USE AND MANAGEMENT OF DONKEYS IN PERI-URBAN AREAS OF ETHIOPIA

Phase One

University of Edinburgh and Ethiopian Agricultural Research Organisation collaborative project

Funded by the British Government Department for International Development

CENTRE FOR TROPICAL VETERINARY MEDICINE
UNIVERSITY OF EDINBURGH

ETHIOPIAN AGRICULTURAL RESEARCH
ORGANISATION

USE AND MANAGEMENT OF DONKEYS IN PERI-URBAN AREAS OF ETHIOPIA

Report of Phase One of the CTVM/EARO Collaborative Project
April 1999-June 2000

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Centre for Tropical Veterinary Medicine, Draught Animal Power
Technical Report 5 2001

DFID Department for International Development

Livestock Production Programme Project R7350 – Donkeys in peri-urban Africa – University of Edinburgh, Easter Bush, Roslin, Midlothian, EH25 9RG,UK

ACKNOWLEDGEMENTS

We are grateful to many people who provided us with technical assistance, advice, communications and managerial support in undertaking the work described in this report of the first phase of the project activities. We would particularly like to thank:

Alemu Gebre Wold
Andrew Dorward
Aster Yohannes
Bob Archibald
Degefa Tamrat
Feseha Gebreab
Gemechu Kebede Ayana
Getachew Mulugeta
Jon Verhaeren
Karen Wilkin
Nega Tolla
Mengistu Negussie
Mulugeta Mammo
Pauline McManus
Seyoum Bediye
Tamarat Degefa
Taye Bekure
Temesgen Tadesse
Tesfaye Alemu Aredo
Zinash Sileshi

In addition the farmers and the Agricultural Officers at the study sites who gave up their time to participate.

We are grateful to The Department for International Development (DFID) of the British Government for provided most of the funding for the project from the Livestock Production Programme (Project No R7350).

The Brooke Hospital for Animals met the costs of holding a workshop at the end of Phase One in Debre Zeit. The proceedings of this workshop are available from the CTVM or EARO on request.

The information and views expressed in this report are entirely the responsibility of the authors and are not attributable to any of the organisations involved.

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Front cover:
The photograph on the front cover is of donkeys on the Asmara Road in Addis Ababa, by David Smith

ISBN 0-907146-13-9

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1: INTRODUCTION

Donkeys are considered as beasts of burden in many developing countries (Crossley, 1991; Svendsen, 1991). Investigations of the role of donkeys in rural areas have received increasing attention from researchers and those in development over the last decade (e.g. Fielding and Pearson, 1991; Bakkoury and Prentis, 1994; Starkey, 1998). Despite this there is little quantitative information on their role as pack animals in marketing produce. Observations have shown that:- In many peri-urban areas in Africa draught animals can provide an important means of transporting goods and produce. No-where is this more apparent than in Ethiopia (Gebreab, *et al.,* 1997). Ethiopia has the second largest donkey population in the world. Large numbers of them are found in the highlands of Shewa, Gonder, Tigray, Gojam, Welo and Arsi (Admassie *et al.*, 1993). The total number ranges from 4-5 million. Four recognised donkey types exist, unevenly distributed in all agro-ecological zones and the two landscape patterns. The small scale farmers and farmers in the Highlands have the largest share with 2-3 animals per family, and with female donkeys being most common (70%).

A donkey, or other pack animal, provides a means of transporting a range of products more rapidly to market and in greater amounts than can be done on foot, but cheaper and more easily than relying on public transport or motor vehicles. It increases the range of distances over which produce from a farm can be sold. It is a door to door service, so perishable products such as vegetables (especially tomatoes in Ethiopia), milk, eggs, poultry, grain and animal fodder can arrive safely with less damage, stress or effort, than if they had to be transferred from one means of transport to another and back again. Tesfahunegan (1986) calculated that even with a single animal the potential cost reduction from substitution of pack for human carriage is of the order of 50%. Howe and Garba (1997) in a study of subsistence farmers in Kaffecho Zone in Ethiopia found that pack animals offered the only realistic way of obtaining returns from agriculture above mere subsistence. Ownership of an animal in this area could significantly reduce total transport costs and increase both the returns to the farmer; and the range of distances over which it was economic to trade. In marketing crop products, high value products such as seeds offered better returns than the food staples such as maize and sorghum (Howe and Garba, 1997).

In Ethiopia as well as in many other developing countries, small-scale dairy enterprises are increasing as demand for dairy produce rises in the urban areas. A symposium on dairy marketing at ILRI in 1992 highlighted the problems that are involved in smallholder dairy marketing. One of the problems is the lack of rapid cheap transport for smallholder dairy enterprises both to urban markets and to supply inputs, particularly fodder in the cut-any-carry systems common on the urban fringe. (e.g. Debrah, 1992; Kurwijila, 1992; O'Connor, 1992). In Ethiopia donkeys have the potential to provide transport in this sector of the agricultural industry.

Donkeys also offer an opportunity to diversify income in rural areas. In Tigray and the Rift Valley areas their contribution in terms of firewood trade to the family income was found to be in the range of 156 to 1404 Ethiopian Birr annually (US$ 1 = Ethiopian Birr 8.8). In Ejersa, sand is transported in 20 litre containers fitted on the back of a donkey. Each day a donkey makes 80 shuttles from the river basin to the roadside transporting a volume of sand amounting to 4 m^3 and costing 90 Birr. A

study by ILCA in 1988 (Crossley, 1991) revealed that donkeys were used for a total of 433 h a year (average 8.3 h /week) in the Debre Brehan area, these figures representing a relatively low use. However recent figures for donkey use in peri-urban areas suggest these animals are used at least 5-6 days in the week (Sisay and Tilahun, 1997).

