

# Crop Post Harvest Programme (CPHP)

## Rural Transport Services Project for Kenya



## RTS Kick-off Workshop — Silsoe Research Institute Consultancy Report

**Compiled by:**

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**For**

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Project Leader/Institution: **Pascal Kaumbutho / KENDAT**

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*and*

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## RTS Kick-off Workshop – SRI Consultancy Report

### 1. Introduction

Dave O'Neill visited Kenya from 5<sup>th</sup> to 18<sup>th</sup> May 2002 to participate in the Kick-off Workshop and follow-up activities for the NRIL<sup>1</sup> component of the RTS (Rural Transport Services) Project. The terms of reference were to:

- i) contribute to deliberations of the K-O Workshop and, specifically, introduce the ergonomics component;
- ii) visit project locations to acquire base-line data;
- iii) assist with project planning and drafting a schedule of activities;
- iv) confirm terms of reference for SRI involvement.

My itinerary is given at Annex 1. The RTS Project is an aggregate of three complementary but discrete research projects funded from different sources. Some details are given in Table 1.

Table 1 Key details of the RTS contributory projects.

Source of funding	Purpose <sup>2</sup>	Duration	Value
SIDA (Swedish Development Agency)	To establish and disseminate information on key factors and parameters for measuring appropriateness of transport in the agricultural sector, with special regard to operational efficiency, gender and environment.	Sept 2001 – Aug 2003	£8000
Infra-Structure and Urban Development Department (IUDD, part of DFID <sup>3</sup> )	To systematically assemble data and information that can provide guidance on the key policy and livelihood options towards sustained IMT based transport services for the poor at national and local level.	Sept 2001 – Aug 2002	£9000
NR International Ltd (through DFID CPHP)	To assess how agricultural production and marketing stimulate demand, the associated bottlenecks and opportunities available for improved supply of transport services to smallholder agricultural sector.	Apr 2002 – Mar 2005 (depending on review by end of Year 1)	£223,111

Considering the RTS Project as a whole, the supergoal is *“Livelihoods of poor people improved”* and the overall purpose is *“Provide guidance on the key policy options at the national and local level, which can contribute to the improved delivery of rural transport services, particularly involving IMTs”*. In addition to the formal funding shown in Table 1, ITDG East Africa and other local donors are making available goods and services to the value of £63,380.

For information on the Workshop and decisions on project details, see the report by Kabengi (2002).

<sup>1</sup> NR International Ltd, sponsored by DFID research funding via the Crop Post-Harvest Programme (CPHP)

<sup>2</sup> from Logframes agreed with KENDAT

<sup>3</sup> Department for International Development (UK)

## 2. Progress

### 2.1 Kick-off Workshop

The formal activities of the Workshop took place over two days, 6 – 7 May, with follow-up activities continuing for the rest of the week (until 10 May) for core team members and component leaders of the project team.

The design and management of the questionnaire attracted some debate both during the formal Workshop and subsequently at the team members meetings. It was agreed that “open-ended” questions should be kept to a minimum by providing multiple choice answers for the interviewers. This demanded a drastic re-design of the “master” questionnaire, which, from my previous experience, I was able to make a significant contribution to. Firstly, with a small working group, I made recommendations for changes to the environment and ergonomics section (within “Natural Capital”). These are included as Annex 2. Then, in collaboration with Ms Mweru Mbugua, in her capacity as assistant to Mr Franklin Muchiri (the Ergonomics Team Leader), I examined the whole questionnaire and made suggestions for revising those questions which had ergonomics implications. These recommendations are given at Annex 3. Whilst undertaking this exercise, I became aware of other shortcomings in the questionnaire and compiled a further list of general recommendations, which are included as Annex 4.

The general approach to information collection was also discussed and the following sequence of four distinct steps was agreed to be necessary and appropriate (necessary to make efficient use of all the information sources and appropriate to the progress and reporting of the three individual projects). The steps were: i) literature review, ii) transect walk, iii) talk to key informants and iv) conduct individual interviews / questionnaires.

The interviews / questionnaires will generate large arrays of data which will require careful management. Methods of storing, retrieving, processing and analysing the data were discussed but no firm conclusions reached. The use of SNAP<sup>4</sup> software would be the most effective approach but this would require special software and, preferably, some training and so may not be practicable. The use of Excel<sup>®</sup> or Access<sup>®</sup> on most Microsoft Windows<sup>®</sup> computer systems would probably be a good compromise. Nevertheless, whichever approach is adopted, anticipating the data with careful planning and preparation are essential to avoid chaos and overload when the data start arriving.

The Workshop provided me with an opportunity to explain the basics of ergonomics and outline the reasons why ergonomics issues and human factors had been included in the RTS Project. These were agreed by the Workshop as being an important and necessary part of the project. Subsequently, the core team members confirmed that the ergonomics component of the project would entail coverage of three aspects of ergonomics in five areas of relevant application. The three aspects, to ensure that the project is people-centred, are: **performance** (productivity, output), **safety** (accidents,

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<sup>4</sup> see [www.snapsurveys.com](http://www.snapsurveys.com)

injuries, diseases) and **comfort** (size, shape, user-friendliness). The five areas of application will be i) human portage, ii) draught animal power (DAP), iii) IMTs and other vehicles, iv) packaging and v) marketing. A useful introductory text on the ergonomics of post-harvest activities and processes is available in Jafry (2001) and should be widely distributed amongst the project team. (Also for the associated project in Uganda led by Kleih and Kaira.)

