CROP POST HARVEST PROGRAMME

Improved Food Crop Marketing through Appropriate Transport for Poor Farmers in Uganda

R8114 (ZB0294)

PROJECT FINAL REPORT

1 April 2002 – 31 December 2004

Ulrich Kleih
Natural Resources Institute
University of Greenwich
United Kingdom

Dr Charles Kaira
Transport Forum Group
Kampala
Uganda

Table of Contents

Abbreviations

AEATRI	Agricultural Engineering and Applied Technology Research Institute
ART	Agricultural Rural Transport
ATNESA	Animal Traction Network for Eastern and Southern Africa
CAO	Chief Administrative Officer
CBOs	Community base organisations
CDO	Cotton Development Organisation
CPHP	DFID Crop Post-Harvest Programme
DAP	Draught animal power
DFID	United Kingdom Department for International Development
DAPCWI	Draught Animal Power Community Welfare Initiative
FABIO	First Africa Bicycle Information Office
FHH	Female Headed Household
GIAT	Gender in Animal Traction, part of Karughe Farmers Partnership, Kasese
GoU	Government of Uganda
HH	Household
IFRTD	International Forum for Rural Transport and Development
IDEA	Investment in Developing Export Agriculture, USAID Funded
IGA	Income Generating Activities
IITA	International Institute for Tropical Agriculture
IMT	Intermediate Means of Transport
KENDAT	Kenya Network for Draft Animal Technology
KFP	Karughe Farmers Partnership, Bwera, Kasese
LC	Local Council
MAAIF	Ministry of Agriculture, Animal Industry, and Fisheries
MHH	Male Headed Household
MTCEA	Multi-Purpose Training and Community Empowerment Association, Iganga
NAADS	National Agricultural Advisory Services
NALG	Nakisenhe Adult Literacy Group
NARO	National Agricultural Research Organisation
NFG	National Forum Group
NGOs	Non-government Organisations
NIDA	Nkoola Institutional Development Associates Ltd.
NRIL	Natural Resources International Ltd
NRI	Natural Resources Institute, University of Greenwich
NUSAF	Northern Uganda Social Action Fund
PCT	Presidential Commission for Teso
PAP	Poverty Alleviation Project
PEAP	Poverty Eradication Action Plan
PMA	Plan for Modernization of Agriculture
PM&E	Participatory Monitoring and Evaluation
PRA	Participatory Rural Appraisal
RO	Regional Office, Crop Post-Harvest Programme
RTS	Rural Transport Services
RTTP	Rural Travel and Transport Programme
SAARI	Serere Agricultural and Animal Production Research Institute
SOCADIDO	Soroti Catholic Diocese Development Organisation
SRI	Silsoe Research Institute
SSATP	Sub -Saharan Africa Transport Program
TFG	Transport Forum Group, Kampala
TRAP	Technology for Rural Animal Power

TRL	Transport Research Laboratory Ltd
UNATCA	Uganda Network for Animal Traction and Conservation Agriculture
UNFFE	Uganda National Farmers Federation
UNHS	Uganda National Household Survey
UPPAP	Uganda Participatory Poverty Assessment Project
USAID	United States Agency for International Development
WFP	World Food Programme
YWAM	Youth with A Mission, Katakwi

Exchange Rates

£1 = USh3,100

$1 = USh1,750

(December 2004)

Section A Executive Summary

In order to achieve the project purpose "Strategies developed and promoted, which improve food security of poor households through increased availability and improved quality of food and better access to markets" the following outputs have been produced:

- Capacity for Transport Forum Group offices to manage and backstop rural transport development research projects at national and regional level;
- Knowledge and information on agricultural production, post-harvest and marketing, economics and technical aspects of IMTs and their use by poor farmers, and poor farmers' livelihoods in three districts;
- Best practices on promotion of validated means of transportation.

The project had a strong emphasis on partnership building amongst the project coalition members. The Kampala based Transport Forum Group played a lead role in coordinating project activities involving farmer groups, intermediary organisations in the three districts (i.e. Iganga, Kasese, and Katakwi), and international research institutes (i.e. Knowledge Providers) such as the Natural Resources Institute, TRL Ltd., and Silsoe Research Institute. The principal project activities included the following: Organisation of kick-off workshop; baseline study using participatory and quantitative methods; training of artisans in Kenya; project review; Golden Milestone workshop at the beginning of phase II of the project; Acquisition and distribution of Intermediate Means of Transport (IMTs): participatory monitoring & evaluation of IMTs and partnership arrangements by farmer groups: organisation of quarterly partnership meetings; final project workshop; and dissemination activities.

The project was able to demonstrate the usefulness and also economic viability of the IMTs tested, i.e. oxen and ox-carts, donkeys as pack animals, and donkey carts. Ploughs have been distributed to farmers taking into account the multi-purpose function of most IMTs and the potential to increase agricultural production. In addition, the NGO FABIO distributed bicycles in areas of the project where they were relatively uncommon. All IMTs were used for transporting crops as well as for domestic purposes such as carrying water, thereby relieving women from transport chores requiring headloading.

The IMTs were given to the groups as part of a risk sharing agreement whereby the farmers paid 60% of the cost price of the animals and equipment on a loan basis, whilst the project covered the remainder. The reimbursements made by farmers fed into a revolving fund to be used for future purchases of IMTs after the project had finished. For very poor farmers, especially in Kasese District, it was accepted that they passed on the first foal to another beneficiary in lieu of payment. Farmer groups had reimbursed approximately 50% of their loans when the project came to an end in December 2004. At the final project workshop, the participants made a number of recommendations such as uptake of project findings by Local Government departments; provision of adequate credit for the purchase of IMTs; increased use of IMTs for commercial purposes so that loans could be paid back quicker; and better veterinary services at community level.

Besides workshop and monitoring reports, the project partners have produced publications for wider dissemination such as a project brief which was disseminated worldwide to members of the International Forum for Rural Transport and Development (IFRTD), and a paper has been published in the Uganda Journal for Agricultural Sciences.

Section B Background

B.1 Administrative data

NRIL Contract Number: ZB0294	Managing Partner Institution: Natural Resources Institute, University of Greenwich;
DFID Contract Number: R8114	Partner institutions: Transport Forum Group, Uganda; Transport Research Laboratory, UK; Silsoe Research Institute, UK; Intermediary organisations at District level in Uganda, i.e. MTCEA (Iganga), KFP (Kasese), YWAM (Katakwi); Artisans and farmer groups in Iganga, Kasese, and Katakwi Districts.
Project Title: Improved food crop marketing through appropriate transport for poor farmers in Uganda	Target Institution(s): Central Government Organisations (PMA, NAADS); Local Government Departments; Other intermediaries and service providers in Uganda (e.g. NGOs such as Sasakawa Global 2000); International intermediaries and users of new knowledge (e.g. International Forum for Rural Transport and Development).
Research Programme: Crop Post-Harvest	Start Date: 1 April 2002 End Date: 31 December 2004
Thematic area: Agricultural Marketing / Rural Transport	Budget (i.e. Total Cost): £296,987

Section C Identification and design stage

Poverty focus

The poverty focus of the project was both enabling and focussed, in that it addressed an issue that is important for local economic growth (i.e. rural transport), and also affects the rights, interests and needs of poor people primarily.

The findings of the baseline survey carried out in the first phase of this project highlight the fact that the majority or farmers in the three target districts are small-scale producers with limited access to livelihoods resources such as land or animals. In particular, farming in Kasese District is characterised by small plots of land located in remote parts in mountainous terrain. Nevertheless, although their access to land may be slightly better, the majority of farming communities in Iganga and Katakwi can equally be classified as poor.

According to the Plan for Modernisation of Agriculture 'Poverty is mainly a rural phenomenon as 48% of the rural population are below the absolute poverty line', i.e. poverty is primarily a rural problem.

Either lack of available transport or high cost were indicated by the majority of male and female villagers interviewed as part of the baseline survey as their main household travel and transport problems (i.e. 71% to 98%). This is reflected in the degree to which farmers use human porterage for transport of crops from the field to the home and from there to the market (i.e. the vast majority). Women, especially, carry heavy loads of produce.

As already indicated, farmers in Kasese District are particularly affected by remoteness in that vehicle use is very limited in the hilly parts of the District. Practically, all the farmers living in the mountains are considered to live in remote areas.

Although bicycles are used in Iganga and Katakwi District this mode is only suitable for transporting small loads over relatively short distances. As agricultural production becomes more advanced and commercialised this mode of transport represents a constraint for the development of the farming system. Ox-carts are more suitable and cost-effective for heavier loads and longer distances.

According to the Uganda Participatory Poverty Assessment Project (UPPAP), lack of market access is one of the principal causes of poverty in the country. The project is attempting to alleviate this particular livelihoods constraint through providing farmers with appropriate means of transportation with which they can access agricultural markets.

At the same time, although the project has a strong focus on marketing activities and related transport requirements it is important to consider the means of transportation to be tested as being multi-purpose. In addition to marketing, farmers require transport for agricultural production activities, domestic purposes and other income generating activities (IGAs). In order to be economically viable for farmers, the means of transportation needs to be used for as many purposes as possible, including hiring them out.

Gender issues. According to the baseline study, both men and women are involved in the production and sale of agricultural crops. However, it appears that men are

more likely to be in charge of selling higher-value food crops or traditional cash crops.

Household assets and resources tend to be controlled by men in that household heads are considered to be the owners of the assets. The baseline survey revealed that asset ownership by women is only more prevalent in the case of female headed households.

Women are particularly affected by the availability of transport or the lack of it, in that they spend substantial amounts of time for domestic and agricultural transport. In particular, this involves human porterage (e.g. head or backloading) of heavy loads (e.g. 30kg and more) over long distances.

The use of donkeys has been identified as a means of transportation to alleviate women from carrying heavy loads especially in mountainous areas such as Kasese District. As experience shows from other parts of sub-Saharan Africa these animals can be easily handled by women.

The use of oxen and ox-carts tends to be a male domain in many countries including the parts of Uganda where they are already used (e.g. Teso). However, it is expected that their introduction will indirectly alleviate the transport burden for women in that more household transport needs will be covered by carts. In addition, women or women groups may be able to hire ox-cart transport for productive purposes.

Institutional design

Project related ideas were first developed at the East African Agricultural Stakeholders Workshop that took place in Thika, Kenya in 1997 with DFID/CPHP funding. In addition, research findings of another CPHP project (R7148, Community Access to Marketing Opportunities – Options for Remote Areas) pointed to the importance of reduced transport costs if agricultural marketing systems were to be improved.

The project was subsequently developed following a call for concept notes and proposals by CPHP in 1999. One of the areas of the call requested researchers to focus on improved food crop marketing and on appropriate means of transport for poor farmers, resulting in a project concept note entitled “Improved Food Crop Marketing through Appropriate Transport for Poor Farmers in Uganda”. Attempts were made during the early stages of the project to develop a relatively wide project partnership coalition involving the International Forum for Rural Transport and Development (IFRTD) and its Uganda based network partners, as well as the Transport Research Laboratory (TRL).

For reasons of transparency and improved project design, visits to the United Kingdom by Dr C K Kaira of the Uganda Transport Forum Group and Dr Pascal Kaumbutho of Kendat were organised by CPHP management in 1999. This resulted in a full proposal which included the following core partners: Natural Resources Institute, Transport Forum Group, Transport Research Laboratory, and Silsoe Research Institute.

The project was approved for funding in early 2002 and project activities commenced in earnest with a Kick-off workshop in May 2002, in Jinja, at which local partner organisations were identified and districts where the research was to take place. Originally, the following districts were selected using criteria such as crops grown,

agricultural potential, and natural environment: Kasese, Katakwi and Pader Districts. Following the insurgency in Northern Uganda project activities had to be shifted to more southern Districts, as a result of which Iganga was included at the expense of Pader District.

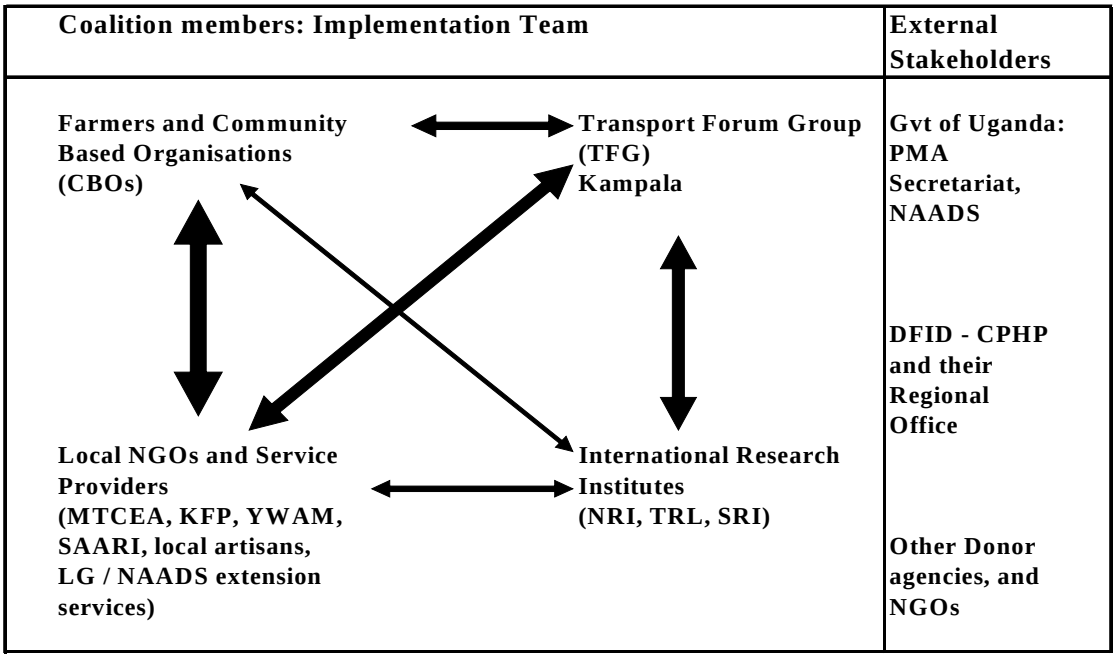
During the course of the baseline study in 2002/03, partnerships with district based intermediary organisations were further developed. In particular, these organisations included Multi-purpose Training and Community Empowerment Association (MTCEA) in Iganga, Karughe Farmers Partnership (KFP) in Kasese, and Youth with a Mission Design Centre (YWAM) in Katakwi. In parallel, contacts were established with local government and farming communities in three sub-counties in each of the three districts. Figure C.1 depicts the stakeholder relationships as designed for Phase II of the project.

At the project review in February 2003 it was highlighted that the project should have a stronger focus on partnership building, livelihoods issues, and participatory approaches. Also, it was suggested that TFG should play a stronger role in project co-ordination and management. A major part of the Golden Milestone Workshop in July 2003 was therefore dedicated to the identification of project partners' precise roles and their expectations of the project, as well as the design of a participatory monitoring and evaluation system.

The building of capacity in local institutions became increasingly prominent during the course of the project. Whilst during the first project year this involved contributions to TFG infrastructure and training in PRA, the CPHP Regional Office played a stronger role in phase two of the project especially with regard to participatory monitoring and evaluation (PM&E).

In particular, the partnership meetings, which were organised on a quarterly basis, proved an important venue for the exchange of information and networking with project partners.

Figure C.1 Coalition Framework for Research Project - Improved Food Crop Marketing Through Improved Transport For Poor Farmers in Uganda



Source: Kleih and Kaira, 2003, Proposal for Phase II of project R8114.

Section D Implementation process

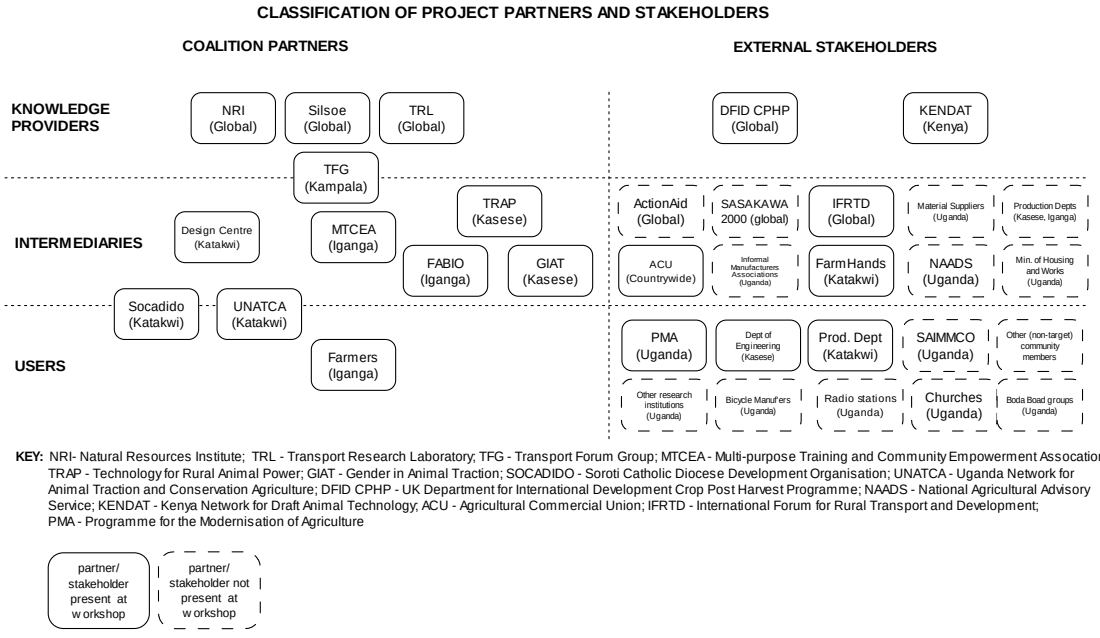
As indicated above, partnership building and the use of participatory tools were developed during the course of the baseline study that formed the major activity during the first project year (i.e. Phase I). This resulted in the identification of local government departments, intermediaries, and farmer groups at sub-county level that were interested in participating in the project.

In view of the reviewers' comments of February 2003, the Golden Milestone workshop in July 2003 emphasised the identification of project partners and stakeholders as well as their respective roles in the project. In particular, the following steps were carried out at the workshop to achieve this objective:

- Clarification of the project's aims;
- Identification and classification of partners and stakeholders;
- Partners' and stakeholders' contributions;
- Roles and responsibilities of coalition partners;
- Coalition partners and stakeholders' interrelationships.

Figure D.1 shows the project coalition partners and external stakeholders, as well as their classification according to Knowledge Providers, Intermediaries, and Users.

Figure D.1 Classification of Project Partners and Stakeholders at Golden Milestone Workshop



KEY: NRI- Natural Resources Institute; TRL - Transport Research Laboratory; TFG - Transport Forum Group; MTCEA - Multi-purpose Training and Community Empowerment Assocation; TRAP - Technology for Rural Animal Power; GIAT - Gender in Animal Traction; SOCADIDO - Soroti Catholic Diocese Development Organisation; UNATCA - Uganda Network for Animal Traction and Conservation Agriculture; DFID CPHP - UK Department for International Development Crop Post Harvest Programme; NAADS - National Agricultural Advisory Service; KENDAT - Kenya Network for Draft Animal Technology; ACU - Agricultural Commercial Union; IFRTD - International Forum for Rural Transport and Development; PMA - Programme for the Modernisation of Agriculture

Source: Kwamusi et al, Report of Golden Milestone Workshop, July 2003.

Table D.1 describes the relationships amongst the core coalition team, including CPHP RO, from the viewpoint of the stakeholder in the top-row relating with the stakeholder in the left-hand column. The relationships described in the table are largely self-explanatory. Table D.2 provides an overview of the contributions made by each project partner.