Pack animal transport is an enterprise that can be, and often is, undertaken by disadvantaged or displaced people (e.g. Sisay and Tilahun, 1997). Use of animals in transport has the potential to provide contractors with a steady income (e.g. Wilson, 1991; Gebreab, *et al.*, 1997, Sisay and Tilahun, 1997). Several studies have shown that farmers with a cart or pack animal can get a higher price for their goods than those without access to animal transport (see review by Anderson and Dennis, 1994).

Use of animals to move goods can help women in their daily activities. Women in peri-urban and rural areas have a heavy work burden.. For example in Ghana and Tanzania a study of the transport needs of poorer sectors of the populations (Harrison and Howe, 1989) produced the following findings: the transport activities of a rural household in Tanzania occupy 2600 h/annum and involve a load carrying effort of 100 tonne-kms. The figures for Ghana are 4800 h/annum and 200 tonne-km. Women, on foot effect most of this transport. Most trips are undertaken to meet agricultural requirements, including marketing, and essential domestic needs (Harrison and Howe, 1989). Donkeys provide one of the best and most acceptable ways of reducing this workload in many different situations (e.g. Barwell and Dawson, 1993, Bryscon and Howe, 1993, Leyland, 1997).

Although research has been carried out on the use of donkeys in crop production in rural areas (e.g. Prasad *et al.*, 1991; Ndlovu *et al.*, 1997; Nengomasha, 1997), and on their nutritional requirements for work (e.g. Pearson *et al.*, 1998), information on donkeys in peri-urban areas is largely restricted to records kept by treatment centres, where sick or injured animals are brought (e.g. SPANA Annual Reports, Universidad Nacional Autonoma de Mexico, UNAM Annual Reports for their mobile clinics in the Mexican Veterinarian journal such as Cordova, et al, 1997), or from general studies of transport systems (e.g. Anderson and Dennis, 1994). Sisay and Tilahun (1997) described the role of the donkey in the major grain market of Addis Ababa. They suggested that the main problems were shortage of food, municipal regulations and harassment, with donkeys also being overloaded and suffering from wounds. Welfare is a visible problem in other peri-urban areas, as animals are often seen working with harness sores and in poor condition. Predisposing circumstances are rarely determined, treatment being the priority (Bakkoury and Prentis, 1994). Gebreab, *et al.* (1997) suggest animal health, nutrition and policy issues are constraints to use of donkeys in Ethiopia.

The aim of the work described in this report was to characterise the use and management of donkeys for transport in peri-urban areas. Any technical constraints, social constraints, economic constraints and those related to attitudes of authorities, beneficiaries of the services and owners of donkeys would also be identified.

The specific objective was to provide information that can be used to identify ways in which use and management of donkeys in transport in peri-urban areas might be improved. Improvement could lead to better marketing of produce, better servicing of

peri-urban enterprises, improved 'enabling' of ownership and use, and greater opportunities for income generating activities by poorer communities through diversification in the use of donkeys.

Despite the apparent advantages and importance of using donkeys to transport goods, recognised by the public who are direct beneficiaries of the service, government planners and officials in general tend to regard it as an inferior occupation and are not keen to support these activities particularly in Addis Ababa . This is unless they can be convinced of its economic importance (Sisay and Tilahun, 1997).

Welfare of the working donkey is a cause for concern in many areas of the world. A well managed, health donkey not only lives longer, but also is able to work more easily and more regularly than one that is in pain, ill or underfed. Hence an important objective of the work was to monitor the health status of the working donkeys, their management and factors influencing these within the study areas.

The focus of the work was on poor people: (a) smallholder farmers with farm products to sell in urban areas, and agricultural enterprises which require servicing, who are constrained by the transport systems available to then, either through expense, lack of transport or road infrastructure, (b) people to whom the donkey offers a means of income generation through the provision of transport of commodities or materials as a service to others in peri-urban areas or through the buying and selling of the animals themselves. While the work was done in Ethiopia and so has a strong African bias, it is hoped that the results will be applied globally where smallholder farmers are near to market opportunities but cannot capitalise on them effectively due to transport difficulties or where demand for animal-based transport systems is high.

Donkeys transporting tef straw for livestock enterprises on the edge of Addis Ababa

Donkeys help people to earn more and remove the drudgery of carrying essential materials

Donkeys are used by farmers to bring their tef straw back to the homestead

2.1: MATERIALS AND METHODS

Survey location

A formal survey was conducted on donkey use and management in West Shewa zone, including Addis Ababa, East Shewa zone-I and East Shewa zone-II. Three woredas were selected from each zone based on the donkey population and their importance to the livelihood of the people. Dendhi and Wolemera woredas were selected from West Shewa zone. Urban and peri-urban areas of Addis Ababa were also selected. Gimbichu, Adama and Addaa woredas were selected from East Shewa zone-I while Meki, Zway and Negele Arusi woredas were selected from East Shewa zone-II. West Shewa zone represents a highland agro-ecology where mixed crop-livestock farming system is a major practice of the farmers and the topography is dominated by undulated terrain. East Shewa zone-I is characterised by high to mid altitudes with mixed crop-livestock farming systems and the topography ranges from flat to gentle slope. East Shewa zone-II zone is a low altitude plain located in the rift valley. It is characterised by agro-pastoral farming systems.

