

AGRICULTURAL RURAL TRANSPORT PROJECT FOR EAST AFRICA

Report on the East Africa Regional Project Planning Workshop

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List of Abbreviations

ATNESA	-	Animal Traction Network for Eastern and Southern Africa.
EIA	-	Environmental Impact Assessment.
DFID	-	Department for International Development.
GS	-	Guiding Systems Consult.
IFRTD	-	International Forum for Rural Transport and Development.
ILO/ASIST	-	International Labour Organisation-Advisory Support, Information Services and Training.
ITDG	-	Intermediate Technology Development Group.
IMTs	-	Intermediate Means of Transport.
KARI	-	Kenya Agricultural Research Institute.
KENDAT	-	Kenya Network for Draught Animal Technology.
NARC	-	National Agricultural Research Centre.
NFG	-	National Forum Group.
NIC	-	Newly Industrialised Country.
NEAP	-	National Environmental Action Plan.
NMT	-	Non Motorised Transport.
NGOs	-	Non Governmental Organisations.
PEAP	-	Poverty Eradication Action Plan.
RTTP	-	Rural Travel and Transport Project.
SRI	-	Silsoe Research Institute.
SSA	-	Sub Saharan Africa.
UNIDO	-	United Nations Industrial Development Organisation.
UPE	-	Universal Free Primary Education.
ZOPP	-	<i>Ziel Orientierte Projekt Planung</i> - Objectives Oriented Project Planning.

PREFACE

A Project Planning Workshop for an encompassing Agricultural Rural Transport Project was conducted utilising expert ZOPP Approach. The workshop was estimated to have received at least 600 person hours of highly participatory input. The Work Plan development which followed the workshop reported here have received another 300 person hours.

Some eight major activities, with several sub activities each, arose. These will comprise the Action Plan of the three years Phase II (Appraisal and Needs Assessment) period of the total project strategy. As expected some of the activities are inclined towards development. This is the case as pilot projects of innovative interventions (the subject matter scheduled for Phase III) may or will need to be initiated for field testing during Phase II.

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The core team and their organisations wish to express their sincere gratitude to DFID and NRI for sponsoring the planning workshop. Additional appreciation goes to the governments of Kenya, Uganda and Tanzania who through their National Forum Groups for Rural Transport and Development offered a great deal of information to build on other workshop resources.

EXECUTIVE SUMMARY

A participatory workshop geared towards receiving stakeholders input towards the planning of an agricultural rural transport research and development project for East Africa was conducted in November, 1997.

The arising agricultural rural transport project strategy contains the following highlights:

- Overall Goal: **Smallholder agricultural production and marketing in East Africa enhanced.**
- Purpose: **Rural transport improved.**
- Outputs (Strategic Options):
 1. Demand for agricultural rural transport assessed.
 2. Causes for inadequate rural transport infrastructure assessed.
 3. Supply constraints of transport services analysed.
 4. Factors affecting adoption rates and utilisation of available means of transport investigated.
 5. Supply constraints on means of transport analysed.
 6. Options for provision of high performing means developed.
 7. Impact of policy shortcomings on agricultural rural transport assessed.
 8. Costs and benefits of appropriate agricultural transport quantified.
 9. Phase II research findings are implemented as interventions in Phase III.

Each of the strategic options is operationalised through a set of defined interventions (activities). See section 6.5.

The critical situations that need to remain positive for optimal realisation of impact from the interventions are:

- Mass adoption of the initiatives continued.
- Relevant socio-economic, political, environmental conditions do not deteriorate.
- Adequate funds for implementing research findings as interventions for Phase III are availed.
- Other factors affecting agricultural production remain positive.
- Current problem situation analysed does not change significantly within the project period.
- All the stakeholders are willing to collaborate and do their part effectively.
- Budgeted funds are available on time.
- Communication infrastructure between stakeholders is effective enough most of the time.

The impact of implementing this strategic plan is measured using pre-set indicators. At goal level, the impact is measured through increased production and marketing levels of communities who have improved their means of transport as compared to those who have not while the

purpose is measured by progressive decrease in time spent by smallholders in transport, reduced loss of produce due to transport problems and reduced materials transported by women when compared to other means of transport.

The major sources of data to evidence indicators of achievement are survey reports, project progress reports, technical reports and specified institutional data in each country.

Silsoe Research Institute will be the central organ overseeing the strategic plan. The Project Coordinator from an institution based in East Africa will activate the strategic plan and oversee the management of the project while the Country Leaders will be in charge of the project implementation within the various countries (Kenya, Uganda and Tanzania). Meetings and reporting procedures were also proposed. The Steering Committee will meet thrice: at beginning, middle and end of the two project Phases (II and III), the Management Committee will meet once after the Steering Committee and in cases of need or emergencies while the Project Coordinator and Country Leaders will meet at the beginning of the project in each country and quarterly to match reports. Reports will include quarterly and annual, project completion and final technical reports, workshop papers, research notes and written outputs as necessary.

Fine details on the work plan were to arise from the post-workshop meeting of the core team which was to be held immediately following the workshop reported here. The team was to have key representatives from the three countries, Kenya, Uganda and Tanzania.

This project covers three phases. Phase I: (now complete) is the project planning phase reported here. Phase II, running for the first three years of the project will comprise the appraisal and assessment to define the issues, their magnitude and outline required interventions. In this phase some development work involving pilot testing interventions to validate them will be carried out. Phase III will focus on implementation of the proposed interventions arising from Phase II. The impact described at Purpose and Goal level will therefore be mostly generated in Phase III of the project.

Agricultural rural transport is a major constraint to production and marketing at the smallholder household level in East Africa. This project will therefore make a major contribution in this regard hence contributing to alleviation of poverty through increased rural household incomes.

1.0 INTRODUCTION

1.1 Background

The quality of life and economy of rural communities of East Africa continue to weaken with the largest part of the population remaining marginalised from development activities and progress. This is despite various efforts made to alleviate poverty. Many rural communities do not seem to have derived benefits from public sector and other development projects and investments.

Transport is about mobility and accessibility. Rural transport is a major factor in agricultural production and marketing. The modes of transport range from head loading, usually by women, on farm and village paths to pick-up trucks on metalled roads. Between headloading and the pick-up truck, there exists a considerable economic and technological gap which needs to be filled as a way of improving land and labour productivity.

In an attempt to fill this economic/technological gap, constraints to procurement of improved transport modes, their availability and utilisation, based on cultural knowledge, environmental, technical and other factors need thorough assessment. For instance, the extent to which on-farm transport short-comings differ for men and women has not been quantified. Without such assessment, it remains difficult for planners and others to quantify the potential impact in policy development among other support-service interventions. Hence the need exists for a thorough investigation of the pertinent issues to enable the design and implementation of correct interventions.

To appraise this need, several organisations were called to a workshop at Silsoe Research Institute (SRI), from which a project concept note was developed. The concept note ramified an endeavour to articulate the required assessment by:

- researching transport constraints of agricultural production and marketing;
- collecting comparable data in different locations in East Africa;
- allowing more general conclusions on the impacts of improved transport systems;
- giving limits on possible improvements of local transport systems; and
- indicating the magnitude of their impacts.

A core team of researchers was established with representation from University of Nairobi, Kenya Network for Draught Animal Technology (KENDAT), Kenya Agricultural Research Institute (KARI), University of Warwick, International Forum for Rural Transport and Development (IFRTD) - representing rural transport National Forum Groups (NFGs) in Kenya, Uganda and Tanzania, Swedish University of Agricultural Sciences (SLU) and Silsoe Research Institute (SRI) to continue the follow-up.

Discussions with donors were initiated and this led to the development of further concepts and ideas. Eventually a three phase strategy was agreed upon. In phase one a workshop would be conducted involving national and regional specialists and other stakeholders to develop a project for improved transport systems in agricultural production and marketing for smallholder farmers in East Africa. Phase II was to comprise of an appraisal and needs assessment initiative to

analyse production and marketing related restrictions and determine strategies to find real solutions while Phase III would involve innovative interventions such as credit schemes, infrastructural inputs and other approaches as identified in Phase II. The following is a report of the workshop (Phase I) which was held from 3rd to 7th November, 1997.

1.2 Workshop Objectives

The theme of the workshop was **Improving Rural Transport Systems for Enhanced Agricultural Production and Marketing in Smallholder Farms of East Africa.**

The workshop was expected to:

- Assess the importance of rural transport and its place in smallholder farming and development;
- Raise awareness and development interests in the subject;
- Identify the role, nature and entry points of research and other development interventions;
- Receive the input of key stakeholders; and
- Integrate workshop proceedings with findings from the field visits.

As a final outcome, the workshop would develop a three year research project to be implemented in the East Africa countries. Upon this logframe, the core team would develop a funding proposal that would be utilised for mobilisation of project funding.

1.3 Opening Address

The workshop was opened by Dr. P. Kaumbutho, the KENDAT Chairman. He thanked the participants for finding time to attend the workshop.

Dr. Kaumbutho reminded the participants that they were present, mainly to develop a project that would change the face of agriculture and rural transport in East Africa after the three to six years project period. In this connection, he asked the participants to forget country boundaries and focus their ideas on East Africa, and present the situation as it is on the ground. Only this approach would enable an honest assessment of the magnitude of the problems facing agricultural rural transport. He felt that the group was varied enough in know-how and experience of the three East African countries, Kenya, Uganda and Tanzania to come up with a comprehensive research proposal for agricultural rural transport. Participants had already conducted mini-surveys in their various countries compiling stakeholders inputs into country papers which were to be presented at the workshop.

1.4 Methodology

The methodology applied in the workshop was the improved logical framework ZOPP which is the acronym for Ziel Orientierte Projekt Planung, and translated into English as Objectives Oriented Project Planning (OOPP). The approach features systematic step by step planning with meta plan visualisation and moderated dialogue. Through this approach, participants to the workshop analyse the problems in a given situation. A cause-effect relationship of problems

(problem tree) is constructed. Following on this, project objectives are defined that will describe the desired future situations. Later the activities necessary to meet the objectives, risk factors, as well as the monitoring/evaluation indicators are outlined. The approach is highly participatory and brings together the thinking of various actors into the planning process.

1.5 Participation

The workshop drew together twenty two participants. These included representatives from East Africa countries viz, Kenya, Tanzania and Uganda, local and international collaborating Institutions.

Represented were most of the organisations significantly featuring in the improvement of agricultural rural transport in the East Africa Region. The twenty participants can be categorised as follows:

Kenya	-	12
Tanzania	-	3
Uganda	-	3
International Institutions	-	4
Total		<u>22</u>

Full list of participants is attached as Annex 1.

1.6 Programme

The workshop started with an input from country paper presentations on national status of agricultural rural transport, constraints, achievements, opportunities and plans for development. The papers highlighted how the planned project would match as well as contribute to the country plans. Four Key note papers by rural transport specialists on rural infrastructure, economics and on-farm transport development, technological support and services and gender issues of rural transport were presented. The workshop went on to analyse the existing problems in the project environment and analysis of objectives to be pursued by the project. Field visits to four different areas were made to give the participants a first hand practical insight into agricultural rural transport. The inputs from paper presentations, field visits and the analytical steps led to the drawing of the project strategy (logframe). Finally, country specific action plans based on the project strategy were developed.

The detailed workshop programme is attached as Annex 2.

2.0 COUNTRY AND KEYNOTE PAPER PRESENTATIONS

A major input for discussion was country and keynote papers on rural agricultural transport and development prepared by country teams. A summary of each paper is presented in this report. However, the complete papers have been bound and are available at KENDAT Secretariat for further reference. The country paper for Tanzania was not presented due to the fact that the person who had it failed to attend the workshop. It is therefore not included in this report.

2.1 Country Papers

2.1.1 Agricultural Rural Transport and Development in Uganda

Akidi P, Kaira C., Kwamusi P, Okure M, Sseruwo L, and members of NFG, Uganda.

Agriculture is the most important economic activity in Uganda contributing 49% to GDP and providing employment to 80% of the labour force. The potential for agricultural production remains largely untapped mainly due to inadequate means of transport in the rural areas.

The road is the most dominant travel mode linking communities. However, rural transport is predominantly through walking and headloading on 1-2 meter wide tracks and footpaths.

Rural transport facilities are required for domestic farming, marketing and social services. From a study conducted in Mbale in 1996 on domestic transport mode, 75% of transport demand and consumed the most energy and time. Agricultural activities took up about 18% of household transport demand while marketing of farm produce took up another 6% of the demand. Although Intermediate Means of Transport (IMTs) e.g. donkeys, ox-carts, wheelbarrows, bicycles and motor cycles exist, their use in productive activities is limited by the lack of funds and technological expertise to service.

The government has initiated the following development projects: South Western Uganda Agricultural Rehabilitation Program (SWARP), the Feeder Roads Rehabilitation and Maintenance Programs and the Decentralisation of Functions to Districts. One of the key components of SWARP was the rehabilitation of rural access roads. Over the last 8 years, more than 900 Km of feeder roads have been improved at a cost of US \$ 75 million. Decentralisation has limited the central governments role to policy formulation, monitoring and guidance. Implementation roles were transferred to local government.

Several structural and institutional weaknesses limit the exploitation of productive potential. These include: the predominant use of manual methods of production, the low capacity utilisation of land resources, inadequate extension services, use of environmentally unsustainable practices, continued domination of headloading methods of agricultural produce transportation, lack of technical skills to fabricate carts, poor rural roads and market infrastructure.

In addition, rural farmers lack the financial resources to purchase IMTs and moped trailers. Other animal traction technology is inadequate.

To further address the agricultural rural transport and development problem, the government has drawn up the following plans: Poverty Eradication Action Plan (PEAP), Modernisation of Agriculture Plan, Mechanisation of Agricultural Production and Transportation, Strategy for Rural Feeder Roads Rehabilitation and Maintenance, National Environment Action Plan (NEAP), Water Action Plan, Human Settlements Strategy, Universal Free Primary Education (UPE) and the RMI/RTTP/NFG Secretariat. The PEAP, through a set of strategies aims to raise incomes and improve the quality of life of the poor. Future public investment programmes will address PEAP objectives.

Research efforts should address the issues and constraints mentioned above and specifically, investigate the economics of owning IMTs, the innovation and operationalisation of IMTs, capacity building for construction and maintenance of community roads/tracks and paths.

2.1.2 Rural Agricultural Transport and Development in Kenya

K. O. Atieno, Sam Orwa, Jan Fransen, Jeff Maganya, Cecilia Kinuthia Njenga and Paul Kirai in collaboration with other NFG members.

Road and rail transport together account for 80% of freight and passenger traffic. Although the country made significant achievements in expanding the road network in the first 2 decades following independence, its capacity to expand and maintain road and rail facilities declined considerably from the 1980's. Moreover, this network had concentrated on major roads and highways, somewhat under-playing the creation of rural access infrastructure.

Of the total road network of 150,000 km, only 63,000 are 'classified' and the rest are 'unclassified'. The bulk of smallholder agriculture however takes place far from these roads in areas that are not even covered by the unclassified roads. Furthermore cost factors limit the level of motorisation. Rural transport has for the first time been addressed in the Development Plan, but no budgetary allocation has been made. Even now, the Plan makes no mention of Non Motorised Transport (NMT). Sessional Paper No. 2 of 1996, on Industrial Transformation to the year 2020, indicates the intention of the Government to transform the economy into a Newly Industrialised Country (NIC). This process is projected to use increased agricultural production as a springboard by strengthening linkages between agriculture and industry. Without improved rural transport this goal is highly curtailed.

Most rural transport takes place on foot but there is increasing use of bicycles for transport, particularly so in Western Kenya. The Rural Access Roads Programme (RARP) - the precursor to the current Minor Roads Programme (MRP) was established in 1974, to increase the road network using labour based construction methods. A training centre which collaborates with ILO/ASIST in labour based training methods has since been established in Kisii. Although 12,000 km of roads have been constructed by MRP and benefitted many local communities, studies indicate that appropriate rural transport such as paths and tracks to link villages to these roads is lacking. In order to expand the rural road network, the Roads 2000 strategy has been established by the Government of Kenya (GoK) which proposes to use labour based maintenance methods in the classified roads network.

Road planning and development has tended to focus on the needs of commercial farmers at the expense of the needs of subsistence farmers. Although it is recognised that community access to rural transport provides many benefits, lack of access to IMTs limits transport in rural communities to headloading. At the same time, the excessive amount of time and energy spent on transportation activities limits exploitation of income generating opportunities available in agriculture. The low incomes and the absence of GOK support for IMTs limits community access to them and to motor vehicles. The introduction of IMTs in many rural areas is complicated by topography, economics and social/cultural beliefs of the community. Research carried out by Intermediate Technology Group indicates that the following factors should be considered when investing in transport vehicles: the price, the availability and access to repair,

maintenance and health care in case of animals, versatility and durability, ease of propulsion and loading capacity of vehicles.

Domestic and agricultural transport activities mainly by headloading constitute about 20% of female transport activities. Increased environmental degradation due to deforestation, drought and desertification has increased the amount of time and effort expended by women and the girl-child in domestic transport activities. The introduction of IMTs can reduce this burden by reducing the time and effort involved in transport activities and by having previously female transport activities re-allocated to the men. However, in some communities, cultural barriers inhibit the use of inputs by women. Communities such as women groups in Kandara District have mobilised themselves to construct paths, tracks and footbridges. In spite of these innovations, the participation of women in rural road construction continues to be limited to less arduous tasks.

Environmental considerations play a major role in influencing rural transport and transportation systems also have a significant influence on the environment. Extensive networks lead to intensification of activities leading to environmental degradation and negative social impacts. Recently, the National Environmental Action Plan (NEAP) has established Environmental Impact Assessment (EIA) guidelines for transportation projects. Environmental issues that need to be considered in rural transport development include: the design and flexibility, local climatic and topographic conditions, raw materials availability, soil and vegetation cover, introduction of work crews and heavy equipment.

In order to make IMTs more affordable, there is need to promote new designs and to encourage users to participate in their production. In order to increase access to IMTs, there is need for public policy to: invest in appropriate infrastructure for rural transport such as paths and footbridges, and amend current traffic laws in order to provide for the use of IMTs on classified roads. At the same time, gender sensitive interventions such as the establishment of credit schemes for poor women to buy IMTs and to implement travel reducing strategies should be established.

2.2 KEYNOTE PAPERS

2.2.1 Infrastructure and Planning for Rural Agriculture Transport and Development

J. P. Makungu, D. L. Banda and D. Mason.

Poor agricultural performance has been identified as one of the main causes of poverty in Africa. Although transport has previously been mentioned as having an important role in agriculture, until recently, its role in agriculture policy strategies has not been given due weight. At the same time agriculture has not featured in transport policy strategies. Fortunately studies such as the 1997 ILO Guide to Integrated Rural Accessibility Planning in Tanzania have made concrete recommendations to improve rural access and transport.

The role of transport in the production process occurs both at the input and output side. It determines labour time available for production and components of produce reaching markets, infrastructure and mechanical systems. Interventions include direct/indirect measures or transport

avoidance. These measures differ in many ways including the structure of ownership, acquisition strategies and their impact on agricultural development. Interventions in infrastructure require more institutional infrastructure while the acquisition of mechanical systems is influenced more by commercial considerations rather than institutional. Infrastructure requires larger capital investments than mechanical systems, is communally owned and may be provided directly (eg. roads, paths) or indirectly (e.g. support to local institutions to construct access roads). Transport avoidance measures such as the provision of health, water, education, grain mills, oil expellers etc. at nearby locations also improve agricultural production.

Primary inputs in subsistence agriculture are land, labour and the biological systems needed to substitute for commercial inputs. Strategies used to accomplish this substitution are all inter-linked and work together to produce the self-perpetuating poverty conditions characteristic of subsistence agriculture.

The commercialisation of agriculture has great potential in transforming subsistence agriculture and re-orienting it towards a market based economy characterised by new investment in technology and infrastructure. This characterisation needs to be accompanied by commodity specialisation and harmonisation of existing weather conditions with cropping patterns.

