DEMAND APPRAISAL FOR IMT AND TRANSPORT SERVICES

GUIDELINES ON METHODOLOGY

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Consultants in Transport for Development

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ABBREVIATIONS

ADV	Animal-Drawn Vehicle
Ha	Hectare
Hh	Household
IMT	Intermediate Means of Transport
IRTP	Integrated Rural Transport Programme
M/C	Motorcycle
MoT	Means of Transport
NMT	Non-Motorised Transport
PIRTP	Pilot Integrated Rural Transport Programme
RTTP	Rural Travel and Transport Programme (World Bank)
SSA	Sub-Saharan Africa
TS	Transport Services
VIP	Village Infrastructure Programme (Ghana)
VTTP	Village Travel and Transport Programme (Tanzania)

1 INTRODUCTION

Methods have been developed to appraise the demand for Intermediate Means of Transport (IMT) and Transport Services (TS) in rural areas of Sub Saharan Africa (SSA)[1]. The methods are based on measurable indicators to appraise "real" demand indicated by usage as distinct from "apparent" demand that would be obtained from questioning rural people. The latter tends to significantly overestimate actual demand.

The method is based on data collected in case studies in 5 SSA countries – Malawi, Tanzania, Ghana, Zambia and Senegal – on the supply, ownership and usage of IMT. Other data was also collected to identify factors affecting demand. The case study areas were chosen to typify common rural situations. In the areas in Ghana and Senegal there was high ownership and usage of IMT, in Malawi and Zambia there was average ownership and significant hiring, whilst in Tanzania there was lower ownership. In four case studies the predominant IMT were bicycles, while in the Senegal study they were mainly donkey and horse carts because of the difficulty of riding bicycles on the sandy roads and paths. Ox-carts were quite widely used in the study areas in Malawi and Zambia although ownership was low.

Transport services were significantly available in only one of the study areas, that in Malawi. Here data was collected on the supply and usage of transport services on three roads, one with high availability and two with medium availability of services. Data was also collected from a fourth road with a similar level of traffic but without transport services to investigate factors affecting supply. The data was analysed to identify measurable indicators of demand.

Details of the studies and the findings are given in the technical report for the project.

These guidelines describe the methods developed for appraisal of demand and give details of the data collection needed to apply the methods. It is emphasised that the methods can only be claimed to apply to the case study areas but it is felt that the agreement on the demand for IMT over the 5 locations in different countries is sufficient to suggest that the appraisal method is likely to apply to other areas. The method for appraising demand for transport services is based on only one location and needs further substantiation.

2 DEMAND FOR IMT

2.1 Summary of Findings

Demand: the primary factor influencing demand was found to be the need to reduce time and effort to transport produce to market outlets. Two indicators were identified:

(i) The total transport load (tonne.km) carried to market per household (hh) member. This showed an upper quartile threshold of 1.2 tonne.km above which there was a change from human carrying to the use of an IMT. Where conditions were conducive the IMT was usually a bicycle

(ii) Above a transport load of 8 to 10 tonne.km there was an increasing demand for an IMT with higher load-carrying capacity, either through hiring or ownership. There was a preference for a means of transport that minimised human effort, such as animal-drawn vehicles (ADVs) and transport services

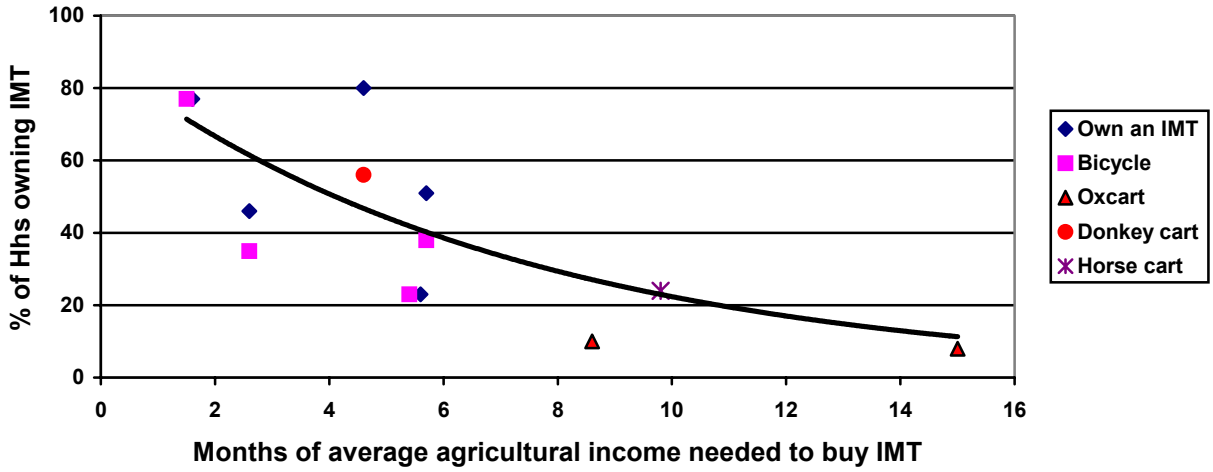
The most important secondary factor influencing demand was found to be the transport of harvested crops from the fields to the homestead. Other transport activities, such as collection of water and

[1] "DEMAND APPRAISAL FOR IMT AND TRANSPORT SERVICES": Final Technical Report on KAR Project R7787, prepared by IT Transport Ltd for the Department for International Development (DFID), December 2003.

firewood, were not found to significantly influence demand but IMT might be used if available to the hh and distances to the source were more than 2 to 3 km.

Affordability: The results from the 5 case studies showed a clear trend on the affordability of IMT in terms of the months of income needed to purchase the IMT and the percentage ownership (Figure 2.1). The trend shows a threshold line above which there is generally no ownership and below which there tends to be ownership. It appears that there may be two indicator lines– an upper one for the first IMT owned by the hh, usually a bicycle, and a lower one for a second larger capacity IMT owned by the hh. However, there is not enough data to confirm this. The indicator used in Figure 2.1 is *average agricultural income*. In areas with significant non-agricultural incomes, *total hh income* might be a more appropriate indicator but there was no data on this from the case studies. Few of the IMT included in the studies had been purchased with credit. It is possible that wider availability of credit might raise the boundary lines because of increased affordability.

Figure 2.1: Ownership vs Months of Income Needed to Buy an IMT



A further indication of affordability and demand was provided by the relationship between farm size and ownership of IMT. Although this data was only collected in 3 case studies it shows a similar pattern of ownership. On average, non-owners of IMT had a farm size of around 2ha, owners of bicycles between 2 and 3 ha and owners of ADVs 4 to 6 ha.