Table D.1: Map of Stakeholder Relationships

	Farmers and CBOs	**Local Intermediaries, i.e. MTCEA, KFP, YWAM**	**Transport Forum Group**	**International Knowledge Providers**	**CPHP**
Farmers and CBOs		Participation in initial baseline work; Support of farmer groups through advice or provision / sale of IMTs PM&E activities.	Initial baseline work, Contact when distributing IMTs; Periodic PM&E activities	Initial exchange of information during baseline survey (characterisation and contextualisation)	N/A
Local Intermediaries, i.e. MTCEA, KFP, YWAM	Request for (paying) services Sharing of ideas and needs in PM&E		Initial selection and sensitising; Contractual agreement for distribution of IMTs in collaboration; Partnership for rural transport; Joint PM&E	Discussions and consideration, during baseline study, and workshops; Joint evaluation exercises Training in PM&E	Assistance in setting up PM&E system
Transport Forum Group	Sharing of ideas and needs in PM&E	Partnership for rural transport; Communication of information from farmers; Joint PM&E activities		Contractual agreement between NRI and TFG, strategic guidance and training by NRI, TRL, and SRI	In-country guidance through Regional Office (RO), Assistance in establishing PM&E system
International Knowledge Providers	Exchange of information; Request for specific forms of assistance	Initial discussions and considerations; Exchange of information	Joint determination of actions, contractual arrangement; Lesson learning and feedback		Contractual agreement between CPHP and NRI; provide guidance, obtain feed-back
CPHP	N/A	Exchange of views in project partnership meetings	Provision of feed-back; Sharing of lessons	Account for project outputs, Provide feedback on lessons to share	

Table D.2: Contributions of coalition members to the project

Stage of Research Process	Coalition member	Contribution to project
Identification (CN stage)	NRI and TFG	Jointly prepared concept note, in consultation with TRL
Design and development (PMF stage)	NRI and TFG	Jointly prepared project memorandum in consultation with TRL, SRI, and Kendat
Implementation and Monitoring	TFG,	TFG provided co-ordination with regards to project implementation and participatory monitoring. This included a leading role in the baseline study and inputs on the ground during the distribution of IMTs, organisation of training events, and participatory monitoring exercises. Compiled data generated during baseline survey and participatory monitoring exercises.
	Local Intermediaries (i.e. KFP, YWAM, MATCEA) and Service providers (e.g. artisans, vets)	Local NGOs and service providers supported farmer groups in acquiring, using and testing newly acquired means of transportation. This includes training of farmers groups.
	Farmers / Community Based Organisations	Participatory monitoring was mainly undertaken by farmer groups in partnership with the above named District based Intermediaries
	International Knowledge Providers (i.e. NRI, TRL, SRI)	Intl. research institutes provided strategic guidance, training, and contributed to the analysis / preparation of project outputs. NRI had management role.
Evaluation	TFG,	TFG provided co-ordination with regards to participatory evaluation, including contributions on the ground in partnership with local Intermediaries and farmer groups. TFG compiled data generated.
	Local Intermediaries (i.e. KFP, YWAM, MATCEA)	Local NGOs have undertaken participatory evaluation in partnership with farmer groups and TFG

	Farmers / CBOs,	Participatory Evaluation was mainly undertaken by farmer groups in partnership with the above District based Intermediaries and TFG.
	International Knowledge Providers (i.e. NRI, TRL, SRI)	Intl. research institutes provided strategic guidance, training, and contributed to preparation of project outputs.
Dissemination and Up-take of knowledge	TFG, Intermediaries	TFG and local Intermediaries are active with a view to enhance up-take of project results to the benefit of poor farmers. This may include search of new partnerships such as the TFG submitting a proposal for funding of donkey health care and training, and MTCEA identifying new potential partners that are interested in Intermediate Means of Transport.
	International Knowledge Providers	These organisations contribute in the dissemination of project findings at national and international levels, for example, through contributions to development journals (e.g. Uganda Journal of Agricultural Sciences),
	CPHP RO	CPHP and their Regional Offices are well placed to disseminate project findings as part of their networks. Equally, it is expected that DFID will take on board the findings of the project and make them more widely available through their communication channels.
	External stakeholders: PMA Secretariat, NAADS, MAAIF	Government organisations such as PMA Secretariat, NAADS, and MAAIF have a crucial role to play in the up-take of the project findings. As a result, these organisations have been consulted and briefed regarding project progress and results. This included their participation in workshops and fieldwork.
	Local Government Departments	The project involved LG Departments from an early stage. This included Production Department, Veterinary Services, and Engineering and Civil Works. In addition, it was highlighted that presentations should be made to local council (LC) committees that take political decisions at that level.
	Development partners	Development partners such as the Belgian Development Corporation in Kasese are important as far as funding of follow-on initiatives and up-take of findings are concerned.

	NGOs (e.g. SG 2000)	In addition to district based Intermediaries and NGOs that were directly involved in the project, other NGOs are equally important in regard to knowledge up-take. For example, a representative of Sasakawa Global 2000 participated in the final project workshop and expressed keen interest in the project process and technology developed.
	IFRTD	IFRTD have distributed a project brief to approximately 3,000 members of their global network.

Changes during the project implementation phase

Though partnership building did not explicitly form part of the original project design and was only conceived in the second year, it became an important objective of the project. Partnership building was seen as a tool for sustainability of the project relating to the uptake of IMTs even after the expiry of the project.

In order for the project team to develop action research capacity especially concerning participatory rural appraisal (PRA) and participatory monitoring and evaluation (PM&E), support in the form of training and otherwise was provided by NRI and the CPHP Regional Office.

Another method used in achieving the partnership building process, quarterly partnership meetings where the stakeholders and farmers would meet to share their experiences and agree on the way forward was introduced. This proved successful. In addition to networking between the above project management team, there was strong partnership building with external stakeholders.

Overall, the project coalition gradually increased throughout the life of the project. In particular CPHP Regional Office and Local Government departments became more closely involved with the project during its second phase. The Serere Agricultural and Animal Production Research Institute (SAARI) were more involved in phase I of the project, but less so in phase II due to other commitments.

Section E Research Activities

Table E.1 provides an overview of the different activities carried out by the project, time-frame, and responsibility. The table is followed by a summary of each of the activities including selected findings.

Table E.1: Activities Carried out as part of Research Project - Improved Food Crop Marketing Through Improved Transport For Poor Farmers in Uganda

Activities	Time-frame	Responsibility
Assistance to the Uganda Transport Forum Group for Rural Transport and Development to set up a local office	April 2002 – December 2004	Transport Forum Group (TFG), Uganda, and Natural Resources Institute
Capacity building in the form of: Strengthening of existing networking mechanisms and creation of new linkages within Uganda and with international partners	April 2002 – December 2004	TFG and partners
Kick-off workshop - Identification of project partners; - Identification of research areas - Discussing and agreeing approaches and methodologies	May 2002	TFG, NRI, TRL 20 primary and secondary stakeholders
Exchange visits by TFG members to similar CPHP funded projects in Ghana and Kenya	Three visits to Kenya in years 1 and 2; and one visit to Ghana in year 1	TFG, in co-ordination with partners in Kenya (Kendat) and Ghana
Baseline study involving, amongst others: - Participatory Rural Appraisal (PRA), - Questionnaire survey, - On-the-job training, - Data analysis and report writing.	August 2002 – March 2003 Report finalised in May 2003	TFG, Local Intermediary Organisations, NRI, Transport Research Laboratory, Silsoe Research Institute, LG Departments
Acquisition of small batch of IMTs and dissemination, including training	Dec. 2002 – January 2003	TFG, Local Intermediary organisations, LG Departments
Training of Ugandan artisans in cart manufacturing in Kenya	January 2002	5 artisans, TFG, Triple W Engineering, Kenya
Review of project	February 2003	2 CPHP appointed reviewers

Start of Phase II Golden Milestone Workshop, Iganga: - Presentation and validation of baseline study findings; - Prioritising of IMTs to be tested; - Preparation of participatory monitoring and evaluation (PM&E) system - Identification of responsibilities and resources, as part of partnership arrangements	July 2003	Organisation by TFG and NRI Participation: 45 primary and secondary stakeholders
Training of stakeholders in participatory monitoring and evaluation	July 2003 (3 days, immediately after workshop)	NRI trainer, TFG, Local Intermediaries
Paper on Experiences with Intermediate Means of Transport	Late 2003 / early 2004	Transport Economist; Transport Research Laboratory Ltd. (TRL)
Acquisition of IMTs to be tested	August 2003 – March 2004	Co-ordination: TFG Manufacturing of carts: local artisans who have been trained in Kenya; Acquisition: Intermediary organisations KFP, MTCEA, YWAM.
Distribution of IMTs	September 2003 – April 2004	Co-ordination: TFG Distribution of IMTs and training of farmer groups: Intermediary organisations KFP, MTCEA, YWAM. In addition, the Jinja based NGO FABIO joined the project partnership and disseminated bicycles using their own funds
Participatory Monitoring	September 2003 – November 2004	Co-ordination: TFG Collection of field data: Farmer groups in partnership with the MTCEA, KFP, and YWAM; Back-up support: CPHP RO and LG (e.g. animal health care)
Periodic partnership meetings involving entire monitoring team.	Sept. 03, Jan. 04, May 04, Sept. 04	TFG, CPHP RO, MTCEA, KFP, and YWAM, Farmer group representatives NRI and TRL (one meeting)
Evaluation surveys	July - September 2004	TFG, NRI, TRL, Silsoe (D O'Neill) Local Intermediaries MTCEA, KFP, and YWAM
Compilation and analysis of data	October – November 2004	TFG, NRI, TRL, Silsoe
Final project workshop	December 2004	Organisation: TFG Participants: National and international primary and secondary stakeholders
Dissemination of findings, networking and raising of awareness of project	On-going: between July 04 and 2005	TFG, NRI, IFRTD e.g. Project Up-date in IFRTD Newsletter; Paper for NARO Conference

Summary of main research activities

Assistance to the Transport Forum Group – Capacity Building

Assistance to the Transport Forum Group, in order to establish a local office, took place in the form of funding an Administrator, acquisition of computer equipment, and payment of rental and communication costs.

At the same time, the project has also enabled TFG to strengthen its existing networking mechanisms and the creation of new linkages within Uganda and with international partners. This included capacity building through on-the-job training as part of field activities such as participatory rural appraisal (PRA), and participatory monitoring and evaluation (PME).

The Kick-start Workshop

The Kick-Start Workshop was held 27th-28th May 2002 in Jinja at the Sunset Hotel International, Uganda. The main purpose of the workshop was to involve key stakeholders and all members of the core research team in planning the baseline study in detail. Given the similarities between the KENDAT-led and the NRI-led projects and the fact that the former will be crossing over into Uganda, the workshop was jointly held in Uganda together with the team of the KENDAT-led project. The workshop was attended by 21 stakeholders representing a wide range of sectors touching on rural transport in Uganda. The workshop was held immediately following the International Conference on Animal Traction and Conservation Agriculture, which was also attended by Dr. Kaira, Research Coordinator, Transport Forum Group, and Mr. Kleih, Research Team Leader, NRI. This proved crucial for the success of the Kick-Start Workshop as most of the stakeholders were identified at the Animal Traction workshop. Prior to that Dr. Kaira had attended the Kick-off Meeting of the parallel project in Kenya from 6th to 8th May 2002.

The specific objectives of the Kick-start Workshop were to:

a) Involve key stakeholders and all members of the core team in planning the baseline study
b) Brief the stakeholders on the research background, objectives, activities and outputs
c) Brainstorm on research site selection (district, community, project)
d) Review the research methodology, instruments & Intermediate Means of Transport (IMTs) for testing and monitoring among poor rural farmers
e) Work out collaboration arrangements with stakeholders for production, testing, distributing and monitoring of IMTs for poor rural farmers
f) Share experiences on rural transport and exploring possibilities for networking.

District Selection. The criteria used in selecting three districts for research sites included but were not limited to factors such as different farming conditions in Uganda, relative potential demand for IMTs by poor rural farmers, on going projects that require IMTs to enhance their socio-economic impacts, poverty eradication and sustainability and lastly, adequate local collaborative capacity to allow for cost-effective monitoring over the research period. Four farming conditions/systems were considered to include Teso, Lango, mountainous and banana systems. Participants of the Kick-start Workshop added other criteria necessary in assisting in site selection as follows:

- Distance to small, medium and large markets.
- Areas emerging from insurgency.

- Population density and level of socio-economic activity.
- Diversity of IMTs.
- Topography and terrain.

Based on these criteria, Kasese, Katakwi, and Pader Districts were chosen by the workshop participants as part of a scoring exercise. Unfortunately, due to security problems, Pader District had to be dropped, and was subsequently replaced by the research team by Iganga District, which was deemed a suitable district, also in terms of geographical spread.

Exchange visits by TFG members to Ghana and Kenya.

Dr Kaira attended the Kick-start workshop of the CPHP funded project "Agricultural Rural Transport Services Project" which was led by the Kenya Network for Draught Animal Technology (KENDAT), and the final workshop of the project "Action Research Project on IMTs" in Ghana which was led by the University of Durham and local partners.

Mr Kwamusi attended the Golden Milestone workshop organised by the KENDAT led project in July 2003. In addition, TFG staff arranged an exchange visit for Ugandan farmers in Kenya, which included a visit by Ms H Iga.

All these visits allowed the TFG members to network with other African organisations that have a similar interest in Intermediate Means of Transport (IMTs).

Baseline study

Rationale and Aims. In view of the project's objective, to improve food crop marketing through appropriate transport for poor farmers, the initial investigative studies of the baseline survey were designed with two primary objectives:

- To understand the profile, status and needs of target communities in the context of farming systems and the aligned rural transportation provisions.
- To generate data as a basis upon which the performance and impact of the project can be assessed over the life of the project and beyond.

It was recognised during the design phase of the project that in order to develop an inclusive and informed basis upon which strategic action-research interventions could be made, partnerships would need to be formed with institutions and individuals at various levels. Thus, a further sub-objective of the investigation was developed;

- To identify key stakeholders at international, national, district, sub-county and community levels as a basis for design and implementation partnerships.

Objectives. In view of these aims, a number of specific investigation objectives were determined based on a review of similar initiatives conducted in Uganda and elsewhere, and refined during the stakeholder workshop at the beginning of the project.

It was recognised that the relationship between appropriate transportation, improved crop marketing, and improved rural livelihoods is not a singular or linear endeavour, but consists of numerous complex factors, affected by a wide variety of tangible, material and non-material and less tangible or visible factors. In view of developing a reasonable basis upon which strategic interventions could be made, the study objectives were split into two tiers:

(a) To gain a broad understanding of the context in which food marketing and rural transportation are situated. This includes (i) an understanding of rural household livelihoods in the target communities structured around the Sustainable Livelihoods (SL) pentagon: physical, financial, natural, human and social capital assets, (ii) an understanding of the institutional context: district and infrastructural services.

(b) To gain a specific and detailed understanding of food crop marketing and transportation structures, systems, priorities and needs within the target communities.

By detailing the objectives in two tiers, the aim was to keep the focus on the aims of the project (namely the food crop marketing and transportation requirements), whilst identifying clear links with the household livelihood, and institutional contexts.

Approach. Given the breadth of the aims and objectives, the approach was designed through a series of phases. The schematic presented in Figure E.1 illustrates the process, initiated through the kick-start workshop (see above) to discuss the priority areas for investigation. This led to a series of systematic steps of designing the methods, contextual reviews and the formation of stakeholder groups drawn from government, NGO, CBO and private sector parties at the district level. On the basis of discussions through these fora, investigation sites were selected, priorities and methods refined, and studies conducted. Information gathered, including communities priorities, have been synthesised as a basis for identifying further key areas for investigation, and potential action-research entry points.

A broad range of methods were selected depending on the objectives, the level of data collection (district to household), time requirements and staff skills and availability. The decision to employ a particular method was determined by the variety of outputs required and inputs (staffing, time and finance) available. It is important to note that each method did not yield a finite data set. For the purpose of this survey, using methods devised that merged quantitative and qualitative techniques, a mix of contextual and non-contextual data was attained. To ensure the quality of the data gathered methodological triangulation was applied during the research process. This was particularly important to verify statements made by research participants in focus group discussions or key informant interviews. Triangulation was used to ensure that such statements, whilst useful to illustrate particular points and issues, were not taken as facts unless corroborated by cross correlation with other data. Table E.2 outlines the research topics and the variety of methods used.

Figure E.1 Approach Schematic – Baseline study

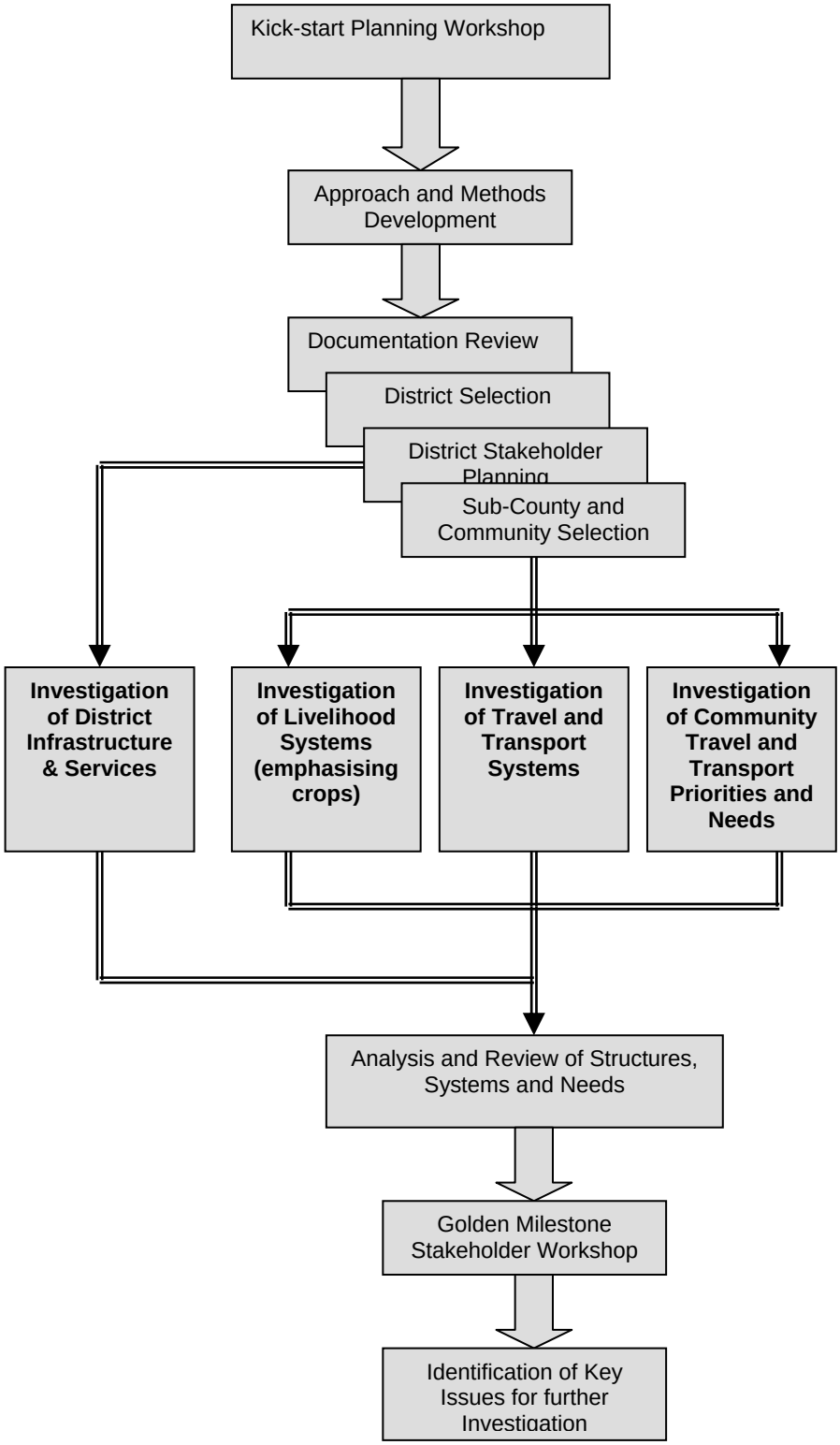


Table E.2 Triangulation of Methods used in Baseline Study

Research Topics	Methods
Basic Transport Issues	TKU/ KI/ HHQ
Farming Systems and Livelihoods Issues	BLR/ SC/ KI/ RTT/ HHQ
Village, Regional Infrastructure and Services	KI/ TW/ SSI/ HHQ
Travel Information	DAP/ HHQ
Income Generating Activities and Transport	IGA/ RRT/ HHQ
Intermediate Means of Transportation	IMTC/ HHQ

Key: BLR – Background Literature Review; TKU – Transport Knowledge and Use Participatory Rural Appraisal; RTT –Resource, Travel and Transport Participatory Rural Appraisal; IGA – Income Generating Activities Participatory Rural Appraisal; DAP – Daily Activity Profile; KI – Key Informant discussions; TW – Transect Walk; SC – Seasonal Calendar; IMTC – Intermediate Means of Transportation Case Study; SSI - Semi-Structured Interviews; HHQ – Household Questionnaire Survey

Process. District Selection. The criteria used in selecting three districts for research sites included but were not limited to factors such as different farming conditions in Uganda, relative potential demand for IMTs by poor rural farmers, on-going projects that require IMTs to enhance their socio-economic impacts, poverty eradication and sustainability and lastly, adequate local collaborative capacity to allow for cost-effective monitoring over the research period. Four farming conditions/systems were considered to include Teso, Lango, mountainous and banana systems. Participants of the Kick-start Workshop added other criteria necessary in assisting in site selection as follows:

- Distance to small, medium and large markets.
- Areas emerging from insurgency.
- Population density and level of socio-economic activity.
- Diversity of IMTs.
- Topography and terrain.

