

# Improved food crops marketing through appropriate transport for poor farmers in Uganda: Ergonomics considerations

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## Consultancy Report

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*Front cover photos (top to bottom)*

Geoffrey Etongu's cart (Amuria)

Motorcycle tyre protecting bicycle tyres (Geoffrey Etongu's cart)

KIBA ox cart (see Annex 7)

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The views expressed here are not necessarily those of DFID.

Crop Post-Harvest Research Programme – Project R8114

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# Improved food crops marketing through appropriate transport for poor farmers in Uganda:

## Ergonomics considerations

### **Introduction**

Dave O'Neill visited Uganda in September 2004 and, in consultation with the NRI Project Team Leader, collaborated with local project staff in undertaking a survey of the ergonomics aspects of smallholder transport. The survey mainly entailed discussions with Farmers Groups in Iganga District (one of the three Districts targeted by the Project) but comments from other farmers using IMTs (intermediate means of transport) from Katakwi and Kumi Districts (within the Teso farming system) are also included in this report. The work was carried out over 7 days between 17<sup>th</sup> and 25<sup>th</sup> September (inclusive).

### **Background**

The lack of appropriate means of transportation is widely acknowledged as a major constraint on smallholder (agricultural) productivity in sub-Saharan Africa. Time that has to be devoted to human portage (predominantly by women head-loading) not only detracts from more productive activities but is also very arduous and a significant source of drudgery. Work intensity, work organisation and allocation of tasks are cornerstones of ergonomics and, therefore, it was considered appropriate that ergonomics issues should be considered in this Project. With the resources available it was possible to conduct a representative survey in only one of the Districts covered by the Project, and Iganga was selected by the Project Leader. The IMTs requested by the participating farmers were animal-drawn carts and so the ergonomics component examined the impacts of introducing carts on the livelihoods of the participating farmers.

The ergonomics survey included 11 Farmer Groups in the Iganga District out of a total of 27 Groups in the District participating in the Project. These 27 Groups are acquiring 18 ox carts (12 delivered by September 2004) and 7 donkey carts (5 delivered by September 2004) through a cost-sharing arrangement with the Project. The Groups surveyed had received the animals and equipment as shown in Table 1. Some Groups, however, had acquired their carts only a short time before this survey. More details are given in Annexes 1 to 11.

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**Table 1 Animals and equipment acquired by the 11 Groups in the ergonomics survey**

<b>Group</b>	<b>Ox carts</b>	<b>Donkey carts</b>	<b>Ox ploughs</b>	<b>Oxen</b>	<b>Donkeys</b>
1	1	0	1	2	0
2	1	0	1	2	0
3	1	0	1	2	0
4	1	0	1	2	0
5	1	0	1	2	0
6	0	1	1	2	2
7	1	0	1	2	0
8	1	0	1	2	2
9	1	1	1	2	2
10	1	0	1	2	0
11	0	0	1	2	0
<b>totals</b>	<b>9</b>	<b>2</b>	<b>11</b>	<b>11 pairs</b>	<b>3 pairs</b>

### Methodology

All the activities undertaken 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 the Groups certain key questions. The Group details and nature of these key questions are shown in Annexes 1 to 11.

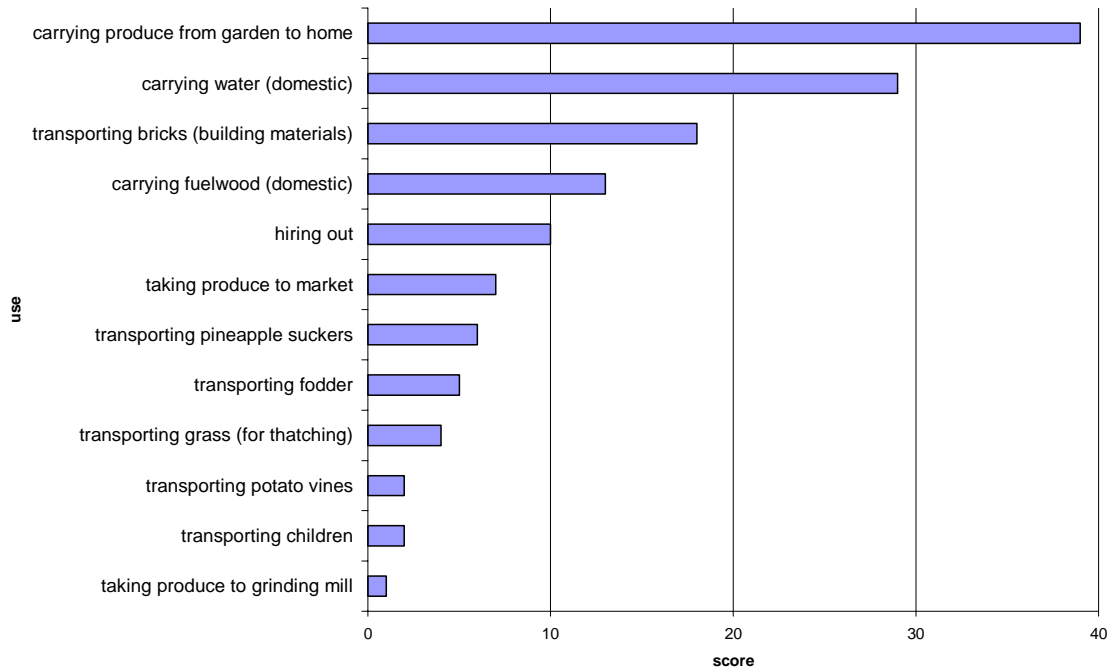
The progressive farmers in Amuria and Katakwi and the farmer met in Kumi District (on the DAP weeding project) have been regarded as key informants and the information provided by them included where appropriate.

Two of the questions posed in Iganga District asked the Groups to prioritise their responses (sections 3 and 4 in Annexes 1 to 11). These were scored by ascribing an integer number, starting from 1 to the lowest priority given and increasing by 1 for the progressively higher priorities. In other words, if 4 usages were given the highest usage would have the value 4, whereas the lowest usage would always have the value 1. Similarly, if 6 usages were given, the highest priority would have the value 6. Thus the highest priority of usage (in section 3) or the highest priority difference (in section 4) is always accorded the highest score and the lowest always gets a score of 1. Although this can result in the highest priority getting different scores, this system of scoring is able to represent the situation where different Groups have different ranges of activities and, therefore, usages. It is equivalent to according a priority / score of zero to a usage that is may not be evident amongst a particular Group. Simply counting the frequency of usages or differences gives very similar priorities but a narrower range of scores.

**Results and discussion**

*Cart usage*

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 1.