A consideration of the ergonomics factors involved with the transport of loads (including people) has led me to compile a more extensive list of modes of transport. This is included at Annex 5 and caters for differences in, for example, the effort required for controlling (mainly balancing) carts with one or two axles (for both human and draught animal applications).

I offered to send information on questionnaire surveys involving ergonomics and DAP that I had helped design elsewhere in Africa (Mozambique and South Africa). However, these had not been set up using SNAP®, but had been analysed using Access® and Excel®.

## 2.2 Visits to project locations

Two visits were made, the first to the Lari area (Thurs 16 May) and the second to the Mwea area (Fri 17 May). Members of the project team participating in the visits were Mutua, Ochieng (Lari only), Chweya, Legesse, Mbugua and O'Neill. Unfortunately, Muchiri, the designated local leader for ergonomics was not able to make either visit. O'Neill prepared briefing notes for the first visit, - see Annex 6. (These were also referred to for the second visit.)

In the Lari area we held two focus group discussions, one at Kirasha near the roadside market area and one at Karinga near a road junction with some small shops. Notes from these discussions are included at Annexes 7 and 7a.

In the Mwea area we also held two focus group discussions. The first was with the Ngurubani Bicycle Transporters (NBT) Group and the second was with the water transporters of the Kimbimbi Donkey Carts Welfare Group. The notes from these discussions are included at Annex 8.

The opportunity to hold focus group discussions rather brought the ergonomics component to life. Whilst it was being discussed at the Workshop and in the Office, it seemed somewhat academic and it was not entirely clear whether the team members were able to fully appreciate the importance of the ergonomics issues to the target population and how they impacted on the three projects. All four discussion groups were lively and demonstrated convincingly the relevance of ergonomics to people's livelihoods. Furthermore, the first-hand experience gained in asking about ergonomics issues is undoubtedly the best approach and will have generated much confidence amongst the team members that will be of benefit in subsequent group discussions. This is particularly important if Mr Muchiri, who does have experience of conducting ergonomics discussions (although not in the informal / agricultural sector), is not going to be available.

Even in these “pilot” discussion groups, a number of useful new **items of** information came to light. These are summarised in Table 2 below.

Table 2 Interesting findings from focus group discussions

Lira area	Mwea area
<ul style="list-style-type: none"> <li>▪ accidents are rarely an issue</li> <li>▪ most people recovered from their aches and pains arising from transport within a day (in this respect men are more resilient than women)</li> <li>▪ men combine firewood collection with their agricultural tasks</li> <li>▪ water is plentiful so collection is rarely a problem but wood is more difficult because of the amounts needed for cooking and heating, and the distance</li> <li>▪ women do long treks back-loading</li> <li>▪ women prefer not to use bicycles</li> <li>▪ shoulder padding may help reduce the discomfort of back-loading</li> <li>▪ donkeys are slow and demanding – should be used pairs or threes</li> <li>▪ donkeys may be afraid when they meet water (large puddles) which can cause a problem with harness design</li> <li>▪ cattle are not used to pull carts as they are “too valuable” (for milk and meat)</li> </ul>	<ul style="list-style-type: none"> <li>▪ most <i>boda-boda</i> drivers form themselves into groups and protect one another’s interests</li> <li>▪ <i>boda-boda</i> drivers can work only 5 years on average</li> <li>▪ <i>boda-boda</i> drivers often become impotent / sterile after 2-3 years (but recovery is possible)</li> <li>▪ above the age of 30-35 men are too old to be <i>boda-boda</i> drivers</li> <li>▪ there are no women <i>boda-boda</i> drivers</li> <li>▪ there is a fixed rate for carrying passengers (irrespective of their weight) but inanimate loads are negotiated individually</li> <li>▪ donkeys are used for pulling water carts for no more than about 5 years – after that they are too slow and are sold to farmers (who “do not need the speed”)</li> </ul>

Some of these findings raise other interesting issues. For example, how easily could shoulder padding be provided and how effective would it be? Has the donkey harness been designed (ref BHA project) with the knowledge that donkeys that are new to the area may not be familiar with puddles and so may try to jump over them? Would the wives of the *boda-boda* drivers who have become impotent behave so as to encourage the spread of HIV/AIDS? What are the physical / physiological demands on *boda-boda* drivers and could they be ameliorated to extend the time for which the job may be done?

### 2.3 Project planning

The approach to information and data collection was rationalised by adopting the sequence of four steps, as described in 2.1 above. This greatly facilitates meeting milestones and delivery of outputs, especially for the next two quarters (see Kabengi, 2002, section 6.3.1). By adopting this approach, it could be seen that the information required for the first quarter (to 30 June 2002) deliverables had already been collected and most of the analysis done. Much of the remainder of the first quarter would have to be devoted to finalising the survey / questionnaire design, for use in the second quarter to meet these deliverables and in preparation for the Golden Milestone Workshop in October 2002.

My next visit and contribution to the project is scheduled for the Golden Milestone Workshop. However, given adequate notice, I would be able to visit again in late August, should the need arise and project funds permit. In the meantime I would expect to be able to make an informal but small input to the interpretation of the survey / questionnaire data.

