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KENYA

RURAL ROADS SYSTEM PROJECT

REPORT -

MONITORING + EVALUATION

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REPUBLIC OF KENYA
MINISTRY OF WORKS
ROADS DEPARTMENT

MONITORING AND EVALUATION
OF
THE RURAL ACCESS ROADS PROGRAMME
THROUGH
THE IMPACT STUDY

REVISED
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LIST OF ABBREVIATIONS

- MES = Monitoring and Evaluation System
- RARP = Rural Access Roads Programme
- IADP = Integrated Agricultural Development Programme
- TACP = Third Agricultural Credit Project
- MOW = Ministry of Works
- MOA = Ministry of Agriculture
- CBS = Central Bureau of Statistics
- TRRL = Transport and Road Research Laboratory
- TU = Technology Unit
- ODM = Overseas Development Ministry
- IRS = Integrated Rural Survey
- PSU = Primary Sampling Unit
- NISSP= National Integrated Sample Survey Programme
- MOFP = Ministry of Finance and Planning

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MONITORING AND EVALUATION OF THE RURAL ACCESS ROADS PROGRAMME IN KENYA

1. INTRODUCTION

Roads have two major and interrelated effects on development- a communications effect and a cost effect. The first effect refers to the fact that information (about technology, prices e.t.c.) appears to be more rapidly and accurately passed along when there is a road than when there is none. This may result in people taking advantage of opportunities otherwise foregone, the importation of know-how and resulting changes in agricultural production and technology etc. Also, by better mobility, the people concerned can better utilize social institutions like hospitals, schools etc.

The second effect consists of savings in time and money cost. This effect has two parts, one is quite straighforward namely savings to existing users. By improving the road, wear and tear of vehicles will be reduced and vehicles will be able to travel faster, thereby reducing travel time and spoilage of perishable goods. The other part consists of the development impact of the road (as far as road use is concerned it is measured by induced or generated traffic). Development in the area of influence of the road will take place because the lower transport cost makes it profitable for local producers to buy more inputs and produce more outputs. However, a number of conditions must exist for such development to take place. In other words, there is no automatic link between the construction of a road and development of a region. To assume a road to have a direct and substantial development impact, one must expect freight rates to fall. Freight rates fall if:-

(a) There is strong competition among transporters in the area; or.

(b) Such competition will quickly develop; or

(c) The Government will intervene and fix freight rates so that they reflect the lower vehicle operating costs.

However, even though important, lowered freight rates by themselves are not sufficient to guarantee economic development. Farmers must have the right attitude and resources to supply more if the prices they receive go up and/or the prices they pay fall. This is by no means always the case. The rapidity and significance of agricultural expansion will depend on the number and background of people already in the area, the readiness of the land for cultivation, the availability of credit etc.

As mentioned before, savings to existing users (normal traffic) can readily be calculated and does not present the project analyst with much of a problem. Even forecasting the growth in normal traffic is quite straightforward. On the other hand, the communication effect and the development impact effect of the road are much harder to tackle. In trunk road projects, savings to existing users are a major benefit and the project analyst does not therefore have to deal with the more difficult issues. However, in the case of rural roads, be they called feeder or access roads, development impact and accessibility are crucial factors which the project analyst has to deal with. He is faced with tracks where existing traffic is either low or nil and the reason behind the construction of the road is its contribution to the development of the area and its people. He therefore has to estimate the socioeconomic impact of the road and identify whether there are any other bottlenecks which will prevent the road from having its full impact.

The Rural Access Road Programme, undertaken by the Ministry of Works in Kenya' is an example of a road programme the objective of which is to construct low cost roads into previously non-accessible areas and thereby improve the living conditions and production of farmers living in such areas.

During the period 1975 - 83 a total of some 14,000 km of roads will be constructed in 23 districts in Kenya. One of the problems obviously facing the MOW is how to deal with the forecasting of social and economic development and thus ensure that limited funds be spent only on the roads that have a substantial impact. The main function of the proposed Monitoring and Evaluation System (M.E.S.) is to assist the MOW in improving its selection procedures for rural roads. By monitoring and evaluating the impact of a number of roads to be built early in the program, MOW will be in a better position to understand the communication and developmental effects attributed to road projects and thus be able to better select future rural access roads.

2. MONITORING AND EVALUATION PROGRAMME

2.1 GENERAL REMARKS

It is a recongnised fact that monitoring and evaluation is an important part of all projects that deal with the complicated issues of rural development. As far as Kenya and the Bank are concerned, there are three programmes which in the immediate future fall in this category. They are, besides the Rural Access Roads Programme (RARP), the Integrated Agricultural Development Project (IADP) and the Third Agricultural Credit Project (TACP). In order to avoid the duplication of effort, the Government of Kenya and the Bank have agreed that machinery be created in Kenya to deal on a continuous basis with monitoring and evaluation as it relates to IADP, RARP and TACP as well as other future projects. To this end, it has been decided that the Central Bureau of Statistics (CBS) within the Ministry of Finance and Planning, will be responsible for collection, verification and editing of the farm data for the three projects. The final analysis and its translation into better planning procedures will be the responsibility of the Operating Ministry. As far as MOW is concerned, Monitoring and Evaluation of the R.A.R.P. will be carried out by a Monitoring and Evaluation Unit of the Planning Section. This unit will be strengthened by a Development Economist to be provided under Technical Assistance

2.2 OBJECTIVE

The purpose of the proposed Monitoring and Evaluation System (MES) is to assist the MOW in determining:

(a) How efficiently the roads are being constructed and their durability under prevailing weather and traffic conditions;

(b) How effective the roads are in lowering the costs of transport and farm production and in increasing mobility;

and

(c) How effective the roads are in stimulating economic and social development.

(d) Based on information under (a), (b) and (c) above, improve planning and construction procedures and as far as possible, determine optimum mix of investments for rural development programmes.

In other words, the objective is to define, and in so far as possible quantify the economic and social impacts of rural road construction, thereby refining the planning and screening procedures of the RARP as well as other future rural road projects.

A secondary objective of the M.E.S. would be to improve the information system needed for all rural development projects. This includes the generation of new data on a continuous basis as well as better utilization of currently collected data by different planning entities within Kenya Government including CBS, operating ministries and Provincial and District Development Committees. The analytical and implementing capabilities of the Planning Section in MOW will also be strengthened, through active participation in the design, execution and analysis of the data system.

2.3 PROGRAMME FRAMEWORK

2.3.1 GENERAL

The framework of the monitoring and evaluation of the Rural Access Roads Programme will cover two major aspects namely:-

(a) engineering characteristics; and

(b) socioeconomic impact.

The existing information system within the MOW will continue to monitor the engineering aspects. The IBRD Technology Unit and the TRRL Unit will both be integral parts in such a system.

As far as the socio-economic impact is concerned, two major surveys will be required: one, a farm survey which will be undertaken by CBS and the other, a traffic survey to be undertaken by the MOW. For the sake of clarity, the engineering and impact asepcts are dealt with separately below.

2.3.2 ENGINEERING EVALUATION

2.3.2.1 SCOPE

The scope of the engineering activities is as follows:-

(a) Monitoring the productivity and costs of the RAR units, and of maintenance operations;

(b) Monitoring the quality of operations and the rate of deterioration of project roads in relation to materials, design, rainfall and traffic; and

(c) Analysis of operational difficulties;

(d) Depending on the information derived from (a), (b) and (c) above, modification in methods of operation, equipment use, road standard etc. may be made in the subsequent years of the programme; and

(e) Results from the engineering monitoring will be fed as input to the economic evaluation.

2.3.2.2. DATA:

As far as productivity and cost data are concerned, all roads under the program will be covered. The quality aspects however, will only be monitored on some experimental road sections selected in various parts of Kenya to reflect soil, climatic, topographic differences under varying traffic conditions.

In order to complete the tasks outlined above, data will have to be collected on a regular basis. The following indicates the major areas involved.

(a) Productivity in physical terms of the individual construction and maintenance operations by the RAR units;

(b) Total costs and costs by separate operations such as amount spent on wages, materials, equipment etc.

(c) Material quantities such as gravel, cement, sand, timber etc.

(d) Rate of road deterioration measured by gravel loss, average rut depth and surface roughness estimates;

(e) The performance of roads with different design parameters;

(f) The performance of roads with different compaction and drainage standards;

(g) Rainfall and number of days of closure of road; and

(h) Frequency and type of recurrent and periodic maintenance. The TRRL and the Technology Units will study the need for maintenance and make recommendations on frequency and type of maintenance to be carried out.

2.3.2.3 ORGANIZATION

The road quality aspects are being monitored by the TRRL Unit under finances from ODM. The Unit is monitoring the various roads with particular attention to design, compaction, drainage, construction and maintenance standards. The Unit will report on a regular basis to the Chief Superintending Engineer (SP) whose responsibilities are among others, to review, and where necessary, adopt changes in the construction methods to be used by the RARP Units.

The Rural Access Roads Engineers will assist the Technology Unit in the collection of cost and productivity data, as deemed appropriate. This approach will ascertain the continuity of the exercise after the termination of the Technology Study.

The Technology Unit will assist in setting up a reporting system and incorporate changes whenever necessary based on experience with the system. Except for information on operational difficulties which require immediate action, quarterly reports should be submitted to the Chief Superintending Engineer (SP) for necessary action.

2.3.2.4 COST:

No incremental cost is envisaged for the monitoring and evaluation of engineering aspects since no additional staff would be required. Moreover, terms of reference for R.A.R. Engineers, the TRRL and the Technology Units cover all work to be done.

2.3.3 ECONOMIC AND SOCIAL EVALUATION

2.3.3.1 SCOPE:

The scope of the socio-economic monitoring and evaluation covers:

(a) Measurement of agricultural production and marketing, traffic flows and population movements showing effects of roads constructed and improved as part of project; and

(b) Comparison of actual results with the predicted results derived from the use of present evaluation methods, making necessary changes and refinements to improve their accuracy and reliability as a planning tool.

2.3.3.2 DATA:

The following data will be collected in respect of the above:

(a) Area of influence;

(b) Population, family size;

(c) Land tenure;

(d) Area cultivated by crop;

(e) Yields and production;

(f) Share of crops marketed and self-consumed;

(g) Agricultural inputs;

(h) Complementary investments, extension service etc.

