9). Was time of general economic decline.	Along most penetration routes crop production increased somewhat through more intensive cultivation. Small to moderate effect along other roads. Increased fruit and vegetable production (7).	In certain areas roads facilitated a very extensive and intensive land cultivation. Rice still most important crop, but diversification to corn, cassava, kenaf, soybeans, etc. (10-11).	Substantial increase in land cultivated for Old Direction roads and New Direction roads (16); in both cases change in production from subsistence to cash crops (5-6, 8, 10, 13).	Limited increase in amount of land brought under cultivation (8, 9); cultivation already intense (8) more intensive cultivation seems to be indicated; sale of existing cash crops made easier (8).
C. Agricultural Credit	In support of IADPs, roads enable bankers to go further into countryside to make loans (865).	Some increase in credit use (7).	No increase in credit availability observed.	No road impact, need for credit for inputs noted (13).	Road construction appears to have had no significant impact on the existing rural credit program.	Increased lending activity, expanded commercial banking, farmers savings (12).	O.D.: Small farmers lack access to credit (6, 7). W.D.: Credit accessible to small farmers, but more accessible to those nearest roads (13, 16).	Information not available.
D. Land Values and Land Tenure	Not observed.	Sharp increases in land values along roads (10), no change in tenure.	Sharp increase in land values along roads; displacement of small farmers by wealthy land grabbers, invalidating old system (tribal) of land tenure (12-16).	No road impact (9-10).	Not possible to isolate effect of road from other factors affecting land prices. Land tenure situation uncertain, indicates future problems (8, 9).	Substantial increases in land value (13); land tenure unchanged (stays within family).	O.D.: Value of land nearest roads increase (6). Large farmers may buy out smaller farmers (5, 7). W.D.: no information.	RARs and W.D.: Small landholdings predominate (8, 9); some increase in land values (9).
E. Marketing and Distribution Patterns	CAFE-affected communities market wider variety of crops and now take produce to town, selling it for better prices (851-52).	New small storage facilities (6); vehicles bought to transport people as well as goods to market (9-10).	Two formerly isolated villages now have achieved regional markets and farmers get produce to market more easily. Growth of "middle buyers." Private traders own most storage facilities (12).	No road impact. Farmers experiencing difficulty marketing current level of production (9).	Both more buyers of produce at farm gate and more selling by farmers in town. More competition and market intermediaries (7).	Point of sale shifts away from farm to point of greatest mutual advantage for buyer and seller - typically closer to town. Farmers are purchasing more vehicles to haul produce (12).	Marketing through cooperatives as in some. O.D. roads or at farmgate as with W.D. roads (5, 8, 13).	Farmers' cooperative efforts to purchase inputs in each district with varied success; independent small-farmer-to-market selling (8, 13); black market (caused by fixed-prices policy of government) (8, 13).
F. Commercial Activity, Small-Scale Enterprises, Agricultural Processing, and Industry	Rice mills, cement masons, tailors, artisans. Weekly market. Consumer goods more in demand, firewood sold along roads (3, 865, 867).	Increased employment off the farm (road construction) (4-5). Higher wages and more options (10). Stores increased since road (10).	Increased access to off-farm employment. Women have expanded role in marketing and serve as middle buyers for truckers. Trucking industry incipient (12). Expatriate merchants and some Liberian traders own large stores, act as money lenders (11).	No road impact (10).	Small shops, sugar refining, rice and corn milling (8, 11), were small shops in villages (9); expanded transport.	ARD employment (government) and in public sector (14). Easier access to off-farm jobs. Services: barbers, hair dressers, seamstresses, farm loans. ARD introduced more farm inputs; motorcycle and auto sales agencies; retail stores for consumer goods. Most impact at the district and provincial level (11).	O.D.: Increase in agro-industry (suzerail) (5); non-farm business activity increased (10); small-scale enterprise opportunity for local entrepreneurs in road construction (1). W.D.: Frequent sales in-creased (11).	Transportation sector may soon provide additional employment opportunities. O.D.: Road construction (caused by opportunities (5, 6); increased agro-industry (5); vehicle repair (5); commercial sector represented by rural banks (general stores) (10) - roads had little effect on them.
G. Environment	Sale of firewood suggests deforestation (873, 32); fallow period shortened, declining soil fertility (854-55).	After construction erosion and landslides, siltation and pollution of rivers by excavated materials (D1). Some attempt to protect forests (D2).	Possible damage to soil fertility (17); deforestation (lumbering) can lead to erosion (17); in areas served by roads wild animals are disappearing.	Dust settling on plant life during construction; some erosion (F1) and drainage problems.	Modest loss of fruit trees and agricultural land when government cleared right-of-way for roads and some complaint about speeding traffic (8). Otherwise no significant deterioration of environment.	Deforestation, flooding, destruction of lowland crops, erosion caused by improper tilling. Decreases in fallow periods reduce soil fertility (14).	In some cases, cultivation of more land overtakes forests; some areas have become bush covered following clearing, cultivation and abandonment; some areas subject to flooding need water control (C2-C3).	Deforestation in instances. In other cases evidence of tree-planting. Erosion where road design and maintenance are poor (13).