#### 2.4 Terms of reference for SRI involvement

I was able to agree the following terms with Dr P Kaumbutho, the Chief Executive of KENDAT and the Project Team Leader.

- 1 Silsoe Research Institute are being hired to provide ergonomics inputs to the KENDAT RTS Project
- 2 A minimum of 15 days' work will be required during the first year of the Project (April 2002 to March 2003)
- 3 A rate of GB£470 per consultancy day will be paid, as previously agreed
- 4 All travel and subsistence costs will be met locally.

KENDAT would be please to receive for consideration a copy of SRI's standard terms and conditions incorporating the above details.

KENDAT would also like to establish a Memorandum of Understanding with SRI as an expression of mutual interests and to facilitate future collaboration.

### 3. **Conclusions and recommendations**

- ◆ In the design of the survey / questionnaire, it was agreed to avoid, as far as possible, open-ended questions and to offer a range of multiple choice responses to the interviewers. The method(s) of analysing the data must be decided before the survey is started.
- ◆ Prior to administering the survey, three different approaches should be used for information gathering – literature review, transect walk and interviews of key informants.
- ◆ The ergonomics topics agreed for inclusion in the Project at the Kick-off Workshop were performance, safety and comfort, as applied to portorage, DAP, IMTs, packaging and marketing.
- ◆ Focus group discussions at project location sites demonstrated and confirmed the importance of these topics to people's livelihoods.
- ◆ The group discussions both provided local team members with first-hand experience of eliciting ergonomics information and revealed some interesting findings.
- ◆ Basic terms and conditions for SRI's involvement in the Project were drafted.

### **References**

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Jafry, T, 2001. Human considerations in crop post-harvest operations. Silsoe Research Institute for DFID Crop Post-Harvest Programme.

Kabengi, M, 2002. RTS Kick-off: Reporting and Follow-up Workshop, 6 – 8 May 2002. GS Consult, Nairobi, for KENDAT 24pp

Cover pictures

*The donkey cart does not get stuck! (Mwea Irrigation Scheme, 9 May 2002).*

*Focus group at Kirasha (16 May 2002)*



## Annex 1

### Itinerary

Sat	4 May 2002	Depart home for Nairobi (KQ101)
Sun	5 May 2002	Arrive Nairobi; read project documents
Mon	6 May 2002	RTS Kick-off Workshop (day 1)
Tue	7 May 2002	RTS Kick-off Workshop (day 2)
Wed	8 May 2002	Field visit to Mwea
Thu	9 May 2002	RTS Kick-off Workshop assessment by core team and team leaders; work on questionnaire
Fri	10 May 2002	Continue Workshop assessment; work on questionnaire
Sat	11 May 2002	Field visit to Limuru; write notes
Sun	12 May 2002	Free day (with PK)
Mon	13 May 2002	Meetings at KENDAT; discuss ergonomics component with F Muchiri; work on questionnaire
Tue	14 May 2002	Meetings at KENDAT; discuss ergonomics aspects of questionnaire with M Mbugua and F Muchiri; discuss questionnaire with P Njenga; agree on delivery of quarterly outputs
Wed	15 May 2002	Prepared for field visits to test ergonomics questions with M Mbugua and F Muchiri; discuss SRI contract
Thu	16 May 2002	Field visit to Limuru to test ergonomics questions
Fri	17 May 2002	Field visit to Mwea to test ergonomics questions; final debriefing (KENDAT Office)
Sat	18 May 2002	Depart for Uganda (KQ412)

**Comments on RTS Questionnaire  
Environment Section  
(Working Group, 9 - 10 May 2002)**

Starting at page 4 and going through to page 8, each of the 49 questions is commented on.

Question #	Comment
1	This question should be addressed to Group Meetings, not individuals.
2	This question should be addressed to Group Meetings, not individuals.
3	This question should be addressed to Group Meetings, not individuals.
4	What natural resources does your household rely on? <i>Use the following list to provide boxes to tick:</i> Wild trees / shrubs; own trees / shrubs; rainwater; borehole; shallow well; river / stream; pond / dam; stones / rocks; sand; clay; wild grass / reeds; minerals; other.
5	Are any of these resources becoming scarce? <i>Use the same list as above to indicate which are becoming scarce. [For convenience, these two questions could be combined by having two columns. NB The respondent does not have to be a user of a natural resource to indicate that it is becoming scarce.]</i>
6	This question should be addressed to Group Meetings, not individuals.
7	For what purpose(s) do you use these natural resources? <i>Use the above list together with the list given below to provide a matrix:</i> Firewood; charcoal; house construction; tools and/or equipment; forage; human consumption; fishing; animal watering; bathing; road construction; cosmetics; furniture, mats etc; other.
8	Omit
9	This question should be addressed to Group Meetings, not individuals.
10	Omit (or use in Group Discussions).
11	Omit
12	What transport is needed to use these natural resources? <i>Use the natural resources list above together with the types of transport list below to provide a matrix:</i> Back-loading; head-loading; wheelbarrow; handcart; sledge; bicycle; donkey cart; ox cart; motorcycle, pick-up; tractor.
13	<i>Revise this question to omit the encourage/discourage component but use the matrix from q 12 to identify the respondent's i) own current practice and ii) his/her opinion of the minimum transport requirement for each resource.</i>
14	This question should be addressed to Group Meetings, not individuals.
15	This question should be addressed to Group Meetings, not individuals.
16	This question should be addressed to Group Meetings, not individuals.
17	This question should be addressed to Group Meetings, not individuals.
18	Omit - this is the same as q 15.
19	For Group Discussion - the same as q 9?