Transport needs: it was found in all the case-studies that the main needs reported were for improved roads and affordable transport services and that these were reported as significantly higher than the need for IMT. Although this could probably be partly attributed to the fact that IMT were already quite widely used whereas TS were few, the trend was similar for both owners and non-owners of IMT. It appears that people tend to prefer higher speed transport that does not require human effort. In the three countries where the main modes of transport were walking and cycling, people complained of the human effort involved. This problem was not raised in Malawi where TS were available or in Senegal where most people travelled in donkey or horse carts.

It appears that in situations where TS can be provided close to a village then there will be a higher demand for TS than for IMT. In cases such as this, the need for IMT is likely to be mainly for transport in and around the village, particularly for harvesting crops.

Impact of transport on agricultural development: the findings showed that although efficient transport is needed to facilitate agricultural development it may not be enough by itself and other equally important constraints may need to be addressed. These include:

a. Improving agricultural methods, particularly for cultivation, since these often constrain production
b. Increasing availability and affordability of agricultural inputs to improve yields
c. Development of an effective market network and good storage facilities to provide more reliable and uniform demand and prices for produce over the year, backed up by establishment of increased market opportunities.

It is considered that (c) may be the key to promotion of increased demand for and usage of IMT.

Supply of and support for IMT: In the case studies the supply of IMT was not reported as a significant constraint on ownership. There were limited reports of problems of servicing bicycles and some problems reported of the high cost of spare parts and the distance to supply centres for spare parts, but it is not considered that these constrained demand for IMT.

However, in the studies the IMT were generally well established in the communities. Where new IMT are introduced, establishing supply, acceptance and support can be difficult. It is particularly important to ensure that quality and reliability are good. Two instances were found, cycle trailers and handcarts in Masasi, Tanzania and cycle trailers in Ghana (introduced by the Village Infrastructure Project), where the IMT were of poor quality and not accepted by the communities. The initial supply of new types of IMT should be through competent workshops in order to establish demand.

2.2 Implications of Findings

Figure 2.1 shows that ownership of IMT was generally high in the case study areas. In the study areas in Ghana and Senegal about 80% of hhs owned an IMT, in Malawi and Zambia about 50% and only in Masasi in Tanzania was it relatively low at about 25%. There was also significant hiring of IMT in the study areas in Malawi and Zambia. Most of the IMT were purchased from agricultural income. The proportion purchased with credit was small, although it appears that the demand for donkey and horse carts in Senegal was initially established by the availability of credit. It is therefore considered that Figure 2.1 represents a reasonably high level of demand or ownership that can be achieved without the availability of credit. It seems likely that the level of demand would be raised by the availability of credit but more studies are needed to appraise this.

The relationship between the 3 demand indicators for the case study areas is shown in Table 2.1.

Table 2.1: Relationship between Demand Indicators

Country	**% of Survey hhs above 1.2 tonne.km /active hh member**	**% Ownership of IMT indicated by Figure 2.1**	**Actual % ownership of an IMT**	**% of Survey hhs above limit of 10 tonne.km or (6 tonne.km)**	**Actual % ownership and hire of higher load-carrying IMT**	
	A	**B**	**C**	**D**	**F** % Own	**G** % Hire
Malawi	34	40	52	12.5 (21)	9	13
Tanzania	29	42	22	8	0	-
Ghana	62	72	76	52	0	-
Zambia	52	60	45	23 (34)	10	30
Senegal	39	47	80	28	80	-

Notes: - Indicators **A** and **D** relate to the transport load carried to market outlets
- Indicator **B** is the ownership of an IMT (mainly bicycles apart from Senegal) based on affordability and predicted by Figure 2.1

- Indicator **E** would be ownership of a higher load-carrying IMT (such as an ADV) predicted by Figure 2.1 but there is not sufficient data to include this at present
- **C** and **F** are actual ownership levels from the surveys
- Comparing the % of households above the 10 tonne.km limit with the % using an IMT of higher load capacity for the data from the case studies in Malawi and Zambia suggests that the limit might be lower. The % above a limit of 6 tonne.km is therefore shown for comparison in brackets. This gives a better agreement between the transport load limit and the use of a higher load capacity IMT (in these cases, oxcarts)

A comparison of the indicators suggests the following targets to increase demand:

1 ***A > B*** suggests that prices obtained for produce taken to market (indicated by A) are too low and/or the relative cost of IMT is too high – i.e. the number of months to buy an IMT from agricultural income is too high; or the supply of IMT is below demand. This would indicate the following actions are needed:

(i) Attempt to increase market opportunities to reduce competition and increase prices for produce
(ii) Assess whether costs of IMT are higher than might be expected from experience elsewhere and, if so, identify and try to rectify the causes
(iii) Assess if the supply of IMT is the problem and, if so, try to rectify this

2 ***D > k.E -*** if sufficient data becomes available to obtain the relationship for E in Figure 2.1 then this will be a similar situation to (1) above but for IMT with higher load-carrying capacity. A factor 'k' may need to be included to allow for hire of IMT

3 ***C < B (or F < E)*** actual ownership is less than predicted from Figure 2.1, suggesting a constraint on the supply or availability of IMT

4 If ownership and use of IMT are low because factors ***A and D are low*** then this suggests that the main targets to increase demand should be to improve the market network and agricultural production

2.3 Methodology

Data needed

The above appraisal of demand for IMT was based on collection of the following data:

1 <u>Transport load (tonne.km/year) carried to market.</u>

This was obtained from roadside interviews on main access routes using questionnaires 1U and 1NU (users and non-users of IMT). The transport load was obtained from the sum for the main crops marketed of load carried x distance for 3 market outlets – (i) at collection points in the village; (ii) at local markets including by the roadside; (iii) at main markets in rural centres. The questionnaire also records household size, farm size and details of means of transport used.

2 <u>Ownership and hire of IMT</u>

Questionnaires 1U and INU provide data on the level of ownership of the different types of IMT and also on the hire of IMT, both from owners that hire out their IMT and also households that hire an IMT. The hire of IMT is important in assessing the economics of ownership since owners acquire additional income from hiring and non-owners may find it more economical to hire rather

than own. Also those hiring need to be included in the proportion of users of higher load capacity IMT (E and F above) for comparison with the % with transport load exceeding 10 tonne.km ('D').

3 Household agricultural income

Agricultural income was obtained from the sum of the amount of each crop sold x the price obtained for the sale. Average market prices at each outlet were obtained from the village questionnaire. The amounts marketed per hh were obtained from Questionnaires 1U and 1NU. Also where statistical data was available for the district, a check was made on average market prices and on the average amount of various crops marketed per household.