IMPACT on TRANSPORT COSTS, PRICES and TRAVEL TIMES

	Sierra Leone	Colombia	Liberia	Jamaica	Philippines	Thailand	Honduras	Kenya
A. Vehicle Operating Cost Reduction	Positive due to lower fares on CARE roads (B45).	75% to 90% reduction (5).	Around 90% reduction (10).	About 40% for bananas on an improved road as compared to an unimproved road (D1).	Varied, depending on type of road/road improvement (7).	No information.	O.D.: Savings from \$,047 to \$,242 per vehicle kilometer for improvement from dirt to gravel (B5-B12). W.D.: Some reduction suggested.	Questionable (4, 18).
B. Decrease in Travel Time	Substantial	80% decrease (5, 6).	From two days by foot to only hours by vehicle for some trips (10, 11).	Not significant.	Varied, depending on type of road (7).	Substantial.	O.D.: Some suggested (5). W.D.: Some suggested (11).	Where transport is available, the travel times are drastically reduced.
C. Increase in Prices Received by Farmers	Farmers reportedly get better prices in town (B51).	Dramatic increase (6).	Considerable increase in farmgate prices for cash crops.	For bananas, 11% of gross increase in farmgate price (D3).	Higher prices given along penetration roads, no significant increase along upgraded roads (5, 6).	Differential between farmgate and market prices fell more than 40% (9).	O.D.: No information. W.D.: Differential between market and farmgate price disappeared (13).	Prices fixed by government for major market and export crops (8).
D. Reduction in Passenger Fares	Passenger fares on CARE roads as much as 4 times less than fares on unimproved roads (B45); villages get more frequent service.	Passenger transport not commercialized prior to road project.	Passenger transport not commercialized prior to road project.	Not observed; few passenger vehicles operating on AID roads (D1).	Not observed for penetration roads; not significant on other roads after factoring out effects of fuel price increases (5-7).	Substantial; passenger transport not commercialized prior to road project.	Information not available.	Passenger transport not commercialized prior to CARE project.
E. Reductions in Freight Tariffs	No information.	Dramatic decreases (5), especially in transport costs for fertilizer and agricultural inputs (6, 7).	Considerable for hand-carried market products, bulk cargo. Some price discrimination for various commodities observed on newer roads (10, CB-C10).	Reduction between 30% and 40% possible, but lack of adequate transport and high price of transport a barrier to realization of full potential (D2).	Dramatic reduction for transport of fertilizer along some penetration roads; on other roads reduction insignificant.	Price of transporting rice fell by 30% in Chaiyaphum (9).	Not available.	Transport costs for bulk high, often prohibitively so, due to shortage of vehicles. This also accounts for overwhelming amount of pedestrian traffic (13, 16).

SOCIAL IMPACT

	Sierra Leone	Colombia	Liberia	Jamaica	Philippines	Thailand	Honduras	Kenya
A. Who Benefits	Whether poor benefit more than well-off is unknown (B74) roads are constructed whatever the prevailing tendency (9) and those within the sphere of influence of road benefit more. Some benefit to traders (66-67)	Beneficiaries tend to be .be relatively poor (1), in mountain communities (3-4). Farmers benefit more than other jobs; commerce somewhat expanded (10).	Middle men, elites/wealthy benefit more as a result of roads (111, 12-14) than do poor.	Existing pattern of economic benefits reinforced (10-11); this helped both rich and poor.	Cross-section of the community benefits; more enterprising and more well-off benefit most; commercial sector appears to benefit a great deal (7-9). No significant change in the distribution of rural income and wealth (111).	Everyone benefitted albeit to varying degrees (3-5) and types (13-14).	O.D.: Mostly large landholders. Increased field work and milling operations benefit small farmers (111, 5). H.D.: Agricultural reform plus roads augurs potential benefits for small farmers (111, 12, 13, 17).	Some that were established farmers will take greater advantage of roads; but all people are benefiting to varying degrees (13).
B. Impact on Women	Unknown.	Women more mobile (9), participate more in community meetings (8), but actual change in status questionable (A3).	Increased participation in cash cropping and small businesses, increased mobility and independence (11). "Middle buyers" for trucks (12), impact expected to increase as more men migrate away.	Women were not a specific concern of the project, however, 87% of traders are women. Economic benefits of their position not strong because they do not own trucks (11).	Little mention of roads impact on women. Increase in women sewing for metropolitan firms along one road (9); increase employment of women on sugar plantations (8). Many operators of small commercial establishments, benefited by road construction, are women.	Women's roles strengthened (8).	Information not available.	Women getting to work on road help to increase family incomes (15).
C. Health, Nutrition, and Education	Suggests detriment to nutritional well-being (B50-59). While new health centers and more health services follow roads (B68) there is a threat of greater exposure to water-borne diseases with increase in swampy rice production (B68-69). Education activity increased with roads (B68-69).	Nutrition outlook improved (8). Greater access to curative medicine facilities but no increase in availability of preventive care (health care workers). No perceptible change in educational status but the expectation of better facilities (9).	Health care facilities increase (8). Evidence of possible increase in water-borne diseases caused by water standing in clogged drainage ditches (9). New schools follow roads (7-8).	Some better access.	Significant increase in visits by doctors and nurses; villagers travel more to town health facilities (11). No significant impact on education (10).	Ready access to health facilities, more health officers visit, but roads also allow spread of infectious diseases (vii, 7-10). Fish, meat more available; diet more nutritious (vii). Education especially secondary more accessible (9).	O.D.: Roads enabled easier access to services (e.g., medical services and schools) (11). H.D.: Enhanced educational opportunities, access to services and amenities (15).	Greatest perceived benefit of a road is the ability to get a sick relative to hospital or get to clinic; education activities encouraged by roads (11-12). No clear answer on nutrition impact (11).
D. Effects on Migration	Unclear; trends vary (B70, B72, B69).	Little or no change. In one case out-migration was reversed (10).	Noticeable migration pressures (iv, 17).	Was supposed to help reverse migration but didn't (6, 9).	Significant migration to one highly productive area now more accessible to markets. Little or no effect on outmigration.	Rural to rural migration sustained. Chinese urban to rural migration (8) as shopkeepers and/or middlemen.	No information.	Needs further study. Too soon to judge impact (16).
E. Perceived Quality of Life	No information.	Much improved (9). Demonstrator effect of roads (10).	Questionable (5).	Symbolic value of road; people "fired for the road," felt better having improved roads (12, 2b).	People see progress in reduction of travel time, more comfortable rides, greater accessibility for health, educational, recreational and marketing purposes (12).	Life seems as better (15). Services seem as more accessible (16) fuller participation in opportunities of nation make people more confident (34).	H.D.: See at least some improvement in quality of their lives (15).	People had no doubt that the roads would improve lives; perceptions were positive (11, 15). Except in Vihiga where roads were allowed to deteriorate (4).