- 20 This question should be addressed to Group Meetings, not individuals.  
*Need to add two more questions here before starting the next section.*  
 Which of these natural resources are used by the household only and which are sold?  
*Use the natural resources list from above and include two further columns to indicate domestic or commercial use. NB Both may be admissible.*  
 How far are these natural resources from the homestead?  
*Use the natural resources list again together with the distance list below to provide a matrix:*  
 < 100 m; < 0.5 km; < 3 km; < 10 km; > 10 km.
- 21 a) Have you been involved in a serious accident involving a motorised vehicle? YES / NO If YES, how long ago?  
*Select the motorised vehicles from the list above and form a matrix using the list below:*  
 < 1 week; < 1 month; < 1 year; > 1 year.  
 b) Have you known about a serious accident involving a motorised vehicle? YES / NO If YES, how long ago?  
*Select the motorised vehicles from the list above and form a matrix using the frequency list above.*
- 22 a) Have you been involved in a serious accident involving a non-motorised vehicle? YES / NO If YES, how long ago?  
*Select the non-motorised vehicles from the list above and form a matrix using the list below:*  
 < 1 week; < 1 month; < 1 year; > 1 year.  
 b) Have you known about a serious accident involving a non-motorised vehicle? YES / NO If YES, how long ago?  
*Select the non-motorised vehicles from the list above and form a matrix using the frequency list above.*
- 23 If YES to any of the above, what do you think caused the accident(s)?  
*Form a matrix using the four accident types above and the list of possible causes below:*  
 Bad road; busy road; poor driving; poor visibility; overloading; mechanical problem; other...other  
*NB There may be multiple causes.*
- 24 Omit - this should be an outcome of the analysis.  
 25 Omit - this should be an outcome of the analysis.  
 26 Omit - this is not environmental / natural capital.  
 27 Omit - this is not environmental / natural capital.  
 28 Omit - there is no need for a respondent to provide this information.  
 29 This question should be addressed to Group Meetings, not individuals.  
 30 Omit - use in Group Discussions, not with individuals - this is what we are to discover through the analysis.  
 31 Omit - this does not make sense.  
 32 Omit - use in Group Discussions, not with individuals - this is what we are to discover through the analysis.  
 33 Omit - already covered.  
 34 Omit - already covered.

- 35 *These questions up to q 42 are policy / politics and it is not appropriate to ask them in rural communities. As implied by the sub-heading, this information should be obtained from Govt. documents or Officers.*
- 43 Omit - this is not really relevant to the environment unless there is a possibility or suspicion of over-grazing - in which case it is a matter for Group Discussions.
- 44 As for q 43 above.
- 45 Irrelevant
- 46 Inappropriate - although this is an important issue, such a facility would be administered by the veterinary authorities and they should be approached, rather than communities or individuals, regarding their management practices and pollution control.
- 47 This question should be addressed to Group Meetings, not individuals.
- 48 This question should be addressed to Group Meetings, not individuals.
- 49 This question should be addressed to Group Meetings, not individuals.

Dave O'Neill  
(at KENDAT)  
13 May 2002

## Additions to Guiding Questionnaire document to incorporate Ergonomics issues

### 1. Suggestions to extend use of existing questions.

- P 3        Add *major accidents, sickness, disease* to “Shocks”.
- Pp 4-8    See comments already made for “Environment” Section.
- P 9        What are the age criteria for boys and girls in the Table?
- Add modes of transport used for each of the roles (should be tasks?), replacing the types of person. The respondent should describe himself or herself *only* (it is less accurate to ask someone what other people do and, in fact, not the purpose of a questionnaire such as this). The respondent’s gender and age should have been recorded already. The Table shown is actually a format for the presentation of results.
- P 10       For question f), make a matrix of all types of transport (going down) and factors (going across) taken from the list below<sup>5</sup>:  
             design; effort needed to operate; technical knowledge; breakdowns (unreliability); accidents; quality of roads / paths; steep slopes; other.
- P 12       “Has increased access brought in more human capital?” Only ask this question if human capital can be measured in some way.
- The question on crime and security should be Yes/No. Then add If Yes, a list including the following factors:  
             Theft; violence; fraud; cholera; malaria; HIV/AIDS.
- “Daily activity profiles”: These may vary during the year; if so, suggest that we ask about a typical week day in harvest season. For times make a list of hourly intervals from 4 am to 10 pm (i.e. 4-5; 5-6; 6-7; and so on until 21-22). For activities, there is a potentially very long list. It should include at least:  
             collecting crop in field; taking crop from field to homestead; taking crop from homestead to packing or selling point; land preparation; soil preparation; weeding; fetching wood; fetching water; cooking; cleaning; washing; bathing; eating; sleeping; socialising; looking after children; building; going to market; coming from market.....other...
- Pp 13-14   Rather than ask about distances, ask about times taken and specify modes of transport. Thus, for each destination, construct a matrix of time taken by mode. Suggestions for the time taken list:  
             < 15 min; 15 min – 1 hour; 1 hour – 3 hour; 3 hour – 6 hour.  
             Select as appropriate from the mode list (e.g. walking, bicycle, cart matatu etc)

<sup>5</sup>This, and any other list, may be added to if some factors have been overlooked.