4 Prices of IMT

Data was obtained from 3 sources:

- From questionnaires 1U and 1NU where the IMT was no more than 1 year old
- From the village questionnaire
- From the IMT supplier questionnaire

5 Background information

The following data obtained from the questionnaires was not directly used in the appraisal of demand procedure but provided useful background to the appraisal:

- Traffic counts on the access roads where surveys were carried out to show the level and breakdown of traffic
- The availability and use of transport services as this could affect the demand for IMT
- The problems of obtaining and using IMT
- The main transport needs identified by the community and also by individuals
- The main constraints on production and marketing of crops
- The transport load and means of transport used for other main transport activities – harvest, water, firewood and grinding mill.

Analysis of data

The main source of data is from questionnaires 1U and 1NU. These should give a total sample size of 180, 90 users and 90 non-users of IMT. The data from the questionnaires can be entered onto an EXCEL spreadsheet for analysis. The data should be analysed for each village to identify any trends such as the effect of distance from a rural centre, and also on an overall basis. The primary factors to be evaluated are:

1 The % ownership of an IMT (C) and the % ownership of each of the types of IMT used in the area. The first IMT owned by a household will usually be a bicycle where conditions are conducive to their use

2 The % using a higher load capacity IMT (e.g. an ADV) = F (% owning) + G (% hiring)

3 The total load transported to market (all outlets) in tonne.km for each household. The % of households with a load greater than 6 tonne.km (D)

4 The total load transported to market per active household member = total tonne.km x 2/household size (assuming 50 % of household are active in carrying). The % of households that exceed 1.2 tonne.km/ active member (A)

5 The agricultural income for each household and hence the average agricultural income for the survey area

6 The average cost of the IMT used in the area obtained as indicated above

7 The number of months income to buy the primary IMT (usually a bicycle) = cost of primary IMT x 12/ average annual agricultural income. Plot this on Figure 2.1 to find 'B'

8 The number of months income to buy a higher load capacity IMT = cost of IMT x 12/ average annual agricultural income. Plot this on Figure 2.1 to find 'E'

9 Analyse the background data collected from the questionnaires to identify other main issues that could affect demand for IMT, for instance the % of the survey reporting specific needs and constraints.

Collection of data

The appraisals for demand for IMT were carried out at district level and involved the following steps:

1. Collection of district statistical data on population, land area, cultivated land area and any available data on agricultural production and marketing

2 Selection of 3 'typical' villages covering the general range of distances from a rural centre

3 Hold village meetings or meetings with key informants in each village to obtain background information using the village questionnaires

4 Carry out traffic counts on the main access route from each village to its rural centre and interviews with users and non-users of IMT on the roads using questionnaires 1U and 1NU. This should be done on 2 days, a market day and a normal day. On each day 15 or 20 users of IMT and the same number of non-users should be interviewed, giving a total of 30 or 40 for each village and overall totals of 90 or 120 of both users and non-users (total survey number of 180 or 240). A representative number of women should be included in the survey. It is best to use 3 persons for the survey, 1 doing the traffic count and 2 for the interviews

5 Obtain data from a representative number of suppliers of IMT using the questionnaires.

Copies of the questionnaires are included in Annex 1 of the guidelines.

3 DEMAND FOR TRANSPORT SERVICES

3.1 Summary of Findings

The findings were from one area only in Malawi but covered transport services on 3 rural roads. *The findings and the methodology developed from them for the appraisal of demand for transport services therefore relate at this stage only to this area and further studies are needed in other areas to determine whether they are of wider application.*

Two indicators of demand were derived based on data that could be measured:

1. The proportion (%) of the population served by the road using transport services. The population served by the road was estimated by district planners from local maps with some guidance provided by local informants

2 The proportion of road users using transport services. This was obtained from traffic counts in the dry and wet seasons on market and normal days.

The findings are summarised in Table 3.1.

Table 3.1: Proportion of Catchment Population Travelling and using Transport Services

1. Based on % of Catchment Population	**Average Traffic**				**High Traffic**			
	Dry Season		Wet Season		Dry Season		Wet Season	
	Normal day	M'ket day	Normal day	M'ket day	Normal day	M'ket day	Normal day	M'ket day
% Using road	3 to 5	5.5 to 8	1.5 to 3	3 to 5	6	11	3.5	7.5
	1	2	0.5	1	3	6	1	2
2. Based on % of Road Users using TS	20 to 30	25 to 35	17 to 30	20 to 30	50	55	30	27
Approximate proportions of TS users (1)	n	2n	0.5n	n				

Note 1: This shows the approximate average number of passengers per day (one-way) in proportion to the passengers per day on a NORMAL day in the peak dry season. In the study 'n' varied from about 150 passengers per day on 2 roads to 270 per day on a busy road. The equivalent number of road users was roughly 4 to 5 times the number using transport services.

3.2 Implications of findings

The findings can be used to estimate the demand needed for a transport service to be economically viable. The following assumptions have been made in an example of this evaluation:

Vehicle
- capacity of 20 passengers and their goods
- fuel cost at 5km/l and $0.70/litre
- repair and maintenance cost $0.05/km
- fixed overhead costs $235/year
- depreciation for a reconditioned vehicle from $1,200/year for about 5,000km/year to $1,380 for about 15,000km/year.

Passengers - 3 seasons of 17 weeks each are assumed with the following passenger demand
(i) Peak dry season, n/day on 4 normal days; 2n/day on 1 market day
(ii) Off-peak dry season, 0.75n/day on 4 normal days; 1.5n on 1 market day
(iii) Wet season, 0.5n/day on 4 normal days; n/day on 1 market day

Trips/day - 1 return trip per day with passenger numbers as above each way. On market days a second trip may be operated if passenger numbers exceed the vehicle capacity by enough to make a second trip profitable. It is assumed the vehicle runs empty when returning to make the second trip
- a trip distance of 10km is assumed

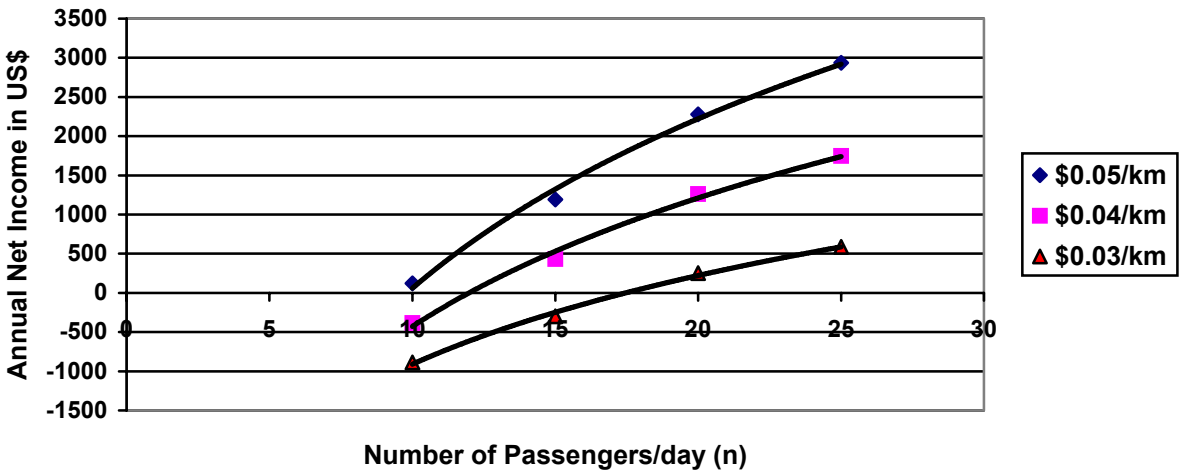
Fare - the fare is varied from $0.03 to $0.05/passenger/km. This is increased by 10% to allow for passengers' goods