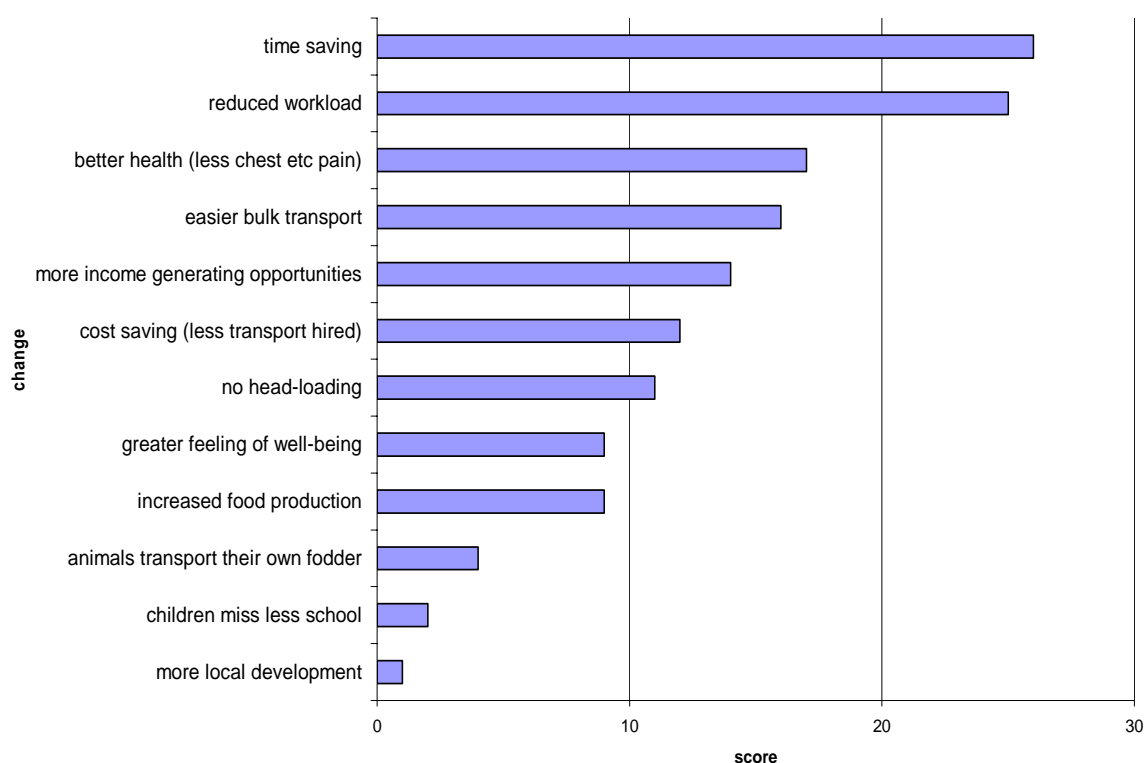
**Fig 1 Cart usage scores (Iganga)**

All eleven Groups 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 Fig 2.

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**Fig 2 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 2 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 Fig 2 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

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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 3.

**Table 3 Incidence of cart design and use issues (Iganga)**

<b>Problem</b>	<b>Frequency</b>
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.

### *Animal health*

Ten of the eleven Groups reported that they had no current problems with their draught animals. Five Groups had experienced health problems but, except for the one Group with a current problem (Bonanza – a donkey with an infected ear not responding to veterinary treatment), veterinary treatments had been successful. (One donkey at Gemakumwino died unexpectedly from a wound but this was not reported as a current problem.) There was variation between the Groups regarding health treatments, with some Groups administering most of the treatments themselves, sometimes using local remedies, and other Groups relying almost totally on visits by a veterinarian. A summary of these facts, taken from information in Annexes 1 to 11, is given in Table 4.



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**Table 4 Summary of animal health issues(Iganga)**

<b>Health status / administration of treatments</b>	<b>No. of Groups reporting</b>
General state of health – no problems	10
General state of health – problems	5
Treatments given locally:	
spray for ticks	9
de-worm	8
vaccinate against fever	1
care for wounds	4
hoof trimming (donkeys)	1
Vet visits occasionally	2
Vet visits regularly	4

The Groups in Ivukula seemed to be more reliant on veterinary visits than those in Bukanga and Makuutu.

### *Harnessing and hitching*

Of the eleven Farmer Groups in Iganga participating in the survey, only three had acquired donkeys and, of these three, only two Groups had donkey carts. (The Gemakumwino Group uses their donkeys as pack animals only.) The Iganga survey did not, therefore, provide much information on donkey harnessing. This is more complex than hitching oxen up to pull carts, which requires the relatively simple process of attaching a yoke across the animals' shoulders, in front of their humps, and connecting it to the cart draw-pole. The anatomy of the donkey requires a different arrangement, whereby most of the pull has to be generated by the donkey pushing against a breast-band and/or girth strap, which, in turn, can be connected to the shafts of a cart. This is illustrated in Fig 3.



**Fig 3 Donkey with a breast-band harness hitched to a (donkey) cart**



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This relatively complex arrangement makes a donkey harness much more expensive than an ox yoke. This is a sharp contrast with the relative costs of purchasing an ox or a donkey. A considerable proportion of the money saved when buying a donkey instead of an ox then has to be expended in hitching the animal for draught operations. This creates an incentive to make donkey harnesses as cheaply as possible (not generally compatible with the required complexity), thereby increasing the risk of causing injury to the animal and reducing its draught capability. One of the outcomes of this situation is a range of different donkey harness designs. Two alternative harnessing arrangements are shown in Figs 4 and 5.



**Fig 4 Alternative donkey harness 1**



**Fig 5 Alternative donkey harness 2**

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Both Figs 4 and 5 show how attempts to keep the harness costs as low as possible (by using simple materials, whilst following the principles of good harness design) result in complicated arrangements of straps and ropes which are difficult to attach and so are likely to be fitted incorrectly. Further research to develop an effective harness design, appropriate to local conditions, may be warranted.

It was reassuring to observe that, during this brief visit, all the donkeys seen were found to be in good condition with no evidence of any harness injuries. The worst injuries seen were on the lower legs where the hobbling ropes had been tied too tightly and had cut through the skin. At some sites the need for hoof trimming was observed but the Project is, apparently, addressing this problem.

The suitability of donkeys as pack animals was being used beneficially by the Groups owning donkeys. This avoids the need for both a cart and the associated harness but reduces the payload. Pack donkeys were used mainly for carrying water (and sometimes building materials) with the water containers being placed in a pannier (see Figs 6 and 7).



**Fig 6 Donkey carrying water containers in a pannier (Adodoi Village)**



**Fig 7 Donkey carrying bricks**

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### *Discussions with progressive farmers*

Mr Emanuel Ojula, who lives on the outskirts of Katakwi town, has owned a SAIMMCO<sup>1</sup> ox cart for 10 years (he paid 496,000 US\$ in 1994). Despite very heavy use, he has experienced very few problems with it. He has had to replace the right-hand set of the wooden bearings (which locate and support the axle) but the bearings on the left-hand side have remained serviceable. This work was done by YWAM (Youth with a Mission – an NGO with a local branch in Katakwi), who had also undertaken other maintenance tasks such as painting the cart. SAIMMCO make two versions of their ox cart, one with metal wheels and one with rubber (pneumatic) tyres, the latter being more expensive (approximately 1,100,000 US\$ compared to 600,000 US\$). The metal wheels were in good condition and had required no attention since he bought the cart. He would, however, prefer the model with tyres as these do not sink so far into soft sand and mud. (When the wheels sink in it is much harder for the oxen to pull.)