EFFECTIVENESS SUMMARY

	Sierra Leone	Colombia	Liberia	Jamaica	Philippines	Thailand	Honduras	Kenya
1. Planning and Selection	Planning procedures unknown community and local government involvement in selection not indicated (B14, B19).	Methodology for formal economic justification developed, not always used by CV (3); good equity appropriateness (2-5); good community and local government involvement (10).	No formal economic appraisal (C1-2); equity considerations inadequate; high degree of local government involvement.	Selection on basis of appropriateness good as originally planned, poor after revision (1, 3, 8-9). Equity not given consideration (11, 10-11); fair amount of communication and local government involvement (11, 12-13).	As implemented, road selection had questionable economic justification (9); more consideration of equity needed (15); good involvement by provincial governments but very little at village level (2, 4, 15-16).	Selection criteria included security, population density and economic considerations. Criteria related to equity not discussed but trickle down approach used (3). Extent of community involvement unknown (2).	G.D.: Some economic justification called for in selection process (B1); gave no consideration to equity; local participation not originally planned, but approved (7-8). N.D.: Appropriate consideration of economic feasibility and socio/local involvement in selection (1b).	Vihiga: No information available. B4: Technically weak but formal selection and appraisal procedures. Good local involvement in selection (Appendix K, I & II: 5).
2. Engineering	Design standards satisfactory. Roads built to specifications (B19-23).	Engineering preparation satisfactory; supervision good. Design standards good and roads built to specifications (3-4, C1).	Engineering preparation poor, as was supervision (5, C2-3). Design standards generally good except for drainage and insufficient width of some roads (C2).	Good engineering preparation and supervision. In actual execution drainage on some roads insufficient. Roads unnecessarily paved (B9-11).	Good engineering preparation and supervision. Roads had excessively high design standards (16).	Varied design standards according to the type of road. Engineering preparation and supervision not known (C1).	G.D.: Model of engineering resourcefulness (B1). Design standards good and excellent as planned (B1). N.D.: Generally good (B2-3).	Good supervision and engineering (5, 7).
3. Cost Overruns and time delays	In project 1 only 19% of planned roads completed. In project 2, 187 km of planned 640 km completed. Cost overruns on both projects (B21-23).	Only 52% of roads planned actually implemented; six months delay in implementation; cost overrun planned \$12,000/km by \$10,500/km (3).	One year delay in implementing RA II. Cost overrun on RA I of \$1,000/km or 20% on RA II, 30% to 50% (5, C3).	Nine month delay in implementation. Only 56% of planned roads built. \$19,500/km cost overrun.	Construction costs varied from \$72,000 to \$60,000 per km.	Not known.	G.D.: Implementation delayed at least 18 months. Cost overrun original \$9,750/km (2, 3). N.D.: Implementation again delayed at least 18 months. Costs vary from \$1,695/km to \$25,745/km (C12).	Total costs currently, for RA2, US \$8,400/km; \$1,200/km more than indicated or implementation scheduling or shortfalls. Actual cost for CAC roads is \$24,000 km (6).
4. Application of Labor-Based Techniques	Mostly equipment-based with some local voluntary labor. (B30-32).	Labor-based construction planned and successfully applied (C1-2).	Labor-based not planned (5). Mostly equipment-based.	Labor-based planned but capital intensive implemented (3-4, B3, B12).	Labor-based construction received very little consideration and was not implemented (15).	Labor-based not planned (5).	Equipment-based techniques used in both cases, although N.D. roads originally planned labor-based construction (2-3, 11-12, 18).	Labor-based construction planned and successfully applied (2, 5, 16). One of Vihiga roads equipment-based (7).
5. Development of local contracting industry	No information.	No information.	Development of domestic contracting industry a secondary project objective, but not achieved (4, 18).	Project weakened local contracting industry (C3) as contracts held to fixed price at time steep inflation.	No information.	No information.	G.D.: Stimulated the formation of local road building firms (3).	Limited. Some mention of maintenance contractors (6).
6. Maintenance	Good where donor maintains; questionable where government maintains (B32-34).	Poor when responsibility for maintenance falls to GOC or when nature of damage exceeds competence of physical resources (11-12).	Poor (C3).	Poor (4, B3).	Poor (13).	Maintenance of existing roads higher priority than construction of new roads. Funding constraints. Current condition of roads varies from excellent to poor (6, vii).	G.D.: Maintenance capacity greatly improved (3, 4).	Appropriate and adequate in most cases on the RAAs (6). Inadequate on the Vihiga roads (C3).
7. Institutionalization	Project had little effect on existing institutions although it led to the creation of a Feeder Road Project Coordinating Committee. Sustainability believed fair; some government commitment evidenced (B29, B30, B39).	Existing institution Caminos Vecinales (CV) strengthened; sustainability good. Reasonably capable institution, considerable local involvement, roads high priority.	Sustainability considered poor. Feeder roads lower priority than primary roads, low level of local participation (6, 18, C3, C4).	GQJ commitment indicated (C2-3, 13). Some strengthening of existing institutions. But better sustainability forecast if implemented by parishes not center.	Local planning/analysis strengthened, as was decentralized decision-making. Good sustainability, but institutions need strengthening, more local involvement needed (12-14, 15, 16).	Good ARD organization now stabilized...talents local initiative...seen as a Thai program, strong permanent national institutional capacity for sustaining...rural development efforts (vii, 6).	GCM maintenance of larger access roads very good (3, 15-16). Local farmers repair shorter access roads. Sustainability good (B1).	For RAAs, development of process and agency for selection of roads Committee of officials and local citizens significant. Some question of whether selection at WUC (or donor) level is very satisfactory (4-5, 17). Institutionalization failed in Vihiga projects (C3).