The main reasons that have sustained the continuation of subsistence farming over the years are the absence of an appropriate development paradigm in African countries and the fact that subsistence farmers are typically conservative. Specifically, the lack of safety net measures to cushion subsistence farmers increases their risk aversion strategies. The absence of an appropriate development paradigm has led to propagation of poverty and environmental degradation; failure to address negative aspects of subsistence production and lack of coordinated sectoral objectives and policies.

In order to address the inhibiting factors identified above, there is need to formulate an integrated policy framework that includes all stakeholders, integrate and strengthen coordination of existing ministerial institutions and conduct research on the impact of different transport parameters on agricultural production.

2.2.2 ECONOMICS OF APPROPRIATE AGRICULTURAL TRANSPORT

Niklas Sieber, IFRTD

Conventional transport approaches focus their attention on roads and motorised vehicles. While these are important particularly for bulky produce, it is felt that they fail to address the problems faced by smallholder farmers in transporting inputs to the field, crops to storage facilities, collection points and local markets. The paper argues for an approach that integrates Intermediate Means of Transport (IMTs) into the food production and marketing cycle.

IMTs refer to transport methods whose characteristics lie between the traditional ones of walking and headloading and conventional motor vehicles. Studies undertaken indicate that IMTs are more appropriate for local transport, are relatively cheap to purchase and maintain. They can operate on paths and tracks which in turn are cheaper to construct and maintain. IMTs can be viewed as composing stage in the process of changing from a traditional to modern transport

system though this is often not the case. They can be produced locally and thus require less foreign currency.

It has also been shown that in the case where small loads need to be transported on many short distance trips, they are more efficient than motor vehicles. In transport mode decisions, cost is an important consideration. The magnitude of the cost depends on the road conditions, distances covered and the utilisation of the loading capacity. At the moment, pick-ups, although acknowledged as more expensive than ox-carts, hand-carts or bicycles with attached trailers dominate the rural transport scene. The main reason for this discrepancy has been the low speeds associated with these IMTs. Recent studies however indicate that IMTs can reduce transport costs by between 60 and 90 per cent if paths are widened, bridges constructed and surfaces smothered.

A considerable amount of labour time is used in transporting crops on headloads. Moreover, the lack of better means of transport constrains the amounts that can be transported by households. The use of IMTs can reduce the labour time used in transportation thus releasing this labour for more productive work. In addition, use of IMTs can influence the cultivation patterns of smallholders towards expanding the land areas under cultivation and towards cultivation of high value but otherwise bulky crops, which could not be economically transported by headloading methods. Overall, this would increase productivity both in terms of land capacity and labour utilisation.

An improvement in the rural infrastructure and the increased use of IMTs would reduce the cost of delivering inputs to the farms, reduce the level of crop spoilage and raise the amounts of produce reaching the markets. The subsequent expansion of market activities would favour the use of animal carts. Moreover, using IMTs to transport produce to pick-ups at collection points for onward transportation to the markets would considerably reduce marketing costs. In a competitive environment, use of IMTs would reduce marketing costs, increase the income of rural producers and reduce public expenditure for infrastructure provision and maintenance. Empirical evidence indicates that adoption of some of these modes have doubled both the production and income levels of small holder users. In addition, use of IMTs supports small enterprise activities and thus access to employment.

Several factors restrict the use of IMTs. These include economic, topographic, climatic, cultural, gender divisions and lack of awareness. If we take economic factors as an example, it has been shown that the low purchasing power of small holders is a major reason - the price of most IMTs being equal to the annual per capita Gross National Product of most Sub-Saharan African countries. Consequently, to raise the adoption rates of IMTs may necessitate the establishment of credit schemes. Evidence from Kenya and elsewhere indicates that smallholder farmers are able to repay loans advanced under such schemes. Additionally, production and maintenance facilities for IMTs do not currently exist. Furthermore, in many developing countries, government policies and regulations act as a hindrance to the widespread use of these technologies e.g. high tariffs on bicycles imports.

Finally, a research agenda to address the above constraints is proposed. This agenda seeks to:

- Estimate the costs of different modes of transport in different agro-ecological zones

and with varying distances to fields and markets.

- Determine whether private enterprises and governments can meet the demand for IMTs and transport services and supply the necessary infrastructure respectively.
- Produce quantifiable cost benefit analysis data on the impact of IMTs on smallholder production and marketing.

2.2.3 Technological and Industrial Support for Rural Agricultural Transport and Development

Girma Gebresenbet, Dave O'Neill, Joseph Mutua and Colin Oram

Economists consider transport as "... the mainspring of economic development through its market widening effect". Transport plays a pervasive role in facilitating both agricultural and industrial development. Technological developments in transportation reduce drudgery, post harvest spoilage and pest damage and stimulates economic activities and social integration. They also increase efficiency and the quality of life and reduce time required for transport.

Transport enhances agricultural development, and in turn agricultural development supports transport development. However, the transport development strategies of most developing countries are designed to promote commercial farming and industrialisation. This inevitably isolates and marginalises the subsistence farmer who inevitably becomes unaware of market opportunities. In Sub-Sahara Africa (SSA) and East Africa in particular, motorised transport is limited to the major urban centres. The challenge of transport development in this region therefore is to identify the appropriate mode of transport capable of meeting the transport requirements of poor small scale farmers who form the bulk of the populations.

The road infrastructure in SSA countries is grossly inadequate. Most rural people therefore travel off road and on foot, remaining isolated from a wide range of social and economic opportunities. In addition, they have limited access or ownership to means of transport. The solution therefore is not provision of roads and motorised transport but a focus on appropriate rural transport needs such as IMTs.

The new approach in rural transport planning uses the household as unit of analysis and re-defines rural transport to include the movement of people and goods to meet their domestic, economic and social needs, by any means, along paths, trucks and roads.

Women in SSA countries spend a lot of time in transporting agricultural inputs, products and household needs. Studies carried out to assess rural transport needs in Western Tanzania, Kajiado and Mwea Division in Kenya, revealed that most transport efforts on the farm and household are undertaken by women on foot and only a few by motor vehicles and bicycles. This means that the burden created by lack of adequate agricultural rural transport heavily relies on women.

Transport needs for small scale farmers vary with the type of crops grown, number of livestock owned, size of farms, distance to market outlets and the range of inputs used. In Kenya and perhaps the rest of East Africa, the most important needs are for the movement of 10-150 Kg loads over distances of under 25 km. and distances of under 13 Km on-farm.

Most transport activities in rural areas are walking to and from the fields, collection of harvested crops and walking to collect water and firewood. Compared to transport between

homesteads and market, these activities are the most time consuming. Increased use of IMTs and the construction of roads would reduce the carrying burden and transport time.

IMTs can be motorised or non motorised. Animals hauling simple wheeled transport and motorbikes, scooters and single axle tractors with attachments can still play an important role in the transport solutions of developing countries but motorised vehicles are unaffordable and inappropriate to small scale farmers.

The share of manufacturing in GDP in East Africa is typically low ranging from 7-11%. In addition the manufacture of transport equipment is restricted to the assembly of motorised trucks using foreign components. Although UNIDO initiated a strategy for low cost vehicles for use in rural areas, no further progress in that direction has been made. East African countries could borrow from the successes experienced by Asian countries in the production and maintenance of such vehicles. Some technological constraints to agricultural and rural transport have been identified as the following:

- Poor state of and adaptation of IMTs;
- Inadequate manufacturing, service and maintenance capacity;
- Lack of design and production standards;
- Inadequate knowledge on the performance of animal powered transport; and
- Poor design of equipment for pack and pulling loads and inadequate knowledge of the performance of animal powered transport.

The adoption and use of IMTs has further been limited by cost, mainly due to poor access to the raw materials needed in the manufacture. Nonetheless, most Asian countries have successfully manufactured such low cost vehicles.

The technological support required to facilitate and promote agricultural transport in East Africa should pay attention to transport equipment and power sources, infrastructure, packaging technology and environmental considerations. This requires, the integration of on-farm transport with off-farm motorised transport and the support of local manufacturing capacity. Similarly, the entire agricultural logistic system should also be considered.

Further research to promote IMTs and their integration with advanced means of transport is required to identify the characteristics of IMTs, transport requirements, access, technological and local manufacturing constraints and assessing environmental impact.

2.2.4 Gender Issues in Rural Agriculture Transport and Development

Camilla Lema, Hans Mhalila

Agriculture is the main source of employment in Tanzania and contributes 50% of GDP and 75% of foreign exchange earnings. Most agricultural activities are conducted in rural smallholdings, mainly by women. Communities in rural Tanzania live in dispersed clusters far from major markets and urban centres. Here the dominant mode of transport is walking with headloading.

Men dominate in occupations of higher status while women dominate in lower job status. Women contribute about 67% of total travel time most of it on domestic needs and produce about 70% of the food crops. This imbalance is mainly due to inherent institutional

weaknesses in addressing the rural transport problem, socio-cultural and traditional barriers, topographical and ecological constraints on gender. Coordination of agriculture and transport at the macro level is also lacking. In addition, none of these sectors has a comprehensive gender policy. As a result, distortions exist in the allocation and utilisation of rural resources. Moreover, existing land tenure systems are based on traditions which discriminate against land ownership by women.

At the same time, past investment programs in agriculture and transport have focused their attention on providing services and infrastructure to boost export crops. Consequently, emphasis has been on expensive conventional modes of transport and infrastructure with little consideration to access and affordability. Also, there has been little effort by government to incorporate the wishes of rural communities in development preferring instead, to use modern unaffordable technologies instead of simpler affordable ones. In agriculture, women who have also to contend with the effects of implementation of structural adjustment programmes continue to use outmoded technologies due to lack of access to centralised extension services. The lack of farmers' organisations in the rural areas means that farmers continue to receive poor prices for their produce.

The lack of a system of information flow also limits marketing opportunities for the rural communities and entrepreneurs. The lack of community organisations and the inadequate supply of social services limits the ability of women in village councils to participate meaningfully in decision making at the grassroots level. Furthermore, the nature of development approaches is such that the choice of technologies is biased in favour of male members of the household further perpetuating gender discrimination.

Based on the experience of the Makete Integrated Rural Transport Project, the government has integrated gender issues in the *Integrated Rural Accessibility Planning* guidelines. These guidelines broadly address agricultural transport issues.

The non recognition of rural women labour as a major factor of production and transportation and neglect of their transport needs has led to low land and labour productivity leading to seasonal employment patterns and creating rural-urban migration. In order to improve the rural agricultural situation, agriculture, transport, land and labour policies should be coordinated. Further, gender balanced resource mobilisation for self-help initiatives in rural transport and agriculture should be promoted and gender considerations be incorporated in the design of alternative intermediate rural development strategies. A comprehensive policy to address negative socio-cultural attitudes and barriers should also be implemented.

Research should address the major constraints of existing credit systems in agriculture and transport, the impact of government tariff policies in gender distribution of labour, the role of the government in reallocating women's labour resources and the role of women in improving rural infrastructure.

2.3 Issues arising from paper presentations

Issues arising from the country and keynote papers were discussed as follows:

2.3.1 Ugandan Country Paper - Agricultural Rural Transport and Development

Que 1: There are many bicycles on Ugandan roads. Does a policy on bicycle use exist?

Ans: There is no existent policy on bicycles. However, bicycles are assembled by a private manufacturer in Kampala. Also, there are more bicycles in towns than in the rural areas.

Que 2: What is the policy regarding animal transport?

Ans: There is no policy but Ugandans appreciate the potential role of this form of transport. Unfortunately, donkeys are only found in Kapchorwa district and the supply is inadequate to meet the demand.

Comment:

Participants observed that unlike in the Kenyan situation, an increase in petroleum prices was quickly resulted in increased foodstuff prices both in rural and urban areas.

2.3.2 Kenyan Country Paper - Rural Agricultural Transport and Development

Que 1: Does the government have a policy on rural agriculture infrastructure?

Ans: The focus of the Rural Access Roads Programme was to open up cash crop growing areas and had little to do with inter village transport. Even the Roads 2000 strategy was intended for motorised transport.

Que 2: Why did the Ministry of Transport Engineers refuse to assist local communities in footpath/footbridge construction?

Ans: The mandate of District Roads Engineer did not cover this category of infrastructure. Therefore unless the GoK provided policy guidelines to the engineers, they are under no obligation to assist local communities in the construction of paths, tracks and footbridges. There is need to sensitise politicians on rural agriculture and infrastructure.

Que 3: Since the lack of bridges was the main cause of transport problems in the rural areas, what policy did the GoK have to alleviate this?

Ans: The current policy regarding the construction of rural transport is rather unclear. Land demarcations have increased the need for rural infrastructure. In some districts local authorities are involved in construction and maintenance of rural infrastructure.

Comment:

Participants suggested that it was better to train farmers in the care and management of animals for transport instead of extension officers. A participating engineer observed that design engineers had the capacity to design equipment that was easy to maintain locally.

2.3.3 Keynote paper 1 - Infrastructure and planning for rural agriculture transport and development

Que 1: How have the national policies affected rural agricultural transport?

Ans: The disaster in this region has been caused by lack of policy on implementation. Although documents are prepared, no policy has truly been effected. What exists are sectoral and not national policies. There does not seem to be a proper integration between agriculture and transport. In some cases, the responsibility for maintaining feeder roads, paths and bridges is not clearly outlined in the policies. In any case we find that what we have are policy objectives rather than policies. Policy objectives should be backed by acts of parliament to become law. Then those who do not comply can be punished.

Que 2: How do you reconcile the role of government in subsidising agricultural production and creating a market economy?

Ans: Markets are a key component in agriculture. It was emphasised that while crop production was easy, the sector could not grow in the absence of markets. However, handouts only create dependency and free market should be encouraged. The focus should be more on developing marketing infrastructure such as market places, collection points, market access etc.

2.3.4 Keynote paper 2 - Economics of Appropriate Agricultural Transport

Que 1: In what way would the use of IMTs improve agricultural production in the light of the fact that smallholder farmers are not able to afford IMTs?

Ans: Combining IMTs and conventional means of transport increases the productivity of the agricultural sector. Since subsistence farmers have low purchasing power, a credit system was required in order to create a sense of ownership by having the farmers buy IMTs. Studies of particular localities are needed to match farmers needs with the right IMTs for their income levels and design credit systems that can succeed given such income levels.

Que 2: What is the role of the government in agricultural rural transport development?

Ans: Governments have a key role to play in developing appropriate policies. However, the emphasis should be on implementation otherwise the end result would be too many plans that in themselves do not bring about rural transport and infrastructure. Policies should address provision of the right networks for rural access and define responsibilities for development and maintenance.

There is also need to focus on areas of highest returns to make investment worthwhile. However, there is a paradox here - does opening roads to areas of low potential increase their potential and if so how can we compromise that attention to be focused only on areas of high return? Perhaps there is a certain minimum investment in road work that needs to be made in each place as a catalyst or change from purely subsistence to embracing some market farming.

2.3.5 Keynote paper 3 - Technological and Industrial Support for Rural Agriculture Transport and Development

Que 1: Is it possible to borrow the technologies used instead of re-inventing the wheel?

Ans: It is possible to borrow from existing technology such as from Asian countries. However, the emphasis should be on using that technology in local manufacturing for adaptations to local use and to enhance local production capacity.

2.3.6 Keynote paper 4 - Gender Issues in Rural Agriculture Transport and Development

Que 1: How would gender balance increase agricultural productivity?

Ans: Most poor people are aware of their poverty. Priority should therefore be given to educating women who are the majority producers in agriculture. Increased use by women would therefore not only increase productivity of the majority but also reduce a lot of burden and drudgery.

Que 2: How do you intend to have the inter-relationships among governments, civil societies and NGOs working together?

Ans: A future partnership in which the governments, civil society and NGOs are willing to consult each other as equal partners for the sake of national development is foreseen. Policy making and planning would be optimally integrated with mobilisation/empowerment of users and capacity building for such implementation.

3.0 FIELD VISITS

In order to give the participants a practical insight of the agricultural transport process, a field visit day had been planned. Each of the four field visits covered a high potential area and the marginal semi and/or arid areas. Participants were asked to study the characteristics of specific sites visited, make observations with respect to agricultural rural transport, processing this to come up with points for learning. Below is a summary of the field visits as they were presented in the plenary session.

3.1 Murang'a-Karatina extending to the windward side of Mt. Kenya (Naro Moru)

Characteristics:

The area is high potential for food and cash crops much of it with hilly steep slopes.

Observations:

A lot of head carrying from farm to collection point was observed. It was noted that the marketing system is highly developed. Public services are widely used to carry produce from collection point to market. Some parts of this region have been made highly productive by smallholder irrigation. There is strong community participation in road maintenance. However, for reasons not identified, the feeder roads are very poorly maintained.

Points of learning:

High value crops seemed to be a motivator for farmers to engage in road maintenance. There are high price differences between farm gate and collection point even for very short distances of only 1 Km. Possibly, bicycle transport might help to alleviate this anormally.

3.2 High Kinangop vegetable farming zone and Limuru extending into the semi arid Rift Valley floor in Longonot zone.

3.2.1 Kinangop

Characteristics:

The area is high potential for food and cash crops with a high altitude and steep rolling landscape.

Observations:

Motorised transport is highly used on feeder roads while donkey carts are used on plateaus and head/backloading is used on sloppy areas. It was noted that the footpaths are narrow, steep and eroded.

Points of learning:

To ease transportation on the steep slopes, there is need for improvement of the slopes e.g. cutting steps. The feeder roads also needed graveling.

3.2.2 Limuru

Characteristics:

High potential area for fruits and vegetables with a high altitude and gentle slopes. Farmers specialise in zero grazing and poultry farming.

Observations:

Backloading is common. Bicycles are commonly used in flat terrain. There are high price variations between the animals and equipment. It was noted that the animals are poorly looked after e.g. hooves are not trimmed and animals are overloaded.

Points of learning:

The use of donkey carts attracts child labour. The population does not seem to value good care of donkeys. There is need for awareness creation on draught animal care.

3.2.3 Rift Valley (Naivasha)

Characteristics:

This is a semi arid area with a flat landscape and rich volcanic soils. Horticultural crops are grown through irrigation along the lake.

Observations:

It was noted that transport services are highly commercialised. Donkey carts are widely used for collection of water during dry season and transportation of crops during the harvest season. However, the extensive use of donkey carts promotes child labour in the area.

Points of learning:

Though donkey carts operations provide employment and a source of income, there is need to diversify their use. Quality of donkey carts, boats, canoes and other means of transport manufactured by Jua Kali (informal sector) need to be improved.

3.3 Mwea an irrigated semi-arid area extending into high potential slopes of Mt. Kenya through Kerugoya and Kutus.

3.3.1 Mwea

Characteristics:

Flat semi arid region irrigated area suitable for rice, vegetables and other crops.

Observations:

It was noted that the area has good transport services with a good main road and public means. However, the feeder roads are impassable during the rain season. There is a wide

spread use of bicycle taxis and use of head bands by women. Carts are manufactured at a cost of Ksh. 15,000. Main transport needs in the area is the link from fields to roadside or to markets and factories.

Points of learning:

Though transport is vital, it is not accorded high priority in expenditures. The public means are very expensive thus creating a gap in transport services for the poor.

Some specific places visited in this region are:

a) Mutithi

Characteristics:

Irrigated, flat low potential area.

Observations:

Area is developed with farmers owning petrol powered irrigation pumps. Farmers grow high income horticultural crops, especially tomatoes.

Points of learning:

Farmers earn high incomes from tomatoes approximately Ksh. 160,000 with costs of approximately Ksh. 27,000. Use of pick-ups as means of transport is therefore feasible and justified.

b) Wanguru

Characteristics:

Flat irrigated area with rice fields. Very active business centre.

Observations:

Donkey carts are used for water transport. The jua kali (informal sector) is involved in development of carts.