He is able to hire out the cart for 8,000 US\$ per day (which includes a pair of trained oxen but no operator/driver).

Although he has a cart, there is still some head-loading done by the women of the household for fetching water because the well is very close. However, he is thinking of buying donkeys and they would be used *inter alia* for carrying water. The ox cart is used for fetching firewood as the source is some distance away.

EO believes that cart designs would be improved by avoiding the use of discarded car axles. These add unnecessary weight (and possibly cost) and the differential casing reduces the ground clearance. EO also believes that to justify on economic grounds ownership of a cart, a household should be cultivating at least 6 to 7 acres. But the distances that goods are moved and the cost of hiring human portage can affect the calculations considerably.

Mr Geoffrey Etongu is a farmer in Amuria and has made a number of contributions to the local running of the Project (through the TFG). EO has several innovative items of agricultural equipment which he acquired through working with Allan Chadborn when he was running the Katakwi branch of YWAM. Among these is the YWAM donkey cart, which he has had since late 2002. He has used it quite heavily and never had any problems with it. He has protected the double bicycle tyres with a motorcycle tyre which fits over the bicycle tyres (see front cover of this report), simply acting as a sheath, and has virtually eliminated the otherwise frequent stoppages due to punctures. This practice has now been copied by some other owners of YWAM carts.

A photo of EO's cart with one of his donkeys is also shown on the front cover. He hires the cart out for carrying water, cassava and sweet potatoes and receives 1,500 US\$ for each journey of about 5 km. A typical load would be five bags of produce.

The only maintenance required in two years of using the cart has been to replace the shafts and swingle-tree. He finds the shafts tend to break if the load is not well balanced.

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<sup>1</sup> Soroti Agricultural Implement Manufacturing and Marketing Company



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### *Farmer in Kumi District*

Mr Okurut Nelson bought a second-hand ox cart (very similar to SAIMMCO design – see Fig 8) two to three years ago for 133,000 UShs and had to spend a further 120,000 UShs making it serviceable. The repairs needed were mainly to the wheels and the bearings. He first approached SAIMMCO to do the repairs but at 150,000 UShs, he felt they were too expensive. He eventually had the repairs done for 90,000 UShs.



**Fig 8 Mr Okurut Nelson's ox cart (Kumi District)**

The main uses of the cart are 1) to carry produce from garden to home, 2) to carry produce from home to market and 3) to fetch (domestic) water.

## Conclusions

1. The introduction of draught animal power (DAP) and provision of ploughs and carts has afforded benefits to all participating farmers and Farmers Groups. It has increased agricultural productivity, in particular crop production, through the mutually supportive opportunities to cultivate more land and to transport more quickly and easily the resulting produce.
2. The main uses of carts were reported to be:
  - i) transporting produce (at harvest) from gardens / fields to homesteads
  - ii) carrying (domestic) water
  - iii) transporting bricks and other building materials
  - iv) carrying (domestic) fuelwood
  - v) hiring out.
3. The main lifestyle changes following the introduction of carts were:

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- i) not so much time spent on transport tasks through greater levels of bulk carriage of goods creates more income-generating opportunities
  - ii) reduced workload, particularly head-loading component, improves health and also increases income-generating opportunities.
4. The main livelihoods changes following the introduction of carts were:
- i) the time saved increases the quality of life
  - ii) ploughs increase their productivity
  - iii) better food security
  - iv) greater likelihood of moving from subsistence to small-scale farming.
5. One aspect of cart design attracted severe criticism: this was the fitting of tubeless tyres which are very difficult to repair locally when punctured. Ten other issues relating to cart design and were raised (see Table 2) which may be regarded as isolated cases but it must be borne in mind that most of these carts had only recently entered service and there may be deficiencies yet to emerge. The strength of the shafts and draw poles in particular may prove to be a recurring problem.
6. In general, the animals were healthy and well looked after.
7. The harnessing of oxen and hitching to carts seems well understood and effectively implemented. The harnessing of donkeys, however, is more problematic. Harness designs, preferably breast bands, are necessarily more complex, more expensive and more difficult to use than ox yokes. Attempts, as observed in this survey, to make donkey harnesses less expensive seem to have made them even more difficult to use. It may be appropriate to direct some research and development effort into improving and standardising donkey harness design in this region.
8. The use of donkeys as pack animals was not widely practised by the Groups surveyed. Although the payload is less than on a cart, it is cheaper to implement and may be more practicable in areas with hilly terrain or rough or narrow tracks. The most popular uses of pack donkeys are carrying water or small daily amounts of crop from garden to homestead (compared to the larger amounts at harvest). In these capacities pack donkeys are especially beneficial for women, as the alternative method of carriage is head-loading.

### **Acknowledgements**

Thanks to the farmers for their willingness to participate at a busy time of the season and for their hospitality. Thanks also to Peter Owor and the other local collaborators from MTCEA and the TFG without whom the survey reported here would not have been possible.

- 1 Group name:** Ndifuna Farmers Group
- 1.1 Date** 23 Sept 2004
- 1.2 Location** Kigulamo, Makuutu
- 1.3 Number in group** 25                      **Male**                      **Female**
- 1.4 Number present** 6                      **Male** 3                      **Female** 3
- 1.5 Number of bicycles** approx 50 – 60%

**2 Acquired through project:**

- 2.1 Donkeys** 0
- 2.2 Oxen** 2 (Oct 2003)
- 2.3 Donkey carts** 0
- 2.4 Ox carts** 1 (Oct 2003)
- 2.5 Ploughs** 1 (ox)
- 2.6 Other** --

**3 Usage of carts in priority order**

- a) take produce from garden to house (maize, cotton, potato, cassava)
- b) bring water from well (approx 0.5 mile)
- c) bring fuelwood to homestead
- d) take produce to market (maize, rice)
- e)
- f)
- g)

**4 Before-after transport differences (greatest difference first)**

- a) no head-loading
- b) this saves time (able to carry several jerry cans at once)
- c) better health (less chest pain)
- d)
- e)
- f)

**5 Health of animals**

- 5.1 General** Oxen are healthy
- 5.2 How treatments (if any) given**
- a) de-worm with drugs
- b) inject against fever (described as malaria but presumably ECF)
- c) treat wounds with local remedies
- d)

**6 General comments on equipment**

- 6.1 Cart(s)**
- a) poor quality tyres provided (wheels currently removed to fit tyres with tubes)
- b)
- c)



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### 6.2 Plough(s)

- a)
- b)
- c)

## 7 Comments on equipment design and use

### 7.1 Donkey cart

- a)
- b)
- c)
- d)

### 7.2 Ox cart

- a) as 6.1a above
- b) the cart has never been used for transporting people (but may be with new wheels)
- c)
- d)

### 7.3 Plough

- a) much quicker tillage now; what used to take a week now takes 2 days
- b)
- c)
- d)

## 8 What the main impacts on their livelihoods are

Having a plough enables them to cultivate more land and grow more crops (for both home consumption and selling).