(i) Price data for crops and inputs;

(j) Hired and family labour;

(k) Distance to markets and social institutions;

(l) Transport prices and transport industry information; [illegible] by type; commodity by type and volume; and passengers by trip purpose and origin and destination; and freight rates and charges.

2.3.4. Surveys

It is [illegible] types of surveys will be made to cover the monitoring and evaluation of socioeconomic impact mainly, farm surveys and traffic surveys.

2.3.4.1 Farm Surveys

Most of the information required for the monitoring of the RARP will come from farm surveys since a substantial part of the relevant information relates to the production system. Data on acreage by crop, yields and prices obtained by farmers (both before and after the project) are essential for both RARP and IADP. On the input side, quantities and prices of various inputs (including hired labour and family labour) should be of interest for both projects. Use and purchase of capital goods need to be documented as well.

Specifically, for assessment of road impact on production activities, marketing patterns before and after the project should be studied. This implies detailed information on the quantities marketed, distance and time to market place, mode of transportation used, types of roads, transportation costs incurred and information on who provides transportation services (the latter may be in a position to capture a substantial share of road benefits).

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Similar information should be gathered regarding the purchasing of inputs. When traders are involved, information on trading margins (either direct or indirect, through comparison of ex-farm prices and market prices) is relevant.

To undertake a farm survey a number of tasks need to be attended to such as selecting areas to be studied; developing a sampling frame in each study area; drawing the sample of rural respondents to be interviewed; preparing the questionnaires and other survey instruments; training field interviewers and supervisors; administering the questionnaires in the field; processing, edition and analysing the data.

The selection of areas within which to monitor the socio-economic impact of rural roads and other rural development programmes, should be done with care. In the overall monitoring system of the three projects the following combinations should be included:-

(a) Only road construction;
(b) Only agricultural improvements;
(c) Both road and agriculture;
(d) No improvement at all (a few control areas; if found feasible).

Items (b) and (c) above will be covered by the LADP Monitoring and Evaluation system. However in the case of item (c) only farmers receiving the specific LADP package will be included. A statistically adequate number of such farmers may not be found in the area of influence of the road. It has therefore been decided that the MOW exercise will cover a number of roads from such areas. The MOW farm questionnaire is simpler compared to the LADP one and will be used by the CBS for the purpose of road monitoring. However, questions will be formulated in a way that both questionnaires are statistically compatible.

So far as the RARP evaluation is concerned, four road areas per district will be monitored with a baseline survey and then by repeat surveys twice yearly after road construction. A total of 92 areas will be monitored in the following manner:-

(a) Only road construction 60 areas;
(b) Both road and agricultural investments 20 areas;
(c) No investment at all 12 areas (if found feasible).

In addition to these three requirements, the selection of areas to be monitored should ideally meet the following five criteria:-

(i) Lie within the Primary Sampling Units (PSU's) developed by the CBS to serve as the basis for the National Interrated Sample Survey Program (NISSP)— This constraint will serve to coordinate the work of this study with the other surveys being undertaken by CBS. It may not be possible to do this in every Study area, however.

(ii) Display major types of current rural phenomena— Such as ou -migration, low income per capita, lack of social services, poor infrastructure, inadequate employment opportunities etc., a l of which represent rural development problems. The overall impact study, by covering both the RARP, IADP and TACP will provide findings about the relative effectiveness of different types of rural development programs.

(iii) Represent areas typical of those in which rural road programs will be established in the future - This will ensure that the results will be representative of the type of impact which might be expected from implementing future programs.

(iv) Must be representative of major cultural, ecological, and geographical situation — This will hopefully ensure that the study findings have general applicability throughout major regions of Kenya.

(v) If possible, the areas should have been surveyed previously - Other things being equal, it will be more efficient to select areas for which there is existing data on the parametres to be measured in this study.

Such data, if sufficiently detailed, may serve as baseline information. At minimum, they would provide an independent check on some of the data collected for this study.

The reason for selecting 12 areas where no investments will be made is to give some of the study area a corresponding control area. The ideal criterion for its selection is that it be as similar as possible to the study area in the pre-program situation, but without receiving any of the programs which are being monitored in the program influence area. The specification of which area in each pair is to be the control area should be determined, if possible, by a process of random selection. However, practicality may require that this ideal criterion be modified in some circumstances, i.e., the control area may receive some but not all of the programs or may receive a lower quality of program compared to the road influence area. These criteria can best be met by selecting as control areas, regions which have also been selected for inclusion in the RARP but in which construction of roads under the RARP will not begin until after the impact study has been completed.

In this connection, it is only fair to point out in advance some of the problems which might be ecountered in the implementation of the proposed monitoring exercise in selected control areas, in view of the adverse regional effects of delaying much needed access roads until the completion of the impact study sometime in 1982.

A sampling frame will define the entire population from which the sample will be chosen. Two steps will be required to develop it:-

a) The delineation of the boundaries of the study area, i.e. the spatial definition of the area which will be influenced by the program. In the case of rural roads, the boundary of the program influence area is taken to be the perimeter of commercially feasible production adjacent to each road. The position of this boundary is determined by transport costs, land capability, producer skills, terrain, and other factors. The distribution of existing production (non-agricultural enterprices in addition to farms) may provide a rough outline of the perimeter prior to a road improvement program.

Similarly, the boundaries of influence of schools, medical facilities and other service programs can be estimated by determining the geographic limits of the "catchment areas" from which users of the services are drawn.1/

(b) The taking of a census of households and establishments within the Study area. This will be a necessary step to provide the basis for drawing up a probability sample of households and rural entrepreneurs to be interviewed. It will require a population count within each study area.

The household will be the basic unit of analysis. Usually the household is defined as all those persons who pool their incomes and share living expenses. This includes friends and relatives who are living with a a family. Such a definition means that one house may contain more than one household.

The first objective of the sampling operation is that the sample be representative of the program-influence area as a whole. This requires a probability sample wherein each household has a determined chance of being selected. Given the development of the sampling frame as indicated above, well established sampling procedures exist for satisfying this requirement.

The second objective is to obtain a sufficient number of households to be able to undertake a meaningful analysis. This means that some 7 - 10 percent of all households will be required for each program-influence area. Based on a review of rural access roads data available, some 200 households exist on the average per road influence area which would then require a sample per area of 20 households.

1/ For further details on the definition of area of influence see The Economic Analysis of Rural Roads by Curt Carnemark et al. Annex 4. WORLD BANK STAFF Working Paper No. 241 August 1976.

The baseline and follow-up surveys should be administered to essentially the same sample of households over the entire monitoring period. Perhaps the most practical way to accomplish this is by means of cluster samples of geographic areas. This will require that the sampling frame be divided into small area clusters, each of which has an equal probability of being selected. Within each selected cluster, all households will be interviewed throughout the monitoring period.

The types of survey instruments required for the farm surveys are questionnaires. The questionnaires will be pre-tested by CBS in pilot exercises at sites different from the ones included in the programme. Modifications to the trial questionnaires will be suggested by the pilot tests. Results of these tests will be summarized in the final field manual which will include all forms to be administered, the interviewers' handbook, and the supervisors' manual.

After the field staff have been recruited, training programmes will be organized to make certain that the field interviewers and supervisors understand the objectives of the survey and of each question in it. Essential inputs required for this task are field manuals: one for field interviewers, a separate one for their supervisors. These documents will explain the overall purpose of the survey and how each question contributes towards achieving it. The manuals will outline common problems which arise in the process of conducting and supervising interviews and will suggest solutions. They will also define clearly the relationships between the interviewers, their supervisors, and other project staff. Training procedures developed by the CBS will be utilized whenever appropriate.

The necessity of the editing process will be given careful attention. Field supervisors will have to review each complete questionnaire prior to its being forwarded to headquarters in Nairobi for processing. Many errors and omissions arise in the process of field interviews, and careful editing by the field supervisors will enable many of them to be corrected. In addition, editing by headquarters staff will be necessary. Training sessions which impress upon the field staff the logic of the editing operation will avoid many problems after the study gets underway.

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Annual training sessions for all field staff will be conducted. These sessions will provide an opportunity to correct past misinterpretations and to incorporate additional sets of questions into the survey in an orderly manner. Some special training sessions may also be required during a particular survey year if, for example, most of the field staff are doing a poor job of probing on a particular question.

The administration of the surveys will be carefully planned so that each interviewer and supervisor knows exactly what should be accomplished in a given week. Procedures developed by the CFS to administer the Integrated Rural Survey (IRS) will be utilized as appropriate.

The raw data from the questionnaires should be transferred to computer tapes as expeditiously as resources permit. Pre-coding of the questionnaires will help speed this task along. Programmes will be developed to verify the keypunch operation. Many examples of such programmes are available and can easily be adapted to this study. Finally, to facilitate retrieval for analysis, care will be taken to ensure that the data are entered onto computer tapes in a manner consistent with the special requirements of the computer programmes which will be used to analyse the data. In this connection a detailed codebook will be prepared for use in all monitoring and evaluation exercises supervised by C.B.S.

2.3.4.2 TRAFFIC SURVEYS:

As a complement to the farm surveys, traffic surveys will be undertaken on the 46 roads selected for the study, once during harvest season and once in the low season. The traffic surveys are designed to capture impacts on road users(both those who travel on the roads and those who use them to transport goods and services). These surveys would document changes in origin and destination, volume, frequency and purpose of both freight and passenger flows as well as type, volume, and frequency of vehicle traffic. Also insights would be gathered into the marketing and transport industry to ascertain competition, charges and costs. A short form questionnaire would be used to determine each respondent's reason for using the road as well as his or her origin and destination. From these data changes in both social and economic patterns of behavior can be inferred. In addition to the traffic survey proper, the team will count the number of facilities along the road. In this way comparisons can be established as to the number of schools, duka stores, and other physical indications of socio-economic changes that will occur as a result of the road project.

The traffic surveys will be performed in a manner similar to other MOW traffic surveys. Initially it was intended to carry out two days and one night counts on four roads in each of the twenty three districts for a total of 92 roads. But in view of the need to capture as many of the area's traffic as possible, it is now planned to increase the number of counting days to five and reduce the number of roads to only two per district.