Based on these criteria, Kasese, Katakwi, and Pader Districts were chosen by the workshop participants as part of a scoring exercise. Unfortunately, due to security problems, Pader District had to be dropped, and was subsequently replaced by the research team by Iganga District.

Sub-County and Community Selection. The study targeted two levels of aggregation as a basis for data collection on the travel needs and utilisation, and transport for food produce marketing. First was the district headquarters, as the centre of institutional and service provision, including district government departments, non-governmental agencies, credit organisations, and transport/ crop marketing companies.

Secondly, the community component of the study focused on three sub-counties (LC3s), selected on the basis of a set of criteria. Firstly, representativeness of the farming systems within district, to ensure the study covered each major system. Secondly, strong agricultural potential, on the basis that improved transportation would be of greatest immediate benefit to those communities/ households that are currently producing an agricultural surplus and/or cash crops. Thirdly, representative accessibility, in order to accurately reflect not only those with good potential access to markets, but also those with less good access.

On the basis of these pre-determined criteria, staff from the district administration's agriculture department and the study team selected three sub-counties. Within each, one village was selected, on the basis of representativeness of the sub-county, for conducting a one-day rapid participatory rural appraisal.

Study Implementation. Implementation of the major part of the study took place in two phases. The first phase was conducted through one-week missions to each of the target districts during September and October 2002. Draft reports were written on the basis of these missions, with two specific aims, i.e. (a) to draw out the main issues on farming systems, transportation structures and local priorities, and (b) to highlight gaps and issues to be investigated in the second phase study.

The second phase of the baseline study focused on livelihoods, transportation and linkages between the two, administered through a structured household questionnaire survey. Whilst addressing issues raised by the findings of the first phase of studies, the household study aimed to investigate a number of issues at that unit of account, using a sufficiently large sample size to be able to be statistically confident of the findings.

The sampling for the household survey was based on the selection of sub-counties and communities during the first phase studies. Three communities were selected from each sub-county, one being the previously selected, followed by two neighbouring ones or communities with similar characteristics. With three sub-counties in each district, a total of nine villages were selected from each district, thus 27 across the three districts. Stratification within each community was based upon random selection, with approximately 15 households surveyed in each. The total sample size across all three districts was 397 as indicated in Table E.3.

Table E.3 Survey Locations

District	Sub-Counties	Accessibility	No of Households Interviewed
Iganga	Ivukula	Medium	45
	Bukanaga	Good	45
	Makutu	Remote	44
Kasese	Kyabarungira	Mountains, poor access	43
	Mahango	Mountains, poor to medium access	45
	Nyakiyumbu	Mountains and flat terrain, variable access	42
Katakwi	Asamuku	Good	44
	Orungo	Remote	45
	Kapujan	Medium	44
Total			397

The household survey, conducted during November and December 2002, was managed by one member of the study team (i.e. Ms H Iga). Enumerators with previous experience of conducting household questionnaire surveys were selected and trained within each district, to ensure they spoke the "requisite" language. The data was entered into a Microsoft Access spreadsheet, and then transferred to SPSS for statistical analysis.

Data Quality Evaluation and Research Process Limitations. Whilst discussions in advance of implementation identified the limited time and potentially broad nature of the investigation, it was found that many anticipated method and process limitations were offset by the complimentary range of expertise of the research team and the early examination of the problems experienced by researchers involved in qualitative research in Uganda. This reduced the risk of problems usually associated with PRA such as:

- Lack of attendance at the community meetings due to other commitments. Although it would have been ideal to schedule these at the start of the first day of the study process for participatory assessment and guidance purposes, community meetings were scheduled according to the community's requirements.

- The monopoly of community or focus group meetings by certain members of the community.

- Community expectations – although simply by being there expectations were initially raised, the team at many junctures explained their presence and the project in a manner that limited problems associated with raised expectation.

Due to the anticipation of and arrangements made for some of these predicted problems it is believed that the quality of the data collected is high. However, some factors were beyond the study team's control, which has resulted in process problems and quality limitations of the data (e.g. time restrictions, varying levels of attendance at PRA sessions).

Summary of findings of the baseline study[1]

Household livelihoods. Group membership is considered a main social capital asset in that it provides members with easier access to other assets (e.g. micro-credit) or offers protection in times of hardship. Overall, the membership in groups is relatively low. Only membership in credit groups (32% in Kasese) and in IGA groups (31% in Katakwi, and 15% in Kasese) stand out. As for membership in agricultural production and marketing groups, this stands at 1% in Iganga, 11% in Kasese, and 3% in Katakwi[2]. This confirms the findings of the PRA during the course of which it was found that the majority of households conduct their farm and non-farm activities on an individual basis and may engage in social and / or economic group-based activities on a periodic basis. At the same time it is worth pointing out that group formation is strongly encouraged by Government of Uganda (GoU) and Non-governmental Organisations (NGOs) alike. As a result, new groups are currently being created in the villages on a regular basis.

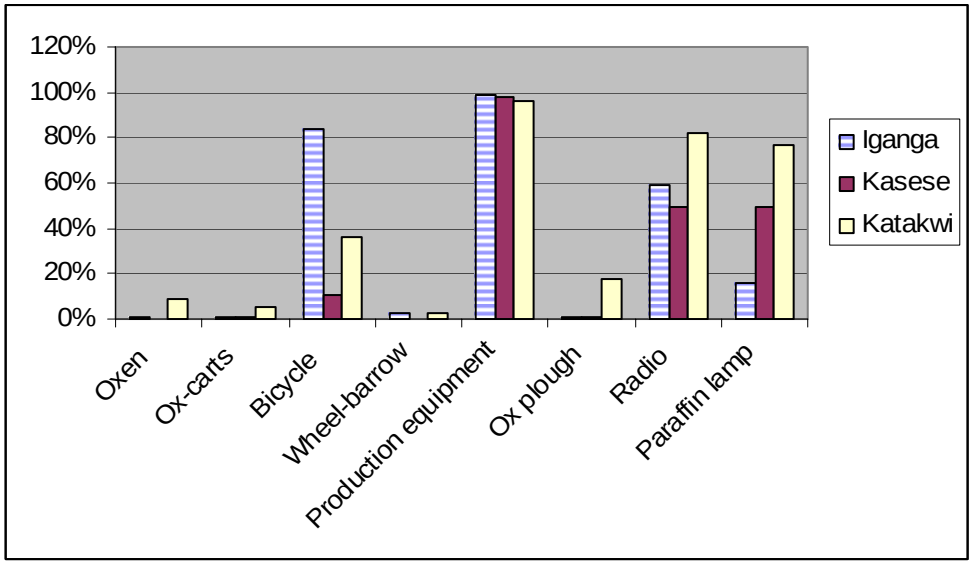
As for access to land, the average acreage cultivated by households during the period of November 2001 – October 2002 (i.e. 12 months prior to the survey), is of the order of 2.8 acres in the case of Kasese, 3.6 acres in the case of Iganga, and 4.0 acres in the

[1] This is largely based on a paper which was submitted to the Conference of the Uganda National Agricultural Research Organisation (NARO) in September 2004, and which was subsequently published in the Uganda Journal of Agricultural Sciences:
Kleih, U., Kaira, C., Iga, H., Kwamusi, P. (2004) Rural Transport and Livelihoods in Uganda; pp56–63; Vol.9 No.1 September 2004, ISSN 1026-0919.

[2] To some extent, this might have been due to the selection of the villages surveyed in that it was found that NGOs such as Sasakawa Global 2000 and NALG (both in Iganga), and ActionAid (Katakwi) are quite active in forming groups in other parts of these Districts. Also, due to Government efforts in this area, group formation is likely to have increased since the survey was carried out.

case of Katakwi. In particular, Kasese has a high proportion of villagers cultivating on two acres and less. The variation in acreage cultivated mainly reflects demographic pressure in the study area.

Figure E.2 Percentage of Households Owning selected IMTs, and other Goods



Bicycles are the main IMT and one of the principal physical assets owned by the households surveyed. Especially Iganga has a high ownership of bicycles (i.e. 84% in total), which is likely due to its location as a major trading centre between Kampala and Kenya. Katakawi District also has a reasonable degree of bicycle ownership (i.e. 36%), whereas it is limited in Kasese District which is primarily due to the mountainous terrain (Figure E.2).

No ownership of donkeys, donkey carts, tractors and trailers, cars and pick-up trucks was found. The ownership of bicycle-trailers and wheel-barrows is very limited. The use of oxen and ox-carts was mainly encountered in Katakwi District, where Kapujan sub-county stands out (i.e. 16% of households own oxen and 14% own ox-carts). Draught animal power has been introduced in the Teso farming system relatively early (i.e. during the colonial period), however cattle rustling has become a major problem in recent decades for livestock owners of the District.

In most cases these physical assets are owned by men. Ownership by women only appears to become comparatively more prevalent if there is a higher number of female headed households, suggesting that only household heads own assets.

Chicken, goats, cows, and pigs are the main forms of livestock owned by the households. However, there are differences between the Districts, in that only very few farmers own cattle in the sub-counties surveyed in Kasese (3%). On the other hand, 35% of farmers in Iganga and 46% of farmers in Katakwi own at least one cow.

Vulnerability context of farmers. The vulnerability context of farmers has to be seen in the context of shocks, trends, and seasonality. Insurgencies during the last decades have been one of the key factors causing household vulnerability, in particular in Kasese and Katakwi Districts. This may partly explain the higher number of female headed households in these two Districts (12% and 16%

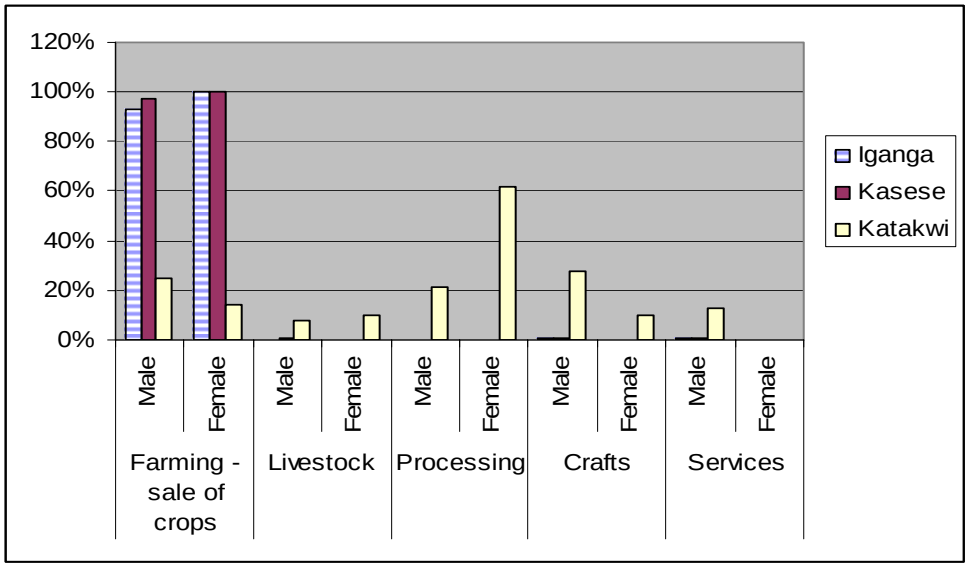
respectively) as compared to Iganga (4%). Aids is another factor leading to household insecurity in communities. As already indicated, cattle rustling still prevails in Katakwi thereby causing a constant threat to livestock owners and their restocking efforts. This has also implications for the spread of IMTs such as oxen and ox-carts in this District.

Livelihoods strategies and outcome. As for livelihoods strategies and outcome, Income Generating Activities (IGAs) show how households use their asset base within a given context (i.e. vulnerability and institutional / policy contexts) to earn their living. Figure E.3 indicates the main occupations and Income Generating Activities (IGAs) of household heads. Farming and the sale of crops clearly dominates the economic activities of villagers in Iganga and Kasese Districts (i.e. 93% and 98% respectively). Other activities only play a minor role in these two Districts.

In Katakwi, on the other hand, the household livelihoods are much more diversified in that farming, traditional processing of primary produce, and crafts each occupy about a quarter of the household heads' income portfolio. In addition, activities related to the sale of animal produce and services also play a role there.

As far as IGAs by female headed households (FHHs) are concerned, farming and the sale of crops are their only primary occupation in Iganga and Kasese. In Katakwi, however, traditional processing of primary produce (i.e. 62%) plays a dominant role for FHHs (i.e. in particular beer brewing). Other primary IGAs carried out by FHHs in Katakwi include sale of livestock produce (10%), crafts (10%), and waged or salaried work (5%).

Figure E.3 Selected Primary Occupations / IGA by Household Head, by Gender (by percentage of household heads)



NB: Percentages are related to the totals of male and female headed households. It is important to bear in mind that the majority of household heads are male. Female headed households (FHHs) represent 4% (Iganga), 12% (Kasese) and 16% (Katakwi), respectively.

Variations of poverty. At the same time, there are variations of poverty within the communities reflected in varying degrees of access to resources and capital assets (e.g. education, land, livestock ownership), which in turn lead to variations in income levels. Often, those considered rich (i.e. in general, having a monthly income in excess of USh200,000) are also engaged in other IGAs such as trade or employment

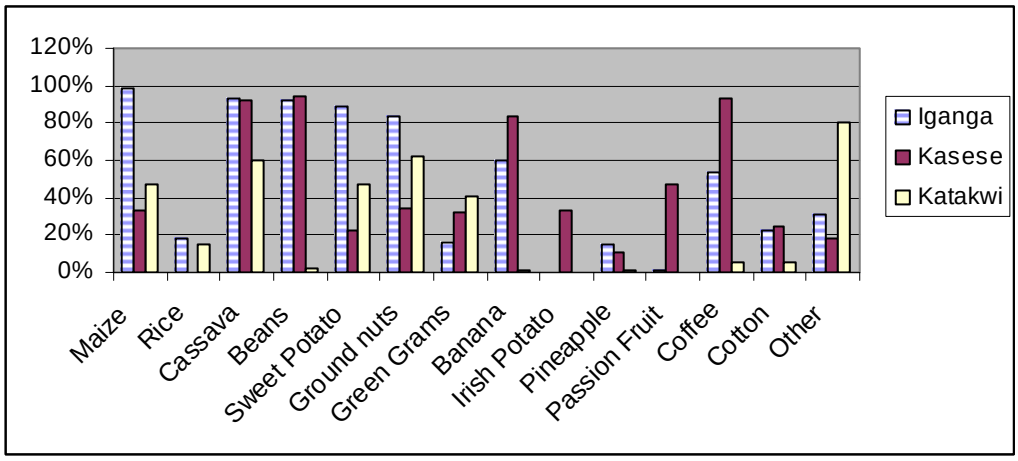
in the civil service. Those who are considered poor in the villages often earn well below USh100,000 per month. Concerning landownership, as already indicated the number of households with small plots of land is especially high in Kasese District.

The agricultural production and marketing system. As for the farming systems in the three Districts surveyed, Figure E.4 shows to what extent the farmers rely on a number of key crops such as maize, beans, cassava, sweet potato, groundnuts, banana and coffee in Iganga District. The main crops grown by Kasese farmers include cassava, beans, banana, coffee, passion fruit and Irish potato. Katakwi farmers grow maize, cassava, sweet potato, groundnuts, millet and sorghum and oilseeds such as sunflower.

Based on the survey data, Iganga has the highest amount of crops marketed (i.e. in particular maize, beans, and coffee), which is a result of its location close to major marketing centres such as Kampala, and Kenya. As can be seen from Figures E.5 and E.6, Kasese also has a reasonable degree of crop marketing (i.e. especially coffee, passion fruit, and Irish potatoes).

Katakwi, on the other hand has a much less commercialised farming system in that the quantities marketed are lower than in the other two Districts. Only comparatively small quantities of crops such as maize, sweet potatoes, cassava, and coffee are sold by farmers of this District.

Figure E.4 Crops planted by households during the 12 months prior to the survey (% of households)



NB: Other crops in Katakwi include oilseeds (e.g. simsim, and sunflower) and grains (e.g. millet and sorghum). Also, it is important to note that crop production and marketing in this District were affected by drought prior to the period when the survey was carried out.

The gender responsibility for sale varies according to crop and sometimes region, although high value food crops and traditional cash crops such as coffee or cotton are predominantly sold by men. Traditional food crops may be sold by men only or women only or a combination of both depending on the location.

As for the place of sale, selling from home and at the village market are the two main locations in all three Districts. However, the majority of farmers in Iganga District tend to sell their crops at the farmgate, as compared to Kasese and Katakwi Districts, where relatively more farmers go to the village market to sell their produce. Selling at the District market or the village store is relatively uncommon, with some exceptions

in Kasese (e.g. 28% of farmers sell coffee at the District market, and 63% of cotton producers sell their harvest at the village depot).

The average distances to the main markets are 11km (Iganga), 13km (Kasese), and 16km (Katakwi) in the sub-counties surveyed. As for storage, the vast majority of farmers store their produce at home. In all three study areas the majority of farmers sell the bulk of their crops to non-local traders. Village agents come second, whereas selling to other buyers such as groups, private companies or neighbours rarely takes place. The fact that more than half of the cotton growers in Kasese sell to co-operative societies represents an exception.