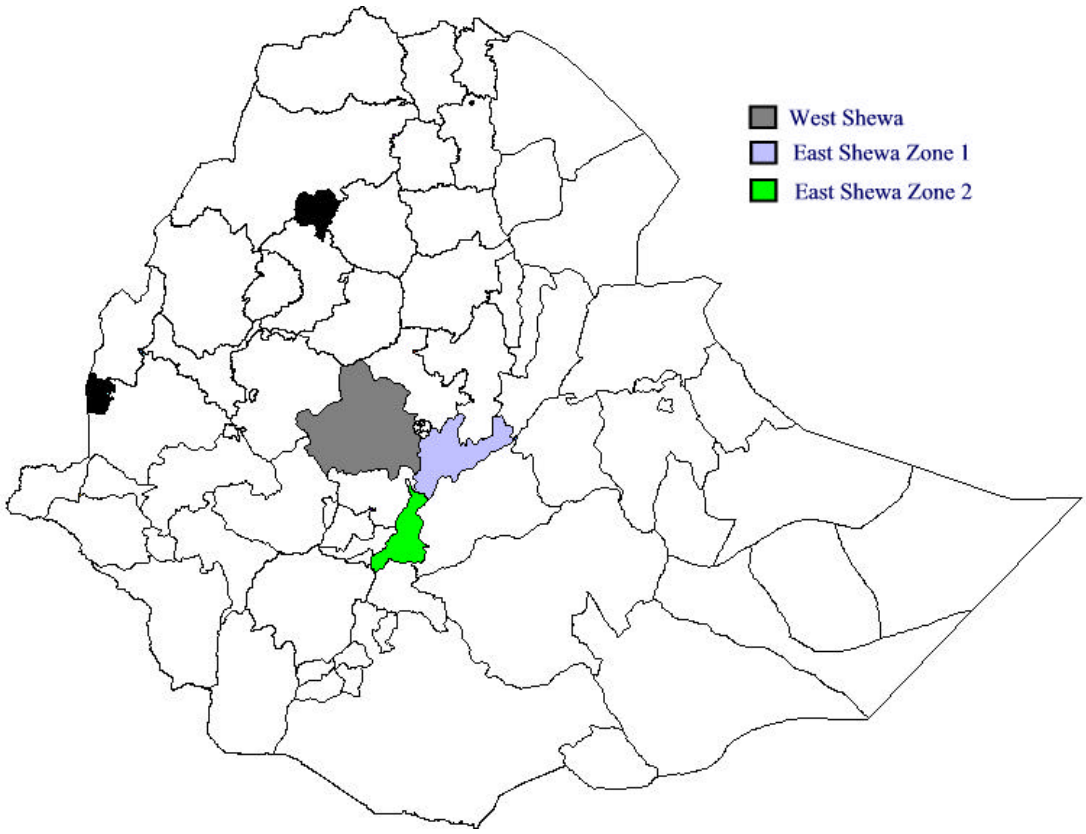


Figure 2.1. Location of survey areas in Ethiopia.

Climate and terrain

Ethiopia is situated on two plateaux, the Amhara to the north and the Somali to the east. The Chercher, Aranna and Chelalo mountains and the great Rift valley bisect these two zones. The Somali plateau is arid, rocky and sparsely populated. Much of the rural population of Ethiopia lives south of Addis Ababa. The survey sites were in the high to mid altitudes (West Shewa and East Shewa zone-I) in the central mountain

region on the western side of the Rift valley. The third site was and in the Rift valley (East Shewa zone-II).

The central plateau has a moderate climate with minimal seasonal temperature variation. The mean minimum during the coldest season is 6ºC, while the mean maximum rarely exceeds 26ºC. Temperate variations in the rift valley are greater (Table 2.1). In the southern and eastern highland, there is a pronounced bi-modal rainfall distribution, with the first and generally smaller rains from the end of February peaking in March/April (the short rainy season), and the second peaking in September (Table 2.1). Heavy rain occurs in most of the country from June to September (the long rainy season). The main dry season extends from October to February, being longer and drier in the north.

Table 2.1. Meteorological data for the three study sites.

Data type	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
Mean annual rainfall (mm)	1100	845	716
Mean min temperature (ºC)	6	12	12-16
Mean max temperature (ºC)	21	24	27
Short rainy season start	March	March	Mid February
Short rainy season end	April	May	Mid April
Main rainy season start	June	June	June
Main rainy season end	September	September	September

Respondents

From each of the woredas, seven categories of respondents were identified as defined below:

Household non-donkey owners: This category consists of rural people who do not own donkeys.

Household donkey owners: This category consists of rural people who own donkeys.

Transporters: This group consists of urban and peri-urban dwellers who own and use donkeys.

Market arrivals: This category consists of people who arrive at the market on market days with something to sell or buy.

Market departures: This category consists of people who go back home from the market on the market days having brought or sold something.

Donkey traders: This group includes individuals who buy donkeys from one place to sell in another.

People at meeting places: People using donkeys were questioned on donkey health and management. This group of people was interviewed at

the market or grinding mills. Veterinarians also carried out physical assessment and body measurements of the donkeys being used by these people.

Samples of the respondents in each category were interviewed in each of the woredas selected between October 1 1999 and January 31 2000. The target given to the enumerators was to interview at least 35 people from each category in each woreda. In most cases this was achieved and well over 40 people were interviewed in each category in each woreda. The exceptions were the donkey traders, who were fewer in number particularly in East Shewa. In Gimbichu 24, Adama 29, Addaa 20, Meki 28, Zway 26 and Negele Arusi 26 people only were interviewed in this category. People were selected at random and their sex recorded (Table 2.2), it was not intended to interview a fixed sample of males and females, but to sample the people who were there to reflect the genders involved in the different activities.

Table 2.2. Sample size of male and female respondents selected from each of the survey categories.

Respondent category	**Zone**								
	West Shewa and Addis Ababa			**East Shewa zone-I**			**East Shewa zone-II**		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Household non-donkey owners	142	28	170	109	20	129	115	6	121
Household donkey owners	131	9	140	125	3	128	105	12	117
Transporters	116	9	125	96	2	98	89	10	99
Market arrivals	103	54	157	108	9	117	65	31	96
Market departures	125	45	170	98	18	116	72	29	101
Donkey users at mills and markets	102	18	120	89	11	104	88	34	122
Donkey traders	104	0	104	73	0	73	79	1	80
Total number	**823**	**163**	**986**	**698**	**63**	**765**	**613**	**123**	**736**

Assessment of donkey characteristics

A measuring tape was used to measure body characteristics of donkeys. The method developed by Pearson and Ouassat (1996) was used to assess body condition. A prototype of a pictorial booklet of the method was tested in the study and the booklet is now published (Pearson and Ouassat, 2000). Clinical examination and visual assessment of health and signs of injury were also carried out by veterinarians where appropriate.