2.4. ORGANIZATION

2.4.1. CENTRAL BUREAU OF STATISTICS

The CBS will be responsible for undertaking the farm surveys. A special Unit will be created with the role of collecting, verifying and assembling data on the impact of the three projects. The unit would assume a coordinating role with constant consultations and feedbacks with operational Ministries.

The principal argument for establishing a Special Unit with the CBS is to economize on the limited institutional capability within various Ministries and shortage of trained staff. CBS also has a long experience in this type of work, and therefore already possesses a built-in capability which should be utilized. The problem with a centralized agency is the likely delay between data collection and feedback to project management and planners both in the operating Ministries and at the district level. To avoid this problem of centralization, it has been decided that CBS does the data collection, editing, verification, initial processing and data file structuring, in order to provide the data in the form required for analytical interpretation by the Monitoring Unit in the Planning Section of MOW. In such a way one would be assured of a quick feedback to planning. Any required modification of project elements and implementation procedures, would be immediate and reflective of the needs of the agency concerned. The additional local staff required at CBS for the MOW exercise would consist of:

14 enumerators (12 in the field and 2 in CBS)
4 supervisors
8 coders
1 typist
3 drivers

It is assumed that one enumerator will make one field interview per day or 20 per month during 11 months. All in all if interviews are to be done twice a year some 3680 interviews would be done every year.[1/] In addition, there will be a need for one Economist/Stastician to assist in data collection and one Systems Analyst for data processing. These personnel would be required immediately for a period of two years and would be working on both MOW and MOA impact studies. The CBS farm survey budget estimate for the 5-year programme is shown in Annex IV.

.2. MINISTRY OF WORKS

A Monitoring Unit to be staffed with one Development Economist, one Economist Statistician and three Planners will be established within the Planning Section of the Ministry of Works. Its main function will be to analyze data provided by CBS, MOW traffic surveys and MOA and to translate the results into practical planning tools to be used by the Planning Section. The traffic Units of MOW will handle the traffic surveys. For this, an additional 4 teams of 7 men each will be set-up and each team will consist of 4 enumerators, 1 team leader, 1 driver and 1 watchman. The 5-year programme budget for MOW's traffic survey is shown in Annex II.

1/ 4 roads/district x 23 districts x 20 households/road x 2 = 3680 interviews

2.5 COORDINATION

The proposed MES is a highly innovative venture in that it tries to provide the nucleus of a unified data system to be used by various operating ministries who also contribute to it jointly with the CBS. Especially in the early stages, attention to close coordination between all units involved will be crucial to make the project work successfully. To ensure compatibility and comparability of results from the different survey modules used by MOW, MOA and the IRS, questionnaires and code systems must be developed jointly and all proposed modifications need to be examined for their implications on the overall system that is being developed.

The project leader for the MES in the CBS shall be formally responsible for ensuring adequate coordination on all pre-analysis aspects of the work. During the first 9 months of the study, he will meet regularly (bi-weekly or monthly) with the experts in charge of the Monitoring Units of MOW and MOA to evolve compatible survey procedures and instruments. In this way, it will be ensured that improvements in data collection and processing procedures that seem indicated by accumulating field experience are introduced systematically by all units and that the implication of any proposed changes are fully understood by all involved.

A Steering Committee will be set up to follow the progress of the monitoring and evaluation exercise. The Committee will consist of representatives from CBS, MOW, MOA and the World Bank. The Steering Committee will be actively involved in evaluating various analytical tools and procedures proposed by the monitoring units through a series of regular meetings over the project horizon. The Steering Committee will also serve to channel experiences gained in other countries from similar studies and monitoring/evaluation exercises to the MES and the monitoring units. Of particular interst to the MOW will will be application of the road user savings and the producer saplus approach to measuring road impact in Brazil.[1] Much of the effort towards developing standard (computerized) analytical packages in Brazil as well as in the Bank will be relevent for the Kenya MOW.

1/ For details see: The Socio-Economic Impact of Rural Roads in Brazil -- Appendices 1-4.

2.6 STUDY COSTS

The costs of the monitoring and evaluation of the three projects will be covered partly by funds provided by the Bank Group for the MES under the RARP and partly by funds to be allocated by the Kenya Government to the CBS, and MOW. The total 5-year programme budget for the entire Monitoring and Evaluation Study is summarised in Annex I, while Annexes II, III and IV show the breakdown of each area of work by MOW and CBS respectively.

2.7 TENTATIVE WORK SCHEDULE

Phase I

February, 1977. Agreement in principle on this draft between Treasury, CBS, MOA and MOW.

Early March, 1977. MOW will submit to the World Bank a final draft after coordination with MOA, CBS and MOFP. Especially, format and coordination of questionnaires should be agreed upon.

Early May, 1977. The Bank will send the final document to MO.W

August-October, 1977. The MOW farm questionnaires will be field tested by CBS. A similar test will be done by the traffic unit. Moreover, enumerators will be recruited and trained. Other staff including Development Economist for MOW will also be recruited to take up positions before the end of 1977 or early 1978.

CBS and MOW will, during this period, also select samples areas, determine road influence areas and prepare the sample frame of each area. The final questionnaires should also be agreed upon.

Phase II

November 1977-April 1978

During this period the baseline surveys or before road project surveys will gradually start, including the traffic surveys. This first part is to select the households to be interviewed in each area. Simultaneously, data management formats will be established that will facilitate the integration of the materials into a unified information system.

Phase III

June 1978-December 1982

This phase will cover data collection on baseline surveys, follow-up surveys, traffic surveys, data processing and storage analysis and implementation.

SUMMARY OF TOTAL 5 - YEAR PROGRAMME BUDGET
BY SOURCE OF FUNDS AND AREA OF WORK
FOR THE PROPOSED RARP IMPACT STUDY

(1977/78 - 1981/82)

AREA OF WORK	TOTAL COST		SOURCE OF FUNDS			
			IBRD CREDIT(MES) 2/		BALANCE NEEDED FROM LOCAL AND/OR OTHER SOURCES	
	K£	US $ 1/	K£	US $	K£	US $
I. MINISTRY OF WORKS						
A. TRAFFIC SURVEY	180,728	433,750	-	-	-	-
B. FARM SURVEY ANALYSIS	177,705	426,490	-	-	-	-
TOTAL MOW's BUDGET	358,433	860,240	-	-	-	-
II. CBS (MFP)						
A. FARM SURVEY	222,449	533,880	-	-	-	-
TOTAL CBS BUDGET	222,449	533,880	-	-	-	-
GRAND TOTAL (I+II)	580,882	1,394,116	166,667	400,000	414,215	994,116

1/ Based on exchange rate of 1 US = 8.3 K.shs. and 1 K£ = 2.4 US $

2/ Refers to the recent Bank Group financing of US $ 400,000 towards the cost of the Monitoring and Evaluation study (MES) under the RARP.

ANNEX II

ROADS DEPARTMENT
PLANNING SECTION
TRAFFIC ENGINEERING UN

ESTIMATED BUDGET FOR MOW's ORIGIN AND DESTINATION SURVEYS UNDER THE PROPOSED RARP IMPACT STUDY

(1977/78-1981/82)

CATEGORY OF COST	NO REQUIRED	ANNUAL UNIT COST (K£)	PROGRAMME PERIOD 1977/78 (K£)	1978/79 (K£)	1979/80 (K£)	1980/81 (K£)	1981/82 (K£)	5 - YEAR TOTAL (K£)
I. LOCAL PERSONNEL 1/								
A. ENUMERATOR	8							
- Salary		480	3,840	3,840	3,840	3,840	3,840	19,200
- Housing + Filed Allowance		135	1,080	1,080	1,080	1,080	1,080	5,400
B. ENUMERATOR	8							
- Salary		120	960	960	960	960	960	4,800
- Housing + Filed Allowance		34	272	272	272	272	272	1,360
C. TEAM LEADER	4							
Salary		600	2,400	2,400	2,400	2,400	2,400	12,000
Housing + Filed Allowance		135	540	540	540	540	540	2,700
D DRIVER	4							
- Salary		600	2,400	2,400	2,400	2,400	2,400	12,000
- Housing + Field Allowance		135	540	540	540	540	540	2,700
E. WATCHMAN	4							
- Salary		480	1,920	1,920	1,920	1,920	1,920	9,600
- Housing + Field Allowance		135	540	540	540	540	540	2,700
TOTAL OF LOCAL PERSONNEL	28	-	14,492	14,492	14,492	14,492	14,492	72,460
II. CAPITAL COSTS								
A - TRANSPORT VEHICLE								
- LAND ROVER	4	4,500	18,000	-	-	-	-	18,000
B. MATERIALS AND SUPPLIES								
- TENT	16	60	960	-	960	-	-	1,920
- TYPEWRITER	2	225	450	-	-	450	-	900
- FIELD AND OFFICE EQUIPMENT	-	500	500	-	-	-	-	500
TOTAL OF CAPITAL COSTS	-	-	19,910	-	960	450	-	21,320

CATEGORY OF COST	NO REQUIRED	ANNUAL UNIT COST	PROGRAMME PERIOD 1977/78 (K£)	1978/79 (K£)	1979/80 (K£)	1980/81 (K£)	1981/82 (K£)	5 - YEAR TOTAL (K£)
III. OPERATING COSTS								
A. LAND ROVER	4	1875 2/	7,500	7,500	7,500	7,500	7,500	37,500
B. PRINTING, COMPUTER WORK ETC.	-	200	200	200	200	200	200	1,000
TOTAL OF OPERATING COSTS	4	-	7,700	7,700	7,700	7,700	7,700	38,500
TOTAL BASELINE COSTS (I + II + III)	-	-	42,102	22,192	23,152	22,642	22,192	132,280
IV. CONTINGENCIES								
A. PHYSICAL (15%)	-	-	6,315	3,329	3,473	3,396	3,329	19,842
B. PRICE ESCALATION (10% pa.)	-	-	-	2,552 3/	5,591 3/	8,619 3/	11,844 3/	28,606
TOTAL OF CONTINGENCIES	-	-	6,315	5,881	9,064	12,015	15,173	48,448
GRAND TOTAL OF ALL COSTS 4/ (I + II + III + IV)	-	-	48,417	28,073	32,216	34,657	37,365	180,728

1/ Among the 28 people required for the origin and destination (O and D) surveys, 20 will be selected from existing MOW pool of traffic census crew while the remaining 8 enumerators will be recruited on seasonal basis.