ROAD CHARACTERISTICS

	Sierra Leone	Colombia	Liberia	Jamaica	Philippines	Thailand	Honduras	Kenya
A. Length (km) and type of new road	2 projects — (1) 900 miles laterite feeder road; — (2) 400 miles laterite feeder road.	59 penetration roads averaging 8 km each (which linked isolated villages to existing road network).	4 secondary roads totalling 155 kms. (2 projects)	151 miles of improved paved (asphalt) roads	Varying from 2 to more than 10 kms.	Over 15,000 km. all-weather dirt, penetration roads.	2 projects: — Old Directions—113.8 km. farm-to-market, all-weather feeders; — New Directions—104.1 km. all-weather access roads.	2 projects: — Vihiga—54.2 km. all-weather, gravelled, farm-to-market rural feeders; — Nakuru—1,000 km. farm-to-market access roads.
B. Nature of ecotone	Flat and rolling terrain, tropical forests, heavy rains in rainy season.	Mountainous.	Varied. Flat and rolling terrain, tropical forests, heavy rains.	Varied greatly. Mountain, swampy areas, dry areas.	Mostly flat to rolling terrain. Some irrigation.	In the North: narrow parallel valleys (wet). In the Northeast: rolling plateaus (dry).	Varied ecotones.	Generally rolling terrain in highlands, and with two distinct rainy periods.
C. Completion date of new road	(1) 174 miles completed by FY 1977; (2) 140.3 miles completed by FY 1979.	Varied completion dates from those completed. 1 year to those still under construction.	First project (2 roads) completed 1971 and 1973. Second project ongoing.	About June 1977.	Implementation began in 1976. Some roads completed, others nearing completion.	5 years before impact evaluation.	Old Directions: FY 75. New Directions: FY 78.	Vihiga: 1974; Nakuru: ongoing (796.1 km. completed as of June 1980).
D. Type of old road	Dry season roads and cart tracks. Rural arterials.	Foot paths and animal tracks. Rural local roads.	Footpaths and dry season roads. Rural arterials.	Deteriorated gravel roads passable by vehicles. Rural collectors and arterials.	Deteriorated gravel and narrow tracks. Rural local roads, collectors and arterials.	Trails and cart tracks. Rural local roads and collectors.	Old Directions: Rural arterials. New Directions: Rural local roads and collectors.	Varied lengths of cart tracks and footpaths. Rural local roads and collectors.
E. Condition of old road	Bad condition—most only passable in dry season.	Impassable to mechanized traffic.	70% impassable to mechanized traffic; 30% passable in dry weather only.	All-weather roads in poor condition. Sometimes impassable in wet season.	Conditions varied considerably. Not passable to motorized traffic during dry season, some during wet season.	No all-weather access by car, bus or truck. All-weather access to motorcycles, bicycles, etc.	Dry-weather roads impassable in wet season.	Dry-weather roads impassable in rain; footpaths and cart tracks.
F. Zone of influence (time), new and old road	Not available.	Not available.	Not available.	Not generally available. Not seen as great due to small area and high number of roads.	Not available.	Not available.	Not available.	Varies from high of 400 to low of 100 ha/km.
G. Population in zone of influence, new and old road	Not available.	Not available.	About 100 persons per km.	High density.	Not available.	Not available.	Not available.	Varies from as few as 33 people/km. to as many as 504 people/km. of road.
H. Availability of uncleared or unutilized land (excluding fallow)	Not available.	Very limited.	Large areas of uncleared land.	Insignificant.	Limited in most sites.	Considerable uncleared land available in the Northeast. Deforestation of mountain slopes in the North.	Not available.	Only a few roads had. Unutilized (former pasture land) available.