Points of learning:

The production of IMTs creates employment and generates income for the local artisans.

c) Makutano (Brown town)

Characteristics:

Makutano is located in a semi-arid area of undulating scrub land. It is stop over for trucks and lucrative area for small business.

Observations:

The town has a lot of transport activities, both motorised and non motorised.

Points of learning:

IMTs are commonly used. This has promoted the informal sector leading to establishment of jua kali businesses.

3.3.2 Kutus/Kerugoya

Characteristics:

High potential area for food and cash crops with high rainfall.

Observations:

Main connection road is good but feeder roads are almost impassable. There is a common use of different means of transport e.g. ox-carts, wheelbarrows, tricycles and headloading. Bicycles are preferred for personal transport. Prices of ox-carts range from Ksh. 12,000 while transport costs range between Ksh. 20 and Ksh. 50 per trip for coffee and tomatoes.

Points of learning:

The communities are not involved in development and maintenance of any infrastructure. This responsibility is left entirely to the local council. The development of IMTs could assist in the improvement of business for women engaged in transportation business by headloading.

3.3.3 Kangaita

Characteristics:

Sloppy high potential area for food and cash crops.

Observations:

The main road is good but feeder roads are impassable in the rain season. There is a lot of headloading by women who carry about 30 kg. using chest and head bands. The smallholders own zero grazing cattle. The animal feed (napier) is transported using wheelbarrows.

Points of learning:

The community has a bias towards ox-carts. The development and use of IMTs could assist in reducing chest and head pains experienced by women due to use of head and chest bands.

3.4 Embu, including the high potential slopes of Mt. Kenya extending to the arid Masinga zone through semi arid Mbere.

3.4.1 Mutunduri - Embu

Characteristics:

High potential area for food and cash crops with a lot of agricultural activity.

Observations:

Wheelbarrows are used to transport animal feed and agricultural products. Ox-carts are popular and in big demand.

Points of learning:

There is a high demand and utilisation of IMTs. A single cart pulls around 800 kgs. Transport services are readily available for hire. It was noted that durability of metal bodies of the carts is good.

3.4.2 Rwiga/Gachoka

Characteristics:

Newly settled semi arid and flat area.

Observations:

Means of transport are bicycle dominated. There is no animal powered transport whose demand is high.

Points of learning:

Though the resettlement is seen as negative, there is a high potential for growth with use of appropriate inputs.

3.4.3 Kivaa/Masinga

Characteristics:

Low potential area with roadside homesteads.

Observations:

Area has access to modern public transport. Wheelbarrows are the only IMTs used for transport of produce to the nearby road.

Points of learning:

The women are capable of handling transport needs in roles normally considered for men.

This is particularly so in cases of absentee husbands.

4.0 PROBLEM ANALYSIS

The problem analysis focused on putting issues alluded to during the country paper presentations and keynote paper presentations into a hierarchical structure and to provide more details. This was done so that the root causes of the problem situation could be identified. When root causes were identified, the strategic plan could be designed not to treat only symptoms but to supplant the problems from their root, giving a more lasting impact. Also strategic options could be curved out more systematically making it possible to organise the course of implementation with more effectiveness and efficiency.

4.1 Definition of Problems

In the ZOPP approach, a problem is defined as an existing, negative undesirable state and it is worded as such, e.g. bad condition of vehicles, poor road conditions, drivers are not careful enough, frequent bus accidents, etc. Problems only refer to real, existing conditions not imaginary or future ones.

4.2 Core Problem

After a short input on definition, wording of problems and how to do the problem analysis, participants set out to find the core problem.

The core problem is the issue central to the problem situation being analysed. It connects all other issues and hence becomes a good starting point for analysis. Starting from such a central point one can be sure to capture all other issues that are pertinent to the problem situation.

In this workshop, to avoid a broad and general discussion, the need to focus on agricultural rural transport and development was stressed. The Core Problem was found to be:

Inadequate agricultural rural transport.

The inadequacy of agricultural rural transport was defined both from the quality and quantity aspects. That definition infers that transport is not enough to meet demand or that it does not fully solve the users problems or both.

4.3 Immediate Causes of the Core Problem

The second stage of problem analysis is to find the immediate causes of the core problem. An immediate cause is defined as the problem which has a direct causal link with the higher level problem.

The participants analysed that the immediate causes for inadequate agricultural rural transport were:

- Inadequate transport infrastructure.

- Inadequate supply of transport services.
- Low adoption rates of transport means
- Poor utilisation of available means of transport.
- Poor supply of transport means.
- Farmers have low performing means of transport.

In group work participants analysed the immediate causes in depth. The following is a summary on the groups findings:

4.3.1 Inadequate rural transport infrastructure

Rural transport infrastructure mainly refers to paths, roads, bridges and waterways. The inadequacy of this infrastructure stems from low priority being placed on it by government and other actors hence limited community capacity for construction and maintenance. Poor road-paths-waterways network and topography are also to blame. It was noted that communities have not been mobilised enough for participation in construction and maintenance of the transport infrastructure. At the same time, there is poor supply of other complimentary facilities for such construction and maintenance e.g. fuel supply, electricity, tools and machinery and financial resources.

Further to this issue, it was analysed that there are inadequate skills at community level and also with regard to planners. Participatory approaches have not been significantly applied in infrastructure development. There is no sectoral integration of agriculture and transport and responsible bodies for rural transport infrastructure have not been clearly identified. Mainly, all this can be traced to the lack of well articulated agricultural policies.

4.3.2 Inadequate supply of transport services

These services include public transport for goods and services and transport hire-out services. Factors directly contributing to inadequacy of services were identified as:

- Non existence of the services in some cases mainly due to poor infrastructure such as paths, roads and bridges.
- Poor standard of services due to damage of goods in transit, unreliability of the services and lack of enough transport means.
- Low trading capital which means only less transport services of poor quality can be offered. This mainly results from low incomes of traders and insufficient entrepreneur support by financial institutions.
- High transport costs dominate the market because only a few entrepreneurs are offering the services. This phenomenon is compounded by low demand.

There is therefore need to look into ways and means for improving the supply and quality of these services.

4.3.3 Low adoption rates of transport means

Adoption was defined as being aware of something, being convinced it is worth to have, acquiring and using it. Adoption paves the way for demand.

It was analysed that many people in the rural areas continue to use head and back loading

because there is low adoption rate for other means of transport.

Factors explaining low adoption rates were discussed. These are:

- Equipment not being suitable for the needs of people mainly because they are not women friendly, they are wider than available paths, they have less than required carrying capacity, they are not made for long journeys and they travel at low speeds. Paths are too narrow, too steep, rutted, of unsuitable terrain or cross waterways.
- Low priority being placed on transport means by the people because there are more pressing needs such as provision of food, shelter and school fees. This conflict of needs is propagated by low household incomes.
- Inadequate sensitisation resulting from weak extension and marketing strategies of producers of transport means. Weak extension was attributed to failure to apply participatory approaches in research and extension.
- Poor support services such as repair, maintenance and veterinary services for animals. While there is shortage of artisans and veterinary extensionists, it was also found out that mobility of veterinary personnel was a crippling factor for the few available and also they are not well provided with veterinary supplies. Training of artisans and veterinary technicians was found to be quite inadequate.
- Transport means not affordable. As one inhibitor of adoption, this factor was found to be contributed to by low incomes of farmers, lack of credit facilities for purchase of transport means and over pricing of equipment due to uncompetitive market.
- Affordable means not culturally acceptable. It was discussed that in some situations, the means that is affordable becomes unacceptable due to cultural beliefs. For example, it was mentioned that in some communities women are culturally inhibited to ride bicycles.

4.3.4 Poor utilisation of available means

This problem concerns the use of transport means in such a way that the user derives less than optimal benefits. For example, a cart used with wobbling wheels will travel at less speed, go fewer rounds from farm to house and hence carry less load per day, tire the animals more and spoil the bearings faster resulting to higher maintenance costs.

Factors causing poor utilisation of transport means were identified as inadequate operating skills and knowledge, gender imbalance in ownership, animals not well trained, failure to diversify use of means of transport, limited adaptation of means to possible users, wrong information, available means not appropriate for certain areas, inadequate maintenance and poor infrastructure.

- People have poor operating skills due to poor information flow and inadequate extension service. Extension personnel have provided inadequate services because they are few compared to areas to be covered and also they do not have sufficient extension skills.
- Gender imbalance of ownership refers to situations where transport means may be predominantly owned by men excluding women. Hence the full benefits are not realised for the whole household. This imbalance was found to stem mainly from cultural underpinnings.
- Animals are not well trained because farmers do not have strong animal training skills which stems from poor extension.

- Failure to diversify use of transport means is contributed to by lack of information and the seasonal nature of demand for transport means in certain areas.
- Limited adaptation of means to possible users e.g. adaptation of bicycles to suit women riders is mainly influenced by cultural blockages of attitudes and lack of information on how adaptations can be made.
- Wrong information about the utilisation of transport means is passed on to farmers as a result of inadequate research.
- Available means not being appropriate for the area where it is being used can be explained by inadequate research and extension. Farmers depend on researchers and extensionists to properly advise them on the right means for particular ecologies and topographies.
- On inadequate maintenance, it was found out that the main contributing factors are poor supply of raw materials and spare parts, insufficient skills of artisans and also scarcity of artisans. Poor supply of raw materials and spare parts is caused by low demand for them and high tariffs. Artisans sometimes use inappropriate tools due to lack of proper training or access to the same. It was found out that there is a general lack of appropriate training institutions for artisans. Artisans are few due to negative cultural attitudes and lack of adequate financial ability. Lending institutions have not been used by artisans because they over emphasise on tangible securities (e.g. land title deeds), which many artisans cannot provide. They also charge high interest rates.

At the root cause of this problem of artisans was the lack of supportive government policy on agricultural transport that could ensure that artisans get raw materials and spare parts without taxation (to reduce their expense) and also to ensure that there are institutions for training artisans.

4.3.5 Poor supply of transport means

Transport means refer to equipment and animals used by farmers and traders for agricultural transportation in the rural areas. Behind this problem there is weak marketing of such means, not enough equipment being made, poor supply of animals and poor support services such as repair/maintenance.

Weak marketing can be explained mainly by long distances covered between isolated settlements, poor roads, paths and other infrastructure, perceived low demand for the means of transport, poor link between manufacturers and markets. Limited extension services have brought about the poor linkage between manufacturers and marketers.

On the side of equipment not being made, there are two players; manufacturing firms and artisans. Manufacturing firms are limited by low manufacturing capacities, their knowledge is not always up to date with developments in rural transport, they do not have suitable designs, they suffer from shortage of raw materials, parts and components. On the other hand, artisans are mainly limited in their production by lack of artisanal training.

Supply of animals is inhibited by limited veterinary services, insufficient awareness of animals as a means of transport and the non existence of enough breeding services.

Support services such as repairs and maintenance are not fully provided due to shortage of skills and power sources.

4.3.6 Farmers have low performing means of transport

It was discussed that low performance should be seen from the point of view of an item providing less or poorer service than a comparable one of the same class, e.g. one type of cart proving poorer service than another type.

In this context, it was found out that farmers continued to possess the low performing means due to the following factors:

- Insufficient repair and maintenance.
- Low quality production of an item, due to poor designs and inadequate production skills. Poor design can be explained through lack of engineering services principally because engineers are not motivated to give such services. Inadequate production skills of manufacturers and artisans comes about as a result of lack or inadequate training.
- High performing means are expensive hence not affordable to people who have low purchasing power and limited access to credit.
- Limited choices of means of transport. This is caused by topographical limitations (e.g hilly areas), the fact that artisans ability for design and invention is low, and also because, even where alternatives do exist, farmers are not aware of them.

It was found out that the absence of well articulated policy support plays heavily to propagate the problem.

4.4 Effects of the Core Problem

Effects are the symptoms of the total impact of all root causes. To eradicate (or minimise them), one has to work on the root causes. Hence they form the justification for why a project is carried out.

The immediate effects of inadequate agricultural rural transport were identified as:

- Poor access to inputs and information.
- Difficulty of transporting inputs to farms.
- Restricted competition between traders.
- High transport costs.
- Increased drudgery during transport.
- Potential land left idle.
- Increased damage during transport.
- Spoilage of produce in the field.
- More time wasted on trips especially with regard to women.

Through several cause and effect ladders, these effects were found to translate to low return on land and labour, which in turn translates to spread of poverty in the rural areas of East Africa.

4.5 Detailed Problem Analysis Charts

The charts presenting the detailed cause-effect relationships of all problems analysed are included as Annex 3.

5.0 ALTERNATIVES ANALYSIS

5.1 Definition

A project needs to create felt impact. Trying to do too many things can lead to the resources of a project being spread too thinly at the expense of creating felt or observable impact. Hence, each project is designed bearing in mind the specific areas of operation in which it will generate the most impact. In the Alternatives Analysis step, participants consider those areas of operation the project should not include in its strategy either because they are being replicated by another project/institution, or because it is not feasible to handle them based on certain criteria such as:

- Probability of achievement;
- Time horizon;
- Resources available;
- Political feasibility;
- Cost-benefit considerations;
- Social risks; and
- Sustainability.

5.2 Project concept

To pave the way for alternatives analysis the workshop discussed the two tier nature of the issues emerging in the problem analysis. First, it comes out clear that interventions are needed to ameliorate the problems analysed; however, too many issues seem to be unclear and makes it difficult to define the interventions that should be applied. Consequently, the participants agreed with the original project concept, that there should be two stages implementation of this project, as follows:

- **An appraisal and assessment stage.** This stage would be focused on proper study of the issues raised in the problem analysis, their magnitude and on defining appropriate interventions. In this stage some development work of a pilot nature would be carried out to validate the appropriateness of interventions defined by research findings before they can be recommended for replication.
- **Implementation of interventions stage.** In this stage, there would be widespread application of interventions identified at the research stage. This would follow specificity with regard to country, region, locality, target group and other significant factors such as incomes of those target groups, their culture, livelihood patterns etc.

5.3 Target group focus:

The workshop also looked into the broad target group that should be considered as the major point of departure in considering interventions. It was agreed that the focus should be on smallholder household, since according to the input of country and keynote papers the smallholder household emerges as the social unit most disadvantaged by lack of adequate agricultural rural transport. It was agreed that spill over effects might be experienced by larger scale farming households, but that should emanate from interventions focused on the smallholder interventions. The workshop further agreed to design the project with details on research work to be conducted, the intervention details to be filled at a later stage when

they will have been clarified by the research effort.

It was discussed that the research should be broad based as each of the problem issues touched might be prominently featured in a particular country, region or locality. After studying the problem tree, eight broad areas of research (or strategic options) were mapped out. These areas fall under:

1. Demand for transport means.
2. Transport infrastructure.
3. Supply of transport services.
4. Supply of transport means.
5. Adoption and utilisation.
6. Poor performance of transport means.
7. Policy impact.
8. Basic information on costs and benefits.

6.0 PROJECT LOGFRAME MATRIX

6.1 Definition

The logframe matrix was used for describing the Strategic Plan for the agricultural rural transport project. The matrix consists of four columns and four rows providing sixteen squares for a comprehensive description of a project. It shows both the project's logical structure (the links between the inputs/activities and the objectives to be achieved under certain Assumptions), and its major quantitative data. The logframe is useful in two ways:

- in the planning process: the logical sequence enables the planner to constantly check whether the project design is plausible and consistent.
- in executing the project: logical arrangement facilitates the communication among all parties on the "whys" and the "hows" of the project. It allows for project monitoring based on common understanding.

The sketch of the logframe matrix can be given as follows:

Summary of Objectives and Activities	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal			
Purpose			
Outputs			
Activities			

In the matrix, the overall goal, purpose and outputs are all objectives at the justification, mission and strategy levels accordingly.

Drawing from inputs from paper presentations, field visits, problem analysis, and the alternatives analysis, participants constructed the logframe (Annex 5) as follows:

6.2 Overall Goal

The overall goal tells us the higher level objective to which the project is expected to contribute.

The overall goal was identified as:

Smallholder agricultural production and marketing in East Africa enhanced.

At a higher level, achievement of this goal would lead to **alleviation of poverty through increased incomes.**

6.3 Purpose

The project purpose describes the intended impact or the anticipated benefits as a precisely stated future condition the project is expected to achieve. In this case, the purpose for Phase II and III of the project was described as:

Rural transport improved.

It is important to note that impact of achievement of the purpose will mainly be evident in Phase III since Phase II will focus mainly on research. In Phase II, impact would be gauged only in so far as the research activities have involved the target group in pilot trials of designing and validating interventions that will be applied in Phase III.

6.4 Outputs

Outputs define the strategic options to be pursued by the project. They are expressed as objectives which the project management must achieve and sustain so as to achieve the purpose. They form the different strategies that govern the projects operations. In this case, the following nine outputs were defined:

1. Demand for agricultural transport assessed.
2. Causes for inadequate rural transport infrastructure assessed.
3. Supply constraints of transport services analysed.
4. Factors affecting adoption rates and utilisation of available means of transport investigated.
5. Supply constraints on means of transport analysed.
6. Options for provision of high performing means developed.
7. Impact of policy shortcomings on agricultural rural transport assessed.
8. Costs and benefits of appropriate agricultural transport quantified.
9. Phase II research findings are implemented as interventions in Phase III.

6.5 Activities

6.5.1 Definition

Activities are actions that will be carried out to effect the project implementation. Activities are outlined for realisation of each output. They form the Project Action Plan. This action plan which appears in an abstract form in the strategic plan can be later translated into detailed work plans (Plan of Operation). The plan of operations is the guide to day to day project operations. For each output, the necessary activities were developed as follows:

Output 1: Demand for agricultural rural transport assessed.

Activities:

- 1.1 Choose agro-ecological zones and determine needs in terms of:
 - Transport of inputs to fields.
 - Transport of products to storage (from fields).
 - Transport of products to markets (from storage)
 - Transport means from fields to markets.

For every transport purpose assess:

- Transport time.
 - Amount of produce transported.
 - Transport distance.
 - Transport frequency.
 - Means of transport.
 - Seasonal distribution of transport.
- 1.2 Assess farmers views in improving agricultural rural transport.
 - 1.3 Determine incomes of agricultural producers with respect to demand for agricultural rural transport.
 - 1.4 Assess impact of transport work reduction measures on demand.

Output 2: Causes for inadequate rural transport infrastructure assessed.

Activities:

- 2.1 Investigate factors leading to low priority for rural transport infrastructure by governments and communities.
- 2.2 Assess financial resources for construction and maintenance of rural transport infrastructure.
- 2.3 Examine organisational capacity for construction and maintenance of rural transport infrastructure e.g. mandate, roles, safety, technical skills, labour and financial management.
- 2.4 Investigate factors constraining community participation in rural transport development e.g. gender related factors.
- 2.5 Analyse causes of poor conditions of roads, paths and waterways network.
- 2.6 Identify means of integrating agriculture and rural transport sector activities.
- 2.7 Recommend appropriate interventions for improving rural agricultural transport infrastructure.

Output 3: Supply constraints of transport services analysed.

Activities:

- 3.1 Identify areas where rural transport services are lacking.
- 3.2 Study factors contributing to non-existence of rural transport services in identified areas.
- 3.3 Investigate factors leading to low standards of rural transport services.
- 3.4 Study ways of promoting private sectors in providing transport services.
- 3.5 Recommend suitable measures for removing supply constraints in the provision of rural transport services.

Output 4: Factors affecting adoption rates and utilisation of available means of transport investigated.

Activities:

- 4.1 Conduct surveys involving farmers, extension agents and suppliers to investigate:
 - a) Functional, topographical and gender suitability of transport means.
 - b) The impact of support services.
 - c) The effects of extension and farmers knowledge.
 - d) The effect of income levels and credit on farmers priorities.
 - e) The cultural aspects in adoption.
- 4.2 Recommend interventions for increasing adoption rate and utilisation.