2/ Based on an estimated annual travel of 25,000 Km per vehicle and operation cost of K.Shs. 1.50 per km.

3/ Escalated by the appropriate yearly factor after summing up the yearly baseline cost and the physical contingency figure.

4/ Cost estimate based on 5 days count on 2 roads per district in Lieu of 2 days and 1 night count on 4 roads per district as originally contemplated.

ANNEX III

ROADS DEPARTMENT
PLANNING SECTION
MONITORING UNIT

ESTIMATED BUDGET FOR MOW'S
ANALYSIS AND EVALUATION OF FARM SURVEY DATA
UNDER THE PROPOSED
RARP IMPACT STUDY
(1977/78-1981/82)

CATEGORY OF COSTS	NO	ANNUAL UNIT COST (K£)	PROGRAMME PERIOD 1977/78 (K£)	1978/79 (K£)	1979/80 (K£)	1980/81 (K£)	1981/82 (K£)	5 YEAR TOTAL (K£)
I. PERSONNEL REQUIREMENTS								
A. TECHNICAL ASSISTANCE PERSONNEL								
1. DEVELOPMENT ECONOMIST	1	4,000 1/	4,000	4,000	4,000	4,000	4,000	20,000
2. ECONOMIST STATISTICIAN	1	4,000 1/	4,000	4,000	4,000	4,000	4,000	20,000
3. PLANNING ENGINEER	1	4,000 1/	4,000	4,000	4,000	4,000	4,000	20,000
SUB-TOTAL OF LOCAL PERSONNEL	3	-	12,000	12,000	12,000	12,000	12,000	60,000
B. LOCAL PERSONNEL								
1. ECONOMIST/STATISTICIAN	1	2,570 2/	2,570	2,570	2,570	2,570	2,570	12,850
2. PLANNING ENGINEER	2	3,400 2/	6,800	6,800	6,800	6,800	6,800	34,000
3. TYPIST	1	600	600	600	600	600	600	3,000
4. DRIVER	1	735 2/	735	735	735	735	735	3,675
SUB-TOTAL OF LOCAL PERSONNEL	5	-	10,705	10,705	10,705	10,705	10,705	53,525
TOTAL OF I - PERSONNEL REQUIREMENTS	8	-	22,705	22,705	22,705	22,705	22,705	113,525
II. CAPITAL COSTS								
A. LAND ROVER	1	4,500	4,500	-	-	-	-	4,500
B. TYPEWRITER	1	225	225	-	225	-	-	450
C OFFICE DESK, CHAIRS ETC.	-	840	840	-	-	-	-	840
TOTAL OF II - CAPITAL COSTS	-	-	5,565	-	225	-	-	5,790

CATEGORY OF COST	NO REQUIRED	ANNUAL UNIT COST (K£)	PROGRAMME PERIOD 1977/78 (K£)	1978/79 (K£)	1979/80 (K£)	1980/81 (K£)	1981/82 (K£)	5 - YEAR TOTAL (K£)
III - OPERATING COSTS								
A. LAND ROVER	1	1,500 3/	1,500	1,500	1,500	1,500	1,500	7,500
B. PRINTING + OTHER CHARGES	-	150	150	150	150	150	150	750
TOTAL OF II - OPERATING COSTS	-	-	1,650	1,650	1,650	1,650	1,650	8,250
TOTAL BASELINE COSTS (I + II + III)	-	-	29,920	24,355	24,580	24,355	24,355	127,565
IV. CONTINGENCIES								
A. PHYSICAL (15%)	-	-	4,488	3,653	3,687	3,653	3,653	19,134
B. PRICE ESCALATION (10% p.a.)	-	-	-	2,800 4/	5,936 4/	9,270 4/	13,000 4/	31,006 4/
TOTAL OF CONTINGENCIES	-	-	4,488	6,453	9,623	12,923	16,653	50,140
GRAND TOTAL OF ALL COSTS (I + II + III + IV)	-	-	34,408	30,808	34,203	37,278	41,008	177,705

1/ As the post is expected to be filled through a Technical Assistance Grant, the amount shown includes only the GOK's share for Local salary, housing and internal travel allowance. Depending on the type of Technical Assistance agreements, the local salary and housing allowance may or may not be required. The Technical Assistance arrangement for expatriate staff is in line with GOK's desire not to utilize interest bearing credit funds for payment of foreign staff salaries. For example, the current IBRD-IDA credit of US $ 400,000 (or K£ 166,670) earmarked for the RARP Monitoring and Evaluation Study (MES) bears an average interest of 4 per cent per annum.

Includes salary, housing and travel allowance

Based on a total yearly travel of 20,000 km and vehicle operation cost of K.shs. 1.50 per km

Escalated by the appropriate yearly factor after summing up the yearly baseline cost and the physical contingency figure

ANNEX IV

MINISTRY OF FINANCE AND PLANN.
CENTRAL BUREAU OF STATISTICS
SPECIAL UNIT

ESTIMATED BUDGET FOR FARM SURVEY TO BE UNDERTAKEN BY THE CBS IN CONNECTION WITH M.O.W.'s RURAL ACCESS ROADS IMPACT STUDY

(1977/78-1981/82)

CATEGORY OF COST	NO REQUIRED	ANNUAL UNIT COST (K£)	1977/78 (K£)	1978/79 (K£)	1979/80 (K£)	1980/81 (K£)	1981/82 (K£)	5 - YEAR TOTAL (K£)
I. PERSONNEL REQUIREMENTS								
A-LOCAL PERSONNEL								
1. ENUMERATOR	14							
- Salary		369	5,166	5,166	5,166	5,166	5,166	25,830
- Housing Allowance		180	2,520	2,520	2,520	2,520	2,520	12,600
- Bicycle Allowance		9	126	126	126	126	126	630
2. SUPERVISOR	4							
- Salary		489	1,956	1,956	1,956	1,956	1,956	9,780
- Housing Allowance		180	720	720	720	720	720	3,600
- Subsistence Allow.		125	500	500	500	500	500	2,500
3. CODER	8							
- Salary		369	2,952	2,952	2,952	2,952	2,952	14,760
- Housing Allowance		180	1,440	1,440	1,440	1,440	1,440	7,200
4. TYPIST	1							
- Salary		369	369	369	369	369	369	1,845
- Housing Allowance		180	180	180	180	180	180	900
5. DRIVER	3							
- Salary		276	828	828	828	828	828	4,140
- Housing Allowance		180	180	540	540	540	540	2,700
SUB-TOTAL OF A	30		17,297	17,297	17,297	17,297	17,297	86,485
B-EXPATRIATE PERSONNEL								
1. SYSTEMS ANALYST	1	3,000 1/	3,000	3,000	-	-	-	6,000
SUB - TOTAL OF B	1	-	3,000	3,000	-	-	-	6,000
TOTAL OF PERSONNEL REQ. I (A + B)	31	-	20,297	20,297	17,297	17,297	17,297	92,485

ESTIMATED BUDGET FOR CBS FARM SURVEY (CONT.)

CATEGORY OF COST	NO REQUIRED	ANNUAL UNIT COST (K£)	1977/78 (K£)	1978/79 (K£)	1979/80 (K£)	1980/81 (K£)	1981/82 (K£)	5 - YEAR TOTAL (K£)
II. CAPITAL COSTS								
A. Land Rover	3	4,500	13,500	-	-	-	-	13,500
B. Motor Cycle	4	535	2,140	-	-	2,140	-	4,280
C. Electric Verifier	1	625	625	625	625	625	625	3,125
D. Measuring wheel	8	75	600	-	-	600	-	1,200
E. Compass	8	39	312	-	-	312	-	624
TOTAL OF CAPITAL COSTS	-	-	17,177	625	625	3,677	625	22,729
III. OPERATING AND MAINTENANCE COSTS								
A. Land Rover	3	1,875 2/	5,625	5,625	5,625	5,625	5,625	28,125
B. Motor cycle	4	120	480	480	480	480	480	2,400
C. Punch cards	30,000	-	20	20	20	20	20	100
D. Cartography cost	-	-	2,000	2,000	2,000	2,000	2,000	10,000
E. Questionnaire printing	30,000	0.25	7,500	-	-	-	-	7,500
TOTAL OF OPER. + MAINT. COSTS	-	-	15,625	8,125	8,125	8,125	8,125	48,125
TOTAL BASELINE COSTS (I+II+III)			53,099	29,047	26,047	29,099	26,047	163,339
IV. CONTINGENCIES								
A. PHYSICAL (15%)	-	-	7,965	4,357 3/	3,907 3/	4,365 3/	3,907 3/	24,501
B. PRICE ESCALATION (10%)	-	-	-	3,340	6,290	11,077	13,902	34,603
TOTAL OF CONTINGENCIES	-	-	7,965	7,697	10,197	15,442	17,809	59,110
GRAND TOTAL OF ALL COSTS (I + II + III + IV)	-	-	61,064	36,744	36,244	44,541	43,856	222,449

1/ Includes local salary and housing allowance but excludes basic salary which is anticipated to be covered under a bilateral technical assistance arrangement. In view of this, the basic salary of US $ 50,000 p.a. or (K£ 20,350 p.a.) shown under the original CBS estimate has been replaced by the new figure of US $ 7,200 p.a. (or K£ 3000 p.a.) since it is felt that no interest bearing credit funds should be utilized for financing the salary of expatriate staff. For example, the current IBRD - IDA credit of US $ 400,000 earmarked for the Monitoring and Evaluation Study (MES) bears an average interest of about 4 per cent per annum.

2/ The original CBS estimate of total annual mileage of 12,000 km per vehicle has been increased to a new figure of about 25,000 km per vehicle per annum (.e.g. $\frac{25000 \times 1.5}{20} =$ K£ 1,875)

3/ This figure has been arrived at by adding the yearly baseline cost and the physical contingency amount and then escalating the result by the appropriate factor.

4/ It should be pointed out that depending on the type of the bilateral agreements, the local salary and housing allowance for expatriate staff may or may not be required.