Cart is hired out for transporting building materials – earns on average 10,000 UShs per day when hired.

(The plough was possibly more highly valued than the cart.)

## 9 How conflicts (if any) on equipment needs and sharing are resolved

Priority given to ploughing because of importance of timeliness. Carting not so time-critical

## 10 Why oxen or donkeys chosen (including future options)

Oxen familiar and well understood. Much uncertainty over donkeys at time of making the decision. Would be interested in having donkeys in the future – the two main reasons are: donkeys can transport while oxen are ploughing; now they have seen others using donkeys they would be more comfortable with them.

## 11 Any other information

Before the cart transport was provided by head-loading (mainly by women) and bicycles. Bicycles now used mainly for social and domestic purposes.

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The farmers asked if the project would be continuing and whether they would be able to get any more discounted equipment. We responded that the TFG may be continuing the work and suggested micro-finance as a means of acquiring more equipment. We were told that micro-finance was only for businesses to which it was suggested that they should approach their farming more like a business.

**1 Group name:** Buswiriri Youth Development Association

**1.1 Date** 23 Sept 2004

**1.2 Location** Buswiriri, Makuutu

**1.3 Number in group** ? **Male** **Female**

**1.4 Number present** 6 **Male** 4 **Female** 2

**1.5 Number of bicycles** ? (60%)

**2 Acquired through project:**

**2.1 Donkeys** 0

**2.2 Oxen** 2 (Feb 2003)

**2.3 Donkey carts** 0

**2.4 Ox carts** 1 (Sept 2003)

**2.5 Ploughs** 1 (Feb 2003) (SAIMMCO Light Plough)

**2.6 Other** --

**3 Usage of carts in priority order**

a) take produce from garden to house (maize)

b) bring water from well

c) take produce from home to market

d) bring fuelwood to homestead

e) carrying children from garden to house

f) hiring out

g)

**4 Before-after transport differences (greatest difference first)**

a) time saving – e.g. 1 acre needs 6 cart trips compared to 42 bicycle trips or 126 head-loading trips; also time saved on carrying water

b) no head-loading (women), no shoulder-carrying (men), no need to use bicycles

c) better health (less chest pain so no need to buy / take Panadol any more)

d)

e)

f)

**5 Health of animals**

**5.1 General** Oxen are healthy

**5.2 How treatments (if any) given**

a) de-worm with drugs (occasionally with traditional medicines)

b) spray for ticks

c) treat wounds on feet with local remedies (*muluku*)

d)

**6 General comments on equipment**

**6.1 Cart(s)**

a) poor quality tyres provided (now being fixed by fitting tyres with tubes)

b)

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c)

### 6.2 Plough(s)

- a) problem with getting new shares to fit
- b) artisan-made shares (3,000 UShs) seem to be poor quality
- c)
- d)

## 7 Comments on equipment design and use

### 7.1 Donkey cart

- a)
- b)
- c)
- d)

### 7.2 Ox cart

- a) as 6.1a above
- b) draw pole not strong enough
- c)
- d)

### 7.3 Plough

- a) much quicker tillage now; what used to take a week now takes 2 days
- b) wheel in very poor condition
- c)

## 8 What the main impacts on their livelihoods are

Having a plough enables them to cultivate more quickly and easily. The *jembe* used before used a lot of effort and time.

Cart is occasionally hired out for transporting building materials – earns 1,000 UShs to take 100 bricks approx 0.5 mile.

Time saved on transport tasks is generally spent relaxing and resting (men and women).

## 9 How conflicts (if any) on equipment needs and sharing are resolved

None yet

## 10 Why oxen or donkeys chosen (including future options)

Oxen familiar and well understood but donkeys an unknown factor. May consider donkeys in future but reserve judgement until they have seen more being used in the sub-county.

## 11 Any other information

Before the cart transport was provided by head-loading (mainly by women) and bicycles. Bicycles now used mainly for personal transport away from home.

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The farmers asked if the project could provide them with more oxen. They could not afford to buy them outright. We suggested they bought donkeys or a calf (for training and possibly providing milk and more calves in the future). They were apprehensive about donkeys but felt that if the project could provide training in the use of donkeys they would be more confident about using them.

They were very appreciative of the benefits of the oxen and plough enabling them to cultivate more land but were concerned about the quality of the seeds they are able to buy. Peter Owor gave some advice on this matter.

- 1 Group name:** Naitandu Pineapple and Matoke Growers
- 1.1 Date** 23 Sept 2004
- 1.2 Location** Naitandu, Makuutu
- |                            |    |             |   |               |   |
|----------------------------|----|-------------|---|---------------|---|
| <b>1.3 Number in group</b> | 14 | <b>Male</b> | 9 | <b>Female</b> | 5 |
| <b>1.4 Number present</b>  | 4  | <b>Male</b> | 3 | <b>Female</b> | 1 |
- 1.5 Number of bicycles** ? (60%)

**2 Acquired through project:**

- 2.1 Donkeys** 0
- 2.2 Oxen** 2 (Feb 2002)
- 2.3 Donkey carts** 0
- 2.4 Ox carts** 1 (Feb 2002)
- 2.5 Ploughs** 1 (Feb 2002) (SAIMMCO Light Plough)
- 2.6 Other** --

**3 Usage of carts in priority order**

- a) take pineapple suckers from garden to garden
- b) water collection from well (approx 1 km)
- c) transporting bricks (some of own, some on hire)
- d) crops from garden to home (maize)
- e) collecting fuelwood
- f) transporting potato vines (same priority as e) above)
- g)

**4 Before-after transport differences (greatest difference first)**

- a) reduced workload because of greater carrying capacity
- b) time saved, especially moving suckers
- c) less chest pain
- d) suckers put in polythene bags and carried on bicycles
- e) water carried mainly by head-loading (women), but some on bicycles
- f) bricks were transported on hired bicycles (*boda-boda*)
- g) crops were carried on bicycles and by head-loading
- h) fuelwood was carried by head-loading (women)
- i) men never carried anything themselves, only on bicycles

**5 Health of animals**

- 5.1 General** Oxen are healthy now but were sick in July (attributed to worms)
- 5.2 How treatments (if any) given**
- a) de-worm with drugs
  - b) spray for ticks
  - c) injections given by vets
  - d) pay approx 35,000 US\$ a year for animal treatments

**6 General comments on equipment**

**6.1 Cart(s)**



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a) poor quality tyres provided (now being fixed by fitting tyres with tubes)

b)

c)

### **6.2 Plough(s)**

a) problem with getting new shares to fit

b) artisan-made shares (3,000 UShs) seem to be poor quality

c)

d)

## **7 Comments on equipment design and use**

### **7.1 Donkey cart**

a)

b)

c)

d)

### **7.2 Ox cart**

a) as 6.1a above

b)

c)

d)

### **7.3 Plough**

a) much quicker tillage now; what used to take a week now takes 2 days

b) wheel in very poor condition

c)

## **8 What the main impacts on their livelihoods are**

Being able to undertake bulk carriage.