Output 5: Supply constraints on means of transport analysed.

Activities:

- 5.1 Assess local capacity for production of appropriate rural transport means.
- 5.2 Investigate technology dissemination systems.
- 5.3 Study the supply of draught animals in areas of difficulty.
- 5.4 Investigate new and existing animal health/care provision.
- 5.5 Analyse capacity and constraints on medium and micro scale production.
- 5.6 Conduct studies on marketing extension and distribution of transport means.
- 5.7 Recommend appropriate interventions.

Output 6: Options for provision of high performing means developed.

Activities:

- 6.1 Generate a comprehensive data base on IMTs.
- 6.2 Identify suitable finance systems for IMT purchase.
- 6.3 Compare transport means with performance indicators (including gender, maintenance) etc.
- 6.4 Identify knowledge gaps and recommend changes in technical education.
- 6.5 Investigate the potential role of technology and other standards.
- 6.6 Investigate interaction of design and tooling for IMT production.
- 6.7 Recommend appropriate interventions.

Output 7: Impact of policy shortcomings on agricultural rural transport assessed.

Activities:

- 7.1 Identify existing policy documents with reference to agricultural rural transport.
- 7.2 Study existing policies with respect to gaps in agricultural rural transport and agriculture development.
- 7.3 Analyse negative impacts of macro-economic policies (e.g. taxes) on agricultural rural transport.
- 7.4 Propose appropriate policy interventions e.g how gender issues can clearly be incorporated in rural agricultural transport policies.

Output 8: Costs and benefits of appropriate agricultural transport quantified.

Activities:

- 8.1 For every agro-ecological zone analyse life cycle costs for means of transport and infrastructure.
- 8.2 Analyse monetary values of benefits from use of agricultural rural transport:
 - increase use of manure/fertilisers.
 - reduced spoilage.
 - diversification of produce.
 - higher purchase prices.
 - increased land put to cultivation.
 - time savings
- 8.3 Carry out assessment on gender specific costs and benefits.
- 8.4 Conduct qualitative assessment of social and environmental benefits.

Output 9: Phase II research findings are implemented as interventions in Phase III

Activities:

- 9.1 Collate and validate findings from all research done in Phase II.
- 9.2 Prepare Phase III project.
- 9.3 Prepare funding proposal.
- 9.4 Solicit funding.

6.6 Important Assumptions

6.6.1 Definition

The assumptions comprise the risks to the project success which are outside the direct control of the project. They are formulated as objectives which should remain positive during the life of the project. An assumption is considered critical (or important) only if its probability of occurrence is considered quite likely in any direction - positive or negative. In this case the project needs to reflect it in the logframe, watch it, and when necessary, carry out activities to influence it to remain positive or favourable to the project operations. Assumptions are defined at output, purpose and overall goal levels.

6.6.2 Assumptions for achievement of Outputs:

If all activities are carried out and these assumptions remain positive, then there is higher impact in achievement of outputs. At this level, the following assumptions were made:

- All the stakeholders are willing to collaborate and do their part effectively.
- Budgeted funds are available on time.
- Communication infrastructure between stakeholders is effective enough most of the time.

6.6.3 Assumptions for achievement of Purpose:

It was discussed that even if the research project outputs are achieved, improvement of rural transport, will depend on three important assumptions, that is:

- Other factors affecting agricultural production remain positive.
- Current problem situation analysed does not change significantly within the project period.
- Adequate funds for implementing research findings as interventions for Phase III are availed.

6.6.4 Assumption for achievement of Overall Goal:

The achievement of the overall goal will depend on the assumption that:

- Relevant socio-economic, political and environmental conditions do not deteriorate.

6.6.5 Assumption to sustain the Overall Goal:

To sustain enhancement of smallholder agricultural rural production and marketing in East Africa, more people should continue to embrace the initiatives introduced by the project. The assumption was therefore made that:

- There would be continued mass adoption of the initiatives.

6.7 Objectively Verifiable Indicators.

The Objectively Verifiable Indicators are the performance standards to be reached for us to say we have achieved our objectives. They define parameters for monitoring and evaluation.

For this strategic plan, the indicators were defined for the overall goal and the purpose. This being a research project, one common indicator was defined for the nine outputs.

According to the indicators, the contribution to the overall goal will be measured in terms of increased production and marketing levels of communities who have improved their means of transport as compared to those who have not.

The project purpose will be measured in terms of progressive decrease in time spent by smallholders on transport, reduced loss of produce due to transport problems and reduced

materials transported by women (head/backloading) as compared to other means of transport.

For the outputs, the indicator will be that the work is completed according to individual country schedules.

6.8 Means of Verification

The means of verification specify where to obtain the data necessary to verify the indicators. Sources of data were therefore defined for indicators pertaining to the overall goal, purpose and outputs.

The main data sources will be survey reports, project progress reports, technical reports and specific institutional data in each country.

The logframe is attached as Annex 5.

7.0 COUNTRY ACTION PLANS AND DISCUSSIONS ON THE ORGANISATIONAL STRUCTURE

7.1 Country Action Plans

Due to variation of needs and level of activities in the participating countries, each country team, prepared a plan of operation based on the objectives and activities outlined in the project logframe. The country teams identified the team leader for each output and collaborating institutions or persons and allocated a time frame for each of the activities (or cluster of activities). Remarks or assumptions were also made as necessary.

After each country had drawn time lines for executing the research activities, it was found that in all the three countries, the time lines transverses three years. Therefore, the project period was defined as three years from the time of actual implementation.

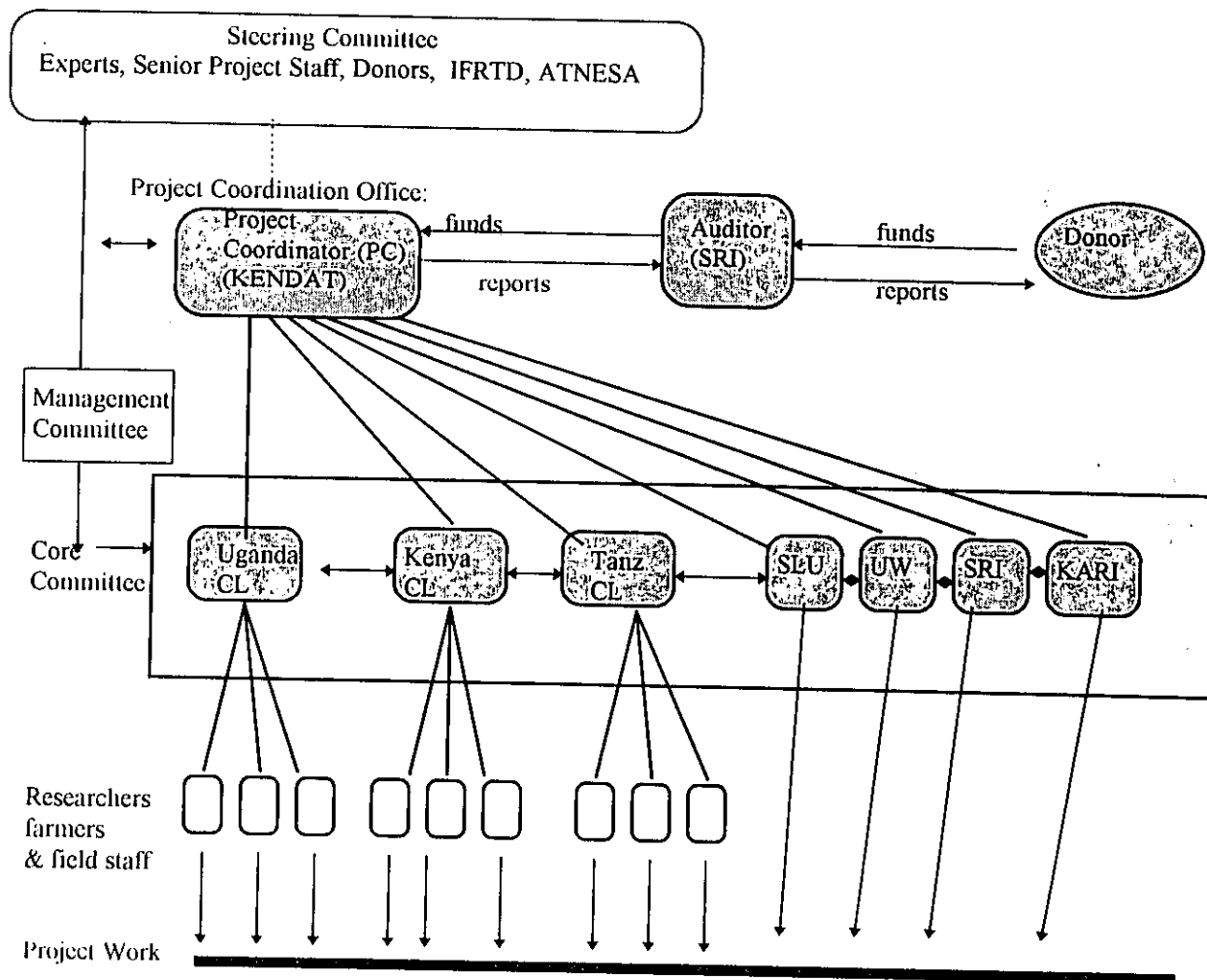
According to the country plans, the project will take a total 329 person months, spread out in the following manner: Kenya 118 PM, Tanzania 102 PM and Uganda 109 PM.

The country Action Plans are attached as Annex 6.

7.2 The Organisation Structure:

The core team discussed the organisational structure that will oversee the implementation of the project. The composition and responsibilities of members were also defined. Other issues such as meetings and reporting procedures were also discussed.

7.2.1 The suggested structure is as follows:



Abbreviations:

ATNESA	-	Animal Traction Network for East and Southern Africa.
CL	-	Country Leader.
IFRTD	-	International Forum for Rural Transport and Development.
KARI	-	Kenya Agricultural Research Institute.
KENDAT	-	Kenya Network for Draught Animal Technology.
PC	-	Project Coordinator based in East Africa.
SRI	-	Silsoe Research Institute.
SLU	-	Swedish University of Agricultural Sciences.
Tanz	-	Tanzania.
UW	-	University of Warwick.

7.3 Responsibilities

7.3.1 Silsoe Research Institute

The main responsibilities of Silsoe Research Institute is communication with donors. The institute will be in-charge of contracting, reporting and submission of quarterly reports. It will also be in charge of communication with project coordinators on sub contracts, auditing, progress reports and project management. The institute will also act as a research collaborator and Core Committee Member.

7.3.2 Project Coordinator (PC)

With the necessary assistance from the Core Management Committee and others (e.g. consultants), the main role of the Project Coordinator will be to oversee the management of the project. This role will include appointing and liaising with country leaders (3), identifying and managing resources required for the project's office and Country Leaders, setting up procedures and formats for reporting, reporting to SRI on quarterly and annual basis on progress, expenditure etc, following up sub contractors, visiting field sites, liaising with field staff on matters of management of centrally planned/controlled activities and conducting Annual Review. The PC will be a full time employee of the project.

7.3.3 Country Leaders

The Country Leaders will be in charge of the project implementation. They will receive, allocate and account for funds, liaise with field staff and follow-up programmes as well as assist in research development. The country leaders will also submit reports to the donor through the PC on work progress. Country leaders will be full time employees of the project.

7.4 Meetings

The proposed meetings for the different committees were outlined as:

The Steering Committee will meet thrice with the Core Management Team i.e at the beginning, in the middle of project and end of project phase.

The Management Committee will meet once following each Steering Committee meeting. It will also meet in any cases of need as called upon.

For the **Project Coordinators** and **Country Leaders** it was suggested that first country meetings will be held at the beginning of the project for each country. Quarterly meetings will also be held to match quarterly reports in rotating venues among project countries.

7.5 Reporting

The Country Leaders will report to the Project Coordinator who will in turn report to an "Auditor" who reports to the donor and vice versa. The Auditor will be Silsoe Research Institute. The reports will be:

- Quarterly and annual or as prescribed by the donor. Both will contain progress, achievements, expenditures, looming problems and suggestions on how to overcome

them.

- Project completion and final technical report according to format provided.
- Workshop papers.
- Research notes/reports.
- Written outputs where and when required.

7.6 Centralisation of some research activities

It was advanced that some research activities need a standardised approach as a means towards achieving cross country comparisons. Such activities were seen to fall mainly under assessment of demand, options of high performing of agricultural transport. It was felt that instruments for household surveys on these issues should be developed and analysed centrally at the Project Coordinator level and be administered by the country teams. Also, it was agreed that check lists of the key points to be covered under transport means and services, adoption and utilisation as well as policy assessment should be developed at the PC level for the three countries.

8.0 WORKSHOP EVALUATION

To assess the progress of the workshop, the Daily Mood Barometer was applied. An end of workshop evaluation was also conducted to confirm the mood barometer. KENDAT, the host organisation also conducted a formal workshop evaluation on whose results are presented in Annex 7.

8.1 Mood Barometer

The mood barometer measured the degree of happiness from 0% for sad to 100% for happy. Participants were asked to mark how well they felt at the end of the day. Through out the workshop most of the people's mood was clustered around 70% - 50% happy. On the first day 70% of the participants registered they were happy. On the second day the percentage of those registering happiness decreased to 50%, on the third day it increased to 64%. On the fourth day it went up, reaching 67% and 70% on the fifth day. On the overall, one can conclude that the workshop was carried out in a warm, conducive atmosphere. Many sessions went way into supper time and participants still managed to attend evening sessions where presentations were discussed more intensely. Several participants reported on their work at evening sessions and posters which were placed in the meeting hall.

8.2 End of workshop evaluation

This evaluation was carried out to find out exactly what participants were happy or not happy about as indicated in the mood barometer. Participants were asked to write on cards what they liked most about the workshop, what they disliked and their suggestions for future workshops.

8.2.1 Likes

According to the outcome of the evaluation, majority of the participants were happy in respect to the workshop process. They liked the methodology applied in the workshop, moderation and free working atmosphere. Some of the phrases describing what the participants liked are:

- Seriousness and the collaborative spirit among participants;
- The way the moderator presented the topics was excellent;
- Lively discussion and constructive contributions;
- Strong level of interaction, maybe a little heated but always friendly;
- The people, the process and results;
- Participants commitment; and
- Contributing sessions with cards - brainstorming.

8.2.2 Dislikes

For dislikes majority of responses hinged on the lack of punctuality of participants. Some of the participants expressed dislike in lateness of some participants and the evening sessions. Others expressed dissatisfaction on congestion of the workshop programme. Some felt that the Out of Pocket allowance was too small.

8.2.3 Suggestions for future workshop

Majority of the suggestions dwelt on allocating more time for preparation of workshop documents and punctuality of participants. More time should be allocated for discussions of keynote papers so as bring out issues. Longer breaks should be planned in between sessions.

8.3 Formal Workshop Evaluation

Prepared by Dr. J. M. Mutua

On the final day participants were asked to evaluate the workshop by filling an evaluation questionnaire covering major areas of workshop organization. The questionnaire was organized around seven different workshop aspects namely: pre-workshop communication, the workshop venue, field trips, country and keynote presentations, posters and evening sessions, the ZOPP moderation process and the overall workshop organization. The questionnaire consisted of 36 questions pertaining to specific elements of the workshop programme under the aforementioned aspects. Some of the questions required fixed responses while others were open-ended to allow participants to make comments. Nineteen completed questionnaire were returned.

The fixed response questions required participants to rate each programme element on a scale of A to E, with A being "Excellent", B "Very good", C "Good", D "Acceptable" and E "Poor". Answers to these questions were tabulated in bar charts shown in figures a to o. The charts include a bar for the participants who did not respond to some questions for one reason or the other. Comments made concerning the programme elements are included in the analysis of the open-ended questions.

In order to provide a quick visual impression of participants reaction to the various workshop elements, the average rating of the different workshop elements was assessed and presented in graphical form. This was done by assigning scores to question responses and working out the averages for the particular workshop element. An "A" response was a score of 10, "B" a score of 7, "C" 5, "D" 3, and "E" 0. The results are shown in the bar charts in figure p (Annex 7).

Evaluation of the workshop aspects

The results of the various workshop elements as presented in figures 1 to 15 and 16 give the keynote presentation on economics and on-farm transport the highest acclaim, closely followed by the ZOPP moderation. They both received a rating of 8.6 and 8 (Very good) respectively. Two other keynote presentations (Technological support services and Gender issues of rural transport) also received high rating of 7.5 and 7.3 (Very good) respectively.

Country presentations received an overall rating of 6.5 (Good) with the Uganda presentation receiving the highest acclaim of 7.6 (Very good).

The overall rating for the workshop venue was 6.6 (Good). The least popular workshop programme aspect was the evening sessions which managed a rating of 4.9 (Acceptable). Overall, the workshop organization was rated at 7.8 (Very good).

Open-ended questions

The open ended questions gave participants an opportunity to write their comments on the various aspects of the workshop programme and to offer suggestions aimed at strengthening future workshops. There was at least one open-ended question under each of the seven aspects of the workshop organization.

Pre-conference communication

Participants were asked to comment on the adequacy and timeliness of the information sent to them to prepare for the workshop. Of the total respondents the largest number (12) felt the information was adequate. Although nearly half of the respondents (8) said the information was sent to them in good time to allow them prepare presentations to the workshop, the rest of the respondents (11) said the information was late in reaching them. Some (1) said more time was required for the preparation of country reports.

Workshop venue

Participants were asked to make any comments on the accommodation arrangements. Only a small number of participants (4) offered comments to this question. Some said the rooms were too crowded (1), some toilets had no seat covers (1) and the meeting room was too noisy (2).

Field trips

When asked whether the field trips were necessary as a means of assisting participants in crystallizing their thoughts and ideas for integration into the project formulation, and whether the timing of the trips (3rd day of the workshop) was appropriate, all the respondents (19) felt the trips were necessary and the timing was appropriate. However, some participants (2) regretted the heavy rains that coincided with the field trips.

Country and keynote presentations

Some few participants felt the time allocated to country and keynote presentations was not adequate, but the majority (13) said the time was adequate.

The ZOPP moderation

An overwhelming number of respondents (16) said the ZOPP approach was the best way to formulate the rural transport project. Although the majority of the participants (14) said they were comfortable with the ZOPP approach, some (1) expressed concern that the process was at times intervened by donor influence especially during the objective analysis stage. Others (2) felt the time allowed for the ZOPP was too short to expound on critical issues especially in refining workshop the outputs.

Posters

Some participants felt this workshop aspect fell short of expectations and could have been better had all participant offered a poster each.

Overall workshop organization

On the issue of the number of participants, a large number of respondents (15) felt the number of participants was about right with only one participant saying participants were too few. On the question of workshop length, the majority of participants (12) felt the length was about right, but some (4) said the workshop length was too short.

Some participants (4) felt transport mode to workshop venue needed improvement, that punctuality in sessions left a lot to be desired (3), and that, the time given to prepare for the workshop was not adequate (1).

Other participants expressed the need to select country representatives more carefully (1), that there should be free evenings (1), and videos should be introduced into the programme (1), Rooms with telephones were preferred (1).

On the question of discipline representation, some participants felt the ministries of works and agriculture were left out (1), more engineers were needed (2), and that there should have been more women and farmers (1). There was also need for more transport planners and economists (1). Some veterinary input to cover animal issues would have helped (1).

Any other comments

Only six participants responded to this question. Some said the workshop was excellent, stimulating and educative (4), others (1) felt keynote papers should have been well discussed to enable good integration in the ZOPP. One participant lamented that some key people who had been expected in the workshop did not attend.

Conclusions

The workshop was a big success. All but one of the workshop elements were rated between good and excellent.

The most popular aspect of the workshop was the keynote presentation on economics and on-farm transport followed very closely by the ZOPP moderation. The least popular aspect was evening sessions. Perhaps, due to the intensity of the workshop during the day, people were too tired to attend the evening sessions. Time management was poor at times. This was

caused by the groups working on different topics in ZOPP sessions not been able to complete their assignments all at the same time.