QUESTIONNAIRE FORMS

FOR

FARM AND ORIGIN AND DESTINATION SURVEYS

FARM HOUSEHOLD SURVEY

QUESTIONNAIRE FORMS

(Appendixes A - 1 to A-7)

MINISTRY OF WORKS

STUDY OF THE IMPACT OF ROAD IMPROVEMENT ON RURAL DEVELOPMENT

SURVEY OF FARMS

Questionnaire Guide

1. Road No.....From.....To.....Total Length in Km.....

2. Province [ ] District [ ] Location [ ] Farm No. [ ] Distance from farm to main road in Km.....

Link to Road : Footpath _____

Track - Dry Weather _____

Track - All Weather _____

3. HOUSEHOLD CHARACTERISTICS

Name	Relation to HH	Sex	Age	Marital Status	Educ. Status	Profession	During past Year: N Months Worked ON FARM	OFF FARM	N Years Lived in this place	IF APPLICABLE Where lived before :

Relation
- SP = Spouse
- C = Child
- P = Parent
- S = Sibling
- E = Extended family member
- N = None

Marital Status
- S = Single
- M = Married
- W = Widowed
- D = Divorced

Education
- 1 = Illiterate
- 2 = Standard I-IV
- 3 = Standard V-III
- 4 = Form I-VI
- 5 = Other (specify)

4. FARM CHARACTERISTICS

A. LAND USE

	(1) ha	(2) Land Value (Sh.)	(3) Ownership	(4) If Rented Form of Rent Payment
Total Farm Area				
Permanent Crops				
Annual Crops				
Fodder Crops				
Grassland (Natural)				
Grassland (Improved)				
Fallow				

O = Owned
R = Rented
C = Communal

1 = Cash
2 = Fixed Amt. of Crop
3 = % Share of Crop (Specify)

N of SEPARATE Parcels Owned _____

N of SEPARATE Parcels Cultivated _____

IS MORE PHISICALLY SUITABLE LAND AVAILABLE ON OR ADJACENT TO FARM FOR YOU TO CULTIVATE? NO YES

HOW MUCH? _____ ha

WHY DO YOU NOT CULTIVATE SUCH LAND AT PRESENT - ARE THERE PROBLEMS?

- LAND OWNERSHIP
- MANPOWER
- INPUTS SUCH AS: Fertiliser, Seeds, Machinery, Technical Advice from Extension Services (circle as appropriate)
- TRANSPORT
- MARKETING
- FINANCE

OTHER (SPECIFY): _____

_____

B. ANIMAL OWNERSHIP

No. of cattle owned : _____ OF THESE: No. of Draft Animals _____ DAIRY CATTLE _____

No. of sheep owned : _____

No. of goats owned : _____

No. of pigs owned : _____

No. of fowl owned : _____

Other : _____

C. EQUIPMENT OWNED :

Plough	Harrow	Animal Cart	Hand Cart	Other _____
_____	_____	_____	_____	_____

(circle as appropriate, if more than one insert number)

D. EMPLOYMENT

HOW MANY PEOPLE WORK WITH YOU ON THE FARM?	N ADULTS	N CHILDREN	DAYS WORKED PER YEAR	PAY PER DAY (Sh)
Family members				
Full-time employees				
Part-time employees				

HOUSEHOLD ID _____

5. PRODUCTION FOR MARKET AND SUBSISTENCE

DID YOU SELL ANY CROPS OR ANIMAL PRODUCTS IN PAST YEAR _____NO _____YES SPECIFY:_____

_____

WHAT WERE THE CROPS YOU PRODUCED FOR YOUR OWN USE ONLY? (Include vegetables and fruit)

Crop Name	Area Cultivated	N Crops/ Year	Qty produced last season	Assessment of Crop (Exc/Normal/bad)

COULD YOU GIVE US SOME INFORMATION ABOUT THE CROPS/PRODUCTS YOU SAID YOU SOLD IN THE LAST SEASON?
(If more than 5, use additional sheet)

	(1)	(2)	(3)	(4)	(5)
Crop/Product					
Area/Trees Cultivated					
N Crops/per year					
Quantity Sold (Specify unit)					
Price per unit sold					
Place of Sale					
Means of Transport					
IF HIRED: Cost of Transport					
INPUTS					
Seeds : quantity					
Fertilizer : "					
Herb/Pesticides: "					
Hired Labor : man/days					
Hired Eq. : hours					
Hired animals: days					
Family Labor : man/days					
Own equip. : hours					
Own animals : days					

6. TRANSPORT AND ACCESS TO MARKETS AND SERVICES

DO YOU OWN ANY TRANSPORT? Bicycle Motorcycle Oxcart Tractor Pickup Other_____ None

(Circle as appropriate; If more than one, insert Number)

IF YES: DID YOU HIRE IT OUT IN PAST YEAR?						
Charge/day/trip						
Total rend/year						
IF NONE: DID YOU HIRE ANY TRANSPORT IN LAST YEAR?						
Cost/day/trip						
Total cost/year						

WHAT FOOD AND HOUSEHOLD ARTICLES DID YOU BUY LAST MONTH? (FOOD, DRINKS, SOAPS, FUEL ETC.)

Item	Unit	Qty	Price	Place of Purchase	Mode of Transport	Cost of Transport (Round Trip)

WHAT OTHER LARGER PURCHASES DID YOU MAKE DURING THE LAST YEAR? (TEXTILES/CLOTHES/FURNITURE/FURNISHINGS) CONSUMER DURABLES

Item	Unit	Qty	Price	Place of Purchase	Mode of Transport	Cost of Transport

HOUSEHOLD ID _____

AND WHAT WERE THE THINGS YOU BOUGHT FOR THE FARM?

Item	Qty	Price	Place of Purchase	Transport	Cost of Transport/Unit
Seed					
Fertiliser					
Herbicides + Pesticides					
Machines					
Tools					
Veterinary Serv.					
Cattle Dipping					
Other					

HOW OFTEN HAVE YOU BEEN VISITED BY EXTENSION WORKERS DURING THE PAST YEAR?

N Visits	Transport Mode	Type of Advice Rec'd (Specify crop/activity)

HOW OFTEN HAVE YOU AND THE OTHER PEOPLE OF YOUR HOUSEHOLD TRAVELLED AWAY FROM THE FARM DURING THE PAST MONTH ON VISITS TO -

	No. of trips: Adults	No. of trips: Children	Distance: Kms: Footpath	Distance: Kms: - road	Mode of Transport	Transport Cost/ Journey	Transport Time/ Journey
Relatives/friends							
Church							
School							
Health Center							
Place of Work							
Other							

DEVELOPMENT GOALS AND PRIORITIES

WHAT WOULD YOU SAY ARE THE MOST IMPORTANT THINGS THAT COULD BE DONE TO MAKE THINGS BETTER FOR THE PEOPLE IN YOUR COMMUNITY?

1st priority _____

2nd priority _____

3rd priority _____

4th priority _____

HOW DO YOU THINK THIS COULD BEST BE CARRIED OUT?

_____

_____

_____

_____

_____

_____

AND WHAT ARE THE THINGS YOU WOULD MOST LIKE TO ACHIEVE FOR YOUR FAMILY?

_____

_____

_____

_____

_____

_____

ORIGIN AND DESTINATION SURVEY QUESTIONNAIRE FORMS

(Appendixes B-1 to B-3)

APPENDIX B

MINISTRY OF WORKS

STUDY OF IMPACT OF ROAD IMPROVEMENT ON RURAL DEVELOPMENT

ORIGIN/DESTINATION SURVEYS

1. TRAFFIC COUNTS.....Traffic counts by vehicle type, monthly (or, if this is not possible, by season such as dry season and wet season)

(see attached forms)

2. COMMODITY MOVEMENT.....By volume and type

ORIGIN/DESTINATION

3. PASSENGERS TRIP PURPOSE

	YES	NO
- MARKET.....		
- SOCIAL INSTITUTIONS.....		
- GOVERNMENT BUSINESS.....		
- OTHER.....		

NOTE

(1) Forms will be amended to include pedestrian and non-motorized vehicle traffic and transport

(2) A list of transporters serving each road will be drawn up on occasion of O/D surveys. This may be useful, if more detailed transport surveys are found desirable at later stages of the study.

CLASSIFIED DIRECTIONAL MANUAL TRAFFIC COUNT

ROAD No.

ENUMERATOR

SHEET No.

SITE CODE No.

PROVINCE

DISTRICT

SITE LOCATION

DAY & DATE

HOUR ENDING	FROM A										FROM B										FROM C									
	TO B					TO C					TO A					TO C					TO A					TO B				
	C	L	M	H	B	C	L	M	H	B	C	L	M	H	B	C	L	M	H	B	C	L	M	H	B	C	L	M	H	B

MINISTRY OF WORKS

GOVERNMENT OF KENYA

TRUCK MOVEMENT SURVEY

QUESTIONAIRE No. 3

DATE	STATION	HOUR ENDING	SHEET No.

VEHICLE TYPE	TYPE OF LICENCE	NUMBER OF PERSONS IN VEHICLE	WHERE DID THIS TRIP BEGIN?	ESTABLISH'T TYPE AT ORIGIN	WHERE WILL THIS TRIP END?	ESTABLISHM'T TYPE AT DESTINATION	NUMBER OF INTERMEDIATE STOPS	CARRYING CAPACITY (TONS)	GOODS CARRIED		
									VOLUME FILLED	MAIN COMMODITY	SECOND COMMODITY
									1 3/4 1/2 1/4	1 3/4 1/2 1/4	1 3/4 1/2 1/4
									1 3/4 1/2 1/4	1 3/4 1/2 1/4	1 3/4 1/2 1/4
									1 3/4 1/2 1/4	1 3/4 1/2 1/4	1 3/4 1/2 1/4
									1 3/4 1/2 1/4	1 3/4 1/2 1/4	1 3/4 1/2 1/4
									1 3/4 1/2 1/4	1 3/4 1/2 1/4	1 3/4 1/2 1/4

VEHICLE TYPE

1. LIGHT GOODS
2. TANKER
3. OTHER

MEDIUM GOODS

4. TANKER
5. OTHER

HEAVY GOODS

LICENCE TYPE

1. PUBLIC CARRIER (B)
2. PRIVATE CARRIER (C)
3. GOVERNMENT VEHICLE

ESTABLISHMENT TYPE

1. RESIDENTIAL
2. FARM
3. FACTORY
4. RETAIL (SHOP/MARKET)
5. QUARRY
6. CONSTRUCTION SITE
7. WHOLESALE
8. TERMINAL
9. RAILROAD
10. WAREHOUSE
11. HARBOUR

INTERVIEWER	
CHECKER	
CODER	

COMMUNITY INVENTORY
QUESTIONNAIRE FORMS

APPENDIX C

MINISTRY OF WORKS

STUDY OF IMPACT OF ROAD IMPROVEMENT ON RURAL DEVELOPMENT

COMMUNITY INVENTORY

On occasion of establishing the sampling frame, an inventory of all communities in the road area of influence will be established. This shall detail such things as

TOTAL POPULATION

N OF HOUSES BY TYPE

SOURCE OF DRINKING WATER FOR COMMUNITY

N OF SHOPS BY TYPE

N OF SCHOOL N PUPILS ATTENDING

N OF HEALTH CENTERS/N PATIENTS TREATED P.A.