ROAD CHARACTERISTICS

	Sierra Leone	Colombia	Liberia	Jamaica	Philippines	Thailand	Honduras	Kenya
I. Concentration of land ownership and type of land tenure	Traditional tenure arrangements.	Small plots (3-10 ha.) mostly owned by farmers.	Since roads, traditional tribal land tenure (with small farms) threatened by elite/wealthy land grabbers and government plantations.	Skewed; top 20 percent of landowners own 80 percent of the land.	Large plantations/estates in some areas. Progress in distributing land titles to small farmers, and in converting to written leases, is generally slow.	Small farm holders have tenure.	<u>Old Directions:</u> Most farmers large landholders. <u>New Directions:</u> Roads built to support program for small landholders working in <u>asantamientos</u> .	Primarily small landowners with some large landowners, absentee landlords and tenant farming.
J. Main non-agricultural economic activity, new/old road	Marketing, commerce.	None.	Marketing and commerce. Mining and logging.	Mining in a few areas.	Rice/corn milling; fishing in a few areas.	Some commuting for casual labor in towns.	Negligible except sugar milling, brick factory, and incipient roads contracting industry.	Labor intensive road construction.
K. Most important crops, new/old road	Rice, some cash crops (cocoa, coffee)	Vegetable crops, sugar and wheat.	<u>Export crops:</u> palm oil, rubber and cocoa; <u>Cash crops:</u> bananas, yams, rice, etc.	Bananas, coffee, pineapples.	Rice, corn, coconut, sugar cane, fruits and vegetables.	<u>Old roads:</u> tobacco, rice. <u>New roads:</u> corn, soybeans, tobacco, cassava, banana, peanuts.	<u>Before roads:</u> corn, beans, bananas, sugar cane, coffee, sorghum, rice. <u>After roads:</u> sugar cane, corn, cotton, palm oil, citrus.	<u>After roads:</u> Subsistence maize, millet, sorghum, cassava, bananas, beans. <u>Export:</u> Cash crops—coffee, tea, beans, cotton, sisal, sugar cane.
L. Effectiveness of social and health field workers and elementary school teachers, new/old road	Not available.	Available but do not serve isolated areas.	Extremely limited.	Primary health care and schools readily available.	Ridiculous travel to villages, but not significantly more often than before. In many areas, however, doctors and nurses visit much more frequently.	Improved quality of schooling - greater availability of teachers.	Not specified.	Increased teacher access to areas served by roads. Social and health services less effective although beneficiaries perceive greater accessibility.
M. Availability of fertilizer, chemicals, technical assistance, credit, along new/old road	Generally inadequate.	Not systematically provided except in special areas with integrated programs.	Fertilizer not generally available, credit availability depends on locality, inadequate extension services.	Physical and capital inputs not readily available to small farmers because of downturn in economy. Agricultural extension similarly limited.	Variable. Increased visits by extension agents in a few cases. No apparent effect on credit availability. Improved access to fertilizer in some cases.	Not available before projects, but became generally available as AED progressed.	<u>Old Directions:</u> limited except where USA stepped in. <u>New Direction:</u> inputs, credit, extension services more accessible.	Physical inputs generally available. Services inadequate.
N. Extent of integration of road with other rural development projects	Roads support IDA-funded integrated agricultural development projects.	None, except by happenstance.	Varied. In some instances roads part of other rural development programs.	Some roads tied to old land settlement schemes; but no real integration of services. Some linkage to water and electricity spread.	Almost none, except by happenstance.	Considerable. Roads were part of AED project.	<u>Old Direction:</u> No effort to include other development needs. <u>New Direction:</u> Roads were part of integrated development project.	None at present though village formerly an integrated project.

Appendix B

**Curriculum Vitae of
Study Director and Supervisor**

1984

April 1985

CURRICULUM VITAE

Name: Lucie Colvin Phillips
(formerly Lucie Gallistel Colvin)

Mail Address: American Embassy (C)
APO New York 09284

Local Address: U.S. Consulate General
8, Blvd. Moulay Youssef
Casablanca, Morocco

Telephone: h: 36.14.85 (as of 15 Nov., 36.29.21)
cons.: 22.41.49

Education

7/64-3/72 Columbia University, New York, N.Y.
Ph.D. in History, 1972, Fields: Africa and
Modern Western Europe
Certificate in African Studies, School of
International Affairs, 1968
M.A. in History, 1967

9/61-6/64 Smith College, Northampton, Mass.
A.B. cum laude, 1964

3/61-8/61 University of Minnesota, S.L.A., Minneapolis.

9/60-2/61 Lessingynasium, Karlsruhe, Germany

Languages Spoken:

Fluent in French, German, and Wolof; able to use Hausa,
Arabic, and Spanish in research.

Academic Appointments

1975-present: University of Maryland Baltimore County,
Associate Professor, African American Studies,
and Director, Center for International Policy
Analysis and Research, on leave.

1983-84 part-time appointments, one in fall,
the other in spring:

Johns Hopkins School of Advanced International
Studies, Professorial Lecturer

Georgetown University, Adjunct Professor

Previous appointments:

1972-75: U.M.B.C., Assistant Professor

1971-72: Howard University, African Studies Center,
Assistant Professor

Consulting and Other Employment

April-June 1985. U.S. Agency for International
Development/Mauritania. Mauritania Rural Roads Project,
Socio-economic Baseline Study, Project Director.

October 1984-March 1985. Consultant, University of Wisconsin
Land Tenure Center, on land tenure issues and river basin
development in Africa, case studies in Sudan and Madagascar.

December 1984-January 1985. Consultant, USAID/Banjul.
Prepared briefing paper for government officials on Gambia
River development options.

June-October 1984. Consultant, Center for Research in
Economic Development, on land tenure and migration issues in
Gambia River Basin development.