9.0 CLOSING

The closing remarks were made by Dr. Kaumbutho, Chairman of the hosting committee and KENDAT.

Dr. Kaumbutho indicated that a lot of preparatory work had gone into the organisation of the workshop and on behalf of KENDAT, he extended his thanks to the participants for their active participation. He stressed that the workshop should be viewed as a beginning as more work on agricultural rural transport was just about to begin. He noted that over 600 person hours had been put into developing the project and even more were to be used up in making the Project Action Plan by the Core Team. He expressed hope in the success of the project.

He commended the participatory approach, thanked the Moderators and received votes of appreciation from participants of whom the majority were experiencing the ZOPP approach for the first time. They admitted, it was an incredible objective approach which gave everyone (even the farmers present) a chance to express themselves.

ANNEXES

- 1 WORKSHOP PARTICIPANTS
- 2 WORKSHOP PROGRAMME
- 3 FIELD VISITS - GROUP WORK RESULTS
- 4 PROBLEM TREE
- 5 LOGFRAME MATRIX
- 6 COUNTRY ACTION PLANS
- 7 EVALUATION PRESENTATION CHARTS

ANNEX 1

WORKSHOP PARTICIPANTS

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ANNEX 2

WORKSHOP PROGRAMME

WORKSHOP PROGRAMME

Sunday 2nd November

Arrivals and travel to Thika, registration and setting up of posters.

1900 Welcoming reception.

Monday 3rd November

0700 Continuation of setting up of posters.

0830 Welcome and Introduction to Workshop.

0900 Country Team Reports on national status, constraints, achievements, opportunities and plans for agricultural rural transport development (in a panel).

1000 Discussions.

1100 Keynote presentation on principle issues, constraints and opportunities for agricultural rural transport development (plenary).

-the role of rural infrastructure and development.

-economics and on-farm transport development.

-technological support and services to rural transport.

-gender issues in rural transport.

1230 Discussions.

1400 Introduction to ZOPP.

1430 ZOPP process Facilitation (Development of Problem Tree).

Tuesday 4th November

0830 Continuation of ZOPP

Wednesday 5th November

0630 Field visits

Thursday 6th November

0830 Field Visit Highlights and brief discussions.

0945 Continuation of ZOPP: Objectives Analysis and Activities.
Discussions on the Logical Framework initiated.

Friday 7th November

0830 Derived plans towards the key ingredients of a project proposal and programme, complete with major activities, research teams and time lines.

1600 Workshop closure

1830 Workshop dinner

Saturday 8th November: Departures

ANNEX 3

FIELD VISITS - GROUP WORK RESULTS

AREAS VISITED	CHARACTERISTICS OF THE AREA	OBSERVATIONS MADE	POINTS FOR LEARNING
Murang'a -Karatina	<ul style="list-style-type: none"> •High potential area for food and cash crops. •Hilly with steep slopes. 	<ul style="list-style-type: none"> •Head carrying from farm to collection point. •Have highly developed marketing system. •Public transport services widely used (collection point to market). •Very productive area due to irrigation. •Feeder roads poorly maintained. •Strong community participation in road maintenance. 	<ul style="list-style-type: none"> •High value crops motivates farmers to participate in road maintenance. •Huge difference between farmgate price and collection point e.g. 1 km away. •Need to improve bicycle transport capacity.
Naro Moru	<ul style="list-style-type: none"> •Semi arid area and low potential. •Relatively flat with gentle slope. 	<ul style="list-style-type: none"> •90% of farms are accessible by motorised vehicles during dry season. •During rainy season, the roads are impassable (4 months). •Use IMT only for 4 months to transport inputs and produce. •Have highly developed market system. 	<ul style="list-style-type: none"> •Sensitise on the need of proper/ harness and donkey care. •Opportunities for IMTs businesses (cabbage transport by donkey). •Water supply (irrigation) is an important aspect for meaningful agriculture development.

AREAS VISITED	CHARACTERISTICS OF THE AREA	OBSERVATIONS MADE	POINTS FOR LEARNING
Kinangop	<ul style="list-style-type: none"> •High altitude. •Steep rolling landscape. •Small scale tea, coffee and pineapples. 	<ul style="list-style-type: none"> •Narrow, eroded and steep footpaths. <p><u>Modes of transport:</u></p> <ul style="list-style-type: none"> •Motorised transport - feeder roads. •Donkey carts - plateau. •Human - sloppy areas. 	<ul style="list-style-type: none"> •There is need for improvement on footpath - possibly steps. •Feeder roads need graveling.
Rift Valley (Naivasha)	<ul style="list-style-type: none"> •Flat landscape with rich volcanic soil. •Semi arid area. •Farmers grow maize, vegetables and practice pastoralism. •Intensive horticultural activities along the lake. 	<ul style="list-style-type: none"> •Wide use of donkey cart for water collection in dry season. •Use of donkey cart for crop transportation during harvest season. •Transport services are highly entrepreneurial. •Child labour in operating donkey carts. •Donkeys from other areas cost less than donkeys bred locally. 	<ul style="list-style-type: none"> •There is need for diversification on use of carts. •Donkey carts operations provides employment and business. •Jua kali (informal sector) manufactures canoes (boats), hand carts and donkey carts but of poor quality.
Limuru	<ul style="list-style-type: none"> •High altitude, hilly with gentle slopes and red soil. •Crops grown are vegetables, fruits, poultry. •Zero grazing and poultry farms. 	<ul style="list-style-type: none"> •Poor care of donkeys. •Cart design adopted to need. •Price variations (animal and equipment). •Bicycles common in flat terrain. •Backloading common. Little or no backloading by women. •Child labour. 	<ul style="list-style-type: none"> •Donkey carts operation attract child labour. •Population does not seem to value good care of transport animals.

AREAS VISITED	CHARACTERISTICS OF THE AREA	OBSERVATIONS MADE	POINTS FOR LEARNING
Mwea	<ul style="list-style-type: none"> • Flat. • Semi-arid irrigation area. • Crops grown- maize, beans, rice and vegetable. 	<ul style="list-style-type: none"> • Main connecting road good. • Feeders impassable in heavy rains except on foot or by tractors. • Main roads - good transport services (matatus). • Bicycle taxis (70/- for 5 Km). • Women use head bands. • Carts manufactured Ksh. 15,000. • Main transport need is field to road side (or market/ factory). 	<ul style="list-style-type: none"> • Transport presents many difficulties but not accorded high priority on spending. • Matatus are expensive - gap in transport services for the poor (60% of market value). • Gap identified by entrepreneurs.
Kutus/Kerugoya/ Karatina	<ul style="list-style-type: none"> • Undulating. • High rainfall. • Crops include coffee, maize, beans, vegetables. 	<ul style="list-style-type: none"> • Main connection road is good. • Feeders are almost impassable. • Ox-carts manufactured (Ksh. 12,000/-). • Ox-carts for field to market or factory (tomatoes - Ksh. 50, coffee Ksh. 20). • Common use of ox-carts, bikes, wheel barrows, headloading (bands). • Tricycle with load load platform (70x100x30 cms) seen - Ksh. 15,000/-. • Bikes cost Ksh. 3,000 - Ksh. 5,800 preferred for personal transport. • Headload (band) cause pain if too heavy and/or too far. 	<ul style="list-style-type: none"> • Communities not involved in development and maintenance of any infrastructure. The Local Council is responsible for all development and maintenance. • Women do portarage to earn cash, often rather than grow food crops. (would IMTs help them?).
Kangaita	<ul style="list-style-type: none"> • Sloppy. • High rainfall. • Crops include tea, potatoes, vegetables. 	<ul style="list-style-type: none"> • Main connection road is good. • Feeder roads almost impassable. • Women carry loads of 70 Kg with head and chest bands. • Smallholder own zero grazing cattle for milk and not traction. • Napier grass moved by headloading and wheelbarrow (men, women & children). • Motorised carts (2 seen in town). 	<ul style="list-style-type: none"> • Chest bands hurt more than head bands. • Donkeys common in towns but in the rural areas oxen are preferred.

AREAS VISITED	CHARACTERISTICS OF THE AREA	OBSERVATIONS MADE	POINTS FOR LEARNING
Makutano (brown town)	<ul style="list-style-type: none"> • "Truck stop". • Small business very feasible. 	<ul style="list-style-type: none"> • Lots of transport activities (motorised and non motorised). 	<ul style="list-style-type: none"> • IMTs are used. • Jua kali artisans in place.
Mutithi	<ul style="list-style-type: none"> • Irrigated, flat, low potential area. 	<ul style="list-style-type: none"> • Irrigated tomatoes. • Farmers own petrol powered pumps. 	<ul style="list-style-type: none"> • Total costs are approximately 27,000/- • Incomes are 160,000/- therefore pick-ups are justified.
Mutundani	<ul style="list-style-type: none"> • High potential and very active agricultural area. 	<ul style="list-style-type: none"> • Very active agricultural activities. • Wheelbarrows are used to transport napier grass. 	<ul style="list-style-type: none"> • High utilisation of agricultural transport. • Single ox pulls 800 Kg. • Durability of all metal body is good. • Transport ready to/from rented land.
Wanguru	<ul style="list-style-type: none"> • Very active trading centre. • Flat with irrigated rice farms. 	<ul style="list-style-type: none"> • Jua kali involved in cart development • Donkey waste collection. • Triple donkey water transport. 	<ul style="list-style-type: none"> • Production of IMTs keep local artisans employed.
Rwiga/Gachoka	<ul style="list-style-type: none"> • New settled area, semi arid and flat. 	<ul style="list-style-type: none"> • Bicycle dominated, animal transport available. 	<ul style="list-style-type: none"> • Resettlement seen as negative but high potential is possible with appropriate inputs.
Kivaa	<ul style="list-style-type: none"> • Low potential. • Roadside homesteads. 	<ul style="list-style-type: none"> • Access to public transport. • Means used are wheelbarrows only. 	<ul style="list-style-type: none"> • Women can almost manage transport on their own.