N OF OTHER FACILITIES

This inventory is updated on occasion of resurvey of farm-sample and origin/destination surveys as practicable.

PRODUCTIVITY AND COST DATA

TECHNOLOGY UNITY STUDY

APPENDIX D

O/C's MONTHLY REPORT

(SAMPLE SHEET)

UNIT Kwale I MONTH November [illegible]

A ROADS	This month	Since unit started
Completed (except murram) Km.	5.7	39.5
Murramed Km	1.2	7.4
To be murramed Km		17.0
No murram required Km		15.1

Roads started / finished this month

No. and Name	S	F	Length m	Class
4. Mazumeni-Mazamilla		✓	8.0	
5. Uzunda-Mazamanga		✓	7.0	
6. Dam-Mahaka		✓	7.8	

B STRUCTURES	Length metres	This month paid mandays	Cost
—			
—			
—			
—			
—			

C MURRAM Road no. name	Km. completed this month	Tractor-hours	Paid Mandays	Ave. haul dist. (one way) Km.
2. Vuga Lunguni	1.2	34.2	529	7.36

D STAFF	HQ paid	Works paid	Casual	STD trained
Inspectors/TR.	1	—	—	—
Overseers	2	2	6	10
Other tech. staff (Ahmen)	—	—	13	—
Admin. staff	—	—	7	—
Drivers	—	8	—	—

E CASUAL LABOUR	
Total emp.	224

F VEHICLES and PLANT Reg. no. and Type	Km/Hrs Run	Fuel Used (Litres)	[illegible]
521 K Ford Sun	95	428	—
527 K " "	84	331	—
485 K " "	76	353	3
483 K " "	87	431	1
500 K BMC 830	3396	390	—
786 K L/Rover	3975	680	—
465 K "	3070	498	—

G HIRED TRANSPORT PLANT or SER[illegible] Type and Reason for hire	Days	C[illegible]
—	—	
—		
—		
—		

H EXPENDITURE	This month	Th[illegible]
Wages, Workspaid	7150	3[illegible]
" , Casual	87 134	22[illegible]
Equipment	NIL	N[illegible]
Tools	6 076	1[illegible]
Material, roads & structures	15 428	3[illegible]
Camp and Office	NIL	[illegible]
Plant running costs	479	
Vehicles running costs	959	
Subtotal	119 826	33[illegible]
Liabilities	25 652	1[illegible]
Total	75 065	[illegible]
Head office charges	—	
Grand total	75 065	[illegible]

Est. exp. for [illegible]

J	Date	Units		Date
CSE			IBRD	
SSE			OR	

A P P E N D I X E

MINISTRY OF AGRICULTURE QUESTIONNAIRE FORMS

F O R

SMALLHOLDER EVALUATION PROGRAMME

(Appendixes E -- 1 to E -- 13)

CONFIDENTIAL

District _____

Farm No. _____

Location _____

Date _____

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

Part	Form	Farm No.	Prov/ Dist.
A	1		
1	2	3 4	5 6

Total Living in Household	6 Children less than 14	Children in School	Adults available for farm work	Adult Household Members Working off the Farm	Who is the holder 1) Head of Household 2) Wife 3) Son 4) Other(specify)	Education of holder 1) No formal Education 2) Standard I – IV 3) Standard V – VIII 4) Form I – VI 5) Other (specify)	How many parcels make up your holding	Type of Ownership 1) Owned 2) Rented 3) Part owned/Part rented	If rented, how is payment made 1) Cash 2) fixed amount of product 3) Sharing of product	If rented, how much was payment in shillings
7	8 9 10	11	12	13	14	15	16	17	18	19 20 21 22

TEA	Nos. of Plants	Age	Acres	Value	COFFEE	Nos. of Plants	Age	Acres	Value	TREE CROP	Nos. of Plants	Age	Acres	Value	Total Value Permanent Crops	Total Has Permanent Crops

LAND USAGE

Permanent Crops		Annual Crops		Fodder Crops		Grassland (Natural)		Grassland (Improved)		Fallow land		Other		Total Farm Area	
Has	Land Value	Has	Value	Has	Value	Has	Value	Has	Value	Has	Value	Has	Value	Has	Value

Part A, Form 2

A	2			
1	2	3	4	5

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

CONFIDENTIAL
District _____
Farm. No. _____
Location _____
Date _____

Cattle:

Type		Bulls Under 1 yr	Bulls 1-2 yrs	Bulls Over 2 yrs	Steers Under 1 yr	Steers 1-2 yrs	Steers Over 2 yrs	Female Calves	Heifers	Cows	Total
Improved	No.										
	Value										
Unimproved	No.										
	Value										

Other Livestock:

	Sheep Young	Sheep Adult	Sheep Total	Goats Young	Goats Adult	Goats Total	Pigs Young	Pigs Adult	Pigs Total	Other Livestock (specify)
No.										
Value										

Farm Equipment (Shs)

Animal drawn carts	Hand drawn carts	Ploughs	Harrows	Wheel barrows	Milk Separators	Spray Pumps	Maize Cutters	Maize Grinders	Water Pumps	Other (specify)	Total

Farm Structures (Shs)

Houses Domestic	Houses Animals	Stores	Water Tanks	Piping	Fences	Gates	Other (specify)	Total

Local price for farmland per acre _____

Agricultural officers estimate of Land prices per acre. _____

SMALLHOLDER EVALUATION PROGRAMME

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

CONFIDENTIAL

Part B; Form 1:

Crop Inputs, Costs and Labour Data

District
Farm No.
Location
Date

Plot No.	Crop	Area	Dense Terrace 1 = Yes 0 = No	Land Preparation: Date	Mechanised Labour: Tractor Hired (shs)	Mechanised Labour: Tractor Hired (hrs)	Mechanised Labour: Oxen Hired (shs)	Mechanised Labour: Oxen Owned (Days)	Manual Labour: Hired Perm (MD)	Manual Labour: Hired Casual (shs)	Manual Labour: Family (MD)	Seeding: Date	Seeding: Type of Seed	Seeding: Quant Own Seed (kg)	Seeding: Quant Purch Seed (kg)	Seeding: Total Costs (shs)	Seeding: No. Plants per 10 metre (S)	Seeding: Dist Betw Rows (Mtrs)	Seeding: Planting Labour Hired Perm. (MD)	Seeding: Planting Labour Hired Casual (shs)	Seeding: Planting Labour Family (MD)	Fertilizer - 1st: Date	Fertilizer - 1st: Type	Fertilizer - 1st: Quant (kg)	Fertilizer - 1st: Total Costs (shs)	Fertilizer - 1st: Application Labour Hired Perm. (MD)	Fertilizer - 1st: Application Labour Hired Casual (shs)	Fertilizer - 1st: Application Labour Family (MD)

1) Maize - Natumani
2) Maize - Hybrid 500's
3) Maize - Hybrid 700's
4) Maize - Hybrid 900's
5) Maize - Local
6) Beans - Mexican 142
7) Beans - local
8) Rice - Paddy
9) Rice - Upland
10) Potatoes - certified
11) Potatoes - Non-certified, local
12) Sunflower - Kenya White
13) Sunflower - Grey stripes
14) Sunflower - Dark stripes
15) Sunflower - Hansen 202
16) Pyrethrum - Low content
17) Pyrethrum - High content
18) Groundnut - South Nyanza Type
19) Groundnut - Uganda Type
20) Cotton - BAA
21) Cotton - others

People employed per day in oxen Hired

People employed per hour in Tractor Hired

Phosphate Fertilizer

1) Single Superphosphate (SSP)
2) Double Superphosphate (DSP)
3) Triple Superphosphate (TSP)

Nitrogen Fertilizer

4) Sulphate of ammonia (SA)
5) Calcium Ammonium Nitrate (CAN)
6) Ammonium Sulphate Nitrogen (ASN)

Compound Fertilizer

7) Chapa Ndega (11-55-0)
8) - (15-45-0)
9) - (20-20-0)
10) - (25-1-0)

Part B: Form 2:

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

CONFIDENTIAL

District _____
Farm No _____
location _____
Date _____

Plot No.	Crop	Fertiliser - 2nd: Date	Type	Quant (kg)	Total Costs (Shs)	Application Labour: Hired: Perm (MD)	Casual (Shs)	Family (MD)	Dust and Spray: Date	No. of Apl	TYPE	Quant (kg)	Total Costs (shs)	Application Labour: Hired: Perm (MD)	Casual (Shs)	Family (MD)	WEEDING: 1st: Date	Hired: Perm (MD)	Casual (Shs)	Family (MD)	2nd: Date	Hired: Perm (MD)	Casual (Shs)	Family (MD)	3rd: Date	Hired: Perm (MD)	Casual (Shs)	Family (MD)	Total Number of Weedings	Yield Estimate (kg)

1) Dipterex
2) Dithane M-45
3) Dithane
4) Thiodan
5) DDT/Gervin
6) DDT Dust
7) Aldrin
8) Copper unglaice
9) Rogor E.