July 1-Sept. 31, 1983. Consultant, USAID/Dakar, on the role
of marabouts in agriculture and environmental restoration.

July 1-December 5, 1983. Consultant, U.S. Embassy, Dakar, on
U.S.-Senegalese relations.

Jan. 1-Jan. 31, 1983. Consultant, USAID/Dakar, drafted Volume
1 of the Senegal River Basin development plan.

October 1982-December 1982. Consultant, Development
Assistance Corporation, Rapporteur, Cooperation for
Development in Africa conference.

October 1981-June 1982. Consultant, Gannett, Fleming, Corrdry
and Carpenter, Inc., on the Senegal River Basin design team,
responsible for land tenure analysis, long term food situation
projections, and livestock/pastoralists impact analysis.

January 1981. Consultant, South Dakota State University,
Remote Sensing Institute, negotiating and designing a program
to provide satellite mapping capability at the University of

Dakar and maps for the Senegal National Land Use Plan. Work in Dakar and Ziguinchor.

July-August 1981. USAID/Dakar. Study of land tenure issues during the transition to irrigated agriculture in the Senegal River Valley, Senegal and Mauritania.

June 10-July 25, 1980. USAID/Dakar. Study of private initiatives in the Senegalese economy.

April 18-25; May 22-June 9, 1980. USAID/Dakar. Organized international seminar on Policy Implications of Migration Patterns in the Senegambia, held in Dakar, June 5-7, 1980.

April 1980. Consultant, USAID/Dakar. Contributed to the Annual Budget Submission and the joint evaluation of the previous five years of AID programs in Senegal.

Sept. 1, 1977-Jan. 31, 1980. USAID/Wash/SFWA. Project Director, Senegambia Migration Study.

February-March 1979. Consultant, Population Council and Family Health Care, Inc. in collaboration with the Sahel Institute. Inventory of demographic research and institutional capacity in the Gambia and Senegal.

Nov. 15, 1975-Jan. 31, 1976. Fulbright Short Term Lectureship in Francophone West Africa. Lectured on U.S. and African history, quantitative methods, and Afro-American Studies, in Chad, Ivory Coast, Niger, and Mali.

February 1973. Consultant, Baltimore City Public Schools, Reading is Fun Project. Staff and faculty training sessions.

1959-1967. Various student jobs, including: Assistant group leader, International Student Work Camp in Swaziland; Youth Group Leader in Bedford-Stuyvesant summer church program; Secretary, Office of Graduate Admissions at Columbia University; Ski Instructor and Recreation Director; Nurse's Aide.

Publications

Books:

The Uprooted of the Western Sahel: Migrants Quest for Cash in the Senegambia. Co-authored with Boubacar Barry, Cheikh Ba, Jacques Faye, Alice Hamer, Moussa Soumah, Fatou Sow. I was general editor and authored seven of the thirteen chapters. New York: Praeger, 1981.

Historical Dictionary of Senegal. Metuchen, N.J.: Scarecrow Press, 1981.

Accepted for Publication:

Kajoor and the French: African Diplomacy before the Conquest. French edition, Dakar: Nouvelles Editions Africaines, forthcoming, English edition forthcoming, New York: Nok Publications, Ltd.

Books in Progress:

Islamic Revolution in Theory and Practice, an interpretation of the legal and historic precedents for the use of ihad (Holy War) as an instrument of revolution.

A History of Senegal, based on my Historical Dictionary of Senegal.

Editing, translating and annotating Keledori: Histoire africaine, by Baron Roger, originally published in Paris by Moreau in 1829, to be republished by Nok Publishers, Ltd., N.Y.

Articles:

"One Hundred Years of United States-Senegalese Relations, 1883-1983," Office of the Historian, Bureau of Public Affairs, Department of State, December 1983.

"When the young men leave and the old return: development policy in an area of intense out-migration," ch. 5 in Technological Change and Rural Development (Newark: University of Delaware, 1983).

Marabouts, Agriculture, and the Environment in Senegal, University Research Foundation Report no. 83-0060, November 1983. Revised version to be published in Rural Africana, special issue on forests and forestry in the West African Sahel.

"Theoretical Issues in Historical International Politics: The Case of the Senegambia", The Journal of Interdisciplinary History, VIII: I (1977), 23-44.

"Islam and the State of Kajoor: A Case of Successful Resistance to Jihad," Journal of African History, Cambridge University Press XIV: 4 (1974), 587-607.

"International Relations in Pre-Colonial Senegambia," Presence Africaine, 93 (1st Quarter, 1975), 215-230.

"The Commerce of Hausaland, 1798-1833", in Aspects of West African Islam, eds. Daniel McCall and Norman Bennett, Boston: Boston University Press, 1971, ch. VI.

"Senegal" and "Senegambia Confederation," in World Encyclopedia of Political Systems (New York: Facts on File, 1983).

"African Art and Social Control," in Social Rite and Personal Delight: African Art from Baltimore Collections.

"Swaziland," in Africa Today. Spring 1968.