ANNEX 4

PROBLEM TREE

EAST AFRICA AGRICULTURAL RURAL TRANSPORT PROJECT - PROBLEM TREE

Spread of poverty

Low return on land & labour

Effects →

Low crop yields

Low net revenues from sale of agricultural produce

Less use of inputs

Low productivity of labour

Impaired management at farm level

Use of outdated production methods

Less use of heavy inputs e.g. machinery

Increased pests & diseases

Low producer prices

Insufficient access to markets

High costs of inputs

Poor health conditions

Reduced morale for participation in agriculture

Restricted production increase

Low labour input for production

Poor access to services & inputs

Poor access to information

Difficult transport of inputs to farms

Restricted competition between traders

High transport costs to farm, storage & market

Increased drudgery during transport

Potential land left idle

Increased damage during transport

Spoilage of produce in the field

More time especially of women wasted on trips

INADEQUATE AGRICULTURAL RURAL TRANSPORT

Core Problem

Immediate Causes →

Inadequate transport infrastructure

Inadequate supply of transport services

Low adoption rates of transport means

Poor utilisation of available means of transport

Poor supply of transport means

Farmers have low performing means of transport

A

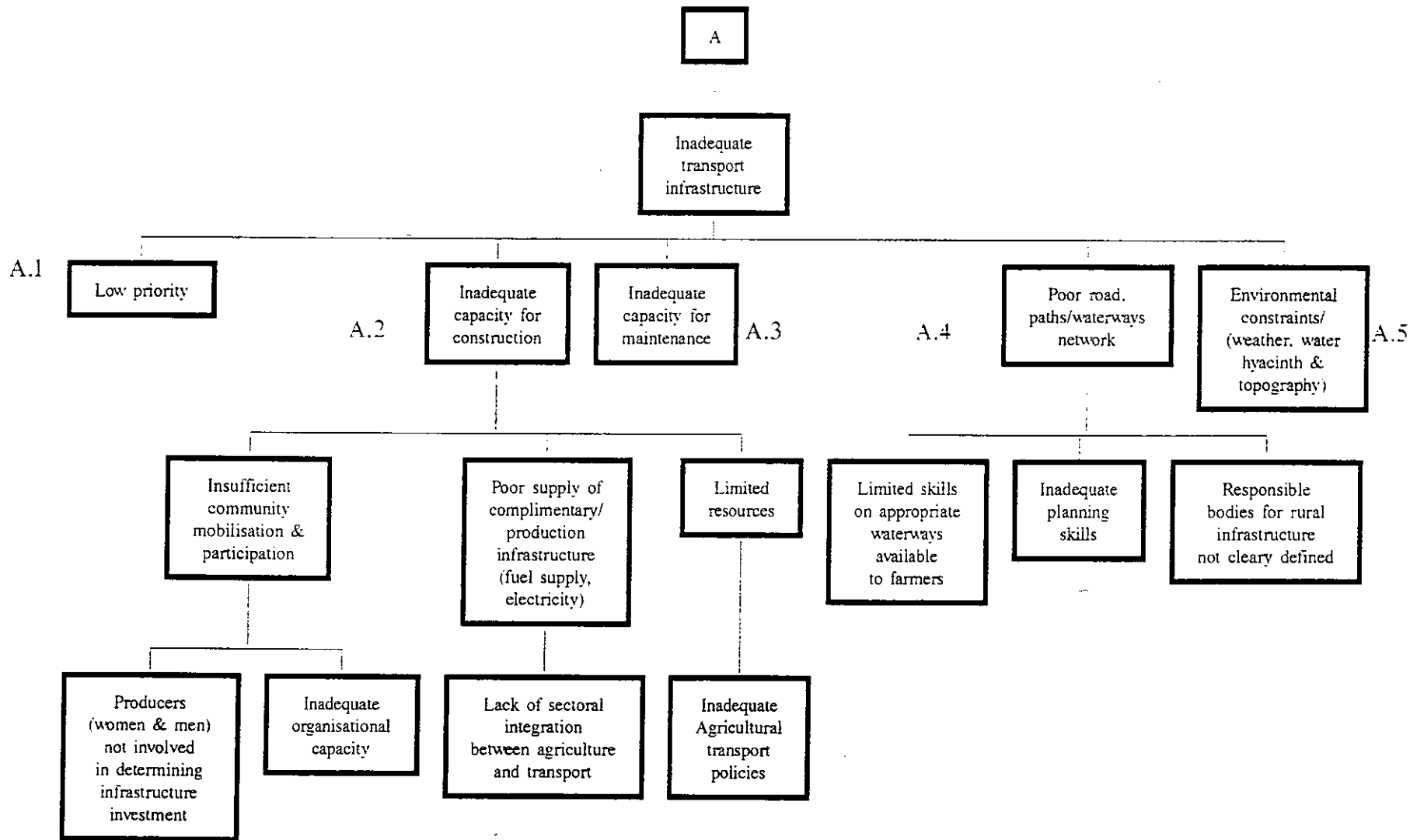
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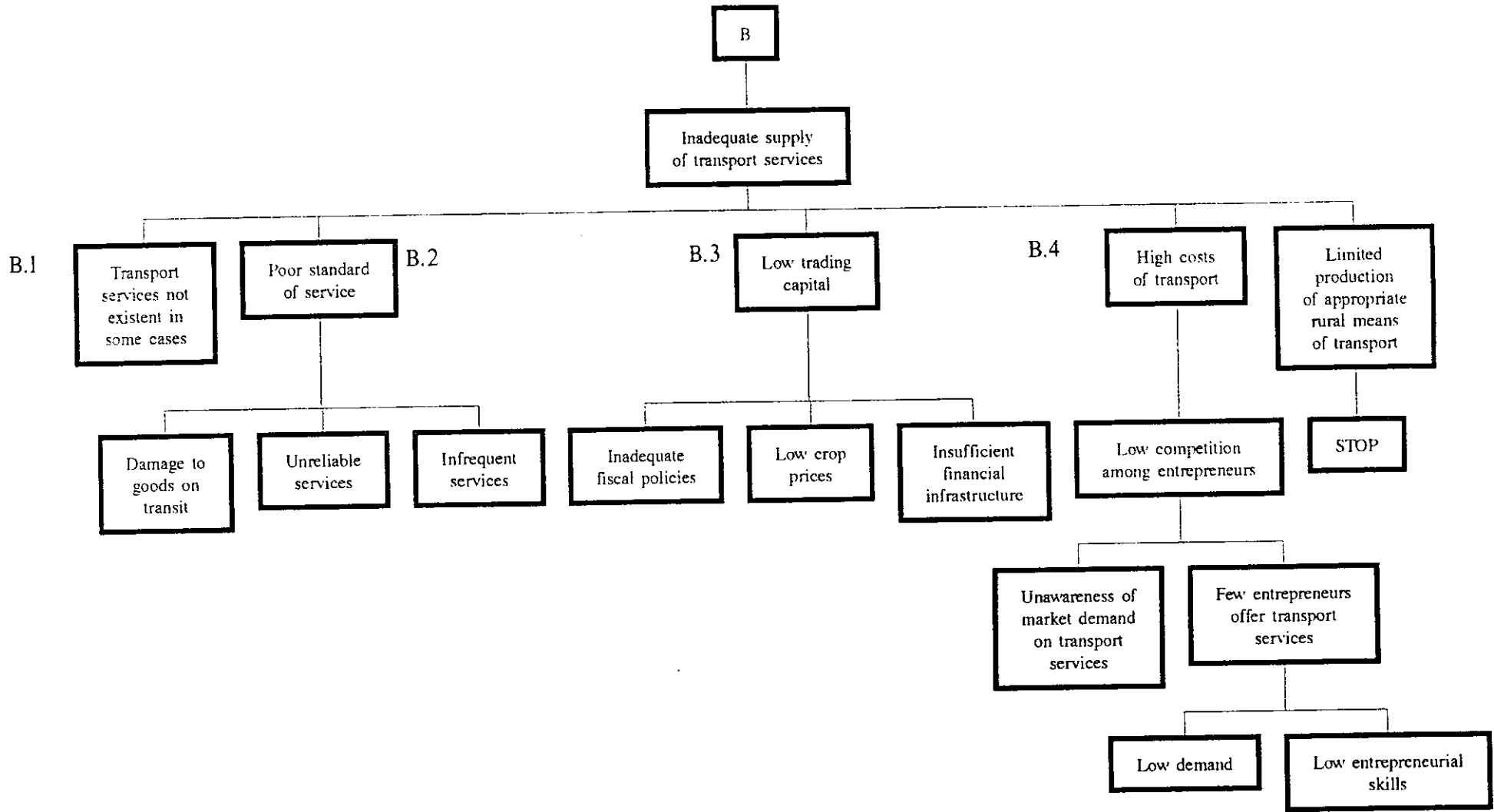
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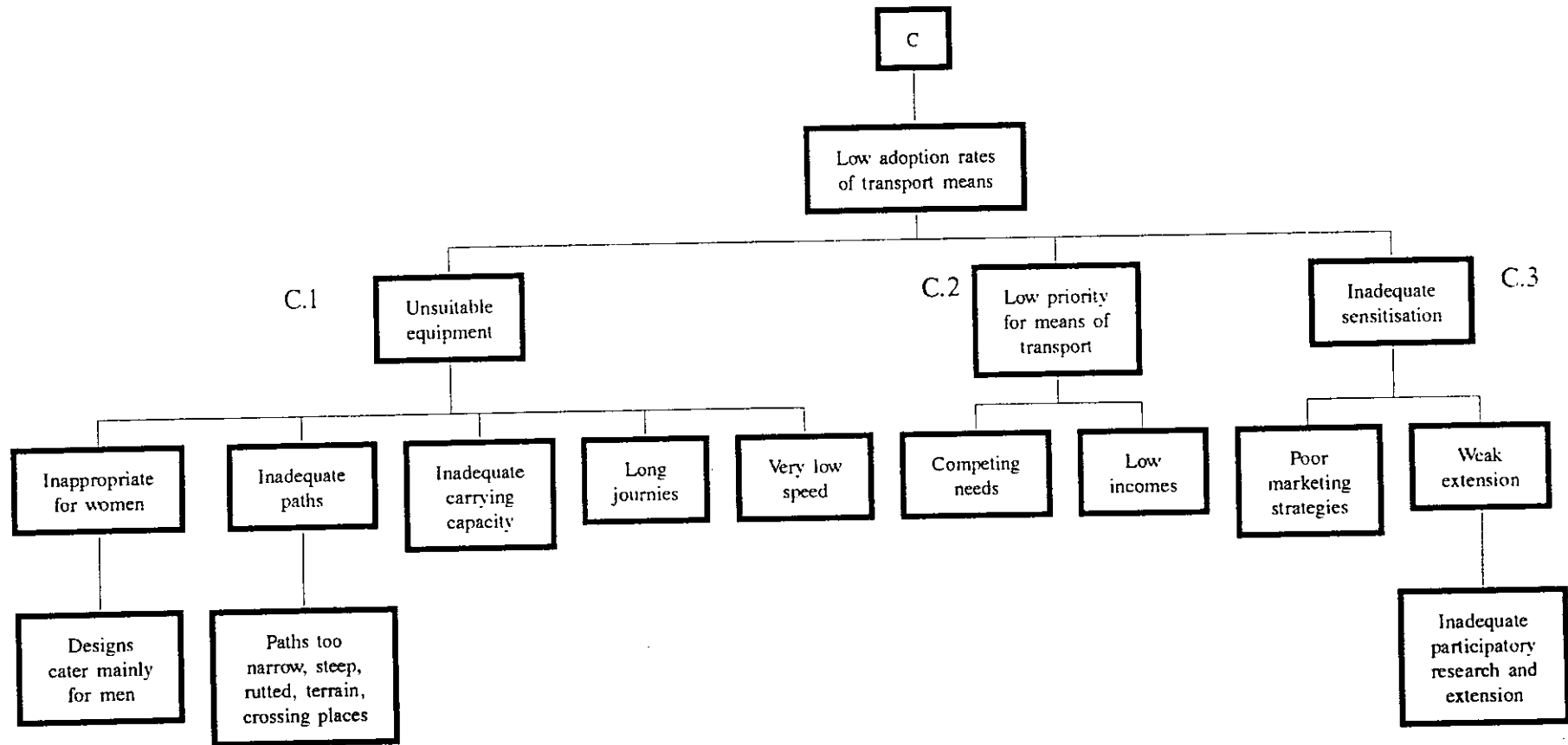
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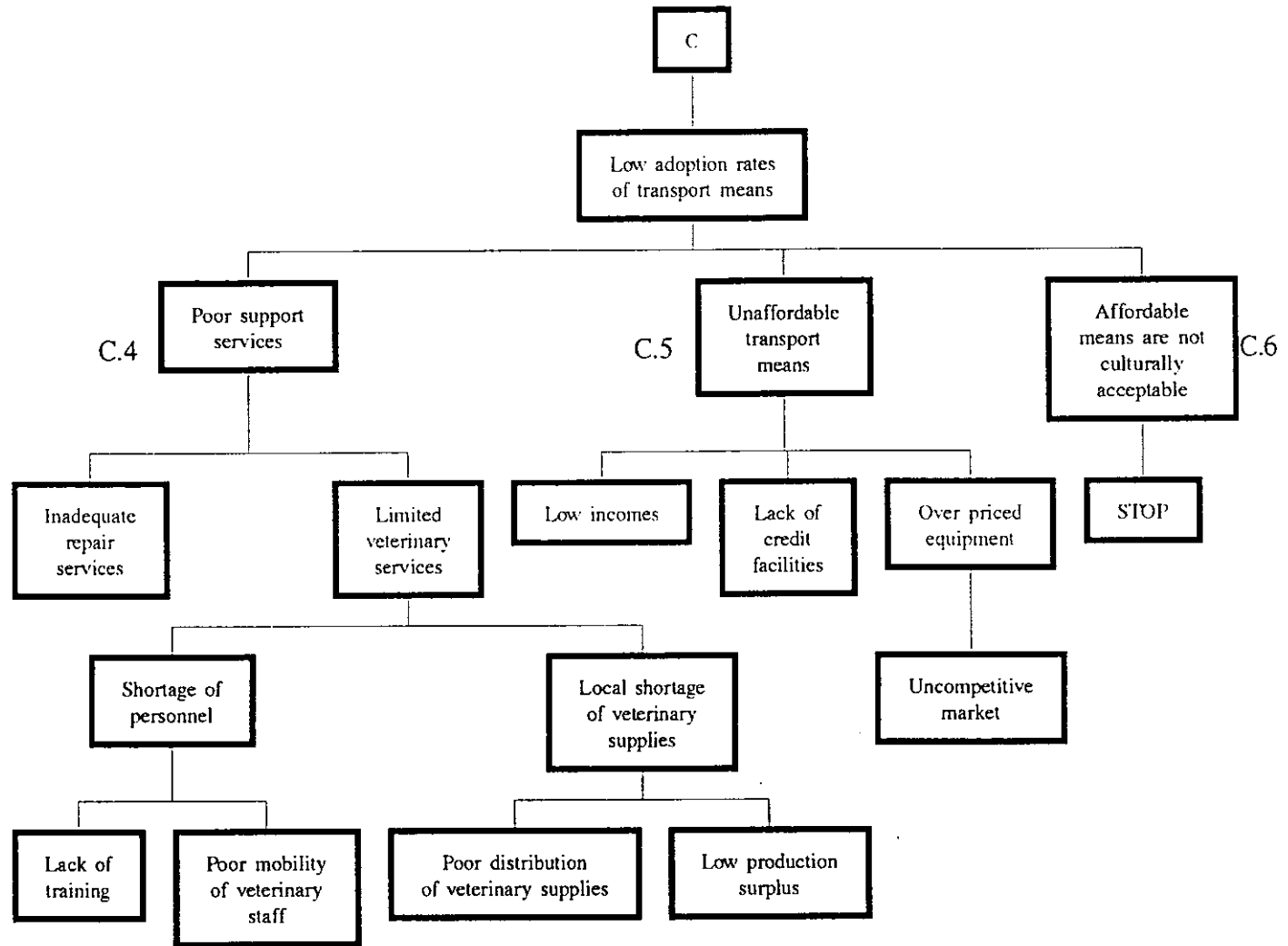
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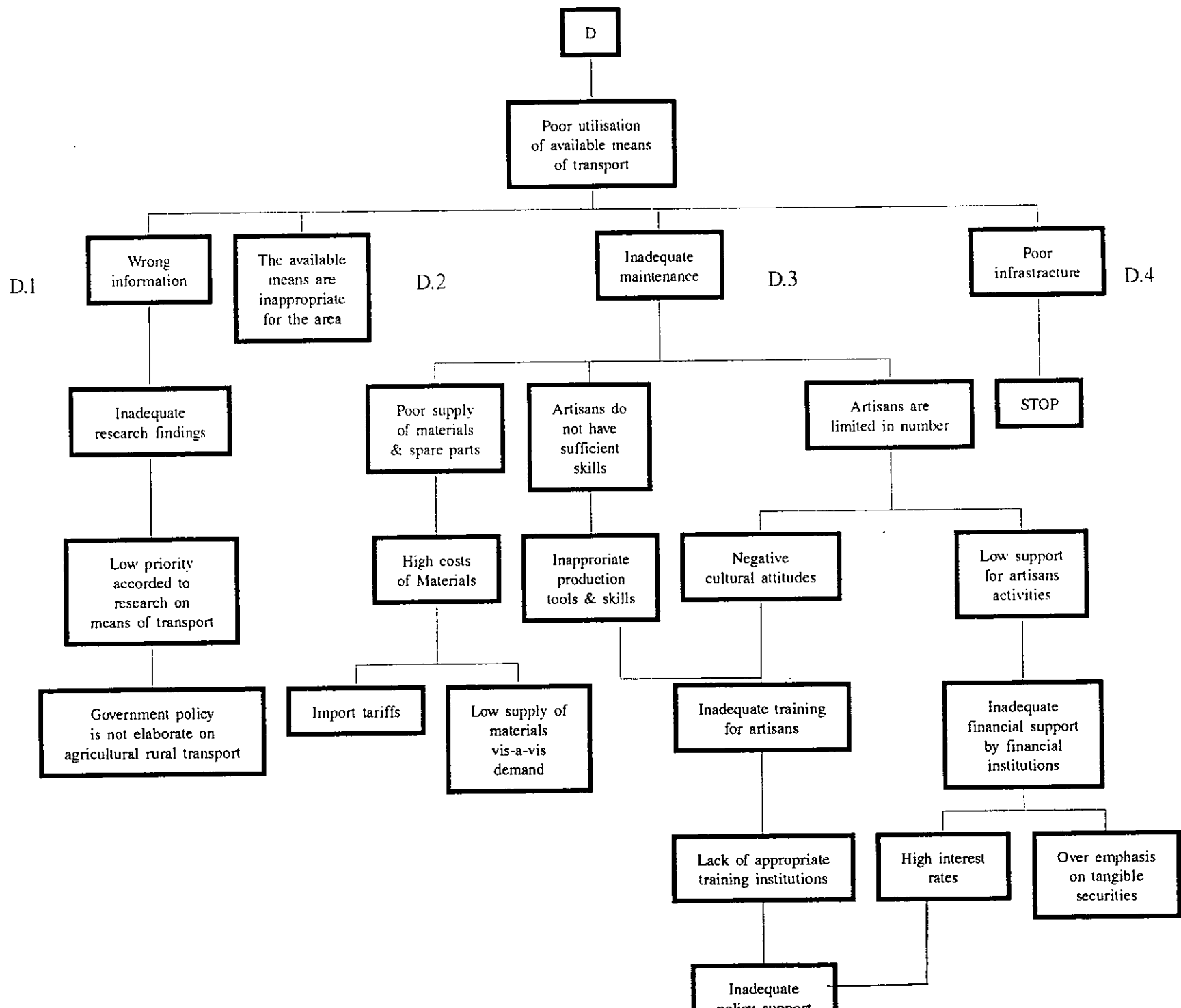
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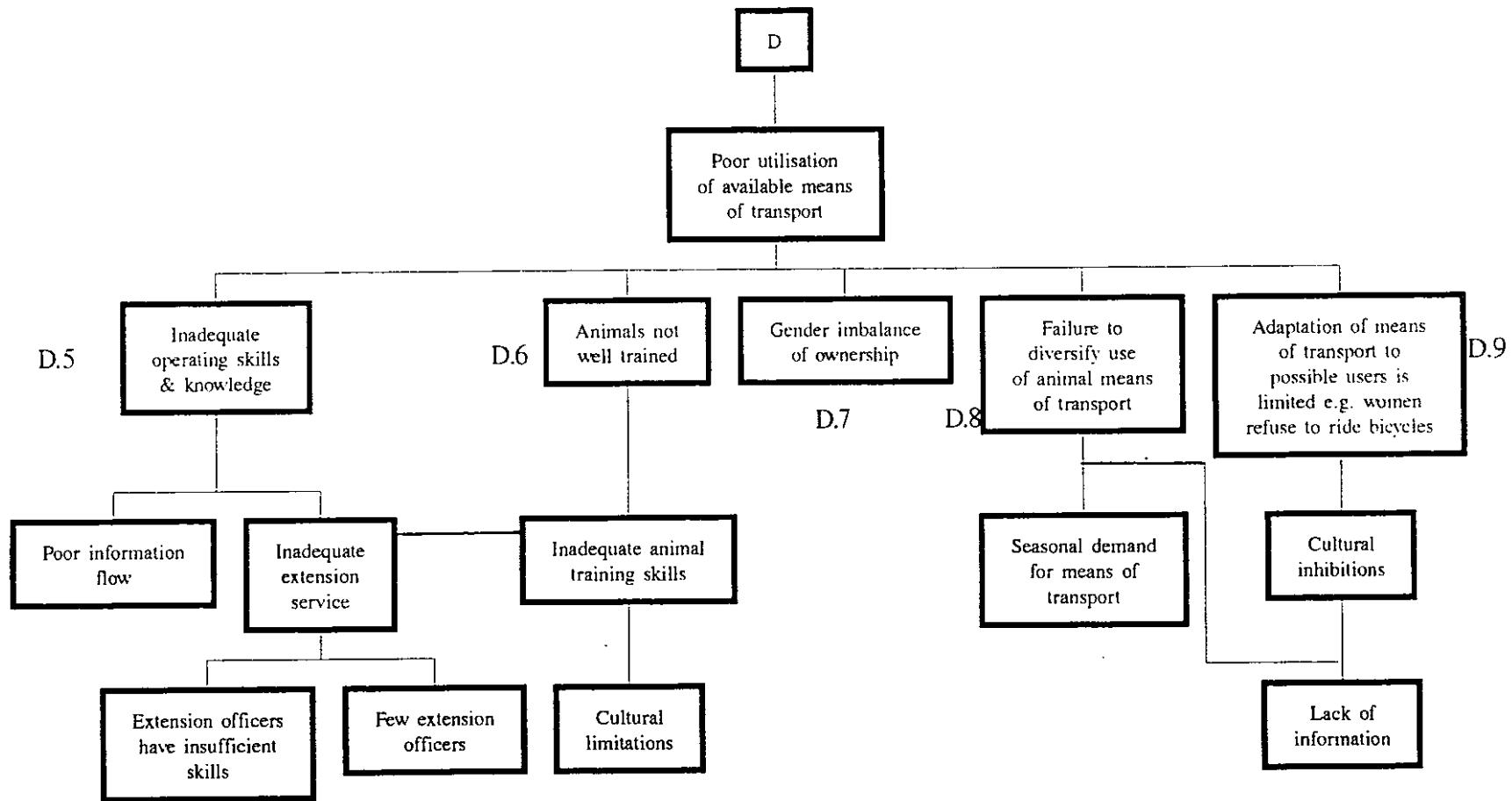


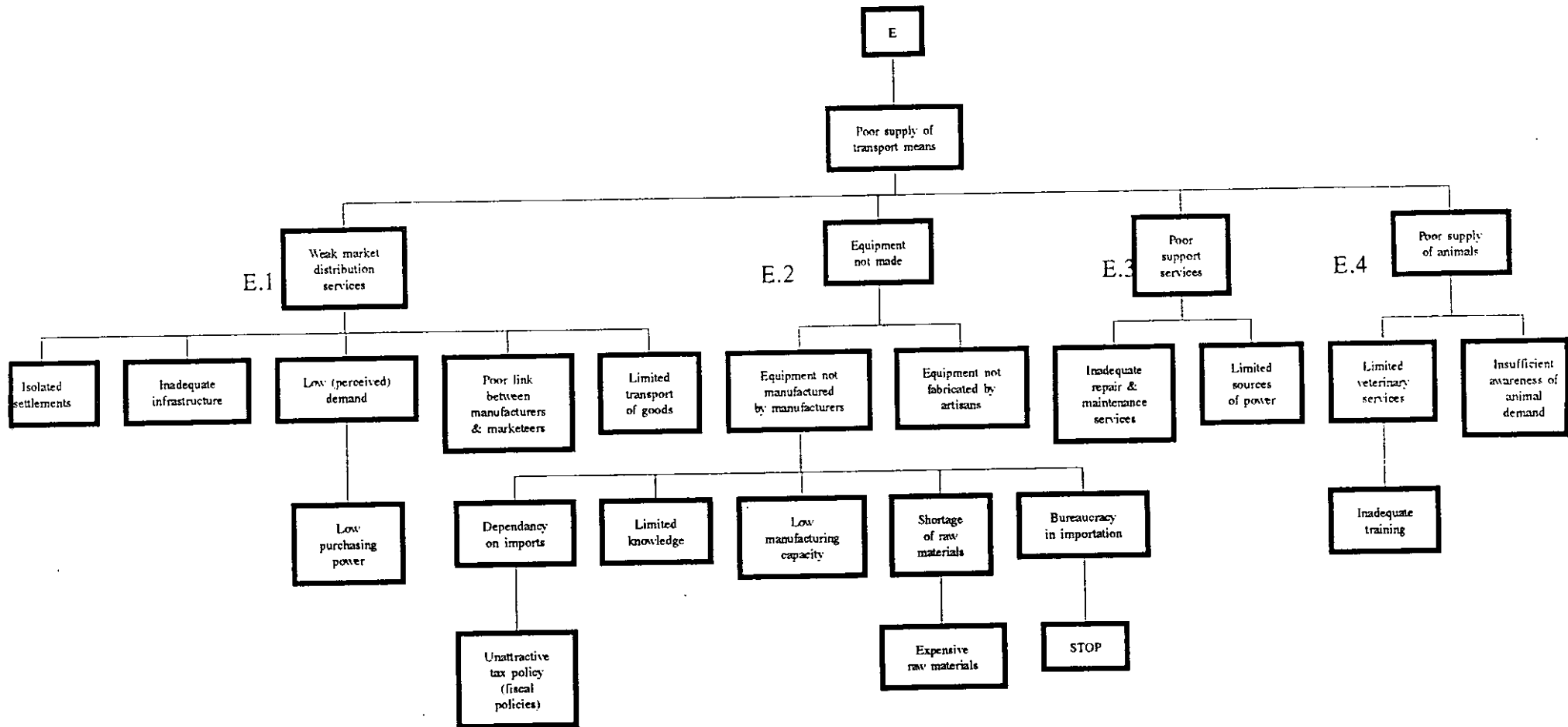


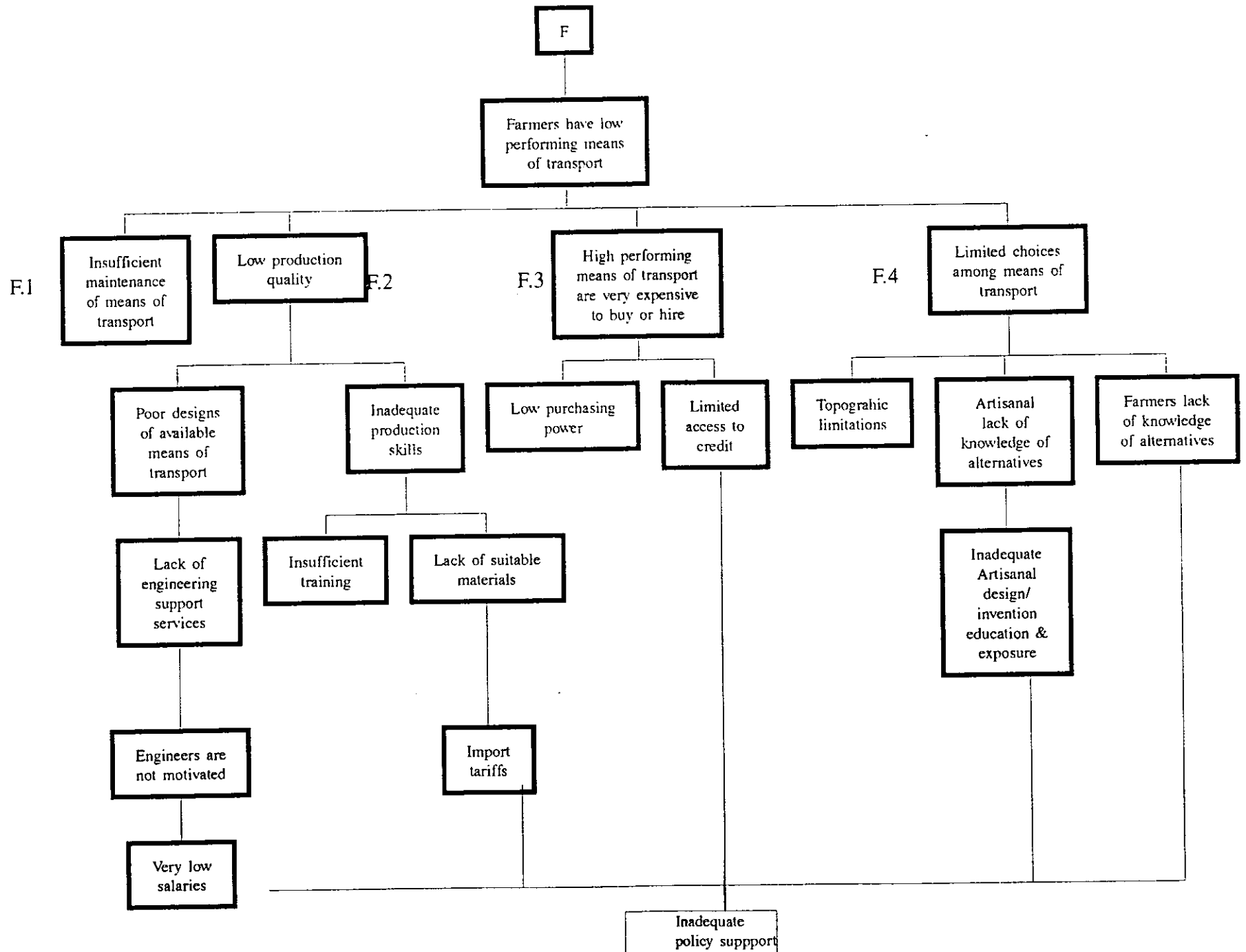












ANNEX 5

LOGFRAME MATRIX

LOGICAL FRAMEWORK FOR AN APPRAISAL AND ASSESSMENT PROJECT FOR AGRICULTURAL RURAL TRANSPORT IN EAST AFRICA

Project Name: Agricultural Rural Transport Project - East Africa.