Form 3: Form 3:

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

CONFIDENTIAL

District
Form No.
Location
Date

Crop	Harvesting						Threshing & Shelling Labour			Production			Sold to Marketing Board		Sold Locally		Give Reason for low Yield	Germination Rate	What restrict off[illegible] Yield
	Date	Materials		Labour															
		Type Quan	Total Costs (Shs)	Hired Perm (MD)	Hired Casual (Shs)	Family (MD)	Hired Perm (MD)	Hired Casual (Shs)	Family (MD)	Picked Green (Kg)	Harvested (Kg)	Total production (Kg)	Quan (Kg)	Value (Shs)	Quan (Kg)	Value (Shs)			

Numbers of Hired Labourers Working on the Farm

	Regular Labour		Casual Labour	
	Adults	Children	Adults	Children
Average per day				
Average per month				

Code for Low Yields:

1. Late planting due to rain failure
2. Late planting due to late arrival of inputs
3. Late planting due to labour shortage
4. Low rainfall during season
5. Pesticide outbreak not controlled
6. Pest outbreak not controlled
7. Land preparation not sufficient
8. Weed control not sufficient
9. [illegible]

Code for Germinations:

1. None = 0%
2. Very low = 20%
3. Low = 40%
4. Average = 60%
5. Good = 80%
6. Very good = 90%

Part B: Form 4

8	4				
1	2	3	4	5	6

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

CONFIDENTIAL

District _____
Farm No. _____
Location _____
Date: _____

Livestock Data

Livestock Products Since Last Visit

Livestock Product	Produced		Sales			
			Local		Society	
	Unit	No.	No. Units	(Shs)	No. Units	(Shs)
Milk	Liters					
Eggs	Number					

Change in Livestock Since Last Visit

Type of Livestock	(1) Present Stock		(2) Sold		(3) Consumed		(4) Bought	
	Nos.	Value	Nos.	Value	Nos.	Value	Nos.	Value
cows								
heifers								
calves								
sheep								
goats								
pigs								
poultry								
Total								

Livestock Inputs Since Last Visit.

Type of input	Unit	Nos.	kgs	Total value (Shs)
Purchased concentrate				
Homegrown concentrate				
Mineral or Salt				
Vet. AI. Dip				
Others				
			Total	

rt B; Form 5

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

CONFIDENTIAL

District _____
Farm No. _____
Location _____
Date _____

Other Farm Income and Expenses. Non-farm Income and Check List

Other Farm Expenses (Last month)
(Not allocated to enterprises)

Items	Quantity	Total Cost (shs)
	TOTAL	

Other Farm Income (Last month)
(Not shown in Enterprises)

Items	Quantity	Total (shs)
Permanent Crops		
	TOTAL	

Non-farm Employment (Last month)

Items	Work days		Income (shs)
	Agr.	Non-Agr	
Non-farm Regular Employment			
Non-farm Casual Employment			

Check List

Enumerator _____

Date Given to Supervisor _____

Signature _____

Supervisor _____

Date Sent to P.S.O. _____

Signature _____

Date Sent to Nairobi _____

P.S.O.'s Signature _____

Edited by _____

Editing, Checking and Amending Completed on _____

Signature _____

Summarized by _____

Date _____

Signature _____

Part C: Form 1:

C/ | | | |

SMALLHOLDER EVALUATION PROGRAMME

District _____

Farm No. _____

Location _____

Date _____

Input Supply

Type of Input	Source where Input was Bought or Supplied	How did You Finance Purchase	Distance from Farm to Input Supplier	Quantity Bought: Unit (1 = Litres, 2 = Kilos, 3 = Bags)	Quantity Bought: No. (4 = Packets, 5 = Grams)	Was Supply Readily Available? (Yes = 1, No = 2)	Disposal of Leftover: Stored	Disposal of Leftover: Sold	Disposal of Leftover: Used in Crop other than Loan Crop

Code 1: –
1. Local Stockists
2. Cooperative Society
3. K.F.A.
4. Marketing Board
5. Others (Specify)

Code 2: –
1. SPSCP
2. IADP
3. AFC
4. Buying on Credit (KFA)
5. Buying on Credit (Stockist
6. Bank Credit
7. Commercial Credit-in-kind (Sh 1)
8. Loan from friends or

Part C: Form 2:

Marketing of Agricultural Produce

District _____
Farm No. _____
Location _____
Date _____

Type of Produce	Type of Outlet	Was Payment Made Immediately? Yes = 1 No = 2	If no, when was payment made? (No. days later)	Was product Collected from Holding? Yes = 1 No = 2	If no, what Type of Transportation was used?	Distance to the Market? (Miles)	Cost of Transport (shs)	Cost of Materials (shs)

Part C; Form 3:

GOVERNMENT OF KENYA
MINISTRY OF AGRICULTURE

APPENDIX E-10.
CONFIDENTIAL

District _____
Farm No. _____
Location: _____
Date _____

Extension Services

1. Where did you get information about farming practices ?

1st
(1) Suppliers / traders
(2) Farmer training courses.
(3) Other Farmers

2nd
(4) Ministry of Agriculture Extension Staff
(5) Government officials other than MOA staff
(6) Baragas
(7) Other (Specify) _____

2. How many times did MOA extension staff visit you this season ?

(1) Crop husbandry
(2) Livestock
(3) Credit/Farm Management

3. Did the extension staff inform you about demonstrations this season ?

Yes 1 No 2

4. Did you go ?

Yes 1 No 2

5. Why Not ?

1. No time
2. Not interested
3. Bad experiences with previous ones
4. Already known the subject
5. Distance too far
6. Other (Specify) _____

6. What demonstrations would you like to attend in the future ?

(1) Land Preparation
(2) Planting
(3) Use of Dusts and Sprays
(4) Use of Chemical Fertilizers
(5) Proper Crop Husbandry
(6) Livestock Husbandry
(7) Other (Specify) _____

1st [ ] [ ]

2nd [ ] [ ]

7. Did you or any other member of your household attend a course at FTC or other agricultural courses ?

Yes [1] → 8.

No [2] [ ]

8. Was the course relevant ?

Yes [1] No [2] [ ]

10. Why not ?

(1) Not well organized
(2) Subjects not useful
(3) Inadequate demonstration
(4) Poor teaching
(5) Other (specify) _____

[ ]

9. Why not ?

(1) No time
(2) Not informed
(3) Not interested
(4) Bad experience with previous course
(5) Neighbouring farmers had bad experience
(6) Already conversant with subject
(7) Other (specify) _____

[ ]

LABOUR

1. Did you get as much hired labour as you needed last year ?

Yes [1] No [2] [ ]

2. Why not ?

(1) Too expensive
(2) Not sufficient cash avail
(3) No labourers available
(4) Other (specify) _____

1st [ ] [ ]

2nd [ ] [ ]

3. Can you tell me at what time during the year there were too few labourers available when you needed them ?

1st [ ] [ ]
2nd [ ] [ ]

(1) During land preparation
(2) During planting
(3) During fertilizing
(4) During weeding time
(5) During harvesting
(6) at all times
(7) Never a shortage

What do you give your labourers besides pay ?

4. Regular Labourers

[ ] [ ] [ ] [ ]

(1) Housing
(2) Food
(3) Other (specify)_____

5. Casual Labourers

1st [ ] [ ] 2nd [ ] [ ]

(1) Housing
(2) Food
(3) Other (specify)_____

CREDIT

1. Did you borrow anything for your farm needs from friends or relatives last year ?

Yes [1] No [2] [ ]

2. What was the value of what you borrowed ? [ ] [ ] [ ] [ ] [ ]

3. Are you satisfied with the farm input supply arrangement in your area ?

Yes [1] No [2] [ ]

4. Why not ?

1st [ ] [ ]
2nd [ ] [ ]

(1) Late delivery of inputs
(2) Right kind not available
(3) Costs too much
(4) Other (specify)_____

5. Are you satisfied with the present arrangement of supplying credit ?

Yes [1] No [2] [ ]

6. Why not ?
   (1) Approval takes too long
   (2) It requires too much security
   (3) Delays in payments
   (4) Deductions are too high
   (5) Couldn't get the loan wanted
   (6) Other (specify) _____

7. Do you plan to get more loans in the future ?

Yes [1] No [2] [ ]

8. What kind of loan will you want for next year ?

Purpose	Amount

9. Why not ?
   (1) Has enough cash
   (2) Present debts too high
   (3) It's too risky
   (4) Other (specify) _____

1st [ ] 2nd [ ]

ode:

1. Crops 2. Livestock 3. Bldgs and Improvements

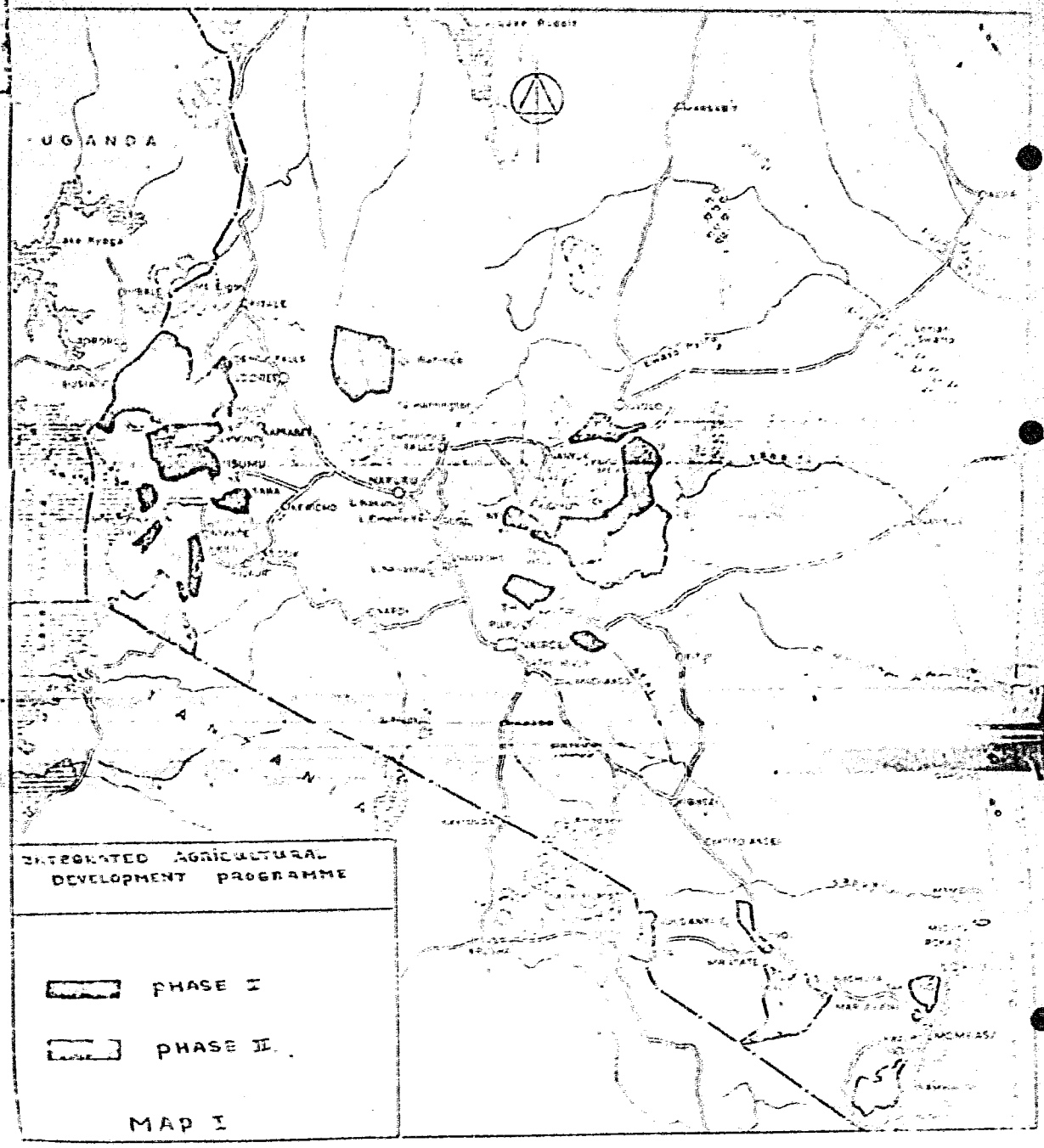
Marketing

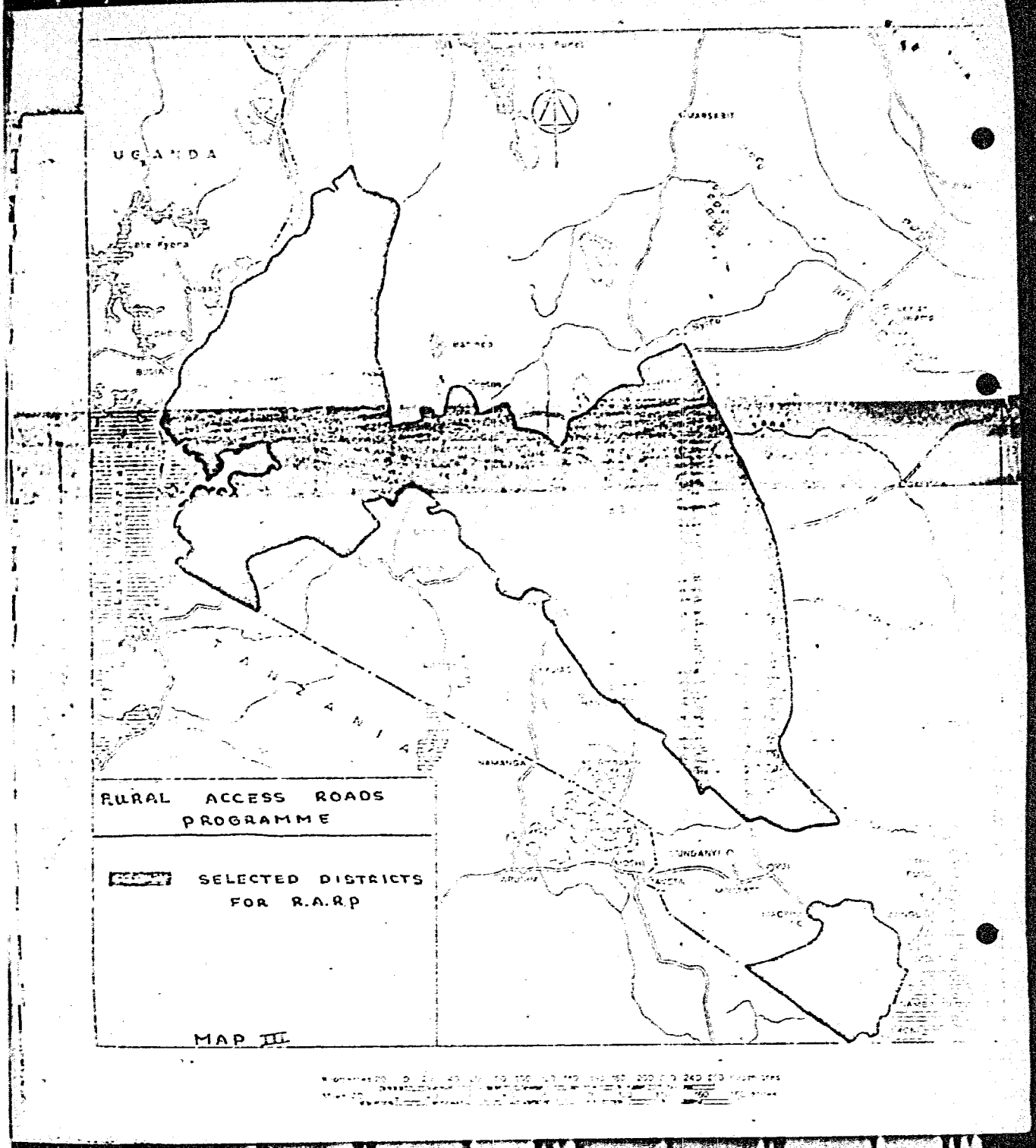
3. Are you satisfied with the present marketing facilities available to you ?

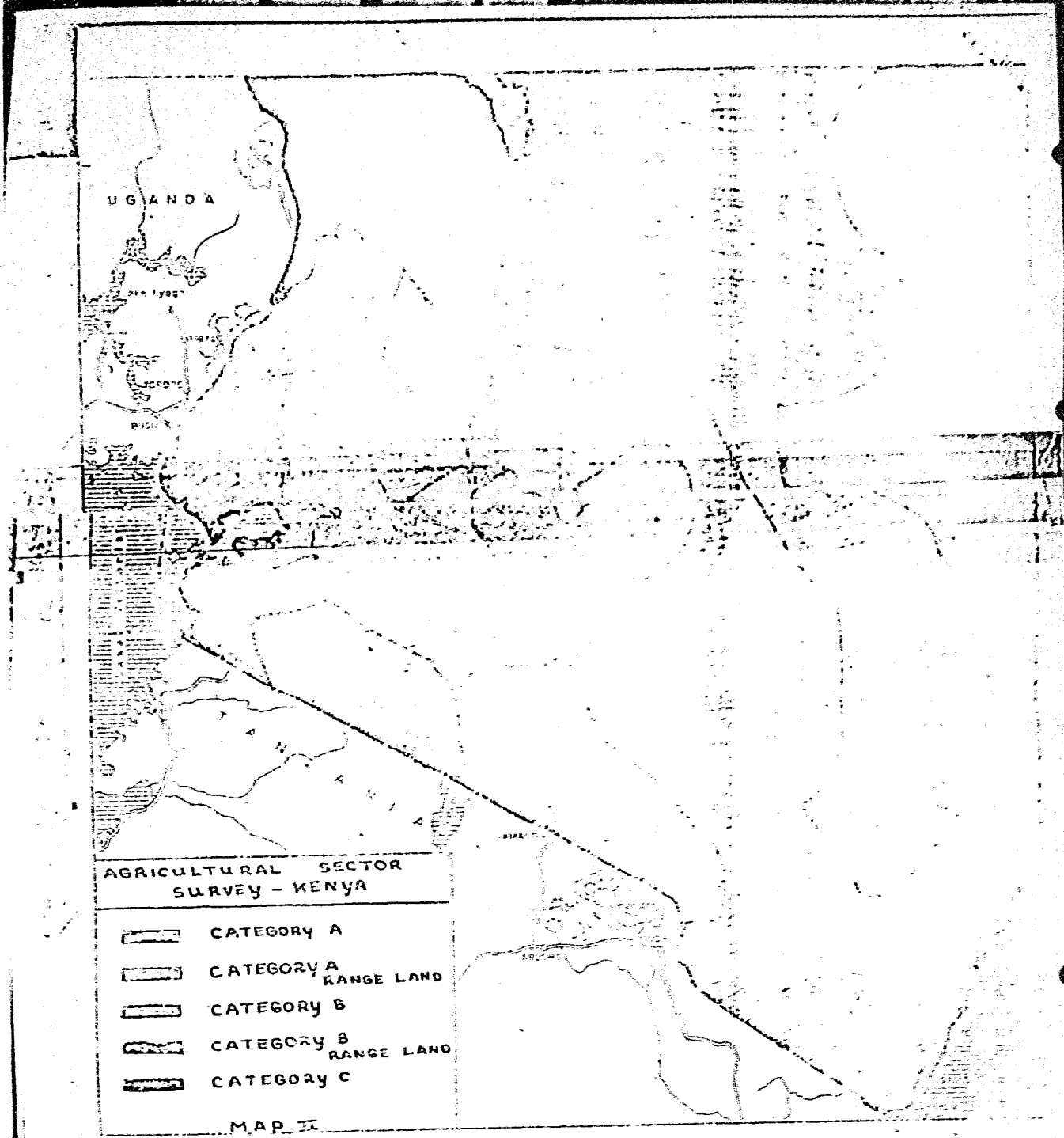
Yes [1] No [2] [ ]

2. Why not ?
   (1) Lack of buyers
   (2) Markets too far from home
   (3) Poor Communications and/or roads
   (4) Too much control on marketing
   (5) Transportation costs too high
   (6) Other (specify) _____

[ ]


UGANDA
INTEGRATED AGRICULTURAL DEVELOPMENT PROGRAMME
PHASE I
PHASE II
MAP I


UGANDA
RURAL ACCESS ROADS PROGRAMME
SELECTED DISTRICTS FOR R.A.R.P
MAP III


UGANDA
AGRICULTURAL SECTOR
SURVEY - KENYA
CATEGORY A
CATEGORY A RANGE LAND
CATEGORY B
CATEGORY B RANGE LAND
CATEGORY C

MAP II