Total Annual Net Income = Trip distance {Number of trips x passengers/trip x fare/passenger/km – number of trips (fuel cost + repair and maintenance cost) } – (overhead + depreciation)

= Trip distance x (for each season) 17{(Trips on market day x passengers/trip + trips on normal days x passengers/trip) x fare/km – total trips x (fuel cost + repair and maintenance cost)} – (overhead cost + depreciation)

Based on the above assumptions of passenger demand and costs, the relationship between demand and annual income shown in Figure 3.1 is obtained.

Figure 3.1: Evaluation of Transport Service



The evaluation shown in the figure indicates that if an owner-operator wants an income of $1000 per year for a service to be viable then the demand on a normal peak day (n) needs to exceed about 18 passengers at a fare of $0.04/km and 13 at $0.05/km. Based on the findings of this study this would require the number of persons using the road (each way) to be 70 to 90 and 50 to 60 respectively on a normal peak day and about double this on a peak market day. For longer trips the increased trip distance will probably more than compensate for reduced fares to increase annual income. In the study the average fare for trips of around 10km was $0.04 to $0.05 per km. For lower unit fares the proportion of road users using Transport Services may increase and for higher fares the proportion may decrease.

The evaluation described above can readily be carried out for other assumed conditions.

3.3 Methodology

The main data to be collected is the number of persons travelling on the road where the Transport Service is being considered. This can be obtained using the traffic count form included in Annex A1.6. An estimate needs to be made of the average capacity of the various passenger-carrying vehicles found on the road in order to determine total persons using the road. A position should be chosen along the road for the traffic survey that picks up persons likely to use transport services but minimising short-distance local traffic. Surveys should be carried out on at least 2 days of the week, including a normal day and market day, and over at least 3 weeks to obtain average traffic levels.

Assuming 20 to 25% of travellers may use transport services (or more accurate estimates if other data is available) the value of 'n' for use in Figure 3.1 can be estimated and the economic viability of Transport Services assessed for various fare levels.

Additional useful data to support the appraisal of demand may be obtained by carrying out spot interviews on the road using the questionnaire in Annex A2.1. This questionnaire can also be used for obtaining data from Transport Service users if any services are already available. Also if services are available on the survey road or other roads in the area the questionnaire in Annex A2.2 for TS operators will provide useful support data.

ANNEX 1:

QUESTIONNAIRES USED FOR APPRAISAL OF DEMAND FOR IMT

A1.1 Village Questionnaire

A1.2 Questionnaire 1NU – Non-Users of IMT

A1.3 Questionnaire 1U – Users of IMT

A1.4 Suppliers of IMT Questionnaire

A1.5 Suppliers of Bicycles Questionnaire

A1.6 Traffic Count

A1.1: VILLAGE QUESTIONNAIRE

Village/Community _____ Locality

_____

Interviewer _____ Date Collected

_____

Sources of Data (Name and type of key informants)

_____

V 1. Village/Community Characteristics

1. Terrain: Flat / Rolling / Hilly / Mountainous

2. Population:

Total	Male Adults	Female Adults	Children	Number of Households	Number of Female Headed Households

3. Sources of Income:

Main Source of Income: ---------- % of Households Earning Cash: ----------

Second Source of Income: ---------- % of Households Earning Cash: ----------

Third Source of Income: ---------- % of Households Earning Cash: ----------

Typical sources: Agriculture, Livestock, Fishing, Forestry, Regular Employment, Casual Labour, Brick making, Cash Remittances, Beer Brewing, Small Enterprise, Other (specify')

V 2. Village/Community Structure

1. What is the main settlement pattern?

   Clustered Clustered + Outlying Settlements Scattered Settlements

2 Please indicate level of access by stated means of transport to facilities in the table below using the following key:

   1. All year access; 2. Dry season only; 3. No access (impassable)

Facility/ resource	Walk	W/barrow	Bicycle	Animal Cart	Motor Cycle	2 WD Car Pick-Up	4 WD	Bus, Truck
Water								
Firewood								
Fields/plots								
Health centre								
Market								

V 3. Water Supply

1. Improved water supply in Village/Community Yes/ No/ Yes but not working

2. If yes: Type of supply: ---------- Does it Operate: All Year Round / Wet Season Only

Access to water

Type of source- Natural or improved	% of Village Using It	Average Distance in km		Average Distance in time (mins)		% Households walking	% Households using an IMT. State type of IMT
		Dry Season	Wet Season	Dry Season	Wet Season		

5. Who is usually responsible for collecting water? % collected by each group?

   Men and boys……..% ; Women and girls……%

6 What containers (& size in litres/gallons) are used to collect water?……

7. Do any households use a means of transport to collect water? Yes No

   If YES: Means used ----------% of Households using---------- % Men & boys…….; % Women……
   If NO: main reason why not---------- ----------

V 4. Cooking and Heating Fuel

1. Main cooking fuel used: ----------

2 % of Households collecting firewood……;Average times/week……..

3 What is the average distance travelled to collect firewood? ……..km

   What is the average time spent per trip…….hours

4 Who is usually responsible for collecting firewood?:

Men and boys ……%; Women and girls……..%

5 Do any Households use a means of transport to collect firewood?: Yes…… No……..

If YES: Means Used ---------- ; % of Households using ----------;

% Men and boys……; % Women…..

If NO: Main reason why not…….

V5. Grinding Grain

1. Use of grinding mill: - % of Households going regularly to grind grain…….

2. Distance to mill (km): ---------- : ---------- : ----------

3. On average, how often do Households go to the mill?:: ---------- per week -------per month

4 Who is usually responsible for taking grain to the mills? % Men/boys…; % Women/girls…

***Means of transport used*:**

---------- % of Households on foot: ---------- % using Animal Cart:

---------- % using bicycle: ---------- %using transport service:

---------- %using wheelbarrow: ----------% using handcart

V6: Crop Production

1. Write down the main crops grown and the amount produced and consumed by the household

Crop	**Average Yield per Hectare OR Per Acre (Tick which unit is used) (1)**			**Average Amount Kept for Household consumption (1) for different Hh size**		
	Poor Year	Average Year	Good Year	1 to 5 persons	5 to 10 persons	> 10 persons

Note: Choose a convenient, easily understood unit – clearly state the unit used , For example (4 x 50kg bags)

What are the main constraints on producing (harvesting) more crops?