The time saved is used for leisure, cooking, weeding. The women commented that they have more time and energy for private things.

## **9 How conflicts (if any) on equipment needs and sharing are resolved**

Priority is for ploughing, especially in the ploughing season. Non-members are charged 25,000 UShs for a day's ploughing

## **10 Why oxen or donkeys chosen (including future options)**

Did not choose donkeys because not familiar with them – a new culture. Would be interested in having donkeys now but have not pursued it as still paying for oxen (and waiting to clear this debt).

## **11 Any other information**

This group makes some use of handcarts and wheelbarrows.

The group appreciates the benefits that use of IMTs can bring. Would it be possible for them to have any others. We explained that the greatest preference among all the farmers groups involved in the project was for animal-drawn carts so that is what the

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project has focused on. The farmers also asked if they could have more oxen – we responded as before, explaining that this was not the purpose of the project. They have already had a great opportunity and should use this as a basis for self-improvement.



Fig A3.1 Donkey cart with wheels removed for repair (replacing tubeless tyres with tyres having tubes)

**1 Group name:** Naitandu Bakuseka Majja Farmers Group

**1.1 Date** 23 Sept 2004

**1.2 Location** Naitandu, Makuutu

<b>1.3 Number in group</b>	24	<b>Male</b>	<b>Female</b>
<b>1.4 Number present</b>	6	<b>Male</b> 2	<b>Female</b> 4
<b>1.5 Number of bicycles</b>	6		

**2 Acquired through project:**

**2.1 Donkeys** 0

**2.2 Oxen** 2 (Oct 2003)

**2.3 Donkey carts** 0

**2.4 Ox carts** 1 (Apr 2004)

**2.5 Ploughs** 1 (Oct 2003) (SAIMMCO Light Plough)

**2.6 Other** --

**3 Usage of carts in priority order**

- a) maize from garden to home
- b) transporting grass for thatching
- c) hiring out for transporting bricks
- d) collecting fuelwood
- e) collecting water (for others in the village – well is very close to this homestead)
- f)
- g)

**4 Before-after transport differences (greatest difference first)**

- a) reduced head-loading
- b) this simplifies work and creates more time – a whole day of head-loading can now be done in one or two cart trips; (60 head-loading trips carries equivalent of 2 cart trips)
- c) better health - less neck and chest pain
- d) no need to hire bicycles (*boda-boda*) any more
- e)
- f)
- g)
- h)

**5 Health of animals**

**5.1 General** Oxen are healthy now but one got sick; satisfactorily treated by vet

**5.2 How treatments (if any) given**

- a) de-worm with drugs
- b) spray for ticks
- c) treat wounds with local remedies (*muluku*)
- d) pay approx 10,000 US\$ per quarter (ie 40,000/- p.a.) for animal treatments

**6 General comments on equipment**

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### 6.1 Cart(s)

- a) poor quality tyres provided (now being fixed by fitting tyres with tubes)
- b) nuts coming loose
- c)

### 6.2 Plough(s)

- a)
- b)
- c)
- d)

## 7 Comments on equipment design and use

### 7.1 Donkey cart

- a)
- b)
- c)
- d)

### 7.2 Ox cart

- a) as 6.1 a above
- b) would like brakes to be fitted
- c)
- d)

### 7.3 Plough

- a)
- b)
- c)

## 8 What the main impacts on their livelihoods are

Now the cart is not in service (wheel / tyre repair), the main mode of transport is the bicycle (there is no harvesting at present). The whole group would share the available bicycles and jointly maintain them if the need arose.

## 9 How conflicts (if any) on equipment needs and sharing are resolved

First come – first served. Only one occasion of conflict to date; on that day the oxen were used for ploughing.

## 10 Why oxen or donkeys chosen (including future options)

Did not choose donkeys because not familiar with them. Some of the group have never seen a donkey so could not make any comment about future possibilities.

## 11 Any other information

Questions were raised on the root rat, better marketing and improved seeds. Peter dealt with these.

This is a big group and there was concern that the oxen might be overworked. Would it be possible for them to have any more? We again explained that this was not the

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purpose of the project and suggested that donkeys for transport might reduce the demands on the oxen, but acknowledged that some training in donkey care and use would be appropriate.

We were kindly presented with a chicken as an expression of the group's gratitude!

**1 Group name:** Naitandu Bricklayers

**1.1 Date** 23 Sept 2004

**1.2 Location** Naitandu, Makuutu

**1.3 Number in group** 18 **Male** 9 **Female** 9

**1.4 Number present** 8 **Male** 5 **Female** 3

**1.5 Number of bicycles** 6

**2 Acquired through project:**

**2.1 Donkeys** 0

**2.2 Oxen** 2 (Feb 2002)

**2.3 Donkey carts** 0

**2.4 Ox carts** 1 (Sept 2002)

**2.5 Ploughs** 1 (Feb 2002) (SAIMMCO Light Plough)

**2.6 Other** --

**3 Usage of carts in priority order**

- a) transporting bricks
- b) farm produce from garden to home
- c) collecting water (distance varies from 0.25 to 1 mile)
- d) hiring out for brick transport (10 US\$ per brick for 1 to 2 miles, 150-180 bricks each load)
- e) transporting stones and building materials
- f) for general hire
- g)

**4 Before-after transport differences (greatest difference first)**

- a) much more material can be moved
- b) considerable amount of time is saved on transport tasks
- c) reduction in headaches and backaches
- d) more opportunities for income-generation
- e) used to hire bicycles (*boda-boda*) to carry bricks
- f) used to use head-loading (men and women) or push bicycles carrying produce from garden to home
- g) water was collected by women head-loading (with a very small contribution by men pushing bicycles loaded with water)
- h) stones etc were carried in polythene bags by women and children head-loading and men pushing bicycles

**5 Health of animals**

**5.1 General** Oxen are healthy now but one got sick; satisfactorily treated by vet

**5.2 How treatments (if any) given**

- a) de-worm with drugs
- b) spray for ticks
- c) treat wounds with local remedies (*muluku*)



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- d) pay approx 10,000 US\$ per quarter (ie 40,000/- p.a.) for animal treatments

### 6 General comments on equipment

#### 6.1 Cart(s)

- a) poor quality tyres provided (now being fixed by fitting tyres with tubes)

b)

c)

#### 6.2 Plough(s)

a)

b)

c)

d)

### 7 Comments on equipment design and use

#### 7.1 Donkey cart

a)

b)

c)

d)

#### 7.2 Ox cart

- a) as 6.1a above

- b) draw pole was weak; it broke, was replaced by an artisan and has been OK since

c)

d)

#### 7.3 Plough

a)

b)

c)

### 8 What the main impacts on their livelihoods are

More time; better health; more opportunities for income-generation.