Data collection

Semi-structured interviews were used to collect information from the different categories of respondents. Responses were recorded in a questionnaire format by the interviewer. Each interview questionnaire was pre-tested to verify the relevance of the questions and limit the time taken for interview. Enumerators who completed grade 12 and could speak the local language were selected from each of the woredas. The enumerators were trained how to interview the respondents and record the data.

Researchers supervised them every week during the collection period (October 1999 to January 2002, inclusive). Each of the defined groups of respondents was interviewed to assess their experiences in using and managing donkeys.

Application of the statistical packages for surveys

The statistical analysis and presentation of data collected in an investigation depends not only on the questions of interest and the structure of the investigation, but also on the type of data collected. In this project the data collected were typical "survey data" i.e. they were mainly qualitative in nature. Below are four questions which were asked of the respondents in these surveys. These illustrate the different features of qualitative data.

Examples

(a) Does your donkey get disease?

Yes	No

[Follow up question to example (a) about whether donkeys get disease].

(c) Does your donkey have sores?

All year round	
Only in the dry season	
Only in the wet season	
Other	
Never	

(b) What condition are your donkeys in?

	Health condition	Body condition
Good		
Fair		
Poor		

(d) What do you attribute this to?

	Tick
Poor quality of feed	
You cannot afford to feed the donkeys as you would like to	
Poor housing	
You cannot afford to buy vaccines or drugs for donkeys as you would like	
Your donkeys are overworked	
Your donkeys are too old	
Saddle/harness sores	
Other factors (specify)	

Questions (a) to (c) are all examples of questions which require a *single response*. They also illustrate that, whilst only one answer is required from a respondent, there can be two or more categories of response to choose from. When there are only two possible responses, as in example (a), the data are known as binary data. If there are more than two categories of response to choose from – as in examples (b) and (c) – the data are described as categorical. If there is some ordering to the categories - as in example (b) - they can be further described as ordinal, or ordered categorical.

The other type of question which appears in surveys is illustrated by example (d) - the *multiple response* question. In this example the respondent is required to indicate as many factors as were relevant to disease in his/her animals.

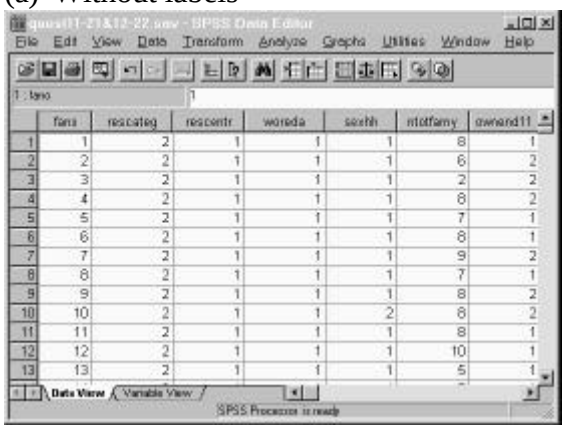
Statistical software

The SPSS statistics package was used to analyse the data collected in this project. It has facilities which are particularly relevant for dealing with qualitative data, and is frequently used in survey data analysis.

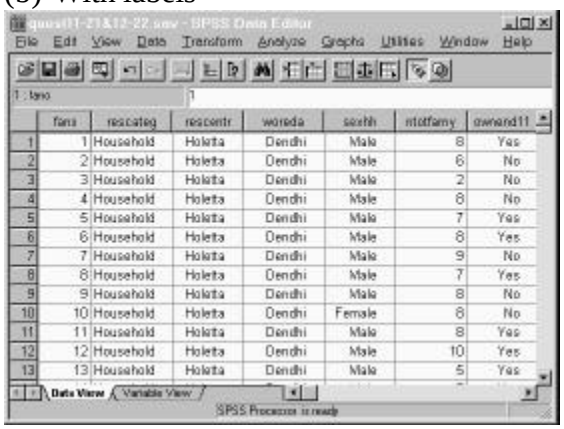
SPSS requires that the data are in list format – i.e. a single row for each respondent, with columns for the different questions; one column for each single response question and several columns for each multiple response question. It can read data which have been stored in Excel spreadsheets if they are in this format - as was the case in the semi-structured interviews analysed here.

The data collected from each interview were entered in numerical form – e.g. codes of 1, 2, etc. were used for different categories of response - but it is possible within SPSS to assign names (labels) to this coding. The two example SPSS data editor screens below illustrate the layout of the data, with and without labels. This labelling facility was a useful data management tool for highlighting any strange values in the data.

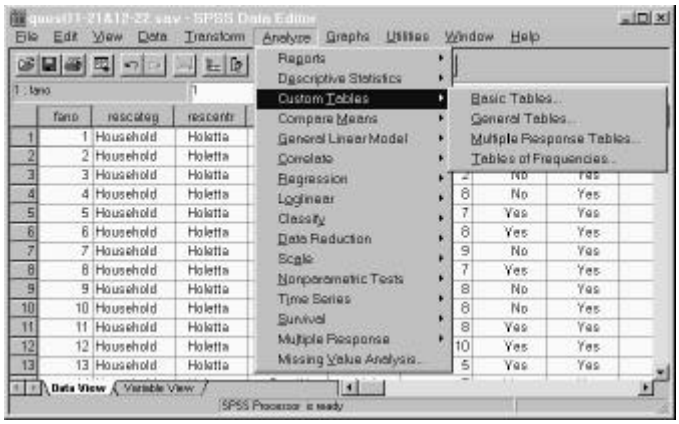
(a) Without labels



(b) With labels



There are two features of SPSS which made it a good choice for the statistical analysis of the data collected in these surveys.



The first is that SPSS has a range of facilities for tabulating qualitative data, including tables of multiple responses.