For the last two, which are essentially **collecting** activities, it is probably better to ask the time to go there and return.

- P 22 For the note on “Changes in transport services...”, add:  
carrying capacity, speed; safety.  
For the note on “Rating..”, make it more balanced. Suggest:  
very poor, poor, satisfactory, good, very good.
- P 23 The question on the “preferred mode of transport” – who is this aimed at?  
Suggest we ask what is **actual** and **preferred** and provide a matrix of mode against items carried/transported.
- Pp 23-24 Add three more items to the i) to vii) listed:  
Operators with low skill level.  
Accidents with other people / vehicles.  
Traffic queues (in towns).
- P 25 In “Situation” Table, add:  
availability of livestock (below agricultural inputs); sanitation (below household water supply). For “family health”, be more specific.
- P 30 For bicycle or other IMT operator, ask about  
ownership (IMT owned or rented)  
accidents (frequency and severity)  
injuries (which parts of the body, frequency and severity)  
whether the IMT affects health (list typical complaints)  
the design of the IMT (any modifications done; any modifications needed)  
effort needed to operate (easy, not too hard, hard, very hard)
- P 35 For question on illnesses, clarify what is meant by “environmental destruction.
- P 35 For the information on local markets, add:  
Have you ever had any accidents in going to or from market? Yes / No  
If Yes, Have these resulted in any losses? Yes / No  
If Yes, What did you lose? *Tick boxes from the following list:*  
agricultural produce; personal belongings; money; other  
If Yes, What was the value of what you lost? *Tick boxes from the following list:*  
< 100 KSh; < 500 KSh; <1000 KSh; > 1000 KSh  
  
Have you ever suffered any injuries because of carrying things to or from market? Yes / No If Yes, explain.
- P 36 The first question, “Who else could be doing it and why not?” is not clear.

## **2. Suggestions for introducing new questions**

Even with the above suggested additions, there are still some gaps in the information required. The biggest gaps seem to be in the application areas of (human) portorage and packaging and marketing (for convenience taken together).

To cover portage, I suggest expanding further the questions referring to what is carried by whom and how, on page 9. For respondents who carry loads without the help of IMTs, be sure to determine whether they use back-loading or head-loading and then ask questions about aches, pains and injuries. The "Body Map" method is probably best for this (see FAO Bulletin No. 110, p 78 – in KENDAT library). Respondents should be asked to point to the area that hurts and may also be asked how long the pain continues after the transporting task has been completed. (Suggest boxes for: < 10 min; < 1 hour; < 3 hours; < 6 hours; < 12 hours; < 24 hours; > 24 hours)

To cover packaging and marketing, it would be best to adapt or add to questions in the logistics area. However, it is not clear where these appear on the questionnaire – page 29? Alternatively, questions could be added to page 30 and/or page 35, but these are targeted at small-scale transporters and local markets only.

When a suitable location(s) is/are determined, questions could be asked along the following lines (some suggestions for tick boxes given).

Who packed this produce? How long did it take? Was there any trimming , sorting  or quality control  associated with the packing? Did it need any special equipment? Was the task of packing easy , difficult , unpleasant , a source of drudgery , a cause of discomfort  or pain ? Is special packaging material required? Does it have to be bought? How much does it cost and is it easy to buy? Who decides on the method of packing and nature of the packaging (- producer , customer , tradition  etc?)

Dave O'Neill  
(at KENDAT)  
15 May 2002

## Observations on Guiding Questionnaire document

These are Dave O'Neill's personal views on the design and use of the document in its current form. The points are raised on a page-by-page basis.

- P 1 The questionnaire number must be unambiguous, preferably coded to carry some administrative information.
- P 2 The rating scale seems biased towards the "good" end of the spectrum.  
  
It would be more meaningful to ask where the vehicles have **come from** rather than **going to**.  
  
The question asking about coming to the village should be placed before the Table.
- P 3 Has the age criterion of 18 yrs old been agreed? It seems a bit high to me.  
  
See ergonomics document for additions to "Shocks".
- P 4 re: Land - This project (as all DFID etc projects now) must have a poverty focus and target the poorest people. The questions about land seem to completely by-pass / exclude landless peasants (as they're called). The question **MUST** be revised to get a distribution of land across the whole population.  
  
Use acres rather than hectares.  
  
Are there any forests in the survey areas?  
  
The Environment Section going up to page 8 has already been commented on in detail ( see "Comments on RTS Questionnaire.doc", dated 13/5/2002).
- P 9 It might be informative to add a question after "the level of education" such as: Do people form teams to help each other to handle (e.g. load) or transport difficult loads or to move long distances? [*This comes to mind having observed the loading gangs at Soko Mjinga. The sacks are too heavy for a single individual to lift off the ground but once the load is on his shoulders, he can carry it to the lorry.*]
- P 11 "How do people access health....." Would it not be more correct to ask how people travel to / from these services, bearing in mind that to might not be the same as from (e.g. if status of sickness has changed). Also, it is hard to see how this belongs in Human Capital.  
  
The answers to these questions should come out of the analysis – they should not be part of the household questionnaire, or be asked to any individual respondents. They may be suitable topics to raise in group discussions.
- P 16 The maps showing water points and firewood should be separate, as they are not necessarily adjacent to each other.