Figure E.5: Crops marketed by households during the 12 months prior to the survey(% of households)

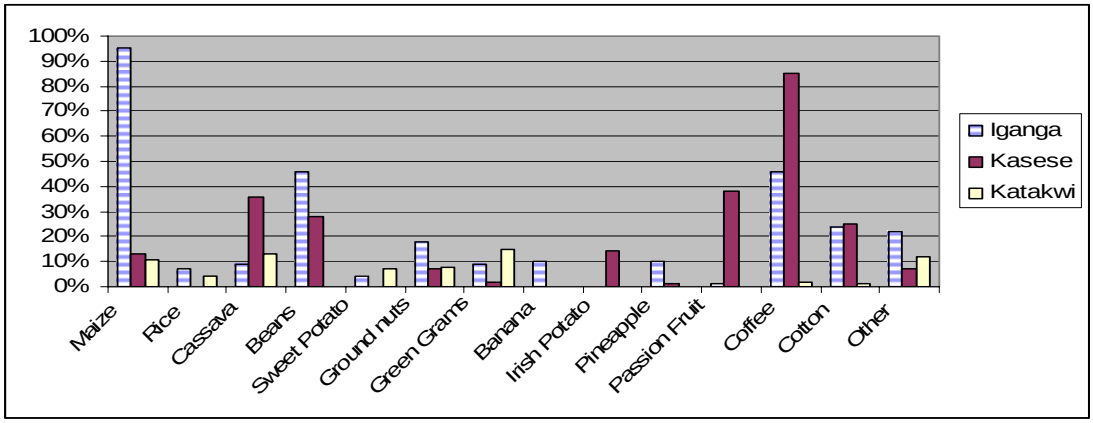
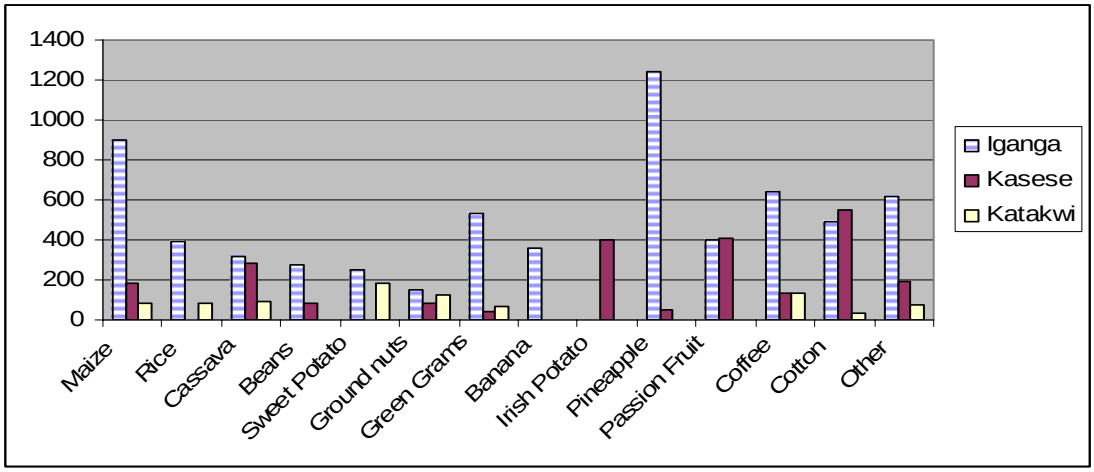


Figure E.6: Quantities of crops marketed during the 12 months prior to the survey (mean kg per household)



NB: The mean quantities refer to those households that sold at least some of the crop. As indicated, the quantities of crops produced and marketed by farmers in Katakwi were negatively influenced by drought.

The rural transport system - Motorised forms of transport. The use of motorised forms of transport (e.g. motorcycle, pick-up, mini-bus, tractor, lorry, and car) during the 12-month period prior to the PRA, was found to vary considerably. The use of motorised vehicles is particularly limited in the mountainous parts of Kasese District. Whilst some communities have constructed roads to facilitate access for the vehicles,

the latter may only come on demand or not at all if the terrain is too difficult for them to access the villages. On the other hand, even in the flatter areas of Nyakiyumbu Sub-county near Lake Edward the use of motorised vehicles is quite limited.

In Iganga District the overall use of motorised means of transport is far more common compared to Kasese, however it is quite difficult to discern a clear pattern by mode of transport or gender. Motorcycles, mini-buses and pick-ups are the main forms of motorised transport used by both men and women. However, this can be quite location-specific in that one form of transport may dominate in one village whilst it is a different one in another village. Although the overall use of motorised means of transport in Katakwi appears to be similar to Iganga, here it is equally difficult to discern a clear pattern. Women may not have used pick-up trucks over the last twelve months in one village (although these were available since men used them) whilst they might have extensively used them in another village of the same District. Whilst it is commonly found that men capture the means of transportation due to cost and status, the fact that no village members were found to own these modes (in all cases people are paying for a ride, or hiring), may explain the generally high female utilisation.

The main reasons for using motorcycles, buses, or mini-buses (also referred to as taxis) include health (e.g. emergency such as taking sick people to the clinic or hospital), economic (business in urban centres and market), or social (e.g. funerals, or weddings). The fact that vehicles for carrying heavy loads, such as lorries or tractors and trailers, are rarely used indicates that motorised vehicles are required by villagers primarily for travel rather than transport purposes.

Intermediate Means of Transportation (IMTs). As for IMTs, bicycles are by far the main mode used in that 60 – 100% of both men and women have used them in the villages of Iganga and Katakwi Districts over the last 12 months. However, whilst the figures for use by men and women are similar, this does disguise the frequency of use. Through observation and informal discussion with village members it was found that men use bicycles more frequently than women, reflecting the fact that ownership is entirely in the hands of men. This reflects a cultural norm in which men dominate ownership and control over the means of transportation. As indicated above, bicycle ownership is highest in Iganga District, followed by Katakwi, whilst it is limited to non-existent in Kasese District.

Other IMTs that are used in the villages include stretchers (mainly in Kasese), sledges (mainly Katakwi), ox-carts (mainly in Kapujan sub-county of Katakwi), boats (also Kapujan due to the lake) and wheelbarrows. Although ownership of the latter is low, men of four villages (out of six) in Iganga and Katakwi have used them relatively frequently by hiring or borrowing them for the transport of building material, manure to the field and crops from the field (i.e. up to about 50% of men).

Human porterage. Human porterage (i.e. head, back, shoulder and hand loading) was found to be the most prevalent mode of transport at community level in all three Districts. Differing forms of human loading reflect gender-specific tasks. Men tend to carry the bulkiest loads: produce, production equipment and building materials (primarily using the shoulders), while women carry produce, water and firewood (using the head, or back in the case of Kasese) and children (using the back). These modes are primarily practical, but are also embedded in social norms, with certain modes not socially acceptable by men. On average, women were found to spend many more hours engaged in porterage than men, reflecting the variety of domestic and productive tasks conducted. Weighing exercises revealed that women carry loads of 30 to 35 kg on their heads or backs.

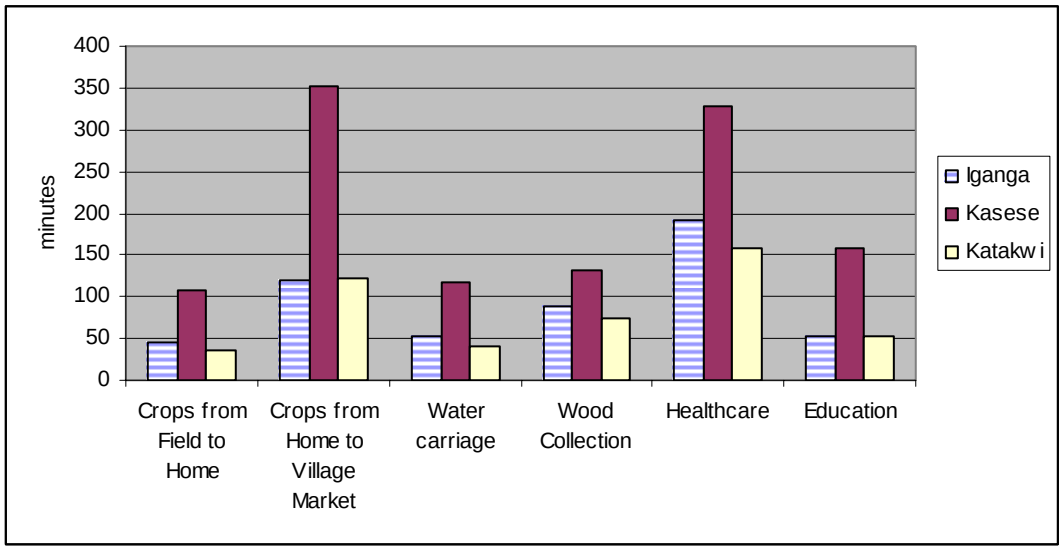
Transportation of crops. Transportation of crops from the field to the home primarily takes place on foot (i.e. human loading), with only some farmers in Iganga District using bicycles for the transport of specific crops (e.g. coffee or maize). The use of bicycles in Kasese or Katakwi for transporting crops from the field to the farm is very limited.

As for the transportation of crops from the farm to village market sites, it was possible to discern clear patterns whereby almost all the farmers in Iganga who visit a market would use a bicycle, although it needs to be borne in mind that the majority of them sell from their farm. Almost all the farmers in Kasese would use human porterage, whereas the system seems more diversified in Katakwi District in that human loading, bicycles, or lorries would be used.

Transport use for domestic purposes. Transport use for domestic purposes is mainly dependent on human porterage and walking in that wood collection exclusively takes place on foot. Walking is also mostly used for water collection and purchasing of consumer goods. Bicycles are only used to some extent in Iganga for water carriage, and for shopping in both Katakwi and Iganga District (i.e. about 30%). Walking would be the dominant mode of transport for the overwhelming majority of Kasese villagers undertaking these tasks.

According to the questionnaire survey, transport use to obtain services such as health care and education shows a mixed picture, in that walking is the only mode to go to school, and, depending on the location, walking and bicycles are used to visit health care facilities. In Kasese District, walking is the principal mode of transport to reach health facilities, whereas 85% of Iganga villagers and 35% of Katakwi villagers would use a bicycle. As for transport for social reasons, the picture is similar to that of transport for health reasons. In all three Districts, very few farmers would use motorised means of transport for health or social reasons according to the questionnaire survey.

Figure E.7: Average trip time using foot as main mode of transport



NB: The trips for transport of crops from the field to the home store and from the home to the village market refer to one-way trips. The trips for water carriage, wood collection, health care and education refer to return trips.

Duration of trips. Regarding the average time per trip, the survey clearly reveals that villagers in Kasese District spend much more time for transport purposes than people in Iganga or Katakwi Districts. For example, the average return trip time to fetch water is 118 minutes in Kasese compared to 53 minutes in Iganga and 41 minutes in Katakwi. The fact that the Kasese villagers also indicated fewer trips per day (i.e. 1.2) compared to 2.5 and 2.1 in Iganga and Katakwi respectively, indicates that they are likely to have less water available for domestic purposes. Similar results have been obtained for other domestic transport uses and for the transport of crops from the field to the home and from there to the village market, as is highlighted in Figure E.7.

As for other means of transport such as bicycles, differences in the average trip time are less pronounced, although it needs to be borne in mind that owing to the hilly terrain the Kasese villagers depend much more on walking and human porterage. Transport of crops by bicycles is not always faster than transport on foot due to the fact that these IMTs are often used for transporting heavier loads rather than for speed.

Transport economics. As for transport economics, during the course of the baseline study villagers stated that high initial capital costs were the principal obstacles for the acquisition of IMTs. Bicycles, which are the most prevalent IMT, cost about USh100,000 when purchased new, and USh30,000 – 60,000 when bought second-hand. Although this may seem a modest sum of money, it is still beyond the reach of many villagers who are struggling to meet their daily costs of living. Other IMTs found in Uganda and considered for this research, include oxen (USh300,000 – 350,000), donkeys (USh80,000 – 100,000), ox-carts (USh250,000 – 700,000), donkey-carts (USh200,000 – 500,000).

At the same time, it should be borne in mind that operational costs can be significantly higher than capital costs when the entire lifetime of the IMT is considered. In particular, vehicles (and animals for that matter) can break down if they are not properly maintained. These issues have been monitored and analysed in subsequent exercises following the distribution of the IMTs.

Conclusions of the baseline study. In all three Districts, villagers expressed a need for better availability of means of transportation. In particular, high cost and lack of available transport were indicated by both men and women as main household travel and transport problems.

Donkeys in Kasese District, and ox-carts in Iganga and Katakwi Districts were identified together with farmers as potential IMTs to be tested. Due to the conditions of the farming system and the terrain, animal transport seems the most viable option for Kasese farmers for the time being. However, it needs to be pointed out that past efforts to introduce these animals in the District have failed due to lack of sensitisation, training, and follow-up. It is important to avoid these mistakes if future attempts are to succeed.

Amongst the three Districts, Iganga farmers currently produce the largest amounts of agricultural produce for sale. Bicycles which are commonly used in the District are only suitable for transporting smaller amounts of produce over shorter distances. As a consequence, the testing of a larger-capacity means of transportation appears justified. This would provide farmers with more options for selling their produce (e.g. selling at the market rather than at the farmgate, which in turn would result in a price premium estimated at 20 – 30%).

Although ox-carts are already used in some sub-counties of Katakwi, it appears that there is scope for design improvement. In addition, given the problem of cattle rustling in this District the introduction of donkey carts may represent an option to be envisaged. Other IMTs which were considered with farmers during the course of the survey in the three Districts include power-tillers and bicycle trailers, however it was found that the former is too expensive for rural communities under current conditions, and the latter required flat and smooth road surfaces, which presently do not exist in most villages.

In view of this, oxen, ox-carts, donkeys and donkey-carts, were introduced and tested in rural communities of Iganga, Kasese, and Katakwi Districts as part of the project. In addition, bicycles were introduced in selected areas of the project by the Jinja based NGO FABIO (First African Bicycle Information Organisation) who used their own funds for this activity.

Project review

A project review took place in February 2003 towards the end of the first project year. The review was carried out by two CPHP appointed reviewers who visited Kampala, working mainly with members of the Transport Forum Group (TFG).

Comments received as a result of the review included the following:

- The TFG Project Coordinator should play a stronger role in project management;
- The project should strengthen its poverty focus;
- More emphasis should be placed on the building of partnerships for innovation;
- The project logframe (i.e. Logical Framework) should be revised for phase II of the project (i.e. years 2 and 3), and a proposal should be submitted for this period incorporating:
    - Action research based on the findings of the baseline survey;
    - A hypothesis for partnerships (underpinned by stakeholder and livelihoods analyses), and the action research that shall test the hypothesis;
    - A participatory monitoring and evaluation framework involving all the partners.

The Golden Milestone Workshop

The Research Action Plan. At the beginning of the second project year a Golden Milestone Workshop was held to: clarify the project's aims, clearly identify and classify partners and stakeholders, consider partners and stakeholders contributions, define roles and responsibilities for partners, and consider partners and stakeholders inter-relationships. The workshop also came up with the research action plan for introducing IMTs in the three districts.

Stakeholders reached several decisions.

- Firstly, the IMTs to be introduced would consist of donkeys as draught and pack animals, donkey- and ox-carts, oxen, and ploughs to support modernization of agriculture efforts regarding land preparation, planting and weeding activities.
- Secondly, the project would meet the risk of introducing the IMTs by covering 40% of the acquisition cost while the farmers (beneficiaries) would bear 60%

of the cost. The acquisition cost did not include other costs involved with introduction of IMTs such training, transport of the IMT to the beneficiary, etc.

- Thirdly, in the case of donkeys, mostly pregnant female donkeys would be bought for the project with one or two males to be placed in each sub-county to promote sustainability through breeding,
- Fourthly, poor farmers who could not afford to pay cash for the donkeys were to pass on the first foal to another poor beneficiary in lieu of payment.
- Fifthly, beneficiaries would participate in monitoring the project progress as well as the technical and economic aspects of the use of IMTs.

Partnership Building. Execution of the project benefited from the *innovation systems* approach outlined by DFID CPHP, which recognises the complexity of the research and development (R&D) process, stressing that it is the way in which actors relate to one another in the wider environment that determines the direction, practice and outcomes of R&D systems. This reflects a shift from an insular and linear process of knowledge transfer passed down from R&D institutions to passive recipients, towards a recognition that all those involved or affected by the R&D process have roles to play, based on their interests and expectations that may change over time. This not only emphasizes the needs for clear primary partnerships (i.e. those directly involved and affected by a particular initiative), but also for broader partnerships with those who may influence or be influenced by it. It is these broader partnerships that may represent the best opportunity to effectively disseminate and adapt the products and practices of the project, enabling change at a significant scale.

The partners identified for execution of the research project were grouped in three categories namely the knowledge providers, the intermediaries, and the users as shown in the Figure 1. The partners are led by Natural Resources Institute (managing partners), Transport Research Laboratory, Silsoe Research Institute, Transport Forum Group (Project Coordinators in Uganda), and intermediaries at the district level such as the Multi-Purpose Training and Community Empowerment Association (MTCEA) in Iganga, the Karughe Farmers Partnership in Kasese, and Youth With a Mission (YWAM) in Katakwi. The end users are farmer groups or individuals. Other partners who are mainly end users of research findings included PMA, NAADS and the Departments of Production, and Roads in the District Administrations.

Developing a Participatory Monitoring & Evaluation framework. The adoption of an innovation systems approach through partnership development by the project placed further emphasis on a participatory and inclusive approach to monitoring and evaluation. It is important to stress that participatory M&E should not be interpreted as M&E only with and by end-users (as has been commonplace), which overlooks the key roles and responsibilities of other stakeholders in the design and implementation process. Numerous individuals, groups and organizations have a stake in the project, in the sense that they stand to be affected by it and/or have an influence over its process and outcome. Thus, effective M&E needs to be based on a multi-level approach that recognizes (and where possible, harmonizes) the different, often competing information needs of these various stakeholders. To address these needs, the approach to monitoring and evaluation stressed the need for a strong and inclusive planning process, with clear aims, a road map of how they are to be reached, and a clear identification of those that have a stake in the project. The workshop emerged with three separate, although linked, frameworks:

a) **Performance Monitoring Framework**: to track the progress and performance of day-to-day activities as a basis for learning and corrective action.

b) **Impact Monitoring Framework**: to track progress towards the roles of each partner, and be able to say something about changes occurring as a consequence of the interventions as a basis for learning.
c) **Impact Assessment Framework**: to review the extent of achievement of the roles by each partner, their contribution to the aims of the project and the achievements of the project as a whole as a basis for learning and accountability.

The grouping of indicators for performance monitoring was centered on the different phases of implementation: resource flows, sensitization and training processes, utilization and feedback. A separate set of indicators was outlined for measuring the level and quality of interaction amongst the partners. These partnership indicators were established at a generic level, and it was agreed that having reviewed and agreed the modalities of specific partner-partner and partner-stakeholder links, these indicators would be made more specific and relevant. All of this information was felt to be vital on a regular basis to guide performance.

Promoting Intermediate Means of Transport: Experiences and key lessons

This paper was produced by Mr Mustapha Bemmaamar, Transport Economist of TRL, so that the project could draw on international lessons when promoting Intermediate Means of Transport (IMTs). In sum, the paper highlights that the diversity of IMTs in Sub-Saharan Africa is generally less than that seen in Asia. This may reflect different urban time-scales, population densities, available resources, trade patterns, economic activities and cultures.

Economic profitability is arguably the most important single factor determining whether or not IMTs are adopted. The adoption of IMTs is strongly influenced by their cost and their potential to provide economic benefits. Provided funds or credit are available to allow the process to start, the potential to gain income, rather than actual cost may be the more crucial issue. Some of the lessons relating to credit are similar to the paradoxical lessons relating to promotion systems. There are many examples where credit provision appears to have been important in stimulating adoption. However, there have also been examples where IMTs have been introduced in the absence of institutional credit.

Many other factors, including status, gender and social benefits play a part. With the expertise of hindsight, it is clear from many case histories that projects have failed to understand users' needs and wants before they launched their promotional programmes.

If a technology is to be viable and quickly adopted, there is a need to establish as soon as possible a 'critical mass' of users. However, one big problem with the 'achieving critical mass' concept has been the great optimism and lack of self-criticism of IMT programmes. Self-critical monitoring and objective evaluation are fundamental to the success of any programme to develop and/or promote the use of IMTs.

There are many lessons from project attempts to promote IMTs. Some experiences appear paradoxical when seen from the viewpoint of the users, without the filtration of project optimism, these paradoxes are generally removed. IMT programmes must undertake thorough 'market research' in order to understand the needs, wants, preferences, priorities and purchasing power of the diverse users in their target

groups. Priorities should be set in terms of specific target groups (e.g., disadvantaged rural women) and programmes based on the special requirements of such groups. A distinction should be made between access and ownership, noting that for some target groups access may be sufficient. Once suitable technologies have been identified, promotional activities should be carefully targeted, in terms of area of intervention and beneficiaries.

Although indigenous experts have implemented most national IMT programmes in Africa, international programmes have been slow to build on African expertise. Some national networks (transport forums, RTTP steering committees) have been formed, and these should play important roles in both information exchange and policy development. Continued strong national and international networking is required, with increasing emphasis on inter-African networking and honest exchanges concerning the success and failure of IMT initiatives.

Acquisition, Distribution and Testing of IMTs

Based on the needs for more appropriate means of transportation expressed by men and women in the villages during the course of the baseline survey, a small batch of IMTs had been introduced in year one of the project (i.e. 20 donkeys in Kasese, and 6 oxen, 6 light ploughs, and 3 carts in Iganga and Katakwi each). The budget for this activity had been allocated in the original project proposal, in anticipation of time constraints on the part of artisans who were unlikely to be able to supply a large batch of equipment at short notice. Following the reviewers' comments that this decision looked premature prior to the completion of the baseline survey, this activity was put on hold until the Golden Milestone Workshop took place in July 2003. Also, it ought to be mentioned that the majority of the IMTs delivered to Katakwi during this project phase were subsequently lost due to the rebel insurgency.