### 9 How conflicts (if any) on equipment needs and sharing are resolved

First come – first served. This conflict has arisen about 4 or 5 times so far.

### 10 Why oxen or donkeys chosen (including future options)

Did not choose donkeys because not familiar with them. Now that they know people who use donkeys, they would consider using them in the future. Being brickmakers, they say that they would benefit from being able to use the donkeys as pack animals to carry water.

### 11 Any other information

Many questions were raised ranging from what else they could get from the project to seed supply, provision of a cow for milk a health clinic. We spent some time explaining the purpose and scope of the project, which seemed to provide most of the

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answers they needed. The group was particularly complimentary about the project, stating that this is one of the very projects in their experience that has been seen through to completion.

<b>1 Group name:</b>	Bonanza		
<b>1.1 Date</b>	24 Sept 2004		
<b>1.2 Location</b>	Bonanza, Bukanga		
<b>1.3 Number in group</b>	16	<b>Male</b> 6	<b>Female</b> 10
<b>1.4 Number present</b>	2	<b>Male</b> 1	<b>Female</b> 1
<b>1.5 Number of bicycles</b>	7		

**2 Acquired through project:**

- 2.1 Donkeys** 2 (Jan 2004)
- 2.2 Oxen** 2 (Jan 2004)
- 2.3 Donkey carts** 1 (Jun 2004)
- 2.4 Ox carts** 0
- 2.5 Ploughs** 1 (ox) (Jan 2004)
- 2.6 Other** --

**3 Usage of carts in priority order**

- a) transporting water (well is 1.5 km away)
- b) produce (maize, cassava, potatoes) from garden to home
- c) produce from home to market
- d) hiring out for transporting bricks and building materials usually 10,000UShs per load of 250 gricks of 1-1.5 kg (5,000 UShs for members). Total income of about 35,000 to 40,000 UShs per month.
- e)
- f)
- g)

**4 Before-after transport differences (greatest difference first)**

- a) income generation
- b) reduced burden on women for water collection and other transport activities
- c) saves much time at harvest with bulk carriage demanding fewer trips
- d) animals can transport their own fodder
- e) children's health is better
- f) women suffer less chest pain
- g) women suffer fewer miscarriages (thought to be due to less head-loading)
- h) when children were head-loading they stayed out of school and some felt that head-loading was responsible for stunted growth
- i) increased levels of food production (attributed to extra income and extra time being converted into greater areas cultivated)

**5 Health of animals**

**5.1 General** One donkey has an ear problem that is not responding to vet's attention. Hobbling rope cuts into donkeys' feet. Need more training on how to look after donkeys. Their view was that "When you care for animals properly they never give you a problem. (As for humans)".

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### 5.2 How treatments (if any) given

- a) de-worm
- b) spray for ticks
- c)
- d)

## 6 General comments on equipment

### 6.1 Cart(s)

- a)
- b)
- c)

### 6.2 Plough(s)

- a) replaced share too often. (Locally made at 4,000UShs preferred to SAIMMCO's)
- b) SAIMMCO never give spares like some manufacturers do
- c)
- d)

## 7 Comments on equipment design and use

### 7.1 Donkey cart

- a) poor quality tyres provided (now being fixed by fitting tyres with tubes)
- b) draw pole was weak; had it strengthened by a local artisan
- c)
- d)

### 7.2 Ox cart

- a)
- b)
- c)
- d)

### 7.3 Plough

- a) handles are weak
- b) shares are weak
- c)

## 8 What the main impacts on their livelihoods are

Before they had the oxen and plough all cultivation was done using a hand hoe. Now they can plough one acre in two days compared to five men taking three weeks before. This enables them to cultivate a greatly increases area and now they feel they are moving from subsistence to small-scale commercial farming. The training was quite straightforward. This income means they have money to send their children to (senior) school and can buy household items.

This contrast is well illustrated by comparing group and non-group members. Many others are now applying to join the group because they can see the success.

They hope that Bonanza may be come an animal traction training centre.

The plough has made a greater difference to their livelihoods than the cart.

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Plough hire earns 8,000 to 10,000 UShs from members and 25,000 UShs from non-members per acre. (1 acre equivalent to 34,992 square feet in the measuring system used.)

Men may use the extra time they have by earning income from being *boda-boda* drivers. Women now have time to grate cassava to earn income and may do some embroidery.

### 9 How conflicts (if any) on equipment needs and sharing are resolved

### 10 Why oxen or donkeys chosen (including future options)

Wanted an ox cart and a donkey cart but no suitable ox cart available at an affordable price. Hope to have an ox cart by the end of 2004.

A neighbour already had a donkey so there was some familiarity.

### 11 Any other information

The group wanted to know why the project was ending and if they could have some more donkeys. We explained that the project was set up for a fixed time only and suggested that they might consider buying donkeys themselves.



Fig A6.1 Bonanza Group donkey cart

- 1 Group name:** Kigulu Iganga Bulamaji Affiliate (KIBA) Homeowners Cooperative Society Ltd
- 1.1 Date** 24 Sept 2004
- 1.2 Location** Bukanga
- |                            |    |             |    |               |    |
|----------------------------|----|-------------|----|---------------|----|
| <b>1.3 Number in group</b> | 70 | <b>Male</b> | 35 | <b>Female</b> | 35 |
| <b>1.4 Number present</b>  | 4  | <b>Male</b> | 2  | <b>Female</b> | 2  |
- 1.5 Number of bicycles** most men own

**2 Acquired through project:**

- 2.1 Donkeys** 0
- 2.2 Oxen** 2 (Oct 2003)
- 2.3 Donkey carts** 0
- 2.4 Ox carts** 1 (Jun 2004)
- 2.5 Ploughs** 1 (ox) (Oct 2003)
- 2.6 Other** --

**3 Usage of carts in priority order**

- a) transporting water
- b) firewood
- c) produce (maize) from garden to home produce from home to market
- d) building materials (inc cement, roofing timber) from store to plot
- e) will transport other produce (beans, nuts, millet, rice) when appropriate
- f)

**4 Before-after transport differences (greatest difference first)**

- a) work is easier – less heavy (transport was mainly done by head-loading (women), bicycles (men) and wheelbarrows (men and women who own them))
- b) save money on tractor / lorries for moving building materials
- c) saves time at harvest by carrying fewer but much larger loads
- d) no chest pain from head-loading (less pain in neck and legs too)
- e) not exhausted from carrying water
- f) carts are an attraction for children
- g) plenty of water available
- h)

**5 Health of animals**

- 5.1 General** Oxen are healthy
- 5.2 How treatments (if any) given**
- a) spray for ticks (monthly)
  - b) de-worm (quarterly)
  - c)
  - d)

**6 General comments on equipment**

**6.1 Cart(s)**



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- a) some problems getting oxen to pull cart
- b) would be interested in a 4-wheel cart (waggon)
- c) would like to discuss design(s) with artisans (customer feedback)

### **6.2 Plough(s)**

- a) SAIMMCO never give spares like some manufacturers do
- b)
- c)
- d)

## **7 Comments on equipment design and use**

### **7.1 Donkey cart**

- a)
- b)
- c)
- d)

### **7.2 Ox cart**

- a) tubeless tyres are a problem (now being addressed by the project)
- b) one of the wooden slats (on cart body) broke
- c)
- d)

### **7.3 Plough**

- a) wheel assembly is weak
- b) shares are weak
- c) SAIMMCO ploughs are rather small

## **8 What the main impacts on their livelihoods are**

Easier work; more time. This time is made available for other planned activities – checking books (finances), preparing food, cleaning house.