- P 21 Second Table – Access: Are there priorities for access for these different types of people?
- P 22 Second Table – Current charges: Clarify what for- e.g. a particular journey, per km, per min or hour.
- P 23 Innovation. Be sure to explain what innovation means. It might be helpful to have a list to give some ideas.
- P 24 In list of i) to vii), add **drainage** after i) or ii).
- P 25 Second Table – Expenditure: Clarify “Fees” in the first line. Add veterinary charges, cultural events, such as funerals and weddings?
- Pp 26-7 In the diagrams, it might be helpful to categorise the resources shown on the left according to the five capitals, keeping all under a similar heading together, and shown as such.
- “Are you aware of resources that are accessible but not useable?” *In what way are they resources, then?*
- “Are you aware of resources that are useable but not accessible?” *This seems a bit pointless – the list could be endless: coal, oil, gold, ....etc??*
- The last question on this page is also pointless, therefore.
- P 28 What do you look at to tell that a household / person is well-off? *Why not ask this question to identify if a person / household is poor, as poverty not wealth is the focus. [This may sound a bit philosophical, but poverty is not always the absence of wealth.] Also focus on households rather than persons.*
- P 29 Who is this Table aimed at?
- Distinguish between farm and homestead to ensure the two are not confused or combined.
- P 30 The respondent’s status, especially regarding ownership or hirer, should be ascertained.
- P 32 Is this necessary?
- P 33 Is this necessary?
- P 34 Is this necessary?

Dave O’Neill  
(at KENDAT)  
15 May 2002

**List of all possible modes of transport  
(ART/RTS Project)**

	<b>Mode</b>	<b>Human transport</b>	<b>Goods transport</b>
1	Walking	x	
2	Back-loading		x
3	Head-loading		x
4	Shoulder yoke / pole		x
5	Wheelbarrow		x
6	Hand cart – 2 wheel	x	x
7	Hand cart – 4 wheel	x	x
8	Donkey**	x	x
9	Horse	x	x
10	Ox and sledge		x
11	Donkey and cart – 2 wheel	x	x
12	Donkey and cart – 4 wheel	x	x
13	Ox and cart – 2 wheel	x	x
14	Ox and cart – 4 wheel	x	x
15	Horse and cart – 2 wheel	x	x
16	Horse and cart – 4 wheel	x	x
17	Bicycle	x	x
18	Boda-boda	x	(x)
19	Bicycle with trailer	x	x
20	Motorcycle	x	x
21	Motorcycle with trailer/sidecar	x	x
22	Power tiller (i.e. 2-wheel tractor)	x	
23	Power tiller with trailer	x	x
24	Matatu	x	x
25	Pick-up (or car)	x	x
26	Bus	x	x
27	Lorry	x	x
28	Tractor (standard)	x	
29	Tractor with trailer	x	x

\*\* Can add camel, buffalo, elephant etc, as appropriate

Dave O'Neill  
(at KENDAT)  
15 May 2002

**RTS Project**

Group Discussions – Limuru (16<sup>th</sup> May, 2002)

**Aims:** To promote discussion on the ergonomics of rural transport and use the information generated to clarify the key issues and, if appropriate, guide future such discussions.

The discussion meeting should last 1½-2 hours. The discussion should be conducted in Swahili and we need to agree a Chairman.

The Chairman should introduce the subject (RTS), the purpose of the meeting (ergonomics) and the KENDAT team.

The discussion should be unconstrained and wide-ranging but should try to cover these major topics:

1. Daily routines – what people do, especially on agriculture and transport on a typical day.
2. What people transport and how they do it – particular attention to times. Distances and difficulties should also be considered.
3. Discuss human portage aspects of 2 as fully as possible. How it compares with other forms (esp. DAP, bicycles), injuries, accidents and costs. For discomfort, pain and injuries, try using the Body Map (Mwern).
4. Are there any differences between men and women regarding human portage. Do men or women have preferred systems of carrying (e.g. on head, on shoulders, on back).
5. Discuss the use of bicycles and how they have changed people's lives. Identify any gender aspects.

D O'Neill  
16 May 2002

### Visit to Lari area on 16/05/2002

The two groups visited were composed mainly of male adults/youths aged between 19- 50 years. The youth respondents contributed very well to the discussions (each youth expressed himself freely), whilst one of the “elders” seemed to dominate the discussion.

#### Kirasha and Karinga

Kirasha is about 5 km from Soko-Mjinga on the Nairobi Nakuru highway. It is accessible along a loose-surface track from the highway.

#### Natural resources

Agroforestry is widely practised by the majority of the farmers. The predominant trees are pine, cypress, blue gum and bamboo.

#### Social structure

The majority of the people derive their livelihoods from commercial farming of crops such as potatoes, carrots, kale, peas, cabbage and maize. Young men go for off-farm jobs which include loading logs on trucks and transporting farm produce on donkey carts to the market.

#### Access and control

Men are said to be the owners of land, money, farm tools, bicycles, donkeys and donkey carts, as well as livestock (cows and sheep). Decisions in the household were made by husband and wife, but women met most of the obligations. Children could provide farm and domestic labour during weekends and holidays.