As outlined above, it was decided by the stakeholders present at the Golden Milestone workshop that the IMTs distributed and tested as part of the project should be donkeys as draught and pack animals, donkey- and ox-carts, oxen, and ploughs. As for the latter their introduction seemed appropriate given the multi-purpose function of many IMTs (i.e. oxen are used in many countries for both cart pulling and ploughing).

In addition, using their own funds, the Jinja based NGO First African Bicycle Information Organisation (FABIO) agreed to join the project partnership in order to distribute bicycles in project areas that were not sufficiently exposed to these IMTs (i.e. Kasese and Katakwi).

Table E.4 provides an overview of the IMTs distributed by the project.

Table E.4 Distribution of the IMTS in the Project Area

IMTs	Iganga	Kasese	Katakwi	Total
Oxen	30	2	6	38
Donkeys	17	47	24	88
Ox- ploughs	17	1	5	23
Ox-carts	12	2	-	17
Donkey- carts	5	3	5	13
Bicycles by FABIO	-	80	70	150
Total	81	135	110	329

All the donkeys destined for Kasese district were bought in Kapchorwa by a team including the project donkey trainer and a vet who both come from Kasese. The donkeys in Katakwi were bought in this district, where a few of the animals can be found although they are rarely used for domestic work. Oxen were mostly procured locally or in neighbouring districts. Ploughs were bought by the Soroti based company SAIMMCO Ltd whilst the carts were manufactured locally by artisans based in Iganga, Katakwi, Kamwenge, and Bwera/Kasese. The bicycles distributed by FABIO were imported.

As highlighted above, as part of a risk sharing agreement with the project, the farmers were able to acquire the IMTs to be tested on credit at 60% of their cost price (i.e. excluding transport), whilst the project would cover 40%.

Distribution of IMTs was accompanied by sensitisation and training of farmers, which was necessary in that many of them were not used to work with the animals (e.g. oxen and carts), or were downright apprehensive as was the case with donkeys distributed in Kasese. Only once the farmers, including women, had seen the benefits of the animals and IMTs did they open up to them. The training also included a component on animal welfare dealing with feeding of the animals and basic veterinary health care such as deworming and spraying against ticks.

Challenges encountered during this activity included the capacity of the artisans to manufacture a large batch of carts at short notice. As a result, delays were encountered and, also, at the beginning some of the carts had technical faults. Despite the training of the artisans in Kenya, which focused on the manufacturing of saw-dust filled wheels, many of the carts encountered problems with that component. Since it proved difficult for the Ugandan artisans to manufacture the same type of wheels they preferred to use tubeless second-hand tyres from cars. However, many of the tyres were too worn which in many cases resulted in them becoming flat once the carts were delivered to the farmers. As a result, these carts had to be brought back to the artisans and the tyres fitted with tubes.

An Artisan / Farmer week held in Iganga in November 2003 was instrumental in improving the exchange of information and views between artisans and farmers. The project revealed a lack of communication with farmers claiming the carts were poorly designed for their needs and artisans blaming the carts' shortcomings on misuse by farmers. The Artisan / farmer Week led to improvements in the cart design, but most importantly to a mutual trust between local artisans and cart users.

As far as donkey health care is concerned, farmers asked for more training and small community based veterinary clinics especially as a result of some animals' deaths due to various reasons (e.g. fever or death of both mother and foal during delivery). TFG have applied for a project that has a veterinary component and will hopefully cater for these needs.

Participatory M&E of Project Activities, Outputs, Impacts and Partnerships

Identification of indicators. Workshops were held in the sub counties for representatives from farmers' groups directly targeted by the project, with the exception of Katakwi who were met in Iganga district due to the insecurity in their district. The outputs expected from the workshops were that:

a) M&E was understood by all workshop participants;
b) The beneficiaries had identified indicators for monitoring benefits and effects;

c) Methods and tools to be used for beneficiary M&E have been understood; and
d) Beneficiaries were able to start M&E.

The farmers identified monitoring indicators for benefits and effects of the project and partnerships as follows:

Monitoring Benefits and Effects of Project

a) Indicators to show that members of group have benefited from the outputs of the project as expected;
b) Indicators that the outputs of the project are benefiting women;
c) Indicators that outputs of the project may have caused some problems for the women;
d) Indicators that the poorest people in the group have benefited from the outputs of the project;
e) Indicators that outputs of the project have caused some problems for the poorest in the group;
f) Indicators that the welfare of some individuals in the targeted group is improving as a result of the outputs of the project;
g) Indicators that the outputs of the project are having beneficial effects on some members in the village who are not in the group;

M&E of Partnerships

a) Indicators for linkages and interaction with other partners;
b) Indicators that there are difficulties/ hindrances to farmer participation in the coalition activities during the quarter;
c) Indicators that farmers getting what they expected to get from this partnership when they joined the project.

M&E data collection and analysis. Data was collected on M&E of work plan implementation; outputs; benefits; effects; and partnerships of the action research project for Iganga and Kasese Districts. The perceptions were collected in quarterly meetings held by the farmers to discuss their Monitoring & Evaluation findings. An M&E facilitator facilitated the meetings. The farmer perceptions are used to compute performance in four domains: work-plan implementation, outputs, benefits, effects and partnerships. The performance is computed as indices.

Computation of the indices. The participants respond to statements in the tools by a signing a score that best describes their perception. The scores range from zero to two (zero= not at all, one = a little, two = a lot). The average score for all farmer groups in a given sub county are obtained. The average scores are multiplied by a weight. The weights range from one to five and are assigned by the beneficiaries, according to the relative importance of that statement. The rating is derived as a product of the rating and the average score. The perceptions from the quarterly monitoring of the beneficiaries are analyzed through the computation of indices (Table E.5). Performance index = (Total rating/maximum rating) 100. Computation of indices is used for the following reasons:

a) Large volumes of information are collected from farmer groups every quarter. The use of indices gives an objective way of analyzing the information and providing easily understood information to those who need it.
b) Performance indices provide a means of tracking over time the performance of the project. This can be done by comparing indices over different quarters.

Table E.5 Performance Index Tool

M&E Parameter	M&E question	Response	Assigned score	Weight	Average score	Rating (Weight* score)
Benefits	We endorsed the Work-plan for the quarter	Not at all	0			
		A little	1			
		A lot	2			
	Members of our group have benefited from the outputs of the project as expected	Not at all	0			
		A little	1			
		A lot	2			
	The outputs of the project are benefiting the women in our group	Not at all	0			
		A little	1			
		A lot	3			
	The poorest in our group have benefited from the outputs of the project implemented so far	Not at all	0			
		A little	1			
		A lot	2			
					Total rating	

Quarter IV PM&E Results for Iganga District. Findings from the Participatory Monitoring and Evaluation by IMTs Beneficiaries in Iganga & Kasese are shown in Table E.6. The greatest farmer satisfaction with work-plan implementation during quarter four was in Makuutu sub country (61.5%), while the least satisfaction was reported in Ivukula Sub County (26.7%). As such the benefits from project activities were rated highly in Makuutu (60.6%) and very low in Ivukula (29.4%). The reason for this could be the high implementation of activities in Makuutu. In all the three sub counties partnerships are being developed by farmers. Project activities were rated lower in quarter 4 than in quarter 3. In both quarter 3 and 4 the negative effects resulting from project activities are very low.

Quarter IV PM&E Results for Kasese District. Satisfaction with work-plan implementation was rated very highly in all three sub-counties (Kyabarungira 83.3%, Mahango 83.3 % and Nyakiyumbu 75.4%). Likewise the farmer groups reported that the outputs of the project are being delivered to their satisfaction. Benefits resulting from project activities are ranked very highly in all three sub-counties. Farmers feel that they are getting linked to other partners as expected as a result of project activities.

Table E.6 Findings from the Participatory Monitoring and Evaluation by IMTs Beneficiaries in Iganga & Kasese

Summary of Performance Indices (%)

Quarter 4 (2004)

District	Sub county	M&E Parameter				
		Work-plan Implementation	Outputs	Benefits	Effects	Partner-ships
Iganga	Ivukula	26.7	-	29.4	3.8	27.8
	Bukanga	47.6	36.7	35.6	11.5	40.5
	Makuutu	61.5	-	60.6	12.5	27.8
Kasese	Kyabarungira	83.3	100	97.3	4.7	87.2
	Mahango	83.3	91.4	94.8	1.2	86.5
	Nyakiyumbu	75.4	77.2	84.8	0.0	81.5

Quarter 3 (2004)

Iganga	Ivukula	-	23.3	25.0	1.6	43.9
	Bukanga	-	27.2	25.2	7.54	38.8
	Makuutu	-	42.4	46.24	11.75	54.55
Kasese	Kyabarungira	-	53.2	79.3	11.11	63
	Mahango	-	63	73.0	36.11	82.2
	Nyakiyumbu	-	54.87	68.69	16.67	61.71

Partnership Meetings and their Benefits

In addition to the principal workshops, four Partnership Meetings were organized by TFG with the overall purpose of reviewing the project process amongst the stakeholders for the previous months and planning for the next quarter[3]. The meetings gave an opportunity to partners to identify problems hindering the project process and, through genuine discussions, find a solution or seek for advice from experts on the issue at hand. Also, good lessons regarding implementation of the project especially with regard to the introduction of new IMTs were identified and picked up by others to try in their project areas.

Artisan/Farmer Week to Improve Cart Design. At the first partnership meeting it was discovered that the ox-carts that were produced by the artisan in Iganga faced a number of problems. The artisan blamed the farmers for overloading the cart while the farmers blamed it on bad design. Hence, an Artisan/Farmer week was arranged in Iganga district to bring together farmers and all artisans in the three project areas (Design Centre, TRAP, Karughe Farmers, and Iganga Furniture Mart) to try out the carts and reach lasting solution. The artisan/farmer week was highly appreciated by both the farmers and the artisans and now the project has better designs for the animal carts. Most important there is mutual trust between the artisans and the beneficiaries that has led to joint costing of the production of the carts leaving a reasonable profit for the artisan. Beneficiaries also realized that a well designed cart costs a bit more, and are willing to pay the extra cost.

[3] September 2003, January 2004, May 2004, September 2004

At the third Partnership Meeting in Busembatia after listening to farmer complaints regarding tubeless tyres backed by experiences from the field visits, project partners agreed to replace at no cost to the farmer the existing tubeless tyres with tubed tyres. This was informed by the farmers' inability to repair punctures locally.

Iganga Team looks into problems of group dynamics in Kapujan. At the same meeting, it was discovered that farmers in Kapujan had not used a cart the Design Centre had designed and delivered four months ago. During probing of the farmers it was noted that that Kapujan has problems with group dynamics; therefore, a team of two from MTCEA, who have a good record in dealing with groups were sent to Kapujan to look into the problems of the groups and give advice to farmers. After the visit, farmers started collecting down payments for IMTs and also discussed with the Design Centre the design of the carts including their costing, and specifications for donkeys like age, sex and weight since they would be used for ploughing. More farmers in the groups are interested in trying out the IMTs now than before the special team visited Kapujan, a testimony that their group dynamics improved greatly.

Kasese Farmers convince Iganga farmers to try out donkeys. Before the first partnership meeting, farmers in Iganga had shied away from acquiring donkeys having expressed a lot of socio-cultural concerns. However, their attitude and biases towards the donkeys changed after listening to testimonies of fellow farmers from Kasese who had received the donkeys with an open hand and had discovered a friend in the donkey, and a keen transporter relieving the transport burden from women and children. The field visits to the project areas helped the Iganga farmers to relax their attitudes/biases further when they saw the donkeys in action. Iganga farmers are now acquiring donkeys more than the oxen and, in fact, the project cannot meet the demand.

Inculcating good animal welfare practices. With regard to animal welfare for the donkeys and oxen, the meetings have proved useful since a lot of cases involving unwell animals, and prevention or treatment regimen are discussed freely between the beneficiaries and the vets. Good practices are passed on and bad ones guarded against. The beneficiaries have also developed trust with the vets and are willing to pay for the drugs for preventive care or treatment of their animals and not to wait for the project to intervene.

The donkeys are acclimatizing well in the two districts (Iganga flat, warm and wet, and Kasese mountainous). The project now boasts of 5 foals in Kasese, 3 foals in Iganga and 2 foals in Katakwi in a period of two years of introducing donkeys in the areas. So far the project has lost 15 donkeys in Kasese mainly due to having selected a good number of unhealthy donkeys for the first batch as the project did not take its own vet but depended on third party vet. Due to difficulties in finding vets when required (e.g. complications during birth of foals), farmers have asked for more training for some of their representatives and also requested the establishment of a community veterinary clinic.

Iganga farmers convinces Kasese farmers to pay for their IMTs. At the first Partnership meeting, the Kasese Intermediary reported a lack of seriousness on the part of beneficiaries regarding payment of their instalments (i.e. 60% of purchase cost as part of risk sharing agreement). However, Iganga district had reported success in paying the installments when due, and even reported of refusing to receive more down payments from farmers as the demand had exceeded the funds available for the 40% share the project agreed to cover. Pros and cons were discussed regarding failure by Kasese farmers not to honor their agreements which

could lead to other farmers in Kasese to lose out with consequences of never realizing a critical mass required to introduce a donkey culture to the district. By the close of the project in December 2005, the loan repayment figures were as follows: Iganga had paid 51%, Kapujan 52% and Kasese 38%. Kapujan did very well given the fact that farmers received the IMTs only in January 2004.

Local Administrations start budgeting for IMTs. During the first partnership meeting (Sept. 2003), which was hosted by Kasese District Administration, the Resident District Commissioner (RDC) opened the meeting and stayed long enough to listen to the farmers' experiences with the introduced donkeys. The Kasese farmers narrated how donkeys were changing their lives especially with regard to taking away the transport burden from women and children, and even added that the donkeys make markets more accessible to them than roads, which the administration is presently emphasizing. Furthermore, the farmers lamented that the project was ending in December 2004 and that a critical mass for introducing donkeys in Kasese would not have been realized. The RDC promised to take the message to the LCV Chairman for appropriate action. During the second meeting in Busembatia, Iganga district, the Kasese Coordinator Production reported to the meeting that Kasese District Administration has agreed to take over the project and will start with 40 million Ugandan Shillings (US$2,000) FY2002/3 and regularly budget for it until all sub-counties in Kasese District have a critical mass of donkeys to evolve a donkey culture. The Kasese Administration admits that this is the only way to improve the transport situation in the mountains.

At the Busembatia meeting, the farmers from Iganga resolved to request their Sub-county Councils to budget for donkeys from the NAADS funds since donkeys are a key to better prices for their produce. This marketing season groups with donkeys have consolidated their maize crop in one area from where buyers can buy at one agreed price instead of negotiating with individual farmers.

However, at the End of Project workshop the Kasese Local Administration reported that they had faced some problems with their donor agency and as such would not be able to provide the funds as earlier promised. But there was hope that the problems will soon be solved to enable the Administration to continue supporting the project.

Both Iganga and Katakwi Local administrations pledged to adopt the project in their district programs.

Uptake of research findings by Government. Representatives of the Plan for Modernization of Agriculture (PMA) and National Agricultural Advisory Service (NAADS), both major agricultural programmes aimed at modernizing agriculture in Uganda and improving delivery of agricultural and livestock services for farmers, have regularly attended project workshops and partnership meetings. The research team has also briefed them regularly on policy issues and implementation of the programmes. NAADS has requested Project Coordinators of the Transport Forum Group to visit the West Nile region in Uganda and work out an action plan to introduce animal-carts in that part of the country. NAADS is already financing a programme to introduce donkeys in Kabale District, which is similar to Kasese in terrain and climate. The farmers from Kabale are now regularly invited to the partnership meetings.

Evaluation study - Ergonomics Aspects of IMTs

In September 2004, Messrs David O'Neill (formerly with Silsoe Research Institute) and Peter Owor (MTCEA) undertook an evaluation of ergonomic aspects of the IMTs distributed in Iganga and Katakwi Districts.

Methodology. All the activities undertaken as part of the ergonomics evaluation study were based on gathering information for subsequent analysis and reporting. The information was obtained by discussions with both individuals (progressive farmers and local project staff) and Farmers Groups (formally constituted). The Group discussions in Katakwi District were relatively informal and wide-ranging. The Group discussions in Iganga District were more formally arranged and followed, albeit somewhat loosely, a more structured approach and all sessions included asking eleven Groups certain key questions on key aspects such as, utilisation of IMTs and benefits.

Selected results of Ergonomics Study. The Farmer Groups in Iganga were asked to prioritise the various uses to which they put the carts that they had acquired through the project. Twelve different uses were identified and they were prioritised as shown in Fig E.8.

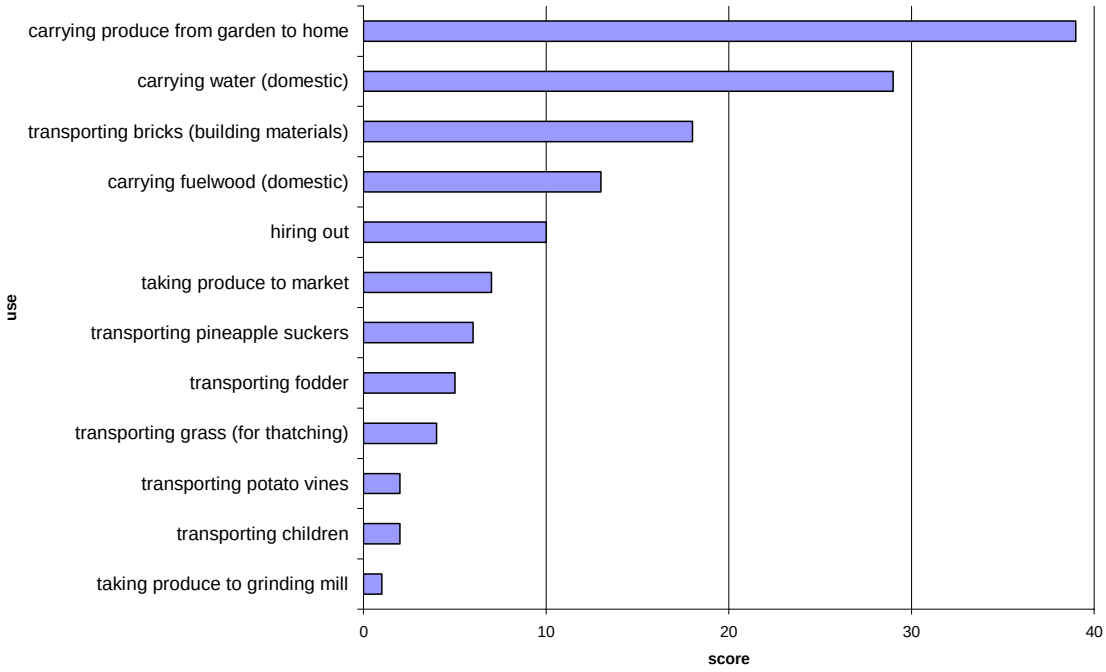


Figure E.8 Cart usage scores (Iganga)

All eleven groups surveyed stated that they used carts to bring their harvested produce home from their fields. Nine Groups mentioned carrying water and, next, six Groups mentioned carrying fuelwood and transporting bricks etc. Five of the uses were reported by only one of the Groups.

Changes with introduction of carts. The Farmer Groups were asked to describe the differences they had experienced in their daily lives since they had had their cart(s) and then to say what they feel the biggest differences are. Twelve differences were given, with the order of importance as shown in Figure E.9.