Secondly, SPSS contains statistical analysis methods which are relevant for the analysis of qualitative data, such as Chi-square tests and log-linear models.

Data summary

How the householders and transporters from the three different zones centred at Holetta (West Shewa and Addis Ababa), DebreZeit (East Shewa zone-I) and Adami Tulu (East Shewa zone-II) compared in their use and management of donkeys was one area of interest in the project; and so this comparison is used here to demonstrate the data summary and analysis facilities of SPSS.

Qualitative data are summarised in terms of tables of counts and percentages. Tables 2.3. and 2.4. are examples of the summary tables which can be produced by SPSS for single and multiple response questions. They relate to questions (a) and (d) introduced earlier. Depending on whether data are from a single or multiple response question, they can be tabulated using either the **Basis Tables…** or the **Multiple Response Tables…** facility shown in the example dialogue box above.

Table 2.3.

		Research centre					
		Holetta		Debrezeit		Adami Tulu	
		Count	Col %	Count	Col %	Count	Col %
Has had health problems	Yes	148	56%	101	45%	118	55%
	No	117	44%	125	55%	98	45%

This is an example of a 2-way contingency table, and its interpretation is obvious. The proportion of respondents who said their donkeys got disease is 56% around Holetta and 55% around Adami Tulu; whereas it appears lower at DebreZeit with only 45% of respondents saying their donkeys got disease.

Compare this with Table 2.4, which summarises the responses to the multiple response question about what diseases can be attributed to.

Table 2.4.

	Research centre						Total	
	Holetta		Debrezeit		Adami Tulu			
	Count	%	Count	%	Count	%	Count	%
Inadequate feed	20	13	16	15	28	24	64	17
Lack of money to buy feed	14	9	13	12	19	16	46	12
Inappropriate housing	16	11	20	18	10	9	46	12
Lack of money to purchase medicine	20	13	11	10	40	34	71	19
Overworking	41	28	54	50	75	64	170	45
Old age	7	5	6	6	6	5	19	5
Sores	45	30	29	27	59	50	133	35
Not known by the farmer	61	41	23	21	16	14	100	27
Other than mentioned	38	26	31	28	14	12	83	22
Total	149	100	109	100	117	100	375	100

Table 2.3. summarises the number of respondents, within each zone, and overall, who attributed disease to each of the reasons of “inadequate feed”, “lack of money to buy feed” etc.

The “Total” figure, which is presented at the foot of the table, is the total number of individuals who identified at least one factor to which disease could be attributed. It is not the total of the frequency counts over the different possible causes (which would be greater than the total number of respondents, since respondents can attribute disease to more than one factor).

Note though that there is a slight discrepancy between the total number of respondents who identified at least one factor and the number saying their donkeys had disease (presented in Table 1 above). These two figures should be the same, and one question can be used as a "check" the other. A small number of records must be inconsistent for these two questions.

The table shows that the most frequently mentioned factors that disease could be attributed to are overworking and saddle/harness sores, but the proportions were different in the different zones – higher proportions in the zone around Adami Tulu than the other two zones. A large number of individuals also declared that diseases were attributable to factors not known to them, or factors other than those mentioned on the questionnaire. The latter is then explored further by returning to the forms and checking what other factors had been specified. If the 'other' category consists mainly of one factor, then this can be given a category of its own, reducing the 'other' category to the 'other reasons' specified by a small number of people.

Statistical analysis

Return again to the question about extent of disease which is summarised in Table 2.3. A Chi-square test for a 2-way contingency table will formally test the hypothesis that there is no difference between zones for the proportion of individuals whose donkeys get disease. The test is comparing the three zones, ignoring any other influences which may affect outcome.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.006[a]	2	.030
Likelihood Ratio	7.011	2	.030
Linear-by-Linear Association	.174	1	.676
N of Valid Cases	707		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 103.88.

Like many other software packages SPSS presents more than one test statistic. The Pearson Chi-square statistic is appropriate for this investigation (so too would be the Likelihood Ratio test, but not the Linear-by-Linear Association). Here the χ^2 value of 7.01 with 2 degrees of freedom, and its corresponding p-value of 0.030, indicates that the result is statistically significant at the 5% significance level. There is evidence of a difference between the zones for the extent of disease. As with any comparison statistical significance needs to be seen in the light of practical significance; here there would seem to be a sizeable difference in disease reporting.

The Chi-square test requires that the expected counts associated with each cell in the contingency table are not too small, and the footnote to the test results table above gives an indication of the appropriateness of the test. As a general rule, the Chi-square test may be used for the analysis of a 2-way table as long as fewer than 20% of the cells in the table have an expected cell count of less than 5, and none of them have an expected count of less than 1. The above Chi-square analysis is valid since the expected counts in the 2-way table are all much larger than 5. In the results the appropriate degrees of freedom for the Chi-squared tests are given as a subscript to the χ^2.

Within SPSS it is also possible to carry out analyses of multi-way tables using log-linear modelling. This is not discussed here, other than to say that the facility exists. There may be one or two questions, which are key to the investigations into donkey use and management, to which this could be applied. The method allows an effect to be investigated in the light of other potential effects.

For continuous variables such as distance to market, duration of use of donkeys descriptive statistics were either means and standard deviations, if the data seemed normally distributed, or medians and ranges (minimum and maximum) if not. For qualitative (categorical) responses such as whether urban areas are "donkey friendly" and how donkeys are housed at night, the data have been summarised in frequency tables and as percentages of respondents. Irrespective of the type of data, descriptive statistics were calculated for each respondent group separately, and for the different zones in the study.

Analysis was not carried out to the level of woreda, but when the responses or quantitative data within a particular woreda were very different from those in the other woredas in the zone then comment has been made. In general differences between woredas within a zone were relatively small.

Due to the large sample size of respondents within each category and zone (Table 2.1) only those results that gave those statistical differences of $p<0.01$ were considered to be worthy of consideration and comment.