## **9 How conflicts (if any) on equipment needs and sharing are resolved**

First come, first served. They operate a waiting list with priority to members. There are usually between 5 and 10 on the list. Time of access varies (half day, whole day, 2 to 3 days for a whole household). Decisions are made by the oxen team leader.

## **10 Why oxen or donkeys chosen (including future options)**

There had been some local experience of donkeys and it was felt they were too much trouble as they do not behave well. They really want oxen. They agreed that if they knew more about donkeys and met some successful donkey owners their attitudes may change.

## **11 Any other information**

The chairman (Aloe Ruth) asked us to convey the group's thanks to the TFG.

KIBA ox cart carrying water is shown on front cover.

- 1 Group name:** Gemakumwino
- 1.1 Date** 24 Sept 2004
- 1.2 Location** Butondolo, Bukanga
- |                            |    |             |    |               |    |
|----------------------------|----|-------------|----|---------------|----|
| <b>1.3 Number in group</b> | 40 | <b>Male</b> | 18 | <b>Female</b> | 22 |
| <b>1.4 Number present</b>  | 3  | <b>Male</b> | 1  | <b>Female</b> | 2  |
- 1.5 Number of bicycles**

- 2 Acquired through project:**
- 2.1 Donkeys** 2 (Jun 2004)
- 2.2 Oxen** 2 (Oct 2003)
- 2.3 Donkey carts**
- 2.4 Ox carts** 1 (Oct 2003)
- 2.5 Ploughs** 1 (ox) (Jan 2003)
- 2.6 Other** --

- 3 Usage of carts in priority order**
- a) produce at harvest from garden to home
  - b) water (0.5 mile to well)
  - c) fodder
  - d) bricks and sand
  - e) firewood
  - f)

- 4 Before-after transport differences (greatest difference first)**
- a) time saving in transport - produce was transported mainly by head-loading (men, women and children) and also by bicycles (men)
  - b) less effort and energy used for ploughing and transport
  - c) money saved in paying other people to transport
  - d) reduced chest pain from head-loading
  - e) water was transported by head-loading (women and children) but now transported by donkeys carrying packs
  - f) easier to transport firewood to brick-making site(s)
  - g) easier to transport dung / compost / manure
  - h) bricks and sand were transported by pick-up trucks but the prices were very high and bricks often got broken (because of poor state of roads and at loading / unloading)

- 5 Health of animals**
- 5.1 General** Oxen are healthy. One donkey got a wound, was treated and seemed OK but suddenly died. Now the donkey that remains without a companion is very noisy at night.
- 5.2 How treatments (if any) given**
- a) spray for ticks
  - b) de-worm

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- c) hoof trimming (donkeys)
- d)

### **6 General comments on equipment**

#### **6.1 Cart(s)**

- a)
- b)
- c)

#### **6.2 Plough(s)**

- a) the training of the animals was inadequate
- b) those trained in animal use left the group
- c)
- d)

### **7 Comments on equipment design and use**

#### **7.1 Donkey cart**

- a)
- b)
- c)
- d)

#### **7.2 Ox cart**

- a) tubeless tyres are a problem (now being addressed by the project)
- b) large holes on wheel rims
- c)
- d)

#### **7.3 Plough**

- a)
- b)
- c)

### **8 What the main impacts on their livelihoods are**

The cart makes a bigger difference than the plough because the cart is on the road all the time whereas ploughing is seasonal.

### **9 How conflicts (if any) on equipment needs and sharing are resolved**

First come, first served. Members take priority over non-members.

### **10 Why oxen or donkeys chosen (including future options)**

### **11 Any other information**

Non-members want to know how to acquire donkeys. Having seen the advantages that this project has brought, why can't we keep it going? (We explained that TFG was trying to get a follow-on project.) They would like to be able to get cheaper (more affordable) drugs for their animals. (We suggested they investigate the possible use of traditional remedies for certain circumstances.)

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They would like us to convey the group's thanks to the TFG and TRL. TFG should run a dissemination programme using their library of video tapes, especially for the promotion of donkey use.

- 1 Group name:** Kasita Development Group
- 1.1 Date** 24 Sept 2004
- 1.2 Location** Budondo Parish, Bukanga
- 1.3 Number in group** 31                      **Male** 17                      **Female** 14
- 1.4 Number present** 16                      **Male** 8                      **Female** 8
- 1.5 Number of bicycles** 6 of the 17 men

**2 Acquired through project:**

- 2.1 Donkeys** 2 (Nov 2003)
- 2.2 Oxen** 2 (Oct 2003)
- 2.3 Donkey carts** 1 (Jun 2004)
- 2.4 Ox carts** 1 (Mar 2004)
- 2.5 Ploughs** 1 ox plough (Oct 2003), 1 donkey plough (Nov 2003)
- 2.6 Other** --

**3 Usage of carts in priority order**

**3.1 Ox cart**

- a) at harvest produce from garden to home
- b) bricks, sand and water for construction (inc hire out services)
- c) collecting fodder / grass for donkeys (in dry season)
- d) crops from home to market
- e) maize, cassava, millet to grinding mill (and return with sacks)
- f)

**3.2 Donkey cart**

- a) at harvest produce from garden to home
- b) hire out to farmers to cart sugar cane
- c) firewood (women)
- d) domestic water collection – also use pack\*
- e) some building materials
- f) children to church

\* the decision whether to use cart or pack depends on the roads / tracks to be used  
Pack donkeys may also be used to carry produce and fruits from garden to home (not the main harvest).