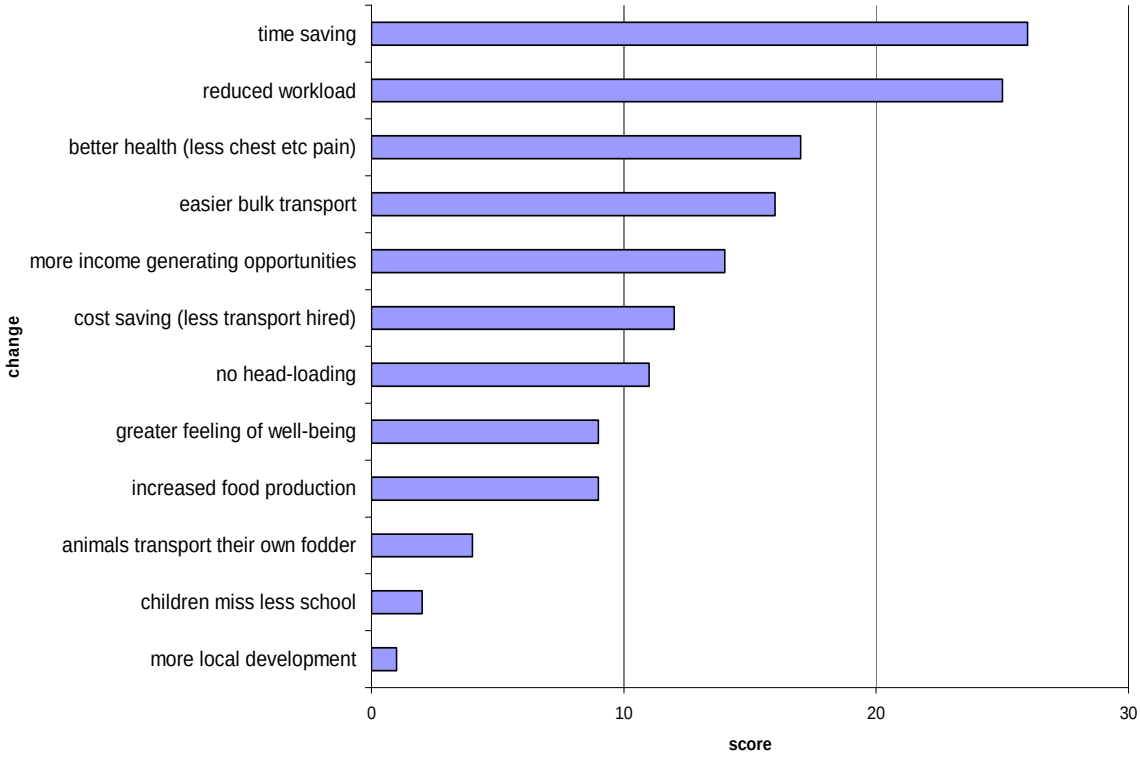


Figure E.9 Differences attributable to the introduction of carts (Iganga)

Better health was reported by every Group although it was not overall the biggest difference. The biggest difference, time saving, was reported by eight of the Groups. Reduced workload was reported by only five of the Groups but it scored highly in each case.

Effects on livelihoods. The responses of the eleven Groups regarding general livelihood concerns arising from the Project interventions could be summarised into ten descriptive phrases. These are listed in Table 2 together with the total numbers of times each was mentioned.

Table E.7 Occurrence of livelihood factors (Iganga)

Description	Frequency
The time saved increases the quality of life	5
Ploughs increase productivity	3
Better food security	3
More income-generating opportunities	3
Carts earn income	2
Less physical strain / hardship	2
Moving from subsistence to small-scale farming	2
Better health	1
Being able to undertake bulk carriage	1
Children spend more time at school	1

These reflect the underlying findings shown in Figure E.9 but also include the emphasis attributable to the benefits arising out of ploughing. This saves much time in land preparation and, by increasing labour-crop productivity, improves food security and may generate sufficient crop surplus to sell. Four of the Groups

commented on the relative benefits to them of having access to ploughs and carts: of these, three felt that ploughs were the greater benefit whilst one felt that carts provided the greater benefit.

Problems with cart design and use. A total of eleven aspects of cart design and use were reported by the Iganga Groups. Every Group except one (the Group still awaiting delivery of its cart) complained about the fitting of tubeless tyres. This made it almost impossible to repair punctures locally; this problem was already being rectified by the Project by the fitting of tubed tyres. Only two other problems were raised by more than one of the Groups. The details and frequency of occurrence are listed in Table E.8.

Table E.8 Incidence of cart design and use issues (Iganga)

Problem	Frequency
Tubeless tyres	10
Weak draw pole (ox cart)	3
Deterioration of wheel rims	2
Lack of brakes	1
Broken slat on cart body	1
Weak shafts (donkey cart)	1
Widen shafts to fit 2 donkeys	1
Extra wheel at front for support when loading	1
Rear panel on cart body (for transporting sand)	1
Better ox training needed	1
Nuts coming loose	1

Although most of these points occur only once, and some may be regarded as comments rather than problems, it should be remembered that some of the Groups had had only a few months' experience of using the carts. After a longer period of use the incidence of these problems could increase. Except for the ox training, all the points are worthy of consideration by cart manufacturers. However, most of them have cost implications.

The practice of minimising the costs of cart production by fitting the cheapest tyres available is questionable. Such tyres are cheap because they are low quality and (almost) worn out. They are, therefore, more prone to puncture which can put the cart out of service. If this happens at harvest time, much of the benefit of having the cart is lost and the farmers have to return to head-loading and the use of bicycles. Keeping costs down by fitting poor tyres is probably a false economy.

Evaluation study – Utilisation and Profitability of IMTs

In July and September 2004, monitoring and evaluation surveys using both quantitative and qualitative methods were undertaken in all three districts by U Kleih, TFG members, and Intermediary organisations. This resulted in a discussion paper on the utilisation and profitability of Intermediate Means of Transport (IMTs), which was presented at the final project workshop in December in Jinja. The paper primarily focused on Kasese and Katakwi districts, given that the ergonomics paper above had its geographical emphasis on Iganga district.

Selected findings of the paper on IMT utilisation and profitability. At first, farmers were apprehensive when donkeys were introduced in their villages. In particular, since they had heard 'negative' stories about the animals being difficult to manage they were reluctant to use them. This shows the importance of training of

groups and individuals. Following sensitisation by the donkey trainer, and training in animal handling and welfare, farmers started to appreciate the animals and use them as pack animals. Nevertheless, farmers are still interested in more training.

Table E.9 Farmers' Priorities in Donkey Utilisation, Kasese District

Transport Priorities	Kyabarungira S/C	Nyakiyumbu S/C	Mahango S/C
1.	Water for domestic consumption	Water for domestic consumption	Water for domestic consumption
2.	Crops to market, and from garden to home	Crops from garden to home	Transport of crops; 2 or 3 times / week; transport for domestic use more important
3.	Building material, incl. water; e.g. use of donkeys for construction of school	Crops / goods to and from market	Building material
4.	Fuelwood, occasionally	Building materials, incl. water	Fuelwood, once or twice a week

As Table E.9 illustrates, the transport of water for domestic purposes is the top priority indicated by farmers in the three sub-counties were the project is active in Kasese District. This is influenced by the hilly terrain of the district, resulting in long journeys related to most domestic chores, in particular for women and girls (e.g. fetching of water, and fuelwood). Transport of crops either from the garden to the home or from there to the market was indicated as the second transport priority, followed by transport of building material or fuelwood.

As for the transport of crops to the market, it is estimated that crop prices are about 20 – 30% higher at the market centres compared to farmgate prices. Nevertheless, prices also depend on the food supply situation. If certain food crops such as beans are scarce in the villages due to low production then their prices may even be higher than in the market centres.

The existence of the donkeys allows the farmers to transport larger quantities of crops to the market. In particular, if the price differential is sufficiently large then the farmer can make a net benefit. This is demonstrated in the following two examples of Table 10, which are based on the transport of beans and dried cassava from the farm to the market. It is estimated that the net benefit of transporting 80kgs of a crop is of the order of USh6,000 per trip if the price differential is USh100 per kg, and USh2,000 if the price differential is USh50 per kg. Obviously, if the crop is higher value (e.g. coffee) and the price difference is greater, then the net benefit of transporting crops to the market is even higher (e.g. USh10,000 per bag or more).

Table E.10 Benefits of Transporting Crops to the Market

	Option 1: Transport of Beans	Option 2: Transport of Cassava
Farmgate price of crop, per kg Price at market centre, per kg Price differential, per kg	300/= 400/= 100/=	200/= 250/= 50/=
Carrying capacity of donkey	80kg	80kg
Value added by transporting one bag of crop to the market	8000/=	4000/=
Opportunity cost of donkey	1000/=	1000/=
Time value of farmer accompanying donkey	1000/=	1000/=
Farmer's net benefit per 80kg bag transported to the market	6000/=	2000/=

Impact of donkeys as pack animals. Aside from generating income, it was frequently indicated that the arrival of donkeys as pack animals in the hills of Kasese District has reduced the transport burden on farmers. In particular, women benefit from the fact that the animals are well suited to transport goods for domestic purposes. As mentioned above, this would mainly involve transport of water and crops for home consumption. The use of donkeys as pack animals results in time and energy savings. Often it was stated that the beneficiaries would use freed-up time in productive activities (e.g. increase of agricultural production, or engagement in alternative IGAs), whilst others indicated that the amount of leisure time has also increased. Also, the elderly and children (in particular, girls) have benefited when donkeys are being used by households for transport purposes.

Nevertheless, despite the clearly visible improvements in the transport situation of villages where donkeys have been introduced, farmers of all three project sub-counties have stated that more donkeys are required in that the animals currently available are not sufficient to cater for the transport needs of entire communities. As a consequence of this, fears were expressed that the animals currently in place might be overused.

The impact of the project in Katakwi District, where due to security problems only one sub-county could be covered by the project, is best described in a case study (see Box 1).

Box 1

Case Study: Ms Betty Akudi, Farmer in Kapujan Sub-county, Katakwi District

Ms Akudi belongs to a farmers' group that has 10 members. She is the group's care-taker of three donkeys - out of which one is young - and a cart. The cart was manufactured by YWAM's[4] Design Centre and has cost USh160,000 of which the group has to pay 60% (i.e. USh96,000) as part of the risk / cost sharing arrangement wit the project. The two donkeys, which were procured locally in Katakwi District at the beginning of 2004, cost the group a total of USh120,000. The cart was delivered three months later.

She takes care of the donkey's welfare which includes spraying against ticks and trimming of hooves. She uses the animals mostly over distances between 1 and 3 km.

She used to headload until she obtained the donkeys but since then, according to her, "headloading is finished for her". As a result she feels much healthier now. In the past headaches, back and chest pains were common, and, as a consequence she took pain-killers such as Panadol. For example, given that she has a relatively large family, she had to carry every day 10 jerricans of water (i.e. 200 litres) from the tube-well to the home. This would now be transported by the donkey and cart in a 200 litre drum in one go. In particular, when the children were at school she had to carry the water by herself, obliging her to make at least five return trips of about 2 kms. In addition, when she produces *waragi* (i.e. local gin) for sale, she requires additional amounts of water (i.e. another 200 litres per day).

[4] Youth with a Mission, NGO

Also, she regularly used to carry headloads of cassava weighing 30 to 40 kgs from her garden to the home. Especially during the harvest it was common that she had to go up to six times to her garden that is about 1 km away and collect the roots. Now, by using the cart, she can transport the same amount at once, as a result of which she has more time for resting. Only if there is no road or track to her garden then she would use the donkeys as pack animals. Otherwise, she uses the cart. However, given that the rains were not good during the last season the harvest is not good and there is not much to sell this year.

She also uses the cart to transport firewood. Given that this is relatively far away (i.e. 7km one way), she would collect 6 – 7 bundles that would last her for up to a month. She would walk slowly with the donkey when the cart is fully loaded.

As for her transport priorities, she indicated the following:
- Transport of crops from the garden to the house (e.g. cassava, millet, sorghum, groundnuts),
- Water, every day 200 litres using a drum and the cart,
- Firewood,
- Hiring out the cart to other villagers (e.g. transport of bricks).

She charges farmers who are not group members if they want to hire the donkey-cart. For example, the transport of 50 bricks would cost USh1,000. Other group members can come and use the donkey cart without paying.

She has earned about USh70,000 net over a six-month period by hiring out the cart (e.g. transport of building material). At the same time she has incurred expenses of the order of USh40,000 the biggest part of which was for tyres (about USh30,000), feed supplements (about USh5,000) draw bars (USh2,000), and ropes (USh3,000). The tyre repairs were made at the nearest trading centre, whilst the draw bars could be replaced at home. The money that is left after cart maintenance and donkey welfare is used for domestic purposes.

In sum, as a result of the donkeys and the cart she has more time to rest, and she feels healthier now.

The Profitability of IMTs Tested by the Project. The following four options were assessed in order to analyse the profitability of the various Intermediate Means of Transport (IMTs) tested by the project in Iganga, Kasese and Katakwi:

- Option (a): 2 oxen and cart, plus plough
- Option (b): 2 oxen and cart
- Option (c): 1 donkey and cart
- Option (d): 1 donkey as pack animal

All four options are based on the assumption that farmers will require a loan to purchase the IMTs, and that real interest rates (i.e. once inflation is taken into account) are of the order of 12% per annum. Loans would have to be provided by projects or local government schemes (e.g. NAADS), given that according to farmers, most micro-finance institutions have conditions that are not appropriate for agricultural enterprises (e.g. interest rates are high, and loans have to be paid back on a weekly basis although farming is a seasonal activity) and banks very rarely give credit to farmers.

As for labour costs, the calculations provide for two alternatives whereby, (I) it is assumed that farmers would either have to pay someone to look after the animals or there is an opportunity cost on their time, and (II) the labour costs are not valued because farmers do not have to pay someone, or looking after the animals does not represent an opportunity cost for them.

Option (a). Owning an ox-cart is advantageous if the farmer also owns a plough and has access to sufficient amounts of land (i.e. about 6 to 8 acres minimum). This underlines the multi-purpose function of draught animals such as oxen. Even if the farmer has to pay for someone to look after the animals on a daily basis (i.e. USh365,000 p.a.) there is still a profit (USh194,000) to be made if the loan is spread over three years. If the farmer does not pay someone and does not have to forego alternative income opportunities when ploughing or transporting with his/her pair of oxen, then the annual net income possible is of the order of USh559,000 per annum, taking into account income from hired transport, ploughing, extra crop production, and gains through better market access. The related calculations are based on a 3-year loan and a 10-acre farm, details of which are shown in Tables E.11 and E.12.

Option (b). If a farmer does not own a plough then the income from the oxen and cart has to come entirely through transport activities such as hiring out the cart, or gains through better access to markets. In particular, if a farmer has to pay for labour then the net benefit of oxen and cart ownership is likely to be negative (e.g. USh296,000 as calculated in the case study). Farmers or other entrepreneurs will only be able to make a profit (i.e. USh69,000 p.a.) during the first three years (i.e. loan period assumed in this case) if they do not have to pay for labour. Only once the loan is paid back then they will be able to generate larger annual profits which can be of the order of USh211,000 (if labour is costed) to USh576,000 (if labour is not costed).

Option (c). Similarly, an enterprise based on a donkey and donkey cart can only be profitable during the loan period (i.e. 2 years in this case) if the entrepreneur does not have to pay for labour. In this case the annual net benefit can be of the order of USh128,000 until the loan is paid back, and up to USh480,000 in the following years.

Option (d). The case with donkeys as pack animals is very similar, in that the animals are only profitable if farmers do not have to pay for labour (e.g. USh500 per day). In this case it is estimated that about USh48,000 of net benefit are possible during the loan period which is assumed to be one year. Once the credit is reimbursed then an annual net benefit of USh210,000 is possible. In addition, the pack animals would be expected to be extensively used for domestic purposes such as the transport of water for household consumption.

Table E.11 Profitability of Intermediate Means of Transport (IMTs)

	Ox-cart plus plough (2 oxen)	Ox-cart (2 oxen)	Donkey cart (1 donkey)	Donkey as pack animal (1 donkey)
Capital Costs				
Animals	640,000	640,000	100,000	100,000
Kral or shed	10,000	10,000	15,000	15,000
Harness, panniers			30,000	30,000
Yoke plus chain	18,000	18,000		
Cart - 'Iganga -model' (incl. transport)	550,000	550,000	450,000	
Plough - SAIMMCO	120,000			
Annual Operating Costs				
Feed supplements	30,000	30,000	15,000	15,000
Salt	20,000	20,000	5,000	5,000
Deworming	12,000	12,000	6,000	6,000
Spraying animals	12,000	12,000	6,000	6,000
Injections	10,000	10,000	5,000	5,000
Cart maintenance and repair	40,000	40,000	30,000	
Plough maintenance and repair	10,000			
Harness maintenance			3,000	3,000
Labour / farmer's time	365,000	365,000	182,500	182,500
Cost Summary				
Total capital costs	1,338,000	1,218,000	595,000	145,000
Pay-back period of loan (yrs)	3	3	2	1
Interest rate (in real terms)	12%	12%	12%	12%
Annualised capital costs	557,075	507,113	352,060	162,400
Annual operating costs	499,000	489,000	252,500	222,500
Total annual costs	1,056,075	996,113	604,560	384,900
Annual Income from IMT's				
Transport - Hired out	200,000	500,000	450,000	200,000
Ploughing (20 acres)	400,000			
Extra crop production	450,000			
Gains through better Market access	200,000	200,000	100,000	50,000
Total annual income	1,250,000	700,000	550,000	250,000
Annual Net Benefit until Loan is paid back (i.e. total income - costs)				
If labour is costed	193,925	-296,113	-54,560	-134,900
If labour is not costed	558,925	68,887	127,940	47,600
Annual Net Benefit once Loan is paid back				
If labour is costed	751,000	211,000	297,500	27,500
If labour is not costed	1,116,000	576,000	480,000	210,000

NB: For details see explanations overleaf.

Table E.12 Profitability of Intermediate Means of Transportation (IMTs)

Explanations to previous table:

	Ox-cart plus plough (2 oxen)	Ox-cart (2 oxen)	Donkey cart (1 donkey)	Donkey as pack animal (1 donkey)
Labour / farmer's time	This assumes a farmer has to pay someone to look after the animals. Alternatively, it corresponds to farmers' opportunity cost of their time (e.g. foregone income)			
Cost Summary				
Total capital costs	Sum of capital costs (i.e. all investments)			
Pay-back period of loan (yrs)	This assumes the farmer has to take out a loan in order to be able to make the investments. Here the pay-back period corresponds to the duration of the loan.			
Interest rate (in real terms)	This assumes an interest rate minus the inflation rate			
Annualised capital costs	This corresponds to equal annual repayments of the loan based on pay-back period, instalments and interest.			
Annual operating cost	Sum of all the annual operating cost elements			
Total annual costs	Sum of annualised capital and operating costs			

Income from IMT's				
Transport - Hired out	40 days at 5000/= per day	100 days @ 5000/= per day	150 days @ 3,000 per day	200 days @ 1,000/= per day
Ploughing - Hired out (20 acres)	20 acres @ 20,000/= per acre			
Extra crop production	It is assumed that the family owns 10 acres of land 4 of which have been cultivated. Due to the use of the plough an additional 6 acres can be cultivated yielding 3,000kg of maize valued at USh150/= per kg net (i.e. after deduction of other production costs such as weeding).			
Gains through better market access; i.e. transport of crops to market where price is higher than at farmgate	Assumes transport of 2000 kg to market and price diff. is 100/=	Assumes transport of 2000 kg to market and price diff. is 100/=	Assumes transport of 1000 kg to market and price diff. is 100/=	Assumes transport of 500 kg to market and price diff. is 100/=

Net benefit (if labour is costed)	Shows annual net benefit (income) of enterprise if labour is costed.
Net benefit (if labour is not costed)	Shows net benefit of enterprise if labour is not costed, i.e. farmer does not have to pay for it, or considers the extra-time necessary as spare time which was previously unused.
Annual Net Benefit once Loan is paid back	Shows annual net benefit (income) of enterprise once loan is paid back, i.e. only the annual operating costs are taken into account

Evaluation Study: Intermediate Means of Transport (IMT) Operating Costs

The HDM-4-Vehicle Operating Cost Model, developed by the World Bank, was used by the TRL Transport Economist, Mr Mustapha Benmaamar, to predict vehicle operating costs. Data input required for the operation of the IMT Operating Cost model can be divided into the following:

- Road characteristics;
- IMT characteristics;
- IMT utilisation data or the demand;
- Unit costs.