CURRICULUM VITEA

NOM NIANG
PRENOMS ABDOUL AZIZ
DATE DE NAISSANCE 1952
LIEU DE NAISSANCE GAE (SENEGAL)
FILS DE ALIOUNE NIANG
ET DE FATY NIANG
NATIONALITE MAURITANIENNE
SITUATION MATRIMONIALE : MARIE 1 ENFANT

DIPLOMES OBTENUS

- Primaires C.E.P.E. Juillet 1966 à Gaé (SENEGAL)
- Secondaires B.E.P.C. Juillet 1971 à Saint-Louis (SENEGAL)
- Professionnels Brevet de l'Ecole Nationale d'Administration (ENA) de la République Islamique de Mauritanie Cycle B série technique section Adjoint Technique de la Statistique Juillet 1975 à Nouakchot
- Certificat of Training (Census of Population and Housing "POPSTAN") 1980
- *Ingenieur statisticien, à l'E.N.E.A (Ecole Nationale d'Economie Appliquée) de Dakar
durée des études 3 ans.*
- Expérience :
 - Commerce Extérieur
 - Travaux Cartographiques
 - Indice des Prix à la consommation Européenne et Mauritanienne
 - Bulletin mensuel de la Statistique
 - Recensement Démographique
 - Enquête sur la Fécondité (ENMF)
 - *stage de 3 mois à la SONED (société Nationale d'E. de développement à senegal 1981. 1982*
 - *stage de 3 mois au Ministère de développement Rural (service statistiques agricoles) 1982. 1983*
 - *depuis octobre 1984 en activité au C.E.D.S (Centre d'Etudes Démographiques et sociales) R17*

Appendix C

Questionnaires

Etude de base socio-economique: routes rurales mauritaniennes

Questionnaire: Utilisateurs de transport

Lieu _____ Enqueteur _____ Date _____

Interviewee _____ Age _____ Sexe _____ Profession _____

	PASSAGER	CARGAISON TYPE	UNITE	TEMPS NORM	TEMPS MAX	TEMPS MIN
SELIBABY	UM/P	UM/		H.	H.	H.
		UM/				
MBOUT	UM/P	UM/		H.	H.	H.
		UM/				
KIFFH	UM/P	UM/		H.	H.	H.
		UM/				
KAYES	UM/P	UM/		H.	H.	H.
		UM/				
KAEDI	UM/P	UM/		H.	H.	H.
		UM/				
ROSSO	UM/P	UM/		H.	H.	H.
		UM/				
JAKCHOTT	UM/P	UM/		H.	H.	H.
		UM/				
DAKAR	UM/P	UM/		H.	H.	H.
		UM/				
BAMAKO	UM/P	UM/		H.	H.	H.
		UM/				

Modifié

Fiche no. _____

Etude de base socio-économique routes rurales mauritaniennes

Questionnaire: Transporteurs/Chauffeurs

lieu _____ Enqueteur _____ Date _____
on _____ Age _____ Education _____ ans. Ethnie _____ Statut prof. _____
histoire prof. _____

Itinéraires:	Distance	Temps		Tarifs	
		Min.	Norm.	Max.	Psg. / Cargaisons
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____
_____	_____ / _____ / _____	_____	_____	_____ / _____	UM/ _____ UM/ _____

Deuxieme page: Utilisez avec la premiere page de la premiere
version de ce questionnaire

fiche no _____

Budget de chauffeur: Vehicule type _____ annee _____ capacite _____

Revenus / Trajet de _____ de _____ de _____ mois annee
a _____ a _____ a _____

Tarifs pass. _____

Cargaison _____

Salairé du ch. _____

Sal. apprentis? _____

Frais de route _____

Depenses

Carburant _____

Reparations _____

Autres _____

Accidents

Annee _____

.Cout _____

Mois de haute saison _____ a _____, No. voyages/m _____

s de basse saison _____ a _____, No. voyages/m _____

176

Fiche no _____

Etude de Base Socio-economique

Questionnaire: Transporteurs/Proprietaires

Lieu _____ Enqueteur _____ Date _____

Nom _____ Age _____ Education _____ ans. Ethnie _____ Prof. _____

Histoire du vehicule: Prix d'achat _____

Avance _____ Source _____

Paiement mensuel _____ Combien de paiements _____

Fin de payer au bout de _____ Annee achete _____

Annee neuf _____ Duree de vie (estimee) _____

Si credit bancaire, source _____ Montant _____ Ans _____ Int _____

Travail du vehicules: Voyages par mois _____ haute saison _____ basse

Passagers/voyage _____ Cargaison _____ tonnes.

Cargaison (type) _____ Trajet de _____ a _____

Mois de la basse saison _____ de l'haute saison _____

Budget du Proprietaire

Revenus/voyage de _____ de _____ de _____ par mois par an
a _____ a _____ a _____
par voyage _____

Depenses

Salaires _____

Frais/rte _____

Assurance _____

Paiement mensuel _____

Reparations _____

Vignette/patente _____

Accidents:

annee _____

cout _____

Benefices _____

Destination d'epargne _____

Autres investissements du proprietaire:

Vehicules (ilistez type et annee) _____

Commerce _____

Agriculture (type) _____

Betail _____

Immobiliere _____

Autres _____

Qui sont ses concurrents dans le transport? _____

Membre d'une association de transporteurs? Nom _____

128

Deuxieme page: Utilisez avec la premiere page de la premiere
version de ce questionnaire

fiche no _____

Budget de chauffeur: Vehicule type _____ annee _____ capacite _____

Revenus / Trajet de _____ de _____ de _____ mois annee
a _____ a _____ a _____

Tarifs pass. _____

Cargaison _____

Salairé du ch. _____

Sal. apprentis? _____

Frais de route _____

Depenses

Carburant _____

Reparations _____

Autres _____

Accidents

Annee _____

Coût _____

Mois de haute saison _____ a _____. No. voyages/m _____

Mois de basse saison _____ a _____. No. voyages/m _____

Modifié

1

Fiche Fiche no. _____

Deuxieme page: Utiliser sur la premiere page de la fiche
version de ce questionnaire