**4 Before-after transport differences (greatest difference first)**

- a) transport burden is reduced
- b) feel happier now
- c) women can undertake income-generating activities (e.g. handicrafts, looking after poultry)
- d) more produce is coming from the gardens
- e) more healthy – less headaches, chest pains and other body aches
- f) increased development, e.g. better buildings, in the area

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- g) funds from hiring out help with group finances
- h)

### 5 Health of animals

**5.1 General** The oxen and donkeys are all healthy.

#### **5.2 How treatments (if any) given**

- a) spray for ticks (local remedy)
- b) may treat sickness with local remedies if they can
- c) de-worming and other treatments done by vet
- d) they have not learned how to do hoof trimming (donkeys) yet but will do it themselves when they have been taught (soon)

### 6 General comments on equipment

#### **6.1 Cart(s)**

- a) ox cart having tubeless tyres removed
- b) donkey cart currently has a puncture
- c) when hiring out transport, group members would go and supervise

#### **6.2 Plough(s)**

- a)
- b)
- c)
- d)

### 7 Comments on equipment design and use

#### **7.1 Donkey cart**

- a) the shafts are weak – should be tubular metal
- b) widen the shafts to fit two donkeys
- c)
- d)

#### **7.2 Ox cart**

- a) tubeless tyres are a problem (now being addressed by the project)
- b) need third wheel at front for support when loading
- c) want a rear flap / panel for when loading or carrying sand
- d)

#### **7.3 Plough**

- a) shares from the factory are poor quality (weak)
- b) donkeys occasionally used for ploughing, when planting more of a priority than transport
- c) need more oxen as, ideally, would plough with 4 oxen in this area

### 8 What the main impacts on their livelihoods are

Have more time and feel happier, healthier and wealthier since they have had working animals.

Carrying sugar cane was previously done by human portage (mainly men). Transport of firewood and domestic water were done by women and children head-loading. For carrying bricks and sand (in a basket) and moving crops from home to market, *boda-bodas* were hired (head-loading not used for these activities).

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Sometimes men with bicycles would help. Carrying produce to the grinding mill was done by women head-loading.

The group defined their main aim as increasing agricultural productivity and income in their fight against poverty.

### **9 How conflicts (if any) on equipment needs and sharing are resolved**

### **10 Why oxen or donkeys chosen (including future options)**

### **11 Any other information**

- 1 Group name:** Kwebarawo Womens Group
- 1.1 Date** 25 Sept 2004
- 1.2 Location** Kwebarawo, Ivukula
- 1.3 Number in group** 20                      **Male** 5                      **Female** 15
- 1.4 Number present** 3                      **Male** 1                      **Female** 2
- 1.5 Number of bicycles** 4 (owned by men)

**2 Acquired through project:**

- 2.1 Donkeys**
- 2.2 Oxen** 2 (Sept 2003)
- 2.3 Donkey carts**
- 2.4 Ox carts** 1 (Sept 2003)
- 2.5 Ploughs** 1 ox plough (Sept 2003)
- 2.6 Other** --

**3 Usage of carts in priority order**

- a) sand and bricks
- b) at harvest produce (maize, millet) from garden to home
- c) collecting water
- d)
- e)
- f)

**4 Before-after transport differences (greatest difference first)**

- a) the end of famine
- b) have food and money
- c) often used to hire portorage services
- d) most transport was done by head-loading (men and women), and bicycles if available
- e) less chest and body pain now that head-loading has reduced
- f) non-members also benefit as they get assistance with ploughing etc
- g)
- h)

**5 Health of animals**

- 5.1 General** The oxen are healthy.
- 5.2 How treatments (if any) given**
- a) vet, who comes when called, administers all treatments
  - b) they pay the vet 1,000 UShs per visit
  - c)
  - d)



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### 6 General comments on equipment

#### 6.1 Cart(s)

- a) ox cart having tubeless tyres removed
- b)
- c)

#### 6.2 Plough(s)

- a)
- b)
- c)
- d)

### 7 Comments on equipment design and use

#### 7.1 Donkey cart

- a)
- b)
- c)
- d)

#### 7.2 Ox cart

- a) tubeless tyres are a problem (now being addressed by the project)
- b) there is a problem with wheel hubs and rims (not possible to see as artisan manufacturer has taken axle away for repair)
- c)
- d)

#### 7.3 Plough

- a) shares do not fit properly
- b) axle on wheel too weak
- c)

### 8 What the main impacts on their livelihoods are

The main impact is now that they do not suffer such food shortages and they have some money to purchase goods. They believe that the plough has had more impact than the cart as this is the more significant in reducing famine.

### 9 How conflicts (if any) on equipment needs and sharing are resolved

### 10 Why oxen or donkeys chosen (including future options)

Chose oxen because they were concerned that donkeys would not settle in here. Nobody in the neighbourhood has donkeys. Some members of the group have participated in an exchange visit to Kenya and have seen donkeys being used successfully there so may consider having donkeys in the future.

### 11 Any other information

The group welcomed the TFG programme and more members want to join. However, this is difficult as the programme is coming to an end.

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Another group has joined the programme and the dues have been paid but, although they have received a plough, they do not have their oxen yet.

- 1 Group name:** Balisanyuka Mixed Farmers Group
- 1.1 Date** 25 Sept 2004
- 1.2 Location** Kwebarawo, Ivukula
- 1.3 Number in group** 8 **Male** 4 **Female** 4
- 1.4 Number present** 4 **Male** 3 **Female** 1
- 1.5 Number of bicycles** 3 (women may use bicycles)

**2 Acquired through project:**

- 2.1 Donkeys**
- 2.2 Oxen** 2
- 2.3 Donkey carts**
- 2.4 Ox carts**
- 2.5 Ploughs** 1 ox plough
- 2.6 Other** --

**3 Usage of carts in priority order**

- a) at harvest produce from garden to home – usually use bicycles but when there is much to transport, they hire the cart from the Kwebarawo Group
- b)
- c)
- d)
- e)
- f)

**4 Before-after transport differences (greatest difference first)**

- a)
- b)
- c)
- d)

**5 Health of animals**

- 5.1 General** The oxen are healthy.
- 5.2 How treatments (if any) given**
- a) spray for ticks (bought small pump and formulation from shop)
- b) vet administers all other treatments
- c)
- d)

**6 General comments on equipment**

- 6.1 Cart(s)**
- a)
- b)

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c)

### 6.2 Plough(s)

a)

b)

c)

d)

## 7 Comments on equipment design and use

### 7.1 Donkey cart

a)

b)

c)

d)

### 7.2 Ox cart

a)

b)

c)

d)

### 7.3 Plough

a) shares very weak

b)

c)

## 8 What the main impacts on their livelihoods are

Very pleased to have plough. It has made a big difference – in particular they now have enough food at home. Most have extra food to sell which provides them with a little money. This reduces their domestic problems.

## 9 How conflicts (if any) on equipment needs and sharing are resolved

## 10 Why oxen or donkeys chosen (including future options)

They would not choose donkeys as they are not used in this area. However, now they have visited Kenya and seen donkeys in use successfully, they may consider having donkeys in the future.

## 11 Any other information

They do not have a cart because the group could not afford it.

Without a cart most transportation is done by head-loading (men and women together) or by bicycle when men are available to help. When crops are taken to market (from home), this is almost always by men with bicycles.

For transporting sand and bricks, they hire the ox cart (*boda-boda* not used).