Enumerators setting out to discuss donkey management and welfare with owners

2.2: LAYOUT OF REPORT

Section 3 and 4: people from rural areas and from peri-urban/urban areas using working donkeys

In the following sections (Section 3 and 4) the results of the surveys into the use and management of donkeys by people living in rural areas (called householders in the survey) and those who live in peri-urban and urban areas (called transporters in the survey) are reported. All the people interviewed kept donkeys and worked with them in the peri-urban areas of Ethiopia. The observations from each class of people were compared.

In the three locations described a total of 385 rural householders owning donkeys and 322 transporters in urban and peri-urban areas who used donkeys were interviewed about the contribution of donkeys to their livelihoods, the management, and the health of their donkeys and any advantages or disadvantages of ownership.

Table 2.4. Numbers of respondents interviewed in the different locations.

Respondent category	West Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Total
Householder	140	128	117	385
Transporter	125	98	99	322
Total	265	226	216	707

People were asked about many aspects of donkey ownership, management and use:

Socio-economic issues - occupation, family size, ownership of donkeys and other livestock, use of donkeys, control and decision making regarding donkeys and their use, access to markets, costs incurred in keeping and using donkeys, advantages and constraints to use.

Health and management **–** family requirements for donkeys, perceived attitudes and facilities for donkeys in urban areas, working potential, health status, body condition, diseases, injuries, husbandry, nutrition, management and working practices.

Acquisition and reproduction of donkeys **–** source, breeding practices and seasons, productivity, survival of young, fate of donkeys, main problems in producing and rearing.

Gender aspects

A number of studies have shown that gender is important in defining the economic roles of rural people in Africa (Dey, 1980; McSweeney, 1979). In gender analysis, the roles of women and men are largely determined by social rather than biological factors (Rosaldo and Lamphere, 1974). This recognition has resulted in several studies documenting the different roles of women and men in farm and non-farm activities (McSweeney, 1979; Dey, 1980; Whitehead, 1985; Adepoju and Oppong, 1994; Bryceson, 1995). The gender issues in the use and management of donkeys are dependent on the roles and responsibilities that women and men have in the different communities where donkeys are used. These roles and responsibilities are not static and change with time according to the social arrangements prevailing in different cultures. Where agricultural operations are carried out by hand and where head

loading, back loading and walking are the main means of transport, the use of animal traction has had different impacts on women and men. However, there is no adequate information on the gender differentials in the use of donkeys especially in central parts of Ethiopia. To help in the generation of improved gender sensitive technologies in donkey use and make research and extension systems more efficient, effective and equitable, gender issues need to be addressed. Barriers especially to women in using donkeys have to be identified and possible solutions found. Hence, one aspect of the study investigated gender differentials in the ownership, access and decision making processes in the use of donkeys in rural and urban households and set out to identify any constraints specific to women in the use of donkeys.

People at meeting places using their donkeys

In addition to the 385 rural householders and 322 donkey pack transporters from peri-urban and urban areas, who were interviewed, a total of 346 other people who had brought their donkeys to market places were also interviewed in a separate survey (120 at West Shewa and Addis Ababa, 104 at East Shewa zone-I and 122 at East Shewa zone-II). They were asked about their donkeys and then a quick visual inspection of the animals was carried out. These people were asked about health and management of their donkeys and also how they valued them in relation to the other animals they owned. The results of this survey are also reported here.

Section 5: people dealing/trading in donkeys

This section contains the information obtained from the 257 people interviewed who trade in donkeys as a business.

Section 6: people arriving at and departing from markets

This section contains the information obtained from 370 people arriving at markets and 387 departing from markets during the day.

Section 7: people who do not own donkeys compared with owners of donkeys

The household economy of the 385 rural donkey owners (householders) compared with that of 420 people who did not own donkeys is compared here.

Section 8: discussion

A discussion of the main findings and suggested proposals for activities to form Phase II of the project.

3: SOCIO-ECONOMIC ISSUES OF DONKEY USE AND MANAGEMENT

Occupation of rural and urban donkey owners

The most important occupation of rural donkey owners was farming (Figure 3.1). Some rural donkey owners were also engaged in petty trading as an off-farm activity to supplement their on-farm incomes.

A large proportion of urban donkey owners (35%) was engaged in transporting commodities on a daily or contractual basis using donkeys. This was often their main source of income, although agricultural activities also featured around the towns. The donkey-transport operators provide a door-to-door service throughout the urban areas, transporting goods such as construction materials, grain, fuel wood and feed. The donkey-transport service is affordable, convenient and readily available, with the operators also providing a loading and unloading service. Sisay and Tilahun (1997) in their studies on the role of donkey pack transport in the largest grain market of Addis Ababa (Yehil Berenda) also found that the livelihoods of about 800-1200 donkey pack transport operators (DPTOs) were dependant obviously on donkeys. Sisay and Tilahun (1997) estimated that the minimum monthly net income of a DPTO was an estimated Birr 125 in 1997. This was higher than the minimum salary of a civil servant (Birr 105). It was found during discussions with donkey owners in the present study that the average daily income of a transporter with five donkeys was equivalent to the income obtained from a taxi driver operating in the city.