Duration: 3 years

Countries: Kenya, Tanzania, Uganda.

Date: 7th November, 1997

NARRATIVE SUMMARY OF OBJECTIVES AND ACTIVITIES	INDICATORS OF ACHIEVEMENT	SOURCES OF DATA	CRITICAL ASSUMPTIONS
<p>OVERALL GOAL: Smallholder agricultural production and marketing in East Africa enhanced.</p>	<p>Production and marketing levels of communities who improve their agricultural rural transport shows higher increments as compared to those who do not improve their agricultural rural transport.</p>	<ul style="list-style-type: none"> •Survey reports •Institutional data (to be chid per each country). 	<p><u>Assumption for sustaining Overall Goal:</u> -Mass adoption of the initiatives is continued.</p>
<p>PURPOSE: Rural transport improved. (Phase I - Appraisal and needs assessment).</p>	<ul style="list-style-type: none"> •Time and effort spent by smallholders on transport progressively reduced. •Amount of produce loss/spoilage due to transport problems progressively reduced. •Share of materials transported by head/backloading decrease compared to other means of transport especially with reference to women. 	<ul style="list-style-type: none"> •Survey reports •Institutional data (to be chid per country). 	<p><u>Assumption for Overall Goal:</u> -Relevant socio-economic, political, environmental conditions do not deteriorate.</p>
<p>RESULTS/OUTPUTS:</p> <ol style="list-style-type: none"> 1.0 Demand for agricultural rural transport assessed. 2.0 Causes for inadequate rural transport infrastructure assessed. 3.0 Supply constraints of transport services analysed. 4.0 Factors affecting adoption rates and utilisation of available means of transport investigated. 5.0 Supply constraints on means of transport analysed. 6.0 Options for provision of high performing means developed. 7.0 Impact of policy shortcomings on agricultural rural transport assessed. 8.0 Costs and benefits of appropriate agricultural transport quantified. 9.0 Phase II research findings are implemented as interventions in Phase III. 	<p>Research implementation is according to country schedules.</p>	<ul style="list-style-type: none"> •Progress reports. •Technical reports. 	<p><u>Assumptions for Project Purpose:</u> -Adequate funds for implementing research findings as interventions for Phase III are availed. -Other factors affecting agricultural production remain positive. -Current problem situation analysed does not change significantly within the project period.</p>
<p>ACTIVITIES: (See overleaf)</p>			

ACTIVITIES				Critical Assumptions	
1.0	<u>Demand for agricultural transport assessed</u>	3.3	Investigate factors leading to low standards of rural transport services.	6.4 Identify knowledge/skills gaps.	<u>Assumptions for Outputs:</u> -All the stakeholders are willing to collaborate and do their part effectively. -Budgeted funds are available on time. -Communication infrastructure between stakeholders is effective enough most of the time.
1.1	Choose agro-ecological zones and determine needs in terms of: -Transport of inputs to fields. -Transport of products to storage (from fields). -Transport of products to markets (from storage) -Transport means from fields to markets. For every transport purpose assess: -Transport time. -Amount of produce transported. -Transport distance. -Transport frequency. -Means of transport. -Seasonal distribution of transport.	3.4	Study ways of promoting private sectors in providing transport services.	6.5 Investigate the potential role of technology and other standards.	
		3.5	Recommend suitable interventions.	6.6 Investigate interaction of design and tooling for IMT production.	
		4.0	<u>Factors affecting adoption rates and utilisation of available means of transport investigated</u>	6.7 Recommend appropriate interventions.	
		4.1	Conduct surveys involving farmers, extension agents and suppliers to investigate:	7.0 <u>Impact of policy shortcomings on agricultural rural transport assessed</u>	
		a)	Functional.	7.1 Identify existing policy documents with reference to agricultural rural transport.	
		b)	topographical and gender suitability of transport means.	7.2 Study existing policies with respect to gaps in agricultural rural transport and agriculture development.	
		c)	The impact of support services.	7.3 Analyse negative impacts of macro-economic policies (e.g. taxes) on agricultural rural transport.	
1.2	Assess farmers views in improving agricultural rural transport.	d)	The effects of extension and farmers prior knowledge.	7.4 Propose appropriate policy intervention e.g how gender issues can clearly be incorporated in rural agricultural transport policies.	
1.3	Determine incomes of agricultural producers with respect to demand for agricultural rural transport.	e)	The effect of income levels and credit on farmers priorities.		
1.4	Assess impact of transport work reduction measures on demand.	4.2	The cultural aspects in adoption of transport.	8.0 <u>Costs and benefits of appropriate agricultural transport quantified</u>	
		5.0	<u>Supply constraints on means of transport analysed</u>	8.1 For every agro-ecological zones analyse life cycle costs for means of transport and infrastructure.	
2.0	<u>Causes for inadequate rural transport infrastructure assessed</u>	5.1	Assess local capacity for production of appropriate rural transport means.	8.2 Analyse monetary values of benefits from use of agricultural rural transport:	
2.1	Investigate factors leading to low priority for rural transport infrastructure by governments and communities.	5.2	Investigate technology dissemination systems.	-increase use of manure/fertilisers.	
2.2	Assess financial resources for construction and maintenance of rural transport infrastructure.	5.3	Study the supply of draught animals in areas of difficulty.	-reduced spoilage.	
2.3	Examine organisational capacity for construction and maintenance of rural transport infrastructure e.g. mandate, roles, safety, technical skills, labour and financial management.	5.4	Investigate new and existing animal health/care provision.	-diversification of produce.	
2.4	Investigate factors constraining community participation in rural transport development e.g. gender related factors.	5.5	Analyse capacity and constraints on medium and micro scale production.	-higher purchase prices.	
2.5	Analyse causes of poor conditions of roads, paths and waterways network.	5.6	Conduct studies on marketing extension and distribution of transport means.	-increased land put to cultivation.	
2.6	Identify means of integrating agriculture and rural transport sector activities.	5.7	Recommend appropriate interventions.	-time savings	
2.7	Recommend appropriate interventions for improving rural agricultural transport infrastructure.	6.0	<u>Options for provision of high performing means developed</u>	8.3 Carry out assessment on gender specific costs and benefits.	
		6.1	Generate a comprehensive data base on IMTs.	8.4 Conduct qualitative assessment of social and environmental benefits.	
		6.2	Identify suitable finance systems for IMT purchase.	9.0 <u>Phase II research findings are implemented as interventions in Phase III.</u>	
		6.3	Compare transport means with performance indicators (including gender, maintenance) etc.	9.1 Collate and validate findings from all research done in Phase II.	
				9.2 Prepare phase III project.	
				9.3 Prepare funding proposal.	
				9.4 Solicit funding.	
3.0	<u>Supply constraints of transport services analysed</u>				
3.1	Identify areas where rural transport services are lacking.				
3.2	Study factors contributing to non-existence of rural transport services in identified areas.				

ANNEX 6

COUNTRY ACTION PLANS

COUNTRY ACTION PLAN - KENYA

Total Person Months - 118

Abbreviations

CBS	-	Central Bureau of Statistics.
GoK	-	Government of Kenya.
FIT	-	Farm Implements and Tools
ILO/ASIST	-	International Labour Organisation-Advisory Support, Information Services and Training.
ITDG	-	Intermediate Technology Development Group.
KARI	-	Kenya Agricultural Research Institute.
KBS	-	Kenya Bureau of Statistics.
KENDAT	-	Kenya Network on Drought Animal Technology.
KIRDI	-	Kenya Industrial Research and Development Institute.
MoLG	-	Ministry of Local Government.
MoPW	-	Ministry of Public Works and Housing.
NFG	-	National Forum Group.
OVPMP&ND	-	Office of the Vice President, Ministry of Planning and National Development.
UoN	-	University of Nairobi.

Key:

_____ Continuous activity

----- Periodic activity

X One time event

NB:

For this country action plan, KENDAT is mentioned as leading the implementation. Please note that KENDAT is a network with many collaborating organisations who could be called upon to implement activities.

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS									
		YEAR I						YEAR II				YEAR III													
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4	1	2	3	4	
1.0 <u>Demand for agricultural transport assessed</u>																							KENDAT	-KENDAT -Consultant	-Workshop
1.1 Choose agro-ecological zones and determine needs in terms of: -Transport of inputs to fields. -Transport of products to storage (from fields). -Transport of products to markets (from storage) -Transport means from fields to markets. For every transport purpose assess: -Transport time. -Amount of produce transported. -Transport distance. -Transport frequency. -Means of transport. -Seasonal distribution of transport.	6 PM																								
1.2 Assess farmers views in improving agricultural rural transport.																									
1.3 Determine incomes of agricultural producers with respect to demand for agricultural rural transport.																									
1.4 Assess impact of transport work reduction measures on demand.	4 PM																								
2.0 <u>Causes for inadequate rural transport infrastructure assessed</u>																							KENDAT	-ILO/ASSIST -ITDG -MoPW -MoLG -MoALD&M	-Workshop.
2.1 Investigate factors leading to low priority for rural transport infrastructure by governments and communities.	6 PM																								
2.2 Assess financial resources for construction and maintenance of rural transport infrastructure.																									
2.3 Examine organisational capacity for construction and maintenance of rural transport infrastructure e.g. mandate. roles, safety, technical skills, labour and financial management.	6 PM																								
2.4 Investigate factors constraining community participation in rural transport development e.g. gender related factors.																									
2.5 Analyse causes of poor conditions of roads, paths and waterways network.																									
2.6 Identify means of integrating agriculture and rural transport sector activities.	4 PM																								
2.7 Recommend appropriate interventions for improving rural agricultural transport infrastructure.																									

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS					
		YEAR I						YEAR II				YEAR III									
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4	
3.0 <u>Supply constraints of transport services analysed</u>																			KENDAT	-ITDG (Jeff/Kamau)	-Workshop
3.1 Identify areas where rural transport services are lacking.	8 PM																				
3.2 Study factors contributing to non-existence of rural transport services in identified areas.																					
3.3 Investigate factors leading to low standards of rural transport services.																					
3.4 Study ways of promoting private sectors in providing transport services.																					
3.5 Recommend suitable measures for removing supply constraints in the provision of rural transport services.	6 PM																				
4.0 <u>Factors affecting adoption rates and utilisation of available means of transport investigated</u>																			KENDAT	-NGOs -GoK -NFG -KENDAT -ITDG (Jeff)	-Survey in five agricultural zones.
4.1 Conduct survey involving farmers, extension agents and suppliers to investigate:	15 PM																				
a) Functional, topographical and gender suitability of transport means.																					
b) The impact of support services.																					
c) The effects of extension and farmers prior knowledge.																					
d) The effect of income levels and credit on farmers priorities.																					
e) The cultural aspects in adoption of transport.																					
4.2 Recommend interventions for increasing adoption rate and utilisation.	6 PM																			-ITDG (Jeff/ Kamau) -KENDAT	-Workshop required. -Continuing basis.
5.0 <u>Supply constraints on means of transport analysed</u>																			KENDAT	-Consultant	
5.1 Assess local capacity for production of appropriate rural transport means.	5 PM																				
5.2 Investigate technology dissemination systems.	6 PM																				
5.3 Study the supply of draught animals in areas of difficulty.	6 PM																				
5.4 Investigate new and existing animal health/care provision.																					
5.5 Analyse capacity and constraints on medium and micro scale production.	6 PM																				
5.6 Conduct studies on marketing extension and distribution of transport means.																					
5.7 Recommend appropriate interventions.	4 PM																				

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS									
		YEAR I						YEAR II				YEAR III													
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4	1	2	3	4	
6.0 <u>Options for provision of high performing means developed</u> 6.1 Generate a comprehensive data base on IMTs. 6.2 Identify suitable finance systems for IMT purchase. 6.3 Compare transport means with performance indicators (including gender, maintenance) etc. 6.4 Identify knowledge gaps and recommend changes in technical education. 6.5 Investigate potential role of technology and other standards. 6.6 Investigate interaction of design and tooling for IMT production. 6.7 Recommend appropriate interventions.																							KENDAT	-KENDAT -NFG -FIT/KARI -UoN -KIRDI -KBS	-Workshop required.
7.0 <u>Impact of policy shortcomings on agricultural rural transport assessed</u> 7.1 Identify existing policy documents with reference to agricultural rural transport. 7.2 Study existing policies with respect to gaps in agricultural rural transport and agriculture development. 7.3 Analyse negative impacts of macro-economic policies (e.g. terrain) on agricultural rural transport. 7.4 Propose appropriate policy intervention e.g. how gender issues can clearly be incorporated in rural agricultural transport policies.	6 PM 4 PM																						KENDAT	-Consultant -NFG -MoP -MPW -MoALD&M -ILO/ASSIST	-Workshop
8.0 <u>Costs and benefits of appropriate agricultural transport quantified</u> 8.1 For every agro-ecological zones analyse life cycle costs for means of transport and infrastructure. 8.2 Analyse monetary values of benefits from use of agricultural rural transport: -increase use of manure/fertilisers. -reduced spoilage. -diversification of produce. -higher purchase prices. -increased land on cultivation. -time savings 8.3 Carry out assessment on gender specific costs and benefits. 8.4 Conduct qualitative assessment of social and environmental benefits.	11 PM																						KENDAT	-Central Bureau of Statistics -Consultant	-Workshop

COUNTRY ACTION PLAN - UGANDA

Total Person Months - 109

Abbreviations:

AEATRI	-	Agriculture Engineering and Appropriate Technology Research Institute.
MLG	-	Ministry of Local Government.
MPED	-	Ministry of Planning and Economic Development.
MWTC	-	Ministry of Works, Transport and Communication.
NARO	-	National Agricultural Research Organisation.
NFG	-	National Forum Group.
NGOs	-	Non Governmental Organisations.
SAIMMCO	-	Soroti Agricultural and Implement Machinery Manufacturing Company.
TOCIDO	-	Tororo Development Organisations.

Key:

_____	Continuous activity
-----	Periodic activity
X	One time event

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS						
		YEAR I				YEAR II				YEAR III												
		1	2	3	4	1	2	3	4	1	2	3	4									
1.0 Demand for agricultural transport assessed. 1.1 Choose agro-ecological zones and determine needs in terms of: -Transport of inputs to fields. -Transport of products to storage (from fields). -Transport of products to markets (from storage) -Transport means from fields to markets. For every transport purpose assess: -Transport time. -Amount of produce transported. -Transport distance. -Transport frequency. -Means of transport. -Seasonal distribution of transport. 1.2 Assess farmers views in improving agricultural rural transport. 1.3 Determine incomes of agricultural producers with respect to demand for agricultural rural transport. 1.4 Assess impact of transport work reduction measures on demand.	8 PM																			Edith Kasaijja	-NFG -Extension staff (local) -MAAIF	-Feasibility study. -Consultancy. -Report.
2.0 Causes for inadequate rural transport infrastructure assessed 2.1 Investigate factors leading to low priority for rural transport infrastructure by governments and communities. 2.2 Assess financial resources for construction and maintenance of rural transport infrastructure. 2.3 Examine organisational capacity for construction and maintenance of rural transport infrastructure e.g. mandate, roles, safety, technical skills, labour and financial management. 2.4 Investigate factors constraining community participation in rural transport development e.g. gender related factors. 2.5 Analyse causes of poor conditions of roads, paths and waterways network. 2.6 Identify means of integrating agriculture and rural transport sector activities. 2.7 Recommend appropriate interventions for improving rural agricultural transport infrastructure.	14 PM																			AKIDI	-Kagina -NFG -Local Council -Ministry of Agriculture	-Field surveys. -Reports.

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS								
		YEAR I						YEAR II				YEAR III												
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4	1	2	3	4
3.0 Supply constraints of transport services analysed 3.1 Identify areas where rural transport services are lacking. 3.2 Study factors contributing to non-existence of rural transport services in identified areas. 3.3 Investigate factors leading to low standards of rural transport services. 3.4 Study ways of promoting private sectors in providing transport services. 3.5 Recommend suitable measures for removing supply constraints in the provision of rural transport services.	8 PM																					Dombe (MLG)	-Entrepreneurs -Sseruwo -NFG -MPEP	-Pilot Survey
4.0 Factors affecting adoption rates and utilisation of available means of transport investigated 4.1 Conduct survey involving farmers, extension agents and suppliers to investigate: a) Functional, topographical and gender suitability of transport means. b) The impact of support services. c) The effects of extension and farmers prior knowledge. d) The effect of income levels and credit on farmers priorities. e) The cultural aspects in adoption of transport. 4.2 Recommend interventions for increasing adoption rate and utilisation.	12 PM																					Sseruwo	-Apuuli -AEATRI (NARO) -Farmers -Research Assistants -MPED -NFG	-Pilot Field Survey (6 districts) -Questionnaire. -Report.
5.0 Supply constraints on means of transport analysed 5.1 Assess local capacity for production of appropriate rural transport means. 5.2 Investigate technology dissemination systems. 5.3 Study the supply of draught animals in areas of difficulty. 5.4 Investigate new and existing animal health/care provision. 5.5 Analyse capacity and constraints on medium and micro scale production. 5.6 Conduct studies on marketing extension and distribution of transport means. 5.7 Recommend appropriate interventions.	23 PM																					Sseruwo	-Extension staff -Apuuli -AEATRI -MPED	-Consultant to be identified. -Feasibility study -Reports

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS						
		YEAR I																				
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4		
6.0 <u>Options for provision of high performing means developed</u> 6.1 Generate a comprehensive data base on IMTs. 6.2 Identify suitable finance systems for IMT purchase. 6.3 Compare transport means with performance indicators (including gender, maintenance) etc. 6.4 Identify knowledge gaps and recommend changes in technical education. 6.5 Investigate potential role of technology and other standards. 6.6 Investigate interaction of design and tooling for IMT production. 6.7 Recommend appropriate interventions.	32 PM																			Sseruwo -do- Kayaayo (6.4) OPIO (2.6) Sseruwo	-AEATRI -SAIMMCO (OPIO) -Research Assistant -Apuuli -MPED -NGOs (TOCIDO) -Blacksmiths -KAYAAYO -MWTC -NFG -Local Council	-Reports. -Feasibility study. -As part of above survey. -Reports.
7.0 <u>Impact of policy shortcomings on agricultural rural transport assessed</u> 7.1 Identify existing policy documents with reference to agricultural rural transport. 7.2 Study existing policies with respect to gaps in agricultural rural transport and agriculture development. 7.3 Analyse negative impacts of macro-economic policies (e.g. terrain) on agricultural rural transport. 7.4 Propose appropriate policy intervention e.g. how gender issues can clearly be incorporated in rural agricultural transport policies.	6 PM																			AKIDI	-Sseruwo -Ministry of Gender -Ministry of Local Government	-Report
8.0 <u>Costs and benefits of appropriate agricultural transport quantified</u> 8.1 For every agro-ecological zones analyse life cycle costs for means of transport and infrastructure. 8.2 Analyse monetary values of benefits from use of agricultural rural transport: -increase use of manure/fertilisers. -reduced spoilage. -diversification of produce. -higher purchase prices. -increased land put on cultivation. -time savings 8.3 Carry out assessment on gender specific costs and benefits. 8.4 Conduct qualitative assessment of social and environmental benefits.	6 PM																			AKIDI/ Sseruwo	-Ministry of Gender -Ministry of Planning -Ministry of Agriculture	-Feasibility study -Consultant -Report

COUNTRY ACTION PLAN - TANZANIA

Total Person Months - 102

Abbreviations:

BACAS	-	Bureau of Agricultural Consultancy and Advisory.
CAMARTEC	-	Centre for Agricultural Mechanisation and Rural Technology - Arusha.
DAP	-	Draft Animal Power Project (Korogwe, Tanga).
IFRTD	-	International Forum for Rural Transport and Development.
IPL	-	Institute of Production Innovation (University of Dar es Salaam).
MoA	-	Ministry of Agriculture.
NCC	-	National Construction Council, Dar es Salaam.
NGOs	-	Non Governmental Organisations.
NIT	-	National Institute of Transport, Dar es Salaam.
RTTP	-	Rural Travel and Transport Project (Ministry of Works).
SEAZ	-	Private Company - Mbeya.
UAC	-	Uyole Agricultural Research Centre - Mbeya.
UDSM	-	University of Dar es Salaam.
VETA	-	Vocational Education and Training Authority.
VTTP	-	Village Travel and Transport Project (Swiss Agency for Development and Cooperation - Morogoro, Tanzania)

Key:

_____	Continuous activity
-----	Periodic activity
X	One time event

The overall National Team Leaders are Dr. P. Makungu and Camilla.