#### Daily activities

Activities for adult males include milking, delivering milk to the market, farm planning, watering cows and digging. They work from 6:00 am until 4:00 pm when they leave for shopping centres to relax. Women's (adult and youth) activities include domestic work like cooking, fetching firewood and water, harvesting the crops, feeding livestock, weeding and planting crops and preparing land for planting. All these activities are performed between 7:00 am. and 6:00 pm. It is noted that, unlike men, women have no leisure time.

#### Farming system

Kale, peas, carrots and potatoes are the principal crops grown in most farms and are the main source of income. Maize is planted as fodder for livestock because other sources like napier grass do not endure frost. Trees are planted along the fence surrounding the crop land the most common type of trees are pine, cypress and blue

gum and are a source of fuel. Crop rotation is widely practised. Most families rely on their own labour.

The significant crop pest and diseases are spider mites, blight, worms and rotting. These are controlled using chemical pesticides.

Most homes keep an average of 2 cows, a few sheep and some poultry. Animal diseases include pneumonia, mastitis and foot rot. Water for domestic use and livestock is obtained from wells (shallow).

### Health

Among the diseases that were mentioned are malaria, flu, pneumonia, asthma, hypertension and chest pains.

### Problems / Issues

- ◆ poor roads, especially when it rains
- ◆ lack of clean drinking water during the dry season
- ◆ soil erosion
- ◆ poor marketing facilities
- ◆ lack of hospitals/clinic (or are very expensive)
- ◆ lack of extension services
- ◆ water-logging
- ◆ lack of firewood/fuel for cooking
- ◆ electricity and telephone
- ◆ lack of unity/cohesiveness between villagers
- ◆ children do not attend school (fees too high)

### Types of Transport

The main types of transport used to ferry farm produce to market outlets are donkey carts, bicycles, human portorage and minimal motorised vehicles are used during dry spells.

Donkey carts and bicycles are mostly operated by male youths. Carts are used to ferry mostly farm produce such as kale, cabbages, peas and carrots to outlet market places.

Bicycles are used to transport male youths/adults to farming places, ferry milk to selling points and assist in transporting firewood from forest to homesteads

Portorage mainly by women is used to ferry water and firewood to the homesteads. Women cover approximately 2-12km per day to fetch water and firewood.

Types of IMT	Purpose	Distance	Time	Remarks
Bicycle	milk/firewood	6-12km	15-30 min	market
Donkey carts	farm produce	3-12km	30min-2hrs	home or market
Portorage	firewood/water	2-12km	30min - 2½hrs	homesteads

Diseases from the use of bicycle porterage transport were characterised as chest pains, pneumonia, backaches, shoulders and knee joints pains, and male impotence whilst from the use donkey carts they were mainly back / shoulder aches and fatigue.

<b>Type of transport</b>	<b>Disease</b>	<b>Purpose</b>
Bicycle	chest pain, shoulder, knee, pneumonia, impotence	water/firewood and milk
Donkey carts	pneumonia, backaches, fatigue	kale, cabbage
Porterage	backaches, knee joints fatigue and head ache	firewood water(women)

KENDAT  
June 2002

**Kirasha Area Lari**  
Group on men only (mostly youthful)

**A typical day's activities:**

6.30 – 7.00 Wake up time.

- 8.00 Work begins.
- Go to farm with donkey/cart or bicycle.
  - Release donkey to feed.
  - Farm activities: weeding, planting, harvesting.
  - Ferrying of farm produce and animal fodder.
  - Firewood collection in the forest. This requires prior payment to forestry authorities. The firewood collected is the left-over after saw-millers have taken what they want.
  - Farm produce ferried: potatoes, kale, peas, carrots, animal fodder (note: no market for milk currently).
  - Distance to forest from home – approx. 10km.
  - Other modes of transport: bicycle, walking.
  - When human portorage is used, the women utilise back and head while men utilise shoulders.
  - Most prefer donkey/cart for portorage.
  - ¾ of firewood is collected by men, mostly for home use (cooking/heating). A few for sale.
  - Water is ferried by women on the back from nearby shallow wells.
  - 3 donkeys are required for better loading. This reduces work done by handler.

**Work-related ailments:****Donkey/handler:**

- Falling accidents may cause broken bones for both and death for donkey if this happens in water (standing or river).
- Donkey may step on handler and break bone.
- Donkey is sensitive to stagnant water/mud on the road. It is unable to operate, but gets beating from handler.
- Handler may suffer from back pain, shoulder and knee pain.
- Donkey also suffers from other injuries.

**Bicycle:**

- Chest pains, backbone and joint pain.
- Note that women seem to have no use for bicycles here. May be they need information on benefits of using bicycles.

**Karenga Area – Lari**  
Group of one woman and men (mixed ages)

**A typical day's activities:**

- 6.00 – 7.30      Wake-up time.
- Milking cow.
  - Ferry milk to Co-operative Centre.
  - Travel to farm.
  - Harvest kale and transport back to sell to lorry people.
  - Farming includes weeding, planting, harvesting.
  - Crops harvested and ferried: kale, potatoes, cabbage, pyrethrum, animal fodder.
  - Ferrying done by donkey/cart, bicycle, humans.
  - Ferry of firewood and water also done. Water from shallow wells near and far.
  - Distance to farms – approx. 8km. This takes 2 hours by donkey / cart or walking or 1 hour by bicycle.