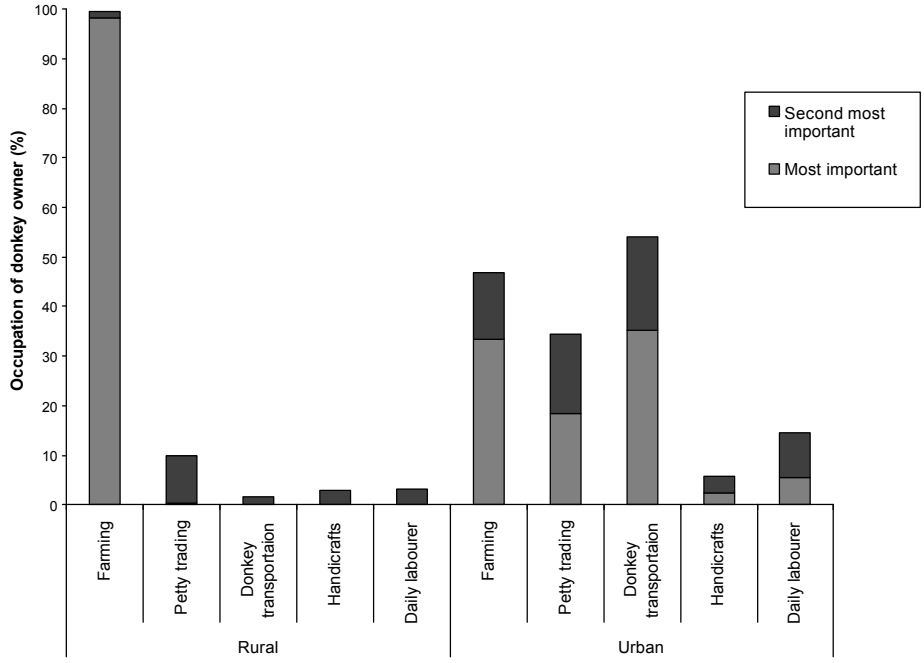


Figure 3.1. Occupations of rural and urban donkey owners in the central parts of Ethiopia, 2000.

In general, donkey pack transporters provide door-to-door services to a large proportion of the urban population in big town, including Addis Ababa, and can therefore work daily and as a result derive most of their income from their donkey transport business. In small towns, DPTOs may not get work every day. As a result, they are more likely to be engaged in other activities, such as farming to supplement their incomes and livelihoods of their families (Figure 3.1).

Family characteristics

Rural donkey owners have a significantly larger family than urban donkey owners ($P<0.001$) with a mean family size of 7.6 members. Family size of urban donkey owners is 5.4 members (Figure 3.2). This may be due to the high labour requirement of rural households undertaking farming activities. The average family members of both rural and urban donkey owners in East Shewa zone-II was significantly higher ($P<0.001$) than in the other two zones. Some households had as many as 20-23 members. This may be due to the predominance of the Muslim religion in East Shewa zone-II; a man can marry more than one woman. Number of donkeys per household was correlated to family size, either because more donkeys were required to sustain the livelihoods of bigger families or larger families could afford more donkeys.

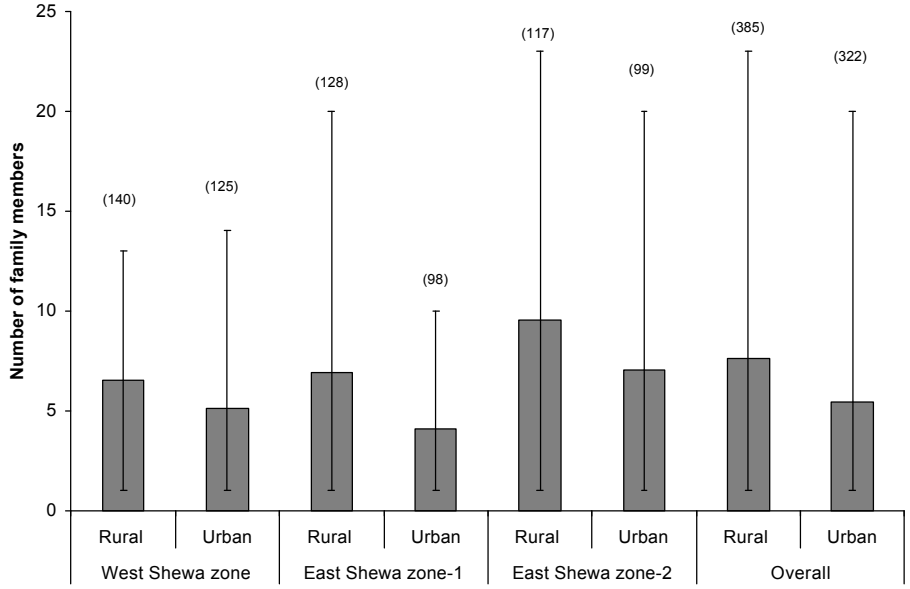


Figure 3.2. Average family size (with minimum and maximum) of donkey owners in the three survey zones (sample size in parenthesis).

Livestock ownership and economic importance

a) Rural householders

Livestock are considered as assets and farmers keep them for different purposes, such as power, milk, meat and security. Overall 99 % of rural donkey owners also kept cattle but only 55% kept sheep/goats and 24% kept horses (Table 3.1). The average numbers of cattle (10.3) and small ruminants (10.0) kept per household by rural donkey owners of East Shewa zone-II were significantly higher ($P<0.001$) than in the other two zones. The average number of donkeys owned per household in rural areas (2.9) was also significantly higher ($P<0.001$) in East Shewa zone-II than in the other two zones. On average rural households of West Shewa zone and East Shewa zone-I owned 1.8 donkeys. This may reflect the more pastoral activities of households in this zone compared to the other locations.

The level of contribution of different livestock to the household economy differed between rural and urban/peri-urban households. A large proportion of rural households (73%) said oxen were the most important domestic animal to the household economy (Figure 3.3). This is because Ethiopian agriculture is dependent on oxen for land preparation. Donkeys and cows were considered to make the second most important contribution to the household economy by 40% of rural donkey owners. There are parts of communities (especially landless ones) whose livelihoods are almost entirely dependent on donkeys. Some rural households put donkeys above cows, saying they could purchase cows from the proceeds of a donkey enterprise.

Table 3.1. Other livestock (%) kept by rural donkey owners in the central parts of Ethiopia, 2000.