In addition, the model also requires data on the cost of capital and maintenance, crew and energy costs and additional coefficients. In this study, most of the coefficients used are based on the model's default values, which are adjusted to the type of IMTs used in this research project.

Table E.13 indicates the IMT operating costs based on the Transport Economist's calculations following a visit to project sites in Uganda. In addition to IMT operating costs, the operating costs savings have been calculated comparing various alternative modes of transport to each other.

Table E.13 IMT Operating Costs (in Ug Shillings of 2004)

COST ITEMS	Bicycle	Pack Donkey	Donkey cart	Oxen cart	Head-loading
CAPITAL COST/km	4.40	3.50	8.88	79.47	0.00
INTEREST COST/km	0.03	0.04	0.11	0.72	0.00
Overheads cost per km	3.60	6.00	6.75	21.60	0.00
Repair & Maintenance Costs	7.71	52.97	717.29	168.11	0.00
Crew cost per km	31.68	72.60	74.25	110.88	0.00
Energy cost/km	180.00	118.80	118.80	237.60	259.20
TOTAL	**227.41**	**253.91**	**926.07**	**618.38**	**259.20**
Payload (tonne)	0.065	0.175	0.550	1.000	0.020
Number of trips required for one tonne-km	15.4	5.7	1.8	1.0	50
Time (hours) required for one tonne-km	1.23	1.05	0.34	0.28	12.50
Cost of transporting one tonne-km	**3,499**	**1,451**	**1,684**	**618**	**12,960**

Calculation of total operating costs savings. Headloading and bicycles were the most common modes of transport used in the three districts prior to the introduction of the pack donkeys, donkey carts and ox carts. Table E.14 presents the economic benefits (savings) generated by the introduction of IMTs to the three districts.

Table E.14: Total savings generated by each introduced IMT in transporting one tonne-km (in UG-Shillings, 2004)

IMT used at present	IMT used as an alternative mode of transport	Operating cost savings	Journey time savings	Total savings
Headloading	Pack donkey	11,509	2,577	14,086
Bicycle	Pack donkey	2,048	41	2,087
Bicycle	Donkey cart	1,815	200	2,015
Headloading	Donkey cart	11,276	2,736	14,012
Headloading	Oxen cart	12,342	2,750	15,091
Bicycle	Oxen cart	2,880	0.95	3,094

The results show that all alternative modes of transport are economically viable. The critical variable that determines the choice of a mode of transport remains the level of demand for transport (utilisation). A recent DFID Knowledge and Research project[5] carried out in five Subs-Saharan African countries shows that an upper quartile threshold of 1.2 tonne-km is required to shift from headloading to the use of an IMT, and where conditions were conducive the IMT was usually a bicycle. Above a transport load of 8 to 10 tonnes-km there was an increasing demand for an IMT with higher payload such as animal-drawn carts.

Final Project Workshop

The Final Project Workshop was held on 13-15 December 2004 in Jinja. It was attended by 44 primary and secondary stakeholders. The workshop objectives included the following:

- Brief participants on the project highlights and overview;
- Present the project institutional histories;
- Strengthen the partnership function amongst the different players;
- Share experiences from different farming systems in the country; and
- Chart the way forward following the project expiry.

In addition to the discussion of project findings which are already presented above, the workshop served to chart the way forward from different stakeholders' viewpoints, namely: and Local Government , Farmers, and Intermediaries including NGOs and Artisans,.

The recommendations made by **Local Government working group** with regard to a better integration of the IMT Project into district programmes, include the following:

1. There is a need to sensitize the district executive committees, CAO Chairman and executive council (the programme is not beginning but it is about sustainability, so entry point is through sensitization of production committee, NGO forum, executive committee, and chairperson of the district, at all levels even LC3 district technical committee) during normal meetings;
2. The second entry point is the sub-county because it is the decision of the sub-county and this is passed on to the district for approval (bottom up is only for planning purposes). This requires sensitization of technical committee, local council, NGO forum and production committee at the sub-county level;
3. Sensitize parish development comities (PDCs) through monthly / quarterly meetings to undertake development initiatives;

[5] Demand Appraisal For IMT and Transport Services, DFID KAR project R7787, January 204

4. Sensitization should be carried out by intermediary agencies who need to come up with a report, jointly prepared with secretary of production, and district production officer in form of a team. Since there is no further funding only monthly / quarterly meetings at the sub counties can be used to sensitize the committees.

The existence of various initiatives and organisations at district level has been identified as an opportunity by the LG working group. In particular, there are intermediary agencies, NUSAF Katakwi, MTCEA in Iganga, NAADS in Iganga, and LGDP grants in all districts.

There are a number of steps to achieve the above, namely:

- Coordinated mapping of the resources and their use;
- Establishment of linkages and collaboration;
- Lobbying and advocacy for the resources;
- Existing structures like parish development committees should be used to integrate IMTs in to the district development plans, and local government programmes at all levels
- Service providers need to be identified for providing services to the farmers
- Private sector participation needs to be encouraged
- Provision of an enabling environment for other CBOs and NGOs to operate within the district

The **recommendations made by farmers** with regard to improved uptake of Intermediate Means of Transport (IMTs) include the following:

Strategies to improve focus in prioritizing expenditure of available funds:

- Prepare budgetary framework for prioritizing expenditure.
- Train farmers in record keeping on their IMT's.
- Encourage members not to take on many projects at the same time.

Strategies to create jobs for particular IMT's:

- Sensitize farmers to explore more avenues of using IMT's to generate income.
- Encourage farmers to utilize IMT's for more farm production to generate more income.
- Encourage farmers to use IMT's for other income generating activities to solve transport problems (fire wood, bricks, brew, water, mining)
- Improve living standards of group members by using IMT's.

Strategies for some farmers who have already lost animals:

- Preventive management of IMT's

Strategies for animal disease prevention:

- Give regular treatment and preventative care to IMT's
- Empower members on basic principles of veterinary care.
- Use local herbs to reduce costs of animal treatment.

Strategies to enhance cooperation within groups:

- Enforce group bylaws within groups for members to work together.
- Exhibiting transparency in the group (let each department do their work, let each member play his/her role).

Strategies to reduce gender roles related conflicts:

- Sensitization of members on gender roles
- Freedom of participation by members
- Conflict resolution through groups

Strategies for farmers who take long to adopt skills necessary to utilize IMT's:

- Conduct regular refresher trainings in IMT's management to include all users.
- Conduct farmer ex-change visits.
- Discourage misuse, ill treatment and hostility towards IMT's. (overloading, long working hours and hostility towards animals)

Strategies to counter negative attitudes towards loan payment:

- Conduct inter-group meetings on loan management.
- Streamlining group bylaws that force members to pay.
- Train members on institutional management.

Strategies with regard to unfavorable farming conditions limiting farmers to sell:

- Identify other income generating activities that can utilize IMT's (transporting water, transporting people, etc.)
- Carry out exchange visits to learn other uses of IMT's besides for farm use.

The **recommendations made by Intermediary Organisations including artisans** with regard to steps for improved loan recovery and related issues include the following:

- Refine the agreements by beneficiaries, intermediaries and local authority
- Strengthen collaboration with the extension department.
- Establish animal caretaker clinics at sub-county level.
- Promote appropriate technologies for animal care.
- Promote initiatives among farmers for diversification in use of the animals/IMTs.
- Capacity building training in saving and credit.
- Establish/strengthen linkages with other stakeholders
- Explore opportunity for building the capacity of local artisans in fabrication of IMTs (SASAKAWA, DFID, JICA etc).

In addition, this group identified a number of opportunities that the project coalition could explore to enhance uptake of IMTs, namely:

- Partnerships/networking with other stakeholder e.g. local authority, NGOs, Government Programs, Private sector.
- Continue with action research in donkey health and utilization.
- Lobbying by Intermediaries for Local Government, and NGOs to take up IMTs.
- Willingness of the Local Government to participate in the project.
- There are lessons learnt that can help enhance planning for expansion.
- Existence of a pool of local artisans and intermediaries.
- Use of existing government programs e.g. NAADS, PMA, AAMP, NUSAF, etc.

Section F Project effectiveness

	Rating
Project Goal Poor people benefit from new knowledge applied to food commodity systems	2
Project Purpose Strategies developed and promoted, which improve food security of poor households through increased availability and improved quality of food and better access to markets	2
Project Output 1. Building of capacity for Transport Forum Group offices to manage and backstop rural transport development research projects at national and regional level	2
Project Output 2. Knowledge and information on agricultural production, post-harvest and marketing, economics and technical aspects of IMTs and their use by poor farmers, and poor farmers' livelihoods in three Districts	2
Project Output 3. 3. Best practices on promotion of validated means of transportation	2 / 3; still on-going in that project partners will continue to promote the project findings after the project completion date

1= completely achieved
2= largely achieved
3= partially achieved
4= achieved only to a very limited extent
X= too early to judge the extent of achievement (avoid using this rating for purpose and outputs)

Outputs

Project Output 1: Building of capacity for Transport Forum Group offices to manage and backstop rural transport development research projects at national and regional level

The project has made a significant contribution to the Transport Forum Group in Uganda in that it has helped this network to set up offices (e.g. purchase of computer equipment, funding of the TFG Administrator, contributions to rent). As a result, TFG now have an office that is recognised as a focal point by other stakeholders in the Ugandan transport sector, including intermediaries from the districts.

The Transport Forum Group now have strengthened networking mechanisms at local, national, regional, and international levels. As illustrated above, the project has carried out numerous activities at these levels that have permitted the different network partners to gather and exchange their views. For example, the kick-start workshop was the first step into this direction in that it brought together a group of people that has a common interest, i.e. to overcome farmers' local transport problems. In Phase II, the quarterly partnership meetings have helped farmer groups from the three districts to meet and exchange their views with the TFG Coordinators as well as international project partners. Another example includes the exchange visits with the KENDAT led partner project in Kenya, which allowed several TFG members and farmer group representatives to visit their Kenyan colleagues. Also, a training programme for artisans has been organised by the project.

As far as capacity building is concerned, TFG members have benefited from training in research approaches and tools such as Participatory Rural Appraisal (PRA), and Participatory Monitoring and Evaluation (PM&E). The training sessions took different forms such as on-the-job training, and occasionally class-room style sessions. The training sessions were mainly organised by NRI or the CPHP Regional Office. In particular, the latter played a very active role in establishing a PM&E system for the project partnership.

Project partnership arrangements have been better conceptualised in Phase II following the project review in February 2003. Related exercises took place during the design stage of Phase II, as well as during subsequent workshops. For example, the Golden Milestone workshop had a considerable element focussing on identifying and classifying partners and stakeholders. As much as possible, partnership arrangements were also formalised through contractual arrangements.

Project Output 2: Knowledge and information on agricultural production, post-harvest and marketing, economics and technical aspects of IMTs and their use by poor farmers, and poor farmers' livelihoods in three Districts

The project has been able to build up substantial amounts of knowledge and new information on these aspects. In particular, the use of a combination of qualitative / participatory and quantitative approaches during the course of the baseline study has been instrumental in establishing a substantial data base. The PRAs were used as the entry points for further activities in the communities, such as household questionnaires, and distribution and participatory monitoring of IMTs.

Also, the institutional foundations for sub-sequent project work were laid during this phase in that local partner organisations were identified and involved in the fieldwork. The main local Intermediary organisations (i.e. MTCEA, KFG, YWAM) plus local government departments played a major role in carrying the project forward at local level.

Project Output 3: Best practices on promotion of validated means of transportation

This output highlights the two sides that are crucial to the promotion of Intermediate Means of Transport (IMTs), namely the technical and the institutional sides. Whilst at international level substantial technical knowledge exists about the different types of IMTs available, the project managed to place this into a national context.

As indicated above, the project has introduced IMTs that were chosen together with the local stakeholders concerned such as donkeys as pack animals, oxen, donkey / ox-carts, and ploughs. The latter were made available to farmers for testing as part of he same cost-sharing agreement in view of the multi-purpose function of IMTs. In addition to the technology as such, the research also highlighted the avenue to overcome these. For example, at the beginning artisans encountered numerous problems in manufacturing carts to the satisfaction of farmers. However, the organisation of an Artisan/Farmers' week where the two parties could exchange their views has led to encouraging results. Also, the need was highlighted that artisans use good quality components for the carts, in that the first set of tubeless tyres often resulted in flat tyres. As a result, the original tyres had to be replaced by better quality second-hand tyres including tubes.

As for animal health and welfare, after initial apprehensions the farmers took well to donkeys as pack animals. In particular, in the mountainous parts of Kasese district no other IMTs can be envisaged in the foreseeable future to cater for farmers' local transport needs. Nevertheless, despite initial basic training in animal health care (e.g. spraying against ticks) farmers have asked for more training in this field given that local veterinary extension services are rarely available in the hills and several donkeys have died for different reasons (e.g. fever, complications during the delivery of foals). In addition to training of farmer representatives, the establishment of community veterinary clinics was suggested by farmers. In the meantime, TFG have submitted a proposal to a UK based organisation to provide assistance in this field.

The project has been able to demonstrate the importance of institutional arrangements and partnerships when carrying out similar projects. As a consequence, a substantial proportion of the project's efforts were spent on partnership building involving quarterly meetings, workshops, exchange visits, and farmers' full involvement in participatory monitoring and evaluation (PM&E) exercises.

As a result of these efforts, it became evident that farmers became more self-confident in expressing their views and making a case for their needs. Networking between farmer groups, TFG, Intermediaries, and Local Government has led to plans to include IMT promotion in the district budgets. Despite delays, it is expected that related provisions will be made in the next budget round.

The fact that networking capacity of TFG and local partners has been strengthened has led to new initiatives. For example, the TFG coordinators have been requested to visit the West Nile region in Uganda and to prepare an action plan for the introduction animal carts in the region.

As for wider dissemination of project findings, a project update entitled "Building Partnerships for Sustainable Rural Transport Development" has been prepared for inclusion in the quarterly newsletter of the International Forum for Rural Transport and Development (IFRTD). This newsletter is distributed worldwide to approximately 3000 members of this network.

A paper entitled "Rural transport and livelihoods" has been prepared for the Conference of the Ugandan National Agricultural Research Organisation (NARO) in September 2004, and was subsequently published in the Uganda Journal of Agricultural Sciences.

In addition, the project was also promoted through short newspaper articles in Uganda, and a project brief printed in the DFID Transport Knowledge & Research Newsletter (Issue 17) prepared for the World Transport Conference in Durban in November 2003.

Purpose

> **Strategies developed and promoted, which improve food security of poor households through increased availability and improved quality of food and better access to markets**

The project has made a significant to contribution to improve the agricultural marketing system of Uganda and other countries in Sub-Saharan Africa. Lack of rural transport has frequently been identified by farmers and other stakeholders as one of the principal constraints of efficient marketing systems. In focusing on the introduction of Intermediate Means of Transport to enhance the transport system at community level the project has provided poor farming communities with more options.

The technology has proven to be able to add value to agricultural crops allowing farmers to transport their produce to community markets and market centres where prices tend to be 20 – 30% higher than at farmgate. In particular, besides headloading predominantly by women, farmers in hilly parts of Uganda and other parts of the region have no other options than using donkeys for transporting produce. Other IMTs are either too expensive or not practical (e.g. using bicycles is impossible on steep hills), and motorised vehicles only occasionally access a limited number of communities. Although the project has proved that donkeys can adapt well to the region, farmers also found it difficult to access veterinary services as and when required. As a result, they have suggested that more training on animal health care be organised for them and community veterinary clinics be established.

In contrast, in a district like Iganga which is mostly flat and has a high agricultural potential, farmers have more transport options to move their produce to the market. This includes bicycles and even motorised means of transport, which may be more expensive. At the same time, the project results have shown that farmers who are interested and willing to increase their production require an intermediary transport solution that allows them to move larger quantities of produce at a relatively low cost. Ox-carts and donkey-carts have demonstrated that they represent an option that can fill this gap. At the same time, it also became obvious that the multi-purpose function of IMTs needs to be publicised. For example farmers in Iganga were keen to use the ploughs that were also made available through the project. This allowed them to increase their productivity and income, leading ultimately to improved livelihoods.

Also, it is important to stress that these IMT solutions do not only serve for agricultural purposes but have other functions as well, such as transport of water for domestic purposes, fuelwood and building material. In particular women and girls are relieved from transport related chores, which, according to them, has improved their health.

The project partners have been able to publicise their project through different channels, namely workshops, a publication in the Uganda Journal of Agricultural Science (September 2004), and international dissemination of project findings (e.g. IFRTD Update). In addition, the annual report 2003/2004 of the Plan for the Modernisation of Agriculture, which is a major initiative of the Government of Uganda, features the project and its achievements so far. As a result, a substantial number of end users are aware of the project. Nevertheless, it is expected that members of the project coalition will continue to disseminate findings through various channels. For example, the TFG Project Co-ordinator is undertaking consultancy and advisory work for a World Bank project in Malawi. The latter will draw on findings of project R8114 as much as possible.

Some of the target institutions have expressed their intention to adopt the new knowledge, including Local Government departments in the districts where the project was carried out. For example, the Local Government in Kasese District has made plans to fund further project related activities with funding from the Belgian Development Corporation. The other districts have expressed similar intentions, however it was also revealed during project workshops and meetings that in addition to the technical departments projects ought to target (i.e. inform and lobby) Local Council committees in which relevant decisions are taken.

Goal

Project goal: Poor people benefit from new knowledge applied to food commodity systems

As shown by the results of the monitoring and evaluation surveys, the project has made significant contributions to improve the livelihoods of poor farmers in Uganda. This includes the application of new knowledge to the food commodity system as well as benefits to the wider livelihoods system of farmers.

The means of transport tested were mainly used for the following purposes:

- Carrying produce from the field to the homestead,
- Transport of water for domestic purposes,
- Taking produce to the market,
- Transport of building material,
- Carrying fuel wood for domestic purposes,
- Hiring out of the IMTs for some of the above,
- Taking produce to the grinding mill,
- Using carts, transport of children to school.

The time, energy, and cost savings made by using the IMTs led in turn to the following livelihoods improvements, according to farmers:

- Time savings increased the quality of life,
- Increased productivity
- Better food security
- More income generating opportunities

- Less physical strain / hardship
- Move from subsistence to small-scale agriculture
- Better health
- Being able to undertake bulk carriage
- Children spend more time at school

This list of benefits mentioned by farmers shows the potential of the technology if it can be more widely disseminated in Uganda and beyond through the development of partnerships. The Transport Forum Group are well placed to play a leading role in this in Uganda, and, together with their Kenyan sister organisation KENDAT, in the wider region.

Section G – Uptake and Impact

Organisational Uptake

As yet (i.e. January 2005), organisational uptake of the project findings has taken place in the project areas (i.e. Kasese, Iganga, and Katakwi Districts). In addition to the core coalition partners, Local Government departments have become interested in the project results and indicated willingness to allocate funds for related activities.

The TFG Project Coordinator has been asked by NAADS (National Agricultural Advisory Service) to prepare an action plan for the introduction of carts in the West Nile region. Also, NAADS are funding the introduction of donkeys in Kabale district.

The project and its importance have been highlighted in the Annual Report 2003/2004 of the Plan for Modernisation of Agriculture (P25).

In collaboration with the project, the network International Forum for Rural Transport and Development has prepared a project update that will be distributed worldwide to about 3000 network partners as part of their quarterly newsletter. It is expected that some IFRTD network partners will adopt the new knowledge.

End user uptake

In particular, farmers of the communities where the Intermediate Means of Transport have been tested have taken up the technology. About 80 farmers received donkeys, 19 received oxen, 13 donkey carts, and 17 ox-carts, and 23 ploughs. At the same time, it needs to be borne in mind that in most cases the recipients of the IMTs formed part of groups, as a result of which their fellow group members also had access to them.

In addition, in some cases individual farmers in the project area have bought the IMTs at their own initiative once they have seen their benefits. Also, the NGO FABIO have distributed 150 bicycles in project areas were these means of transport were lacking, i.e. Kasese and Katakwi.