2. Cultivated Fields – estimate the proportion (%) of households that farm (cultivate) the total areas shown in the table below. These areas are in Hectares (1 Hectare = 2.5 acres)

Total area farmed	<1 ha	1 to 2 ha	2 to 3 ha	3 to 5 ha	5 to 10 ha	> 10 ha
% Households farming area						

Typical distances to fields: Subsistence Crops: ---------- mins: ----------km

Cash Crops: : ---------- mins: ----------km

Is there any spare land on which more crops could be grown? Yes---------- No----------

What % of the total land on which crops could be grown is used? ----------%

If some land is not cultivated what are the main reasons?

3. How do households cultivate their fields

% using tractors -------- % owning---------., % Hiring---------.Typical cost of hiring -----

% using oxen --------; % owning--------- % Hiring----------Typical cost of hiring----------

% using donkeys……..; % owning……, % Hiring……Typical cost of hiring……

4 Farm Inputs

% of Households using Fertiliser……; Where Bought……; Distance…….km

Size of bag ---------kg, Cost/bag ----------; Average amount used per Hectare----------bags

Means of Transport used to collect farm inputs

%Households on foot:----------%using Animal Cart----------%using a bicycle----------

%using transport service---------- % using other means (please state)----------

5 Crop Harvesting: Means Used to Transport Harvested Crops:

% of Households headloading: --------% of Hhs by Animal Cart : ------- ; % of Hhs by bicycle …….

% of Households using other means (please state) ----------

V 7. Crop Marketing

1. Where are crops mainly marketed? Please give ***place name and distance*** from village.

i) **Traders in village** – average distance to collection point ……..km;

ii) ***Local Markets***- 1st.---------- ---------- km; 2nd ----------. ---------- km

(iii) ***Larger markets;*** 1st ---------- ----------km;- 2nd ----------. ----------km

2. ***Market Prices*** **–** proportion sold at various outlets and average prices during last harvest

Crop	**Sold to Trader in the Village**		**Sold at Local Market**		**Sold at Main Market**	
	% Sold at this Outlet	Average Price/Unit	% Sold at this Outlet	Average Price/Unit	% Sold at this Outlet	Average Price/Unit

NOTES: Please give price for a standard unit, eg 50kg bag and **clearly state** the unit used.

2 Was last harvest – Poor ……; Average …….; Good ……..;

3 How much can prices go up or down when harvest is poor or good. Give examples for 2 main cash corps

Crop---------- Price in Main Market, Poor Year----------Average Year…….. Good Year ….

Crop---------- Price in Main Market, Poor Year----------Average Year…… Good Year-----

4 ***Market Potential***

What are main constraints on marketing more crops?----------

V8. Transport to Health Facilities

1 Which Health Clinic does the village use?…….

Distance to Health Clinic…….km; How do people travel? % Walk……..

% Bicycle……; % Motorcyle…….; % Cart……;% Transport Service ……

2. Which Rural Health Centre does the Village use ? ----------

Distance to Health Centre: --------km How do people Travel? % Walk……..

% Bicycle…….; % Motorcyle…….; % Cart……..;% Transport Service……

What are the main constraints on people attending the health centre?……..

……

3 Which Hospital does the Village Use: ----------

Distance to Hospital ……km; How do people Travel? % Walk……..

% Bicycle…….; % Motorcyle…….; % Cart……..;% Transport Service……

What are the main constraints on people attending the hospital?----------

What are the main transport needs to improve access to health services? ----------

V 9 Small Enterprises

1. List the Small Enterprises or businesses in the Village/Community

Type of Enterprise	Number or % of hhs Involved	Average income per Hh peryear	Type of Enterprise	Number or % of hhs Involved	Average income per Hh per year

e.g. Consumer Shop; Carpenter; Blacksmith; Crop Trading; Brewing; Crafts (type?)

What are the main transport needs to improve opportunities and income from small enterprise activities?…….

V 10 Credit*:* Are there any credit schemes available to the village/community? Yes… No….

If YES give details of who provides them, conditions (maximum loan, period, interest rate etc..).

What credit can be used for? ----------

Can it be used to purchase a means of transport?----------

V 11 Ownership of Work Animals and Means of Transport
Estimated Number or Percentage of Households Owning:

Type	Number or % hhs owning	Source of Supply	Cost (new)	Where Maintained/ Repaired	Source of Spare Parts	Number or % of hhs Hiring	Cost of Hire Per Day
Work Oxen							
Plough							
Ox Sledge							
Ox Cart							
Donkey (pack load)							
Donkey Cart							
Wheelbarrow							
Handcart							
Bicycle							
Motorcycle							
Tractor, trailer							
Truck, bus							

Demand – list the 2 MoT (IMT) for which there is the greatest demand in order of priority

Priority	Type	Main input needed to increase ownership and usage
1		
2		

V.12 Transport Services

1. What transport services do people in the village use?

Type of Vehicle	On which route? 1 To where 2 Distance km	Distance to service from village	How Often Does it Operate (1)		Charge (2)		Number or % hhs using service
			Dry season	Wet season	Goods	Pass'ger	
1	1 2						
2.	1 2						
3.	1 2						

Notes: (1) 'How often' – please state *times/day*, *times/week or times per month*
(2) 'Charge for goods' – please state charge for a given *load (bag size) and distance*.

2 What are the main problems with the transport services?

……

3 ***Demand*** - What transport services or additional services does the village need?

Type	1 Where to 2Distance (km)	Purpose	What % of village would use it	How Often (1)	
				Dry Season	Wet Season
	1 2				
	1 2				

(1) 'How often' – state times/day, times/week or times/month

1 What would be reasonable charges? Passenger…….For …….km; 25 kg bag ……..
2 What do you consider to be the main constraints on provision of transport services for the village?