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS				
		YEAR I						YEAR II			YEAR III									
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4
1.0 <u>Demand for agricultural transport assessed</u> 1.1 Choose agro-ecological zones and determine needs in terms of: -Transport of inputs to fields. -Transport of products to storage (from fields). -Transport of products to markets (from storage) -Transport means from fields to markets. For every transport purpose assess: -Transport time. -Amount of produce transported. -Transport distance. -Transport frequency. -Means of transport. -Seasonal distribution of transport. 1.2 Assess farmers views in improving agricultural rural transport. 1.3 Determine incomes of agricultural producers with respect to demand for agricultural rural transport. 1.4 Assess impact of transport work reduction measures on demand.	6 PM																	BACAS	-BACAS -Girma	-Consultancy
2.0 <u>Causes for inadequate rural transport infrastructure assessed</u> 2.1 Investigate factors leading to low priority for rural transport infrastructure by governments and communities. 2.2 Assess financial resources for construction and maintenance of rural transport infrastructure. 2.3 Examine organisational capacity for construction and maintenance of rural transport infrastructure e.g. mandate, rôles, safety, technical skills, labour and financial management. 2.4 Investigate factors constraining community participation in rural transport development e.g. gender related factors. 2.5 Analyse causes of poor conditions of roads, paths and waterways network. 2.6 Identify means of integrating agriculture and rural transport sector activities. 2.7 Recommend appropriate interventions for improving rural agricultural transport infrastructure	4 PM 2 PM 6 PM 4 PM 4 PM 2 PM 2 PM																	Mhalila	-Kimambo -Camilla -NIT -(MoA) -RTTP -NGOs -NCC -MoW	-Collaborating institutions involved in transport infrastructure.

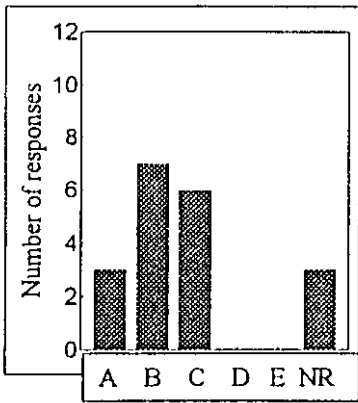
OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS					
		YEAR I						YEAR II				YEAR III									
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4	
3.0 <u>Supply constraints of transport services analysed</u>																		S. Mkomina (SEAZ)	-Shetto (UAC) -Makwanda -DAP (Korogwe) -CAMARTEC	-Collaborating institutions involved in means of transport.	
3.1 Identify areas where rural transport services are lacking.	2 PM																				
3.2 Study factors contributing to non-existence of rural transport services in identified areas.	3 PM																				
3.3 Investigate factors leading to low standards of rural transport services.	3 PM																				
3.4 Study ways of promoting private sectors in providing transport services.	3 PM																				
3.5 Recommend suitable measures for removing supply constraints in the provision of rural transport services.	1 PM																	x			
4.0 <u>Factors affecting adoption rates and utilisation of available means of transport investigated</u>	16 PM																		H. Mhalila	-VTTP -RTTP (Ministry of Works) -Mechanisation Department (MoA)	Development interventions, RTTP in different districts and different donors/ executing agencies
4.1 Conduct survey involving farmers, extension agents and suppliers to investigate:																					
a) Functional, topographical and gender suitability of transport means.																					
b) The impact of support services.																					
c) The effects of extension and farmers prior knowledge.																					
d) The effect of income levels and credit on farmers priorities.																					
e) The cultural aspects in adoption of transport.																					
4.2 Recommend interventions for increasing adoption rate and utilisation.	1 PM																	x			
5.0 <u>Supply constraints on means of transport analysed</u>																			P. Makungu	-VETA -DAP (Korogwe) -SEAZ -VTTP -RTTP	Prototypes development, collaborating institutions representing zones and involved in technology development and distribution.
5.1 Assess local capacity for production of appropriate rural transport means.	4 PM																				
5.2 Investigate technology dissemination systems.	3 PM																				
5.3 Study the supply of draught animals in areas of difficulty.	2 PM																				
5.4 Investigate new and existing animal health/care provision.	1 PM																				
5.5 Analyse capacity and constraints on medium and micro scale production.	3 PM																				
5.6 Conduct studies on marketing extension and distribution of transport means.	3 PM																				
5.7 Recommend appropriate interventions.	1 PM																	x			

OUTPUTS/ ACTIVITIES	PERSON MONTHS	TIME FRAME												TEAM LEADER	COLL. INSTI/PERSONS	REMARKS						
		YEAR I						YEAR II				YEAR III										
		1	2	3	4	5	6	7	8	9	10	11	12				1	2	3	4		
6.0 <u>Options for provision of high performing means developed</u>																						
6.1 Generate a comprehensive data base on IMTs.	3 PM																				-IPI	Prototypes development, collaborating institutions representing zones and involved in technology development and distribution.
6.2 Identify suitable finance systems for IMT purchase.	1 PM																				-SILSOE	
6.3 Compare transport means with performance indicators (including gender, maintenance) etc.	3 PM																				-CAMARTEC	
6.4 Identify knowledge gaps and recommend changes in technical education.	2 PM																				-VETA	
6.5 Investigate potential role of technology and other standards.	2 PM 3 PM																				-SEAZ	
6.6 Investigate interaction of design and tooling for IMT production.	1 PM																					
6.7 Recommend appropriate interventions.																						
7.0 <u>Impact of policy shortcomings on agricultural rural transport assessed</u>																						
7.1 Identify existing policy documents with reference to agricultural rural transport.	4 PM																				T. Simalenga	Consultancy workshop (policy makers)
7.2 Study existing policies with respect to gaps in agricultural rural transport and agriculture development.																						
7.3 Analyse negative impacts of macro-economic policies (e.g. terrain) on agricultural rural transport.																					X	
7.4 Propose appropriate policy intervention e.g how gender issues can clearly be incorporated in rural agricultural transport policies.																					X	
8.0 <u>Costs and benefits of appropriate agricultural transport quantified</u>																						
8.1 For every agro-ecological zones analyse life cycle costs for means of transport and infrastructure.	6 PM																				Economics Research Bureau (University of Dar es Salaam)	Consultancy
8.2 Analyse monetary values of benefits from use of agricultural rural transport: -increase use of manure/fertilisers. -reduced spoilage. -diversification of produce. -higher purchase prices. -increased land put on cultivation. -time savings																						
8.3 Carry out assessment on gender specific costs and benefits.																						
8.4 Conduct qualitative assessment of social and environmental benefits.																						

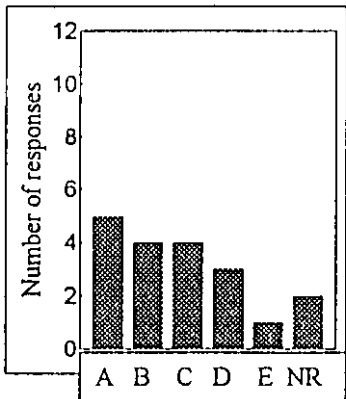
ANNEX 7

EVALUATION PRESENTATION CHARTS

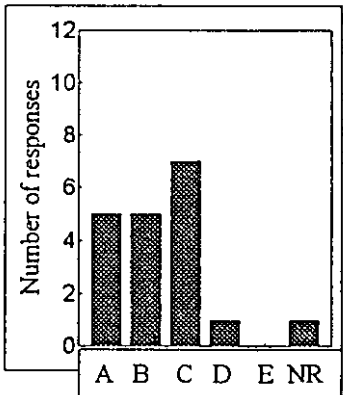
1. Workshop venue



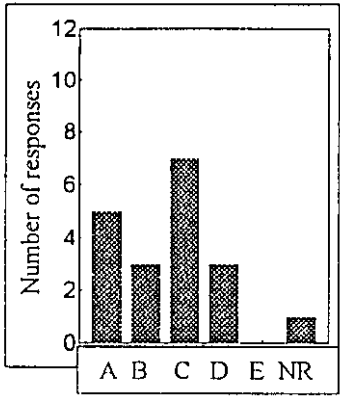
(1) Choice of workshop venue



(2) Rooms

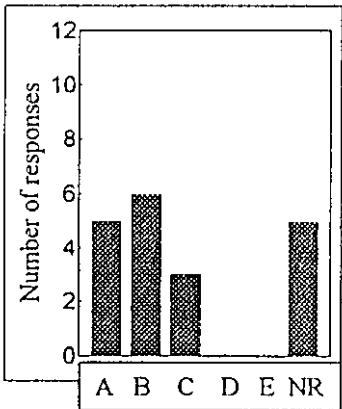


(3) Meals

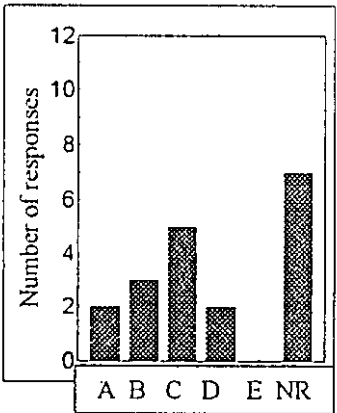


(4) Hotel services

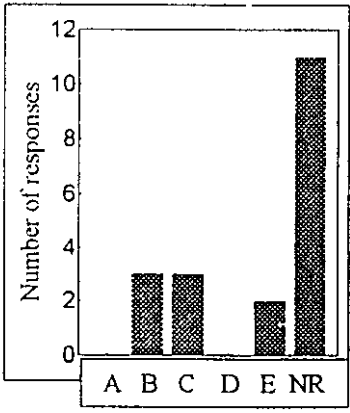
2. Country presentations



(5) Uganda presentation

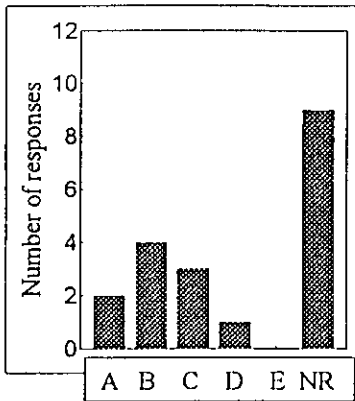


(6) Kenya presentation

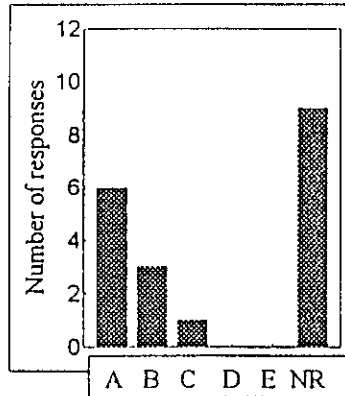


(7) Tanzania presentation

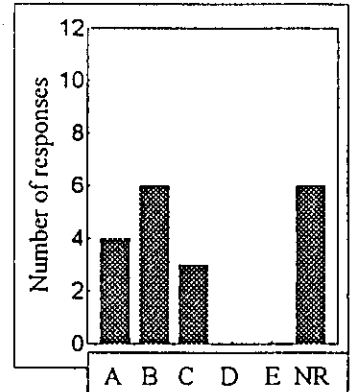
3. Keynote presentations



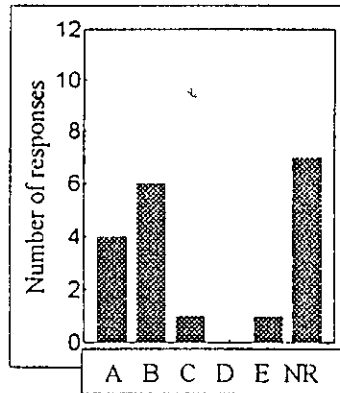
(8) Rural infrastructure and development



(9) Economic s and on-farm transport

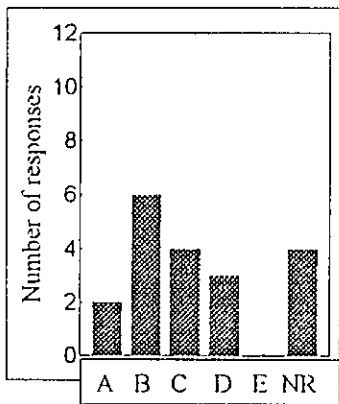


(10) Technological support and services

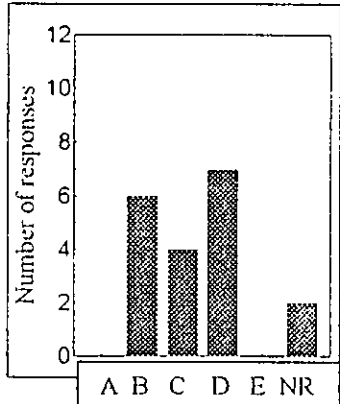


(11) Gender issues of rural transport

4. Poster presentations and evening sessions

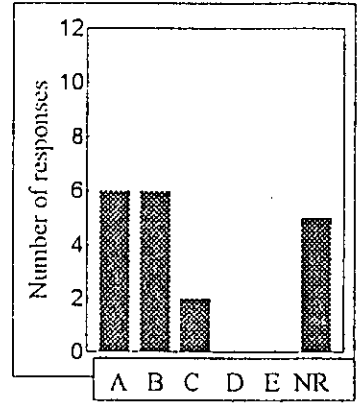


(12) Posters



(13) Evening sessions

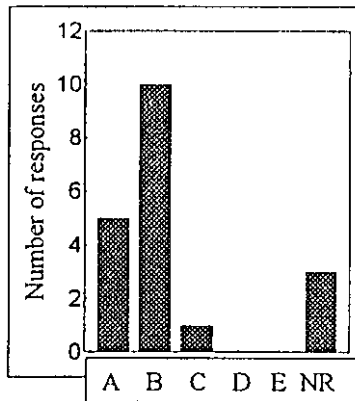
5. The ZOPP moderation



(14) The ZOPP

Figure 15. Bar chart showing responses to workshop evaluation

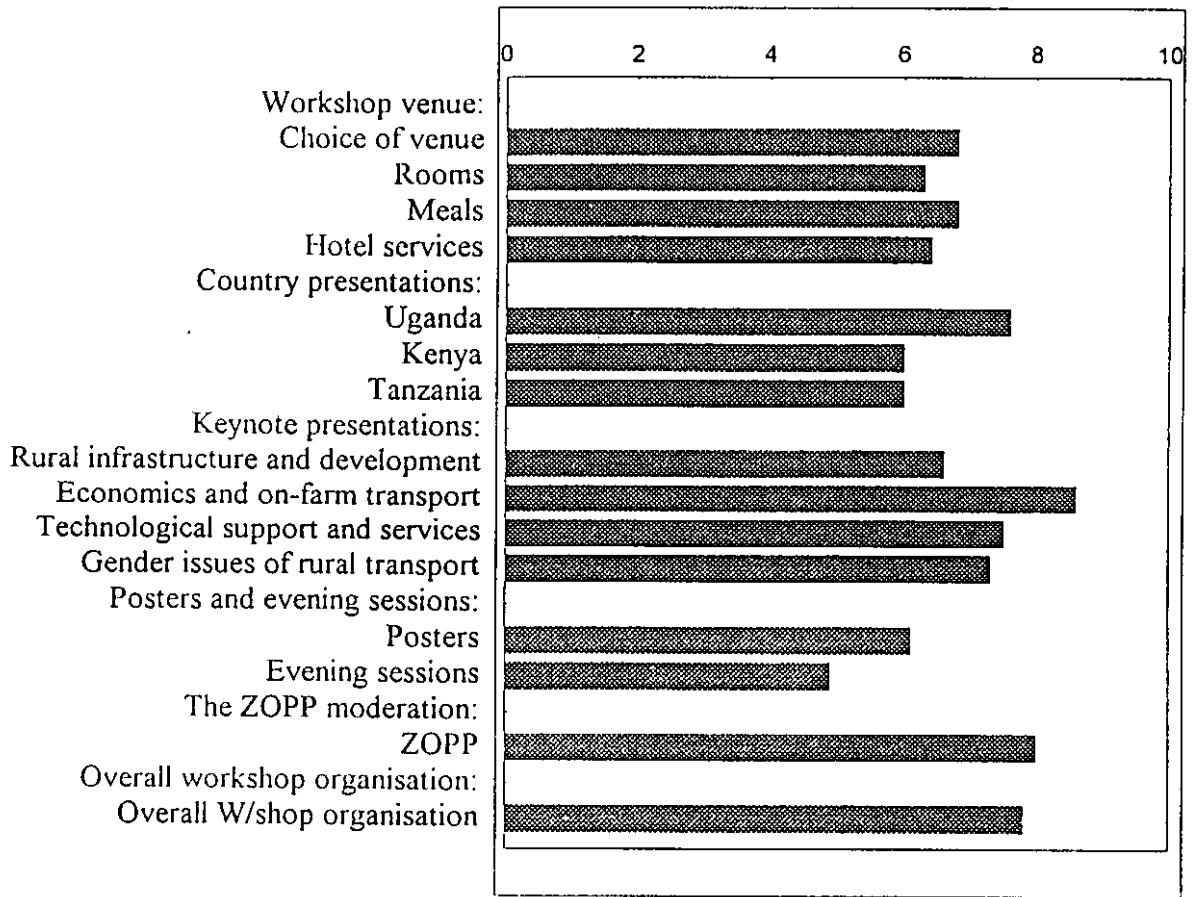
6. Overall workshop organisation



(15) Workshop organisation

A-Excellent, B-Very good, C-Good, D-Acceptable, E-Poor, NR-No response

Figure 16. Workshop evaluation questions, sorted by programme elements and then ranked by average response score



10=Excellent, 7=Very good, 5=Good, 3=Acceptable, 0=Poor