Knowledge

In particular, the project has been able to contribute to the stock of knowledge by combining technical and institutional issues in a livelihoods context. For example, the project partnership approach has received favourable comments from observers (pers. comm. P. Fernando, Director, IFRTD Secretariat).

In Uganda, the project has contributed to the stock of knowledge through various forms, such as an article that was published in the Uganda Journal of Agricultural Science, the mention in the PMA Annual Report 2003/2004; and numerous project meetings and workshops.

Institutional

The project has strengthened the networking and research capacity of the Transport Forum Group in Uganda and their various partner organisations. In particular, Intermediary organisations at District level have benefited from the project in that it has allowed them to acquaint themselves with new transport related knowledge as well as

the principles of participatory monitoring and evaluation (PM&E). In addition, Local Government departments have been involved in the project, thereby improving their capacity in these areas.

Policy

The importance of the project was highlighted in the Annual Report of the Plan for Modernisation of Agriculture which forms the principal government initiative in this sector in Uganda. It is planned to prepare a policy brief for the PMA Secretariat based on the project findings.

At the same time, the project has started to influence policy at Local Government level in that decision makers are making plans to include IMTs in budgets.

At international level, it is expected that the dissemination of the IFRTD Update on the project will influence policy making in some countries by putting greater emphasis on partnership building for sustainable transport development.

Poverty and livelihoods

As yet, it was mostly the farming communities in the three project districts that have benefited from the project. The majority of farmers in these areas are poor. In particular, the new owners of donkeys have benefited in this respect in that the animals stand for a low-cost technology which is more affordable for the poor.

Oxen and ox-carts (plus ploughs) ideally require access to larger farms (i.e. above 6 to 8 acres) to make best use of the technology. Group formation is important where farmers have smaller farms so that they can jointly acquire the equipment and meet the loan conditions.

In that the introduction of Intermediate Means of Transport (IMTs) plays an important role in alleviating women's and girls' chores in rural areas (i.e. reduced headloading), the project has made a significant contribution to poverty reduction. Amongst others, the results include, improved welfare, better food security, and better health.

Environment

There are no negative impacts on the environment as a result of this project.

Positive impacts are likely if, as a consequence of this project, SAIMMCO (Soroti based agricultural implement manufacturer) will replace the steel-wheels on their carts by rubber tyres. The latter are more environmentally friendly and cause less damage to fields and rural roads.

Also, the utilisation of manure from the draught animals can contribute to more sustainable land use patterns.

Signatures Date: 31 January 2005
Ulrich Kleih (NRI) and Dr Charles Kaira (TFG)

ANNEXES

Annex I: Copies of the livelihoods, gender, and stakeholder analyses submitted with the proposal for Phase II of Project;

Annex II: Project Logical Framework: R8114 - Improved Food Crops Marketing through Appropriate Transport for Poor Farmers in Uganda (Updated April 2003)

Annex III: List of disseminated outputs

Annex 1

The following two annexes were supplied with the proposal for Phase II of the project in April 2003.

Livelihoods Analysis for Research Project - Improved Food Crop Marketing Through Appropriate Transport For Poor Farmers in Uganda (Phase II).

1. Interest groups the work is intended to benefit and where are they?

The project is intended to benefit poor farming communities in Uganda. Although it is carried out in nine sub-counties belonging to Iganga, Kasese, and Katakwi Districts, it is expected that in the longer-term the research findings will benefit other rural communities in Uganda and the wider region.

In particular, groups of farmers which have been formed for savings & credit or agricultural production and marketing purposes will be targeted. Women groups will be especially encouraged to participate in the project.

2. In what way can they be defined as 'poor'?

The findings of the baseline survey carried out in the first phase of this project highlight the fact that the majority or farmers in the three target Districts are small-scale producers with limited access to livelihoods resources such as land or animals. In particular, farming in Kasese District is characterised by small plots of land located in remote parts in mountainous terrain. Nevertheless, although their access to land may be slightly better, the majority of farming communities in Iganga and Katakwi can equally be classified as poor.

According to the Plan for Modernisation of Agriculture 'Poverty is mainly a rural phenomenon as 48% of the rural population are below the absolute poverty line', i.e. poverty is primarily a rural problem.

3. What livelihood problem or opportunity are they experiencing and how many people are affected?

Either lack of available transport or high cost have been indicated by the majority of male and female villagers interviewed as part of the baseline survey as their main household travel and transport problems (i.e. 71% to 98%). This is reflected in the degree to which farmers use human porterage for transport of crops from the field to the home and from there to the market (i.e. the vast majority). Especially women carry heavy loads of produce.

As already indicated, farmers in Kasese District are particularly affected by remoteness in that vehicle use is very limited in the hilly parts of the District. Practically, all the farmers living in the mountains suffer from remoteness.

Although bicycles are used in Iganga and Katakwi District this mode is only suitable for transporting small loads over shorter distances. As agricultural production becomes more advanced and commercialised this mode of transport represents a constraint for the development of the farming system. For heavier loads and longer distances, ox-carts are more suitable and cost-effective.

According to the Uganda Participatory Poverty Assessment Project (UPPAP), lack of market access is one of the principal causes of poverty in the country. The project is attempting to alleviate this particular livelihoods constraint through providing farmers with appropriate means of transportation with which they can access agricultural markets.

At the same time, although the project has a strong focus on marketing activities and related transport requirements it is important to consider the means of transportation to be tested as multi-purpose. In addition to marketing, farmers require transport for agricultural production activities, domestic purposes and other Income Generating Activities (IGAs). In order to be economically viable for farmers, the means of transportation need to be used for as many

purposes as possible, including hiring them out.

4. What contribution will the project make to this, over the timeframe of the project?

The principal activities of the project are related to action-research in order to test and validate the most appropriate means of transportation under the farming systems encountered in the three target Districts.

During the course of the project, it is expected that farming communities in nine sub-counties will benefit through the use and testing of more appropriate and cost effective means of transportation such as donkeys, and ox-carts.

However, the major impact is only likely to take place after the end of the project once the means of transportation have been validated. By 2007, it is expected that there will be at least a 20% rise in the acquisition of Intermediate Means of Transportation (IMTs) by farmers in a minimum of five Districts of Uganda.

5. What external factors need to be in place for impacts to be sustained and extended after the project has ended?

GoU needs to continue its pro-poor policies to guarantee long-term sustainability of project impacts. The Plan for Modernisation of Agriculture, which states the importance of Intermediate Means of Transportation (IMTs), has recently been started with major donor commitment.
As a consequence, it is expected that the project impacts can be sustained in the long-term.

6. What other initiatives (research or development) would the project complement / add value to.

As already indicated the project covers an area which has been highlighted in the Plan for Modernisation of Agriculture. Improved means of transportation including the use of IMTs has been indicated as important to improve market access.
The project also adds value to initiatives targeting the improvement of the transport infrastructure in that community access roads would be better utilised.

7. On what basis was the proposed project identified?

Previous CPHP funded research by the Natural Resources Institute in collaboration with the Agricultural Policy Secretariat identified more appropriate means of transportation as a prerequisite to improve community access to marketing opportunities. This led to the development of a proposal based on which the baseline survey in phase I of the project was carried out. The baseline survey clearly identified the need for more appropriate means of transportation in farming communities.

8. Who stands to lose from the work if it is adopted or implemented on a large scale?

Some villagers who currently earn income from human porterage may lose out in the medium to long-term as a result of this research project. Although not many villagers who undertake this activity have been encountered during the course of the baseline survey it is possible that small numbers of poorer households are engaged in it at least on a part-time basis. As a consequence, it needs to be analysed during the second phase of the research to what extent these members of the community are likely to lose out and what mitigation measures can be envisaged for them.

Also, intermediary traders are likely to lose out as a result of the project if farmers have better access to markets. Improved availability of transport will allow farmer groups to better consolidate their crop loads and directly access markets. As a result, their bargaining power will be strengthened and intermediary traders can be by-passed. This may include small-scale middlemen operating at local level.

Gender Analysis

1. How does the research problem / opportunity identified affect men and women differently?

According to the baseline study, both men and women are involved in the production and sale of agricultural crops. However, it appears that men are more likely to be in charge of selling higher-value food crops or traditional cash crops.

Household assets and resources tend to be controlled by men in that household heads are considered to be the owners of the assets. The baseline survey revealed that asset ownership by women is only more prevalent in the case of female headed households.

Women are particularly affected by the availability of transport or the lack of it, in that they spend substantial amounts of time for domestic and agricultural transport. In particular, this involves human porterage (e.g. head or back loading) of heavy loads (e.g. 30kg and more) over long distances.

2. How will expected project results impact differently on women and men?

The use of donkeys has been identified as a means of transportation to alleviate women from carrying heavy loads especially in mountainous areas such as Kasese District. As experience shows from other parts of sub-Saharan Africa these animals can be easily handled by women.

The use of oxen and ox-carts tends to be a male domain in many countries including the parts of Uganda where they are already used (e.g. Teso). However, it is expected that their introduction will indirectly alleviate the transport burden for women in that more household transport needs will be covered by carts. In addition, women or women groups may be able to hire ox-cart transport for productive purposes.

3. What barriers exist to men's and women's involvement in project design, implementation, and management decisions?

Administrations and organisations tend to be dominated by men, as a consequence of which women are less likely to be involved in the early stages of a project when contacts are being established.

Nevertheless, during the first phase of this project (i.e. in particular the PRA of the baseline survey) it has been possible for both men and women farmers to provide inputs relevant for phase II. Certain exercises have been carried out only with women.

In particular, it is envisaged to encourage women groups to participate in this second phase of the project during the course of which means of transportation will be tested and monitored in the communities.

Stakeholder Analysis

Table 1a: Coalition Members - Interests and Impact

Proposed Coalition Members	Key Interest in the Project	Potential Impact of the Project
Farmers and CBOs	Farmers have stated the lack of appropriate means of transportation as one of their livelihoods constraints. As a result they have a strong interest to participate in this project	The majority of members of farming communities are to gain as a result of the project in that improved transportation will allow them better access to markets. In addition, the means of transportation are likely to be used for other purposes such as alternative income generating activities or domestic transport.
Local NGOs and Service Providers (e.g. Youth with a Mission. Karughe Farmer Partnership, Multi-Purpose Training and Community Empowerment Association), local artisans, SAARI, extension services	Due to their involvement and background in farming communities they have a strong motivation to assist farmers' groups.	Participation in the project will improve their knowledge base as regards improved farm technologies. These will be made available to the benefit of poor farmers.
Transport Forum Group (TFG) (Kampala)	TFG are committed to improving rural transport through networking, research, and dissemination of knowledge.	TFG's participation in the project would, on the one hand, allow them to forge new partnerships, and on the other hand improve their knowledge base to the benefit of poor farmers.
International Research Institutes (NRI, TRL, and SRI)	Institutes such as NRI, TRL, and SRI have a long-standing reputation for research and development work. Their interest in the project is the generation of new knowledge which can be disseminated to the benefit of the poor in developing countries.	New knowledge generated will be disseminated to the benefit of poor people in other parts of Uganda and the wider region. Transfer of technical know-how to local partners, in particular TFG.

Table 1b: External Stakeholders – Influence and Impact

External Stakeholders	How can they influence the project	Potential Impact
DFID Crop Post-Harvest Research Programme	Having identified improved market access for poor farmers as a priority, CPHP have commissioned and provided funds for this research. They can provide steering and guidance throughout the project life.	CPHP will disseminate improved knowledge to the benefit of poor rural households in Uganda, and other developing countries. They can also encourage uptake of findings by Government, NGOs, private sector, and donors (including other DFID departments)
Government of Uganda through the Secretariat of the Plan for the Modernisation of Agriculture (PMA), NAADS, and Local Government	PMA Secretariat can influence the project by encouraging GoU Departments to assist the project in its implementation (e.g. contributions of MAAIF veterinary and LG officers). Support of Local Government is important for the success of the project. In some cases it is possible that LG Departments will actively participate in the project whereas they may become an external stakeholder in other cases.	Likely to use project findings for the implementation of the PMA. As a result, in conjunction with NAADS they are major agencies to be targeted for up-take. Contacts have been established with LG Departments in order to inform them of project and sensitise them regarding uptake of findings.
Other Donor agencies (e.g. Belgian Development Cooperation) and NGOs (e.g. Sasakawa Global 2000, and ActionAid).	They can contribute with human or financial resources to the implementation of the project (e.g. expressed interest to support the project in Kasese District).	Likely to use research findings for the implementation of their strategies (hence up-take potential)

Annex 2

Project Logical Framework: R8114 - Improved Food Crops Marketing through Appropriate Transport for Poor Farmers in Uganda (Updated April 2003)

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Risks and Assumptions
Goal			
Poor people benefit from new knowledge applied to food commodity systems	- By 2002, increased number of poor households, in two countries, who use improved storage and agro-processing techniques in an environmentally sustainable manner. - By 2002, increased numbers of poor households, in two target countries, benefit from improved marketing and credit systems. - By 2005, increased contribution to nutrition of poor households from own produced food. - By 2005, increase in income from the sale of fresh and processed crops by poor households, in two countries.	National and local adoption rate surveys National food security data	Poor people invest benefits to improve choices and options for livelihood strategies.
Purpose			
Strategies developed and promoted, which improve food security of poor households through increased availability and improved quality of food and better access to markets.	- By 2005, cost-effective marketing and credit systems validated to enable small-scale producers to add value to harvested crops. - By 2005, new knowledge adopted by target institutions. - By 2005, end users in target countries are aware of knowledge programme outputs	Annual Research programme reports. External refereeing External O/P reviews Target institutions' reports	Resource managers, producers and processors are able to adopt new knowledge Enabling environment exists for widespread adoption of new knowledge. Capabilities of target institutions maintained at least at current levels. Food production constant or increasing
Outputs			
1. Building of capacity for Transport Forum Group offices to manage and backstop rural transport development research projects at national and regional level	Assistance to local TFG to set up office Strengthened networking mechanisms Kick-start workshop Training of TFG researchers in PRA methods Conceptualised partnership arrangements	Workshop report Quarterly project reports Communications (electronic or otherwise)	Target institutions invest in the uptake and application of research results. As above
2. Knowledge and information on agricultural production, post-harvest and marketing, economics and technical aspects of IMTs and their use by poor farmers, and poor farmers' livelihoods in three Districts	PRAs conducted in three Districts Household questionnaire and data base created Questionnaire survey carried out in three Districts	Fieldnotes Questionnaires Database Survey reports	
3. Best practices on promotion of	Local partnership arrangements	Evidence of	

validated means of transportation	Strengthened local networking mechanisms Intermediate Means of Transportation introduced into communities 18 month after start of project Participatory Monitoring and Evaluation mechanism Technical brief, issues paper, policy briefing paper	communication (electronic or otherwise) Contracts with farmer groups PME framework and forms Documents published three months after closure of project	

Activities	**Objectively Verifiable Indicators**	**Means of Verification**	**Important Assumptions**
1.1 Assistance to the Uganda Transport Forum Group for Rural Transport and Development to set up a local office 1.2 Kick-off workshop 1.3 Visits by TFG members to similar CPHP funded projects in Africa 1.4 Training of Ugandan blacksmiths in cart manufacturing in Kenya 2.1 Baseline study using participatory and quantitative techniques	TFG office set up within first quarter after project start; Workshop involving national and international stakeholders organised within three months after project inception Visits by TFG Co-ordinator to Kenya and Ghana during the first 4 months of the project At least five blacksmiths trained in Kenya during last quarter of year 1 of project Participatory and questionnaire baseline surveys carried out by TFG , NRI, TRL, and Silsoe Research Inst. In collaboration with local partners during the first 12 months of the project	Office infrastructure and equipment operational, TFG Assistant hired. Workshop report and documents Visit reports Evaluation report Working documents Review Survey report on three Districts	Project partnership continues to hold throughout the life of the project.. Local communities, research and extension services, and NGOs actively participate in fieldwork.
3.1 Golden Milestone Workshop 3.2 Training of stakeholders in Participatory Monitoring and Evaluation 3.3 Acquisition of IMTs to be tested 3.4 Distribution of IMTs to be tested 3.5 Participatory Monitoring 3.6 Periodic partnership meetings 3.7 Evaluation survey 3.8 Compilation and analysis of data; 3.9 Final project workshop 3.10 Dissemination of findings, networking, and raising awareness of project.	Workshop organised during first quarter of year 2 of project Training documents Purchase (or manufacturing as applicable), and distribution of IMTs in communities of three Districts mainly during first half of year 2 of project Monitoring by farmers, local partners and TFG, on-going July 2003 – March 2005 Quarterly meetings by TFG and local partners Evaluation survey using participatory and quantitative methods, Analysis completed by February 2005 Workshop organised in March 2005 Awareness raising, on-going Policy briefing paper published by June 2005	Workshop report Reports on purchase, distribution, and monitoring, of IMTs; Contracts, Monitoring documents Minutes of meetings Working documents Fieldnotes Working documents and reports Workshop report Communication Evidence of communication Paper	As above

Annex 3: Disseminated Project Outputs

Reference Type (as in NRIL green citation guidelines)	Citation Details
Project report, also disseminated amongst stakeholders	Kaira, C., Kleih, U., Benmaamar, M., Kwamusi, P., and Iga, H. (2002); Kick-start Workshop on Improved Food Crop marketing through Appropriate Transport for Poor farmers in Uganda; Report of project inception workshop in May 2002, Transport Forum Group, Kampala.
Project report, also disseminated amongst stakeholders	Kleih, U., Kaira, C., Kwamusi, P., Iga, H., Smith, D., Dunkerley, C., and O'Neill, D. (2003) Improved Food Crop Marketing through Appropriate Transport for Poor Farmers in Uganda – Baseline Study based on Participatory Rural Appraisals and Household Questionnaire Surveys in Nine Sub-counties of Iganga, Kasese, and Katakwi Districts. Project report submitted to DFID/CPHP, NRI Report No 2734. Database with Transport Forum Group and NRI
Project report, also disseminated amongst stakeholders	Kwamusi, P., Kaira, C., Kleih, U., Iga, H., and Smith, D. (2003), Report of Golden Milestone Workshop in Iganga, 2 - 4 July 2003, Project report submitted to DFID/CPHP, NRI Report No. 2765.
Article within Newsletter	*Transport for poor farmers in Uganda.* (This is a short article describing the project in the Transport Newsletter by DFID Knowledge and Research, Issue 17 November 2003, which was prepared for the World Transport Conference in Durban).
Article within Newsletter	TFG (Uganda) has published the First Transport Forum News (Issue No. 1, January 2004) featuring the project and its activities.
IFRTD Update – disseminated worldwide to about 3000 network members belonging to the International Forum for Rural Transport and Development	IFRTD Update 4 (October 2004) Building Partnerships for Sustainable Rural Transport Development; IFRTD, London. (This Update was prepared by project partners, and edited and published by IFRTD staff; The four-page Update was disseminated as an inset of the IFRTD quarterly newsletters).

Project reports and working documents	Reports of 4 Quarterly Partnership Meetings in 2003 and 2004, by Transport Forum Group, Intermediaries, and Farmer Groups. Database of partnership building progress with Transport Forum Group; Databases of technical monitoring with Transport Forum Group, TRL and NRI
Conference paper / Scientific journal paper	Kleih, U., Kaira, C., Iga, H., Kwamusi, P. (2004) Rural Transport and Livelihoods in Uganda; pp56–63; *Uganda Journal of Agricultural Sciences*, Vol.9 No.1 September 2004, ISSN 1026-0919. This paper was first submitted as a paper to the conference of the Uganda National Agricultural Research Organisation (NARO), in September 2004. The paper was refereed prior to publication.
Project report, also disseminated amongst stakeholders	Kwamusi, P., and Kaira, C. (December 2004) End of Project Workshop Report; Transport Forum Group, Kampala. The report contains 20 appendices including papers on: - Institutional histories, by Kwamusi Paul - Project partnership building, by Charles Kaira et al - Partnership experiences, by all project coalition partners, including Intermediaries and farmers - IMT ergonomics considerations, by David O'Neill - IMT operational costs, by Mustapha Benmaamar - IMT utilisation and profitability, by Ulrich Kleih