**Work related ailments:**

- Broken bones both donkey and handler due to falls.
- Handler may suffer from pains in the back, joints, chests, shoulder, arms (biceps).
- For bicycle riders – hurt at shoulder when they fall, back and leg pains.
- For human portorage – back and neck pains.
- Medicine is expensive and not available. Salt and liniment often used.
- Hospital (Kijabe). Visits for broken bones very expensive. Hospital visits may also be because of back pains especially for women who ferry on the back.
- All human portorage leads to skin abrasion and may need some innovative assistance in order to minimise e.g. use of protective harness-like material.
- A fallen donkey (especially in water) will easily die, if not quickly released from the harness, especially at the stomach. Currently the handler has to quickly cut this section of the harness. There is need to adjust the design to make it possible to slip in and out quickly.

Mweru Mbugua  
16 May 2002



## Visit to Mwea area on 17/5/2002

**Transport services in the area**

Bicycle taxis – transport people, rice, firewood

Donkey carts – rice farm to the village. They are not used to take rice to the Sacco

Pick-ups – take rice to the Sacco

**Transport related gender roles**

Fetching water – women and girls on their backs. Men will fetch water if there is no woman who is obliged to e.g. bachelor or when wives are away or sick

Transporting farm inputs using donkey carts – men and boys

Repair and maintenance of IMTs is done by men. Decision making concerning buying, selling IMTs – men

**Ngurubani Bicycle Transporters (NBT) Group**

Began: 1994

Number of members: 32 - Men only

Operation time: 7.00 a.m. – 8.00 p.m.

Activities: Ferrying passengers and goods for a fee, great percent are passengers.

Average load: 80kg

Average age of members: 17-35 years

Operation days in a week: 6-7 days

Average number of years worked: 3-8 years

Benefits:

- a) daily money collected
- b) daily merry-go-round (an agreed amount is paid to an individual by all members operating that day. This person takes home a bigger package allowing him to do a meaningful project).
- c) rotary (at the end of the day a rotary is done. The winner takes home an agreed contribution by all members).
- d) It was not clear the different times when b and c take place but the members are clearly able to regulate / control how they run their transport business.
- e) strong togetherness
- f) Medical / welfare fund (contributing 500/- to 600/- as needed) and ability to offer credit facilities.

Medical issues:- Falling accidents are a major problem

- Some vehicle drivers push cyclists to edges of road, results in falling
- Body aches due to this job include chest problems, backpains, knee, arms and shoulder.

- This work causes sterility; effects are felt after three years. The recovery is partial after this job is stopped.

- Other issues: - strict adherence to group rules/constitution e.g. bicycles must be serviced and other general requirements from government authorities e.g. mirrors.
- Cost of transport:- 3km charge is 15/- and takes 7min one way. 26km charge is 100/- to Kiumbuini. This takes 20min one way and 1 hr 20 min back, which is hilly.
  - Night travel after 8.00 p.m. is not covered by benefits
  - Night travel from 7.00 p.m. costs double day charges. It includes a second rider for security and to help with load.
  - Transporters average 5 – 10 trips/day
  - Women not culturally accepted to do this job.

Other points

Bicycle transport is unsuitable for sick people and expectant mothers, but it is still used to transport them to some cases.

Rainy weather also interferes with bicycle transport by affecting the roads and making the load or people being ferried wet.

**Requests - Community vision:-**

- Would like to have the roads graveled.
- Bicycle lanes to included town road planning.
- Bicycles to be fitted with reflectors. (Also requested by local MP.)
- Motorcycles to be sought (to avoid sterility).
- Hire of rice fields for income generation (assist retired bicycle transporters).

### **Kimbi Donkey Carts Welfare Group**

Number of members: 25 people – men only

Number of carts/donkeys: 20

Activities: transport water and other goods water is for home consumption and obtained 1 km away in a canal

Water load: 1 drum at a cost of 40/-

Operation time: 5.00 a.m. – 5.00 p.m.

Ownership of donkeys/carts: 25% owners

75% employed

Benefits: - daily money collected

- - uniform rules on pricing and proper donkey husbandry
- - group meeting every Wednesday for dissemination of information
- - the group takes care of their own in case of an accident, except when cart hits bicycle, in which case the individual handler is responsible

- Medical issues: -
- Loading the drum with water is a manual job requiring loader to walk on difficult terrain. This often causes falling, injuries to the knees and blisters on the feet.
  - Falling is also caused by pot-holes on the road. These can also cause cart breakages.
  - Body aches due to human portage backpain, pain in the legs and in the neck. This occurs in women who use their backs for carrying.
  - Vehicle (especially *matatu*) accidents often occur, hitting both the handler and donkey. This is thought to be due to carelessness, and police are said not to follow up the cases.
  - Although donkey crashes are rare, women are the main victims.

- Others:-
- Donkey working life is 5 years. A fast donkey is required. After this period, it is sold for slower farm activities. Usually there is one donkey per cart.
  - Cost of donkey (from Mwingi) is 7,000/- max.; this is sold for less than 5,000/- after 5 years.
  - One artisan makes all the carts, so they are uniform and cost 15,000/-
  - Carts use pneumatic tyres, which cost 50/- per puncture repair.
  - Typically, 10 drums of water are ferried daily; some fetch 20 drums with 3 donkeys and 2 handlers.
  - Women seem scared of doing this job.

- Requests:-
- Construction of steps, to facilitate access to canal to fetch water.
  - Graveling of roads.