V13 Summary of Transport and Access Needs

The table shows a list of the main travel and transport activities. What is the ORDER OF PRIORITY and LEVEL OF NEED to improve transport for these activities. Obtain opinions from MEN and WOMEN

Transport Activity	**Order of Priority (1 to 6)**		**Level of Need (1)**		**Main Input needed to improve transport activity (Indicate priority, 1,2 or 3 for the 3 options below)**		
	Men	Women	Men	Women	Improve Roads or Paths (2)	Increase use of IMT	Improve Transport services
Collect water							
Transport harvest from fields							
Transport crops or goods to market							
Collect supplies for house/farm							
Travel to health service							
Travel for social or other purposes							

(1) Indicate as VH (Very High); H (High); M (Medium); L (Low)

(2) Indicate which type of road or path as – VP (Village Path); VAR (Village Access Road from Main road); MR (Main Road)

A1.2 QUESTIONNAIRE 1NU - NON - USERS OF IMT

Road ---------- **Interview No ----------** Date ----------

Details: Man…..,Woman….; ***Area*** farmed by the Household (Ha): <1; 1 to 2; 2 to 3; 3 to 5; 5 to 10; >10
Household size – please give numbers of – men …; women …; boys (under 16) ...; girls (under 16) ….

1 Which is the **main** market you visit to sell crops…….….How far is this from village…….km
How often does someone from your household visit this market? (State **times/week** or **times/month**)
In Market season…..….; Other times in dry season……;Wet season……

2 Does your household own a means of transport? No…;Yes…; IF 'YES' what type is it …….; How old is it ……years;

3 Was it mainly purchased from – (i) agricultural income ……; (ii) Other income …….; (iii) Work ……; (iv) Credit ……; (v) Gift ……; What is the main reason you are not using it today? ……

IF NO What is the priority for your household to own a means of transport? High…Medium…Low…..
What type? ……..What would be the main benefit to the hh?……

……..

3 Does your household sometimes hire a means of transport? Yes …… No……

If 'YES' – what type ……. For what purpose…….

How many days per year ……. Cost per day……..

4. Do members of your household use transport services? If YES, What Type?……

Where do they travel to?…… …….How far is this?……..km

How much do they cost? (i)Per passenger…….. For what distance?.....km

(ii) For goods…….(Please state size of bag in kg)

Please say how often your family use them (**times/month**) at the times shown below

.Time of year	How often	For what purpose
Harvest/market season	……	……
Other dry season	…….	……
Wet season	…….	……

If NO what is the main reason you do not use them?…….

What is the main need to improve the service? ……..
……..

5 Please list the 2 main needs to overcome travel and transport problems for your household

Need 1 ……

Need 2 ……

6 During the year does your Hh sell crops to a trader in the village? Y/N; Or at the market? Y/N

(Please state the amount sold of main crops in number of bags and size of bags in kg e.g 5 x 50kg)

Crop	**Sold to Trader in Village**				**Sold in Local market**				**Sold in Main Market**			
	Amount	(km) (1)	MoT (2)	Source (3)	Amount	(km) (1)	MoT (2)	Source (3)	Amount	(km) (1)	MoT (2)	Source (3)

Notes:
1) km = distance to collection point or market;
2) Show MoT used by –Walk =1, Bicycle =2, Oxcart =3, Donkey cart =4, Wheelbarrow =5, Handcart =6, Vehicle =7
3) Show Source of MoT – Owned by household = 1, Hired = 2, Transport service =3

What are the 2 main constraints on selling more crops at market?
……

……

7 Mode of transport used for main activities

Activity	**Distance (km)**	**Who goes (1)**	**% Walking (2)**	**% using MoT (3)**	**If MoT not used what is main reason**
Collect water					
Collect firewood					
Grinding mill					
Harvest crops					
Visit health centre					
Visit hospital					
Collect supplies for house or farm					

Note:

1) Please estimate % trips by members of household who carry out the activity – for example, Women (90%) – women make 9 out of 10 trips

2) Please state approximate proportion (%) of trips by walking and proportion (%) using a MoT

3) If a MoT (Means of Transport) is used please state % use and Type as (2) =Bicycle; (3) =Oxcart; (4) = Donkey cart; (5) = Wheelbarrow; (6) = Handcart; (7) = Transport service e.g 15% (2), 5% (4) = 15% use bicycles and 5% use donkey carts

A1.3 QUESTIONNAIRE 1U – USERS OF IMT

Road ---------- **Interview No ----------** Date ----------

1. Details of user: Man…Woman…; Area farmed by household (Ha) -<1; 1 to 2; 2 to 3; 3 to 5; 5 to 10; >10
Household size – please give numbers of – men …; women …; boys (under 16) ...; girls (under 16) ….

2. Details of IMT; Type…… Age …..years;
Is it: (i) Owned by Hh …… (ii) Borrowed……..(iii) Hired……Cost of hire…….……
If Owned was it purchased: (i) New ….;ii) Second hand…… How much did it cost……

Was it purchased mainly from (i) Agricultural income……. (ii) Other income ……
(iii) Work ……; (iv) Credit…… (v) Gift…….

3 What were main reasons for obtaining the IMT?……

……

4 Do you hire it out? Yes.. No …How many days per year……Hire charge per day……..

5 What are the main problems of using the IMT?……

6 Does your household need a different type of IMT? Yes/No; If YES, What type……..

For what purpose?……...;Is the need – High.., Medium..,Low..?

7 Which is the **main** market you visit to sell crops…….How far is this from village…….km. How often does someone from your household visit this market? (State **times/week** or **times/month**) Market season …….; Other times in dry season ……;Wet season……

8. Do members of your household use ***Transport Services***? If YES, What type……

Where do they travel to?……..How far is this?……..km

How much do they cost? (i)Per passenger…….. For what distance?.....km
(iii) For goods…….(Please state size of bag in kg)

If 'YES' how often do your family use them (**times/week** or **times/month**) during the periods shown

Time of Year	How Often	For what purpose
Harvest/market season	……	……
Other dry season	…….	……
Wet season	…….	……

If NO what is the main reason you do not use them?…….

What is the main need to improve the service? ……..

9 Please list the2 main needs to overcome travel and transport problems for your household

Need1 ……

Need2 ……

10 During the year does your Hh sell crops to a trader in the village? Yes/No; Or at the market? Y/N

(Please state the amount sold of main crops in number of bags and size of bags in kg eg.5 x 50kg)

Crop	**Sold to Trader in Village**				**Sold in Local market**				**Sold in Main Market**			
	Amount	(km) (1)	MoT (2)	Source (3)	Amount	(km) (1)	MoT (2)	Source (3)	Amount	(km) (1)	MoT (2)	Source (3)

Notes:
1) km = distance to collection point or market;
2) Please show MoT used by – Walk =1, Bicycle =2, Oxcart = 3, Donkey cart = 4, Wheelbarrow = 5, Handcart = 6, Vehicle =7
3) Please show Source of MoT by – Owned by household = 1, Hired = 2, Transport service =3

What are the 2 main constraints on selling more crops at market?……

……

11 Mode of transport used for main activities

Activity	**Distance (km)**	**Who goes (1)**	**% Walking (2)**	**% using MoT (3)**	**If MoT not used what is main reason**
Collect water					
Collect firewood					
Grinding mill					
Harvest crops					
Visit health centre					
Visit hospital					
Collect supplies for house or farm					