Budget de chauffeur: Vehicule type _____ Année _____ Capacité _____

Revenus / Total de _____ de _____ de _____ Note _____

Etude de base socio-economique: routes rurales mauritaniennes

Tarif de _____

Questionnaire: Transporteurs/Chauffeurs

Group In _____

Enqueteur _____

Date _____

Statut _____

Age _____

Education _____

ans. _____

Ethnie _____

Statut prof. _____

histoire prof. _____

Itinéraires:

Distance

Temps

Tarifs

Depenses

Min. Norm. Max. / Psg. Cargaisons

a _____

/

/

/

/

/

UM/

UM/

Capacités

a _____

/

/

/

/

/

UM/

UM/

a _____

/

/

/

/

/

UM/

UM/

Année

a _____

/

/

/

/

/

UM/

UM/

Mois de pointe saison _____

a _____

/

/

/

/

/

UM/

UM/

Note de _____

a _____

/

/

/

/

/

UM/

UM/

UM/

Enqueteur _____ Date _____

Etude de base socio-economique: routes rurales mauritaniennes
Questionnaire: Villages

Nom _____ Age _____ Education _____ ans. Ethnie _____ Qualite _____

Village _____ Arrond. _____ Region _____

Nombre de toits _____ dont en dur _____ Population _____ Ethnies _____

Distance a route princ. _____ au goudron _____ au fleuve _____

Etablissements scolaire: _____ niveau(x) _____

Sante: clinique _____ pharmacie _____ PMI _____ infirmier (e) _____ medecin _____ hopital _____

Source d'eau: domestique _____ betail _____ irrig _____

Amenagements d'eau _____

Inventaire de vehicules:

Accidents en 1984: morts: blesses:

Velos _____

Mobilettes _____

Voitures _____

Camionettes _____

Taxis _____

Autres _____

Enqueteur _____ Date _____ Fiche no. _____
 Localite _____ No. _____ No. r.c. _____ Reg. _____ Ann. _____
 Nom du Chef _____ Ethnies 1. _____
 Habitations 1. en dur _____ 2. _____
 2. en banco _____ 3. _____
 3. baraques ou cabanes _____ 4. _____
 4. tentes ou huttes _____
 5. hangars _____

<u>Infrastructures et Services</u>	<u>Inventaire de vehicules</u>
1. Bureau de poste _____	1. Particuliers _____
2. Transporteur prive _____	2. Taxi brousse _____
3. Vente Carburant _____	3. Camionettes _____
4. Mecanicien _____	4. Camions _____
5. Radio _____	5. Semi-Remorques _____
6. Mosquee _____	6. Charettes _____
7. Ecole coranique _____	7. Velos _____
8. Ecole primaire _____ secondaire _____	8. Mabilettes _____
9. Dispensaire _____	
10. Parc vaccinations animaux _____ Abattoir _____	
11. Electricite _____	
12. Magasins ou depots collectifs _____	
13. Magasins d'achat _____ Marche local _____ frequence _____	
14. Agence vulgarisation agricole _____ si non, frequence de visites _____	
15. Approvisionnement en eau:	

Nom de puits	Type	Distance	Temps	Mois d'eau
1. _____				
2. _____				
3. _____				
4. _____				

Abreuvoir _____ Chateau d'eau _____

Activites economiques

Elevage _____ Chasse _____ Peche _____ Cuillette _____
 Agriculture: pluviale _____ decrue _____ irriguee _____ ha.
 Cultures _____ Commercialisees _____ Prix _____
 au prod. au marche

1. _____
 2. _____
 3. _____
 4. _____
 5. _____

Noms des transporteurs desservant cette localite	Frequence
1. _____	
2. _____	
3. _____	

a Kaedi	temps	prix pass.	carg.

a Nouakchott			

Migrations _____ Travail _____ Orig./Dest. _____ Croissant? _____
 Qui arrivent? _____
 Qui partent? _____

Notes (cont. au verso)

Activites Economiques:

Commerc. de _____

Elevage: bovins _____ ovins _____ caprins _____ dromedaires _____ autres _____

Artisanat _____

Services _____

Autres _____

Migrations:	Faisant	Venant d'ou/	Nombres croissant
	Quoi?	Allant ou	ou diminuant?

Qui arrive? _____

Qui partent? _____

Remittances servent a? _____

Production Agricole:	Prix au producteur	Acheteurs
		Principal Autres

Cultures _____

de femmes _____

Tenue fonciere: Propr. de tous leurs terrains _____ % d'une partie _____ %

Metayers _____ % Locataires _____ % Femmes propr? _____ %

Culture intensive: Engrais _____ % Semences select. _____ % Irrig _____ %

Culture atelee _____ % Equipement agr. (listez) _____

Approvisionnement/marches:

Produits en vente Produits a chercher ailleurs ou?

Services:

Sante: a clinique a pharmacie a hopital

Distance: _____

Temps: _____

Fois par an: _____

Education: primaire secondaire technique koranique

Distance: _____

Temps: _____

% d'enfants: _____

Perception du projet d'amelioration de route: Economique Autre

Utilite _____

Avantages _____

Desavantages _____

Entretien:

Qui fera? _____

Village aidera? _____

Comment? _____

Suggestions _____