Note:

1) Please estimate % trips by members of household who carry out the activity – for example, Women (90%) – women make 9 out of 10 trips

2) Please state approximate proportion (%) of trips by walking and proportion (%) using a MoT

3) If a MoT (Means of Transport) is used please state % use and Type as (2) =Bicycle; (3) =Oxcart; (4) = Donkey cart; (5) = Wheelbarrow; (6) = Handcart; (7) = Transport service e.g. 15% (2), 5% (4) = 15% use bicycles and 5% use donkey carts

A1.4 QUESTIONNAIRE – SUPPLIERS OF IMT

DETAILS OF SUPPLIER and IMT SUPPLIED

1 Name of Shop/Workshop……..; Location of Shop/Worshop ……

2 Numbers of (i) Skilled workers……; (ii) Unskilled workers…….; (iii) Skilled welders…….

3 List main products and approximate % of business: (i)……%……..; (ii)……%……..; (iii)……%…….
(iv)……%……

4 Type of IMT ……; Size of load platform or container – Length ……m; width ……m

5. Main frame material ……; Main body material ……;
Type of tyre and wheel ……. Type of axle and bearings ……

PRODUCTION OF IMT

6 How many years has workshop been supplying IMT…… How many are sold per year……

Are sales increasing…….or decreasing……. What do you think are the reasons for this trend

……..
What were annual sales – (i) 2 years ago…….; (ii) 5 years ago……;

7 What is current selling price……; What was price (i) 2 years ago……..(ii) 5 years ago

8 What are main constraints on demand for IMT …….

9 What is needed to improve demand……...

10 Do you think that business in selling IMTis (i) Good……..(ii) Average…… (iii) Poor …..

MARKETING OF IMT

- How far do people come to buy an IMT…….km.

- Do you make IMT to order or how many do you keep in stock ready to sell……..

- If they are made to order what initial deposit does the buyer have to pay …….

- Is any credit available to buy IMT…….; If YES, from where……; How much…….; How long to repay……; Interest rate……; Initial deposit ……..

REPAIRS

- Do customers have to bring their IMT back to you for repair……If NO, where else can they get them repaired…….
- Do customers have to come back to you to get replacement parts……If NO, where else can they obtain them……

PROBLEMS AND CONSTRAINTS

What are your main problems in producing and supplying IMT ……

What is needed to overcome these problems ……

A1.5 SUPPLIERS OF BICYCLES

DETAILS OF SUPPLIER

Name of Shop ……..; Location of Shop …….

DETAILS OF MODELS SUPPLIED

Men's Bicycles (3 most popular types)

1 Model Name ……; Country of origin ……; Type (1) …;
Wheel size …..;

Price ……; Number sold per year ……; Are sales – Steady ...; Increasing …; Decreasing ….

What do you think is the reason for this trend? ……..

Is this model sold with a load carrier – Yes …; No ….;

How readily available are spare parts – (i) Almost 100% …; (ii) About 75% …;
(iii) 50% or less ……

2 Model Name ……; Country of origin ……; Type (1) …; Wheel size …..;

Price …….; Number sold per year ……; Are sales – Steady ...; Increasing …; Decreasing ….

What do you think is the reason for this trend? ……..

Is this model sold with a load carrier – Yes …; No ….;

How readily available are spare parts – (i) Almost 100% …; (ii) About 75% …;
(iii) 50% or less ……

3 Model Name ……; Country of origin ……; Type (1) …; Wheel size …..;

Price …….; Number sold per year ……; Are sales – Steady ...; Increasing …; Decreasing ….

What do you think is the reason for this trend? ……..

Is this model sold with a load carrier – Yes …; No ….;

How readily available are spare parts – (i) Almost 100% …; (ii) About 75% …; 50% or less ……

Note (1):

Indicate TYPE as – Traditional (used for many years in the past) = 1; Modern =2; Mountain Bike = 3

Women's Bicycles (3 most popular types)

4 Model Name ……; Country of origin ……; Type (1) …; Wheel size …..;

Price …….; Number sold per year ……; Are sales – Steady ...; Increasing …; Decreasing ….

What do you think is the reason for this trend? ……..

Is this model sold with a load carrier – Yes …; No ….;

How readily available are spare parts – (i) Almost 100% …; (ii) About 75% …;
(iii) 50% or less ……

5 Model Name ……; Country of origin ……; Type (1) …; Wheel size …..;

Price …….; Number sold per year ……; Are sales – Steady ...; Increasing …; Decreasing ….

What do you think is the reason for this trend? ……..

Is this model sold with a load carrier – Yes …; No ….;

How readily available are spare parts – (i) Almost 100% …; (ii) About 75% …; (iii) 50% or less …

6 Model Name ……; Country of origin ……; Type (1) …; Wheel size …..;

Price …….; Number sold per year ……; Are sales – Steady ...; Increasing …; Decreasing ….

What do you think is the reason for this trend? ……..

Is this model sold with a load carrier – Yes …; No ….;

How readily available are spare parts – (i) Almost 100% …; (ii) About 75% …; (iii) 50% or less ….

DEMAND for BICYCLES

7 Is business in selling bicycles – Good ….; Average ……; Poor …….;

8 Are sales generally – Steady ….; Increasing …..; Decreasing …….;

9 What do you consider are the main factors affecting demand ……..

…….

10 What are the main needs to increase demand for bicycles ……

……..

A1.6 TRAFFIC COUNT Road From…… To……

Date……Time: From……To…… Name……

Type of Traffic		**Going To:……**		**Coming From:……**		
Walking without Load	Man					
	Woman					
	Child					
Walking with Load	Man					
	Woman					
	Child					
Bicycle without Load	Man					
	Woman					
	Child					
Bicycle with Load	Man					
	Woman					
	Child					
Bicycle with Passenger	Man					
	Woman					
	Child					
Wheelbarrow	Male					
	Female					
Hand/Cart	Male					
	Female					
Sledge						
Ox-Cart						
Donkey/Cart	Male					
	Female					
Motorised	**Passenger**	**Goods**	**Official**	**Passenger**	**Goods**	**Official**
Motorcycle						
Car						
4 WD						
Light Truck						
Medium Truck						
Heavy Truck						
Passenger Van						
Minibus						
Standard Bus						
Tractor/Trailer						

Notes: Light truck – less than 5 tonne; Medium Truck – 5 to 10 tonne; Heavy Tuck – over 10 tonne
Official – Government; Aid Agency; NGO Please Count in 5s ~~IIII~~

ANNEX 2:

QUESTIONNAIRES USED FOR APPRAISAL OF DEMAND FOR TRANSPORT SERVICES

A2.1. Transport Services

A2.2 Operators of Transport Services

A2.1. QUESTIONNAIRE: TRANSPORT SERVICES Date…… Road ……

Details: Man.., Woman..; Area farmed by household (Ha): <1; 1 to 2; 2 to 3; 3 to 5; 5 to 10; >10

1 Details of trip

1.1 Where are you travelling to ……; How far is this……km

1.2 What is the purpose of this trip……

1.3 What means of transport do you usually use for this trip? Walk…….. IMT……. Vehicle…..

If IMT what type……; Do you – Own…; Hire…; Borrow … the IMT

If Vehicle what type…….. Where does it come from……..

1.4 How long does the trip take – Dry season……..; Wet season…….

2 Transport Service

(iv) Do Transport services operate on this road? Yes… No ... ; IF YES: How often per day –
Dry season – market day …..; normal day …..; Wet season – market day…..; Normal day …..

2.2 What is the fare for the trip? (i) For passenger …… for ……. km (ii) For 25 kg bag ……

2.3 How often does someone from your household use the transport services at following times of the year and what are the main reasons for the trips?

Main purposes of trips

Harvest/ market season (i)times/week……(ii) times/month ……; …….
Other dry season (i)times/week……(ii) times/month ……; …….
Wet season (i)times/week……(ii) times/month ……;

2.4 What are the main benefits to you of a transport service? …… …….

2.5 Are there times when the vehicle is full and you cannot get on? State how often by estimating the number of times this happens. For example 1 in 3 trips, 1in 5 trips etc..
Harvest/market season: 1 in……..trips; never……
Other dry season…….1 in……..trips; never……
Wet season 1 in……..trips; never……..

2.6 Use the following scale to estimate the demand for the service :A=usually overfull; B=near full but not overcrowded; C= usually less than two-thirds full; D=usually less than half full

Harvest/market season……..; Other dry season……. ; Wet season…….

2.6 On average how long do you have to wait to get on a vehicle in (i) harvest season……..; (ii) Other dry season…….; (iii) Wet season……

2.7 If your household does not use the transport service, what is the main reason …….

……

3 If there is no Transport Service what is the need for one

What is the need for a transport service along this road - Very High …; High …; Medium …..; Low ….

If LOW, what is your main reason …….

If a Transport Service were available how often would someone from your household use it?

Harvest season – Times/month……..; Main purpose……

Other dry season- Times/month……..; Main purpose……

Wet season- Times/month……..; Main purpose……

What fare would you be prepared to pay? For passenger…….; For 25 kg bag…….

What would be the main benefits to you of a transport service?
..……
What do you think is the main reason that there is not a transport service on this road?…….

……..

4 Transport of Crops

4.1 During the year does your Hh sell crops to a trader in your village? Yes/No; Or at a market?Yes/No

(**Please state the amount sold of main crops in number of bags and size of bags in kg e.g 5 x 50kg**)

Crop	**Sold to Trader in Village**				**Sold in Local market**				**Sold in Main Market**			
	Amount	(km)	MoT	Source	Amount	(km)	MoT	Source	Amount	(km)	MoT	Source

Notes:
1) km = distance to collection point or market;
2) MoT (Means of Transport) – please show as follows - Walk =1, Bicycle =2, Oxcart = 3, Donkey cart = 4, Wheelbarrow = 5, Handcart = 6, Vehicle =7
3) Source – please show as follows - Owned by household = 1, Hired = 2, Transport service =3

What are main constraints on selling more crops at market?
……

4.2 To what extent do you use (*or would you use if service available*) a Transport Service to transport your crops to market? Please estimate the proportion carried (*or you would carry*) and tick which range this falls into below:

0%…….; 0 to 25%…….; 25 to 50%……..; 50 to 75%……; 75 to 100%……; 100%…...

5 Does your household own a Means of Transport (bicycle, wheelbarrow, cart etc) Yes… No…

If YES what type is it ……Who uses it…….

What is it mainly used for ……

For which trips and why do you use (*or would you use*) Transport Services rather than your Means of Transport
……..

A2.2. OPERATORS OF TRANSPORT SERVICES
Date…….

1. Type of Vehicle…… Age……

Who owns the vehicle? Driver…… Other person…….. Business……..

2. Type of Service – Passenger or goods? And loads carried

(i) Passengers …….. How Many carried…….

(ii) Goods …… Type of goods ……. Quantity …… Tonne.

3. Details of route: From…….. to…… Distance……km

How often? (Please state clearly times per week) (i) In dry season…….. (ii) In wet season……..

Time Taken? (i) In dry season…… (ii) In wet season…….

Please give 2 examples of fares charged along this route for different distances

From	To	Distance (km)	Fare for passenger		Fare for 25 kg bag	
			Dry season	Wet season	Dry season	Wet season

What is your typical total income for a trip in (i) dry season: To ……..; Return ……

(ii) wet season: To ……..; Return ……

4 Is the demand for transport services on this route during the year

	(i) Good (good profit)	(ii) Satisfactory (small profit)	(iii) Poor (makes loss)
Harvest season	……..	…….	……
Other dry season	…….	…….	……
Wet season	…….	……..	……

If demand is poor what do you think are the main reasons? ……

……

5 What are the main problems of operating the service? ……

…….

6 Where is your base (where you live and keep your vehicle)……

7 How long have you been operating on this route…… What made you decide to start operating on this route …….

How did you get started. How did you get the money for your first vehicle ……..

What proportion (%) of your TOTAL income comes from operating your transport service……

8 Who maintains and repairs the vehicle? (i) Driver ……..(ii) Owner……(iii)Workshop……
.

Do you consider the maintenance of the vehicle (i) Good…..(ii).Satisfactory……(iii) Poor……..

In the past 2 years how many times has the vehicle been out of service for more than a week waiting for repairs?

Please give brief details …….

……

9 How will you replace your vehicle when it is no longer usable? ……..

……..

Is it a large problem …… medium problem……. Little problem …… to get a replacement vehicle?

From where? …… What is typical price?…….

For what type of vehicle?…….. For how many years old?……

10 Is your operation affected by any regulations? Yes…… No…….

If YES please give brief details
……..

……..

How do the regulations affect you?
…….

……..

11. How many km do you travel (i) per month……..(ii) per year……

How much do you spend on fuel per month…….

How much do you spend on maintenance of the vehicle in 1 year ……

How much did you spend on repairs to the vehicle (i) last year…….(ii) in year 2001…..

How often do you replace a tyre…….. What is the cost of a tyre……

What are your costs per year for (i) Vehicle tax…….(ii) Insurance……..

(iii) Vehicle inspection…….(iv) Other vehicle costs…….