	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Overall
Cattle	99	100	98.	99
Oxen	99	98	92	96
Cows	91	81	92	88
Bulls	70	57	67	65
Heifers	74	59	68	67
Small ruminants	35	63	71	55
Sheep	33	53	36	41
Goats	5	20	63	28
Horses	40	20	9	24
Sample size	**140**	**128**	**117**	**385**

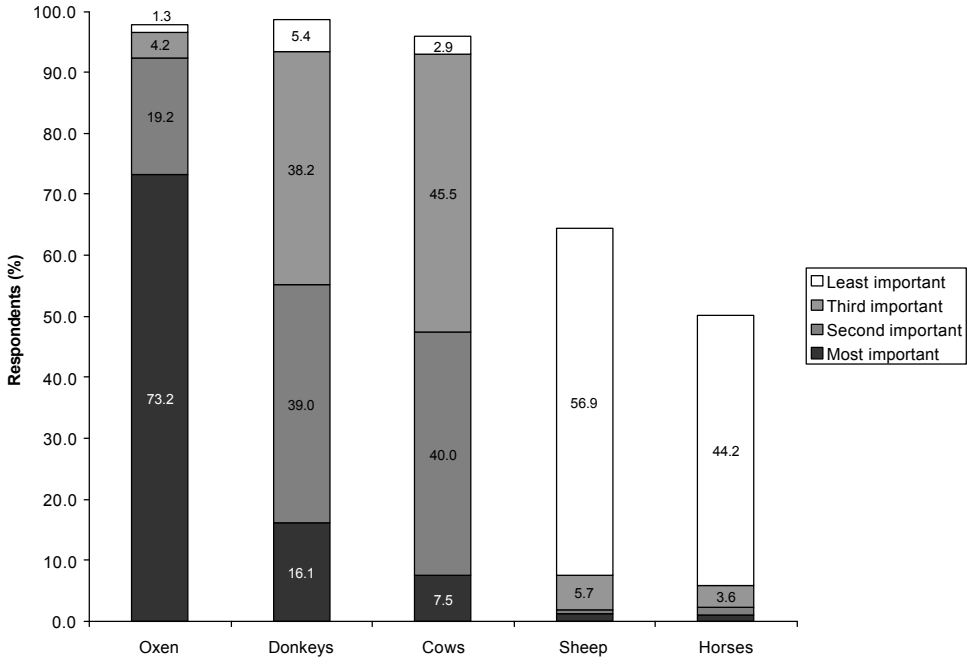


Figure 3.3. Ranking of domestic animals in the order of their contribution to the household economy as perceived by rural donkey owners in the central parts of Ethiopia, 2000.

b) People at meeting places (mills and markets)
When asked to rank their livestock in order of importance to them most of the people at meeting places gave similar answers to those of the rural householders. They put their oxen first, followed by the donkey, although for some people their donkey was the most important because of its money earning potential all year. There were small differences between locations:

In the woredas surveyed from West Shewa with Addis Ababa, 62% of the people at meeting places ranked the ox as the most important animal that they owned and 27% ranked it second in importance. Thirty per cent of the people ranked the donkey as the most important and 58% placed it second. Third in importance with 74% of the people interviewed was the cow and fourth was the horse with 34%, the sheep with 38% and the goat with 38% of the people.

In East Shewa zone-II 88% of the people interviewed at meeting places ranked the ox as the most important animal they owned 10% put it second in importance. Ten per cent ranked the donkey first 53% of the people put it second in importance and 36% put it third. The cow was ranked second by 36% and, third by 61% of the interviewees, fourth came the goat for 64% of the people and fifth the sheep for 28% and the horse for 38% of the people.

In East Shewa zone-I the picture was a little different from that in the other two locations. Seventy-three percent of the people interviewed at meeting places ranked the cow or ox as the most important animal they owned with 21% ranking them second in importance. The donkey was ranked most important by 4%, second most important by 38% and third by 50% of the people. Fourth in importance was the sheep with 47%, the horse with 21%, and the goat with 6 % of the people.

Ownership of donkeys
Most of the donkey transporters owned donkeys, but four transporters in the West Shewa and Addis Ababa woredas, four in East Shewa zone-I woredas and one in the East Shewa zone-II woredas did not, but only hired or borrowed them when required. The numbers of donkeys kept by owners is given in Table 3.2.

Table 3.2. Numbers of donkeys owned by rural householders and urban/peri-urban donkey pack transporters.

	Householders			**Transporters**		
	W Shewa and Addis Ababa	**East Shewa zone-I**	**East Shewa zone-II**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
Median	2	3	1	2	2	2
Minimum	1	1	1	1	1	1
Maximum	4	6	14	6	7	10
Respondents	**140**	**128**	**117**	**121**	**94**	**98**

Most transporters (94% of the respondents in West Shewa zone, 97% in East Shewa zone-I and 95% in East Shewa zone-1I areas) kept 1-7 male donkeys. Few transporters

kept female donkeys. Only 17% of the 121 respondents in West Shewa, 45% of the 94 respondents in East Shewa zone-I and 31% of the 98 respondents in East Shewa zone-1I areas kept females and these were kept in generally smaller numbers than the males animals (1-2 in West Shewa with Addis Ababa, 1-3 in East Shewa zone-I and 1-5 in East Shewa zone-II). Within each location there were virtual no differences between woredas in their use of the different sexes for work. For example few female donkeys were used by any of the transporters in all the woredas studied in West Shewa (Dendhi, Wolemera) and Addis Ababa. The fact that some people in the East Shewa zone-II zone own high numbers of donkeys probably reflects the more pastoral nature of the agricultural systems in this area (Figure 3.4),

Sisay and Tilahun (1997) reported similar results. They found that pack-donkey operators kept between two and five donkeys on average in Addis Ababa. More than 80 percent of the total donkeys owned by a household in urban areas were male, suggesting that most donkeys had not been bred where they worked but had been brought in from elsewhere. Sisay and Tilahun (1997) also noted that the sex of donkeys at Yehil Berenda grain market in Addis Ababa was predominantly male. In contrast, rural areas of West Shewa had a higher proportion of female donkeys than males, whilst in other rural areas male and females were in equal proportion. In rural areas, farmers tended to sell donkeys that were surplus to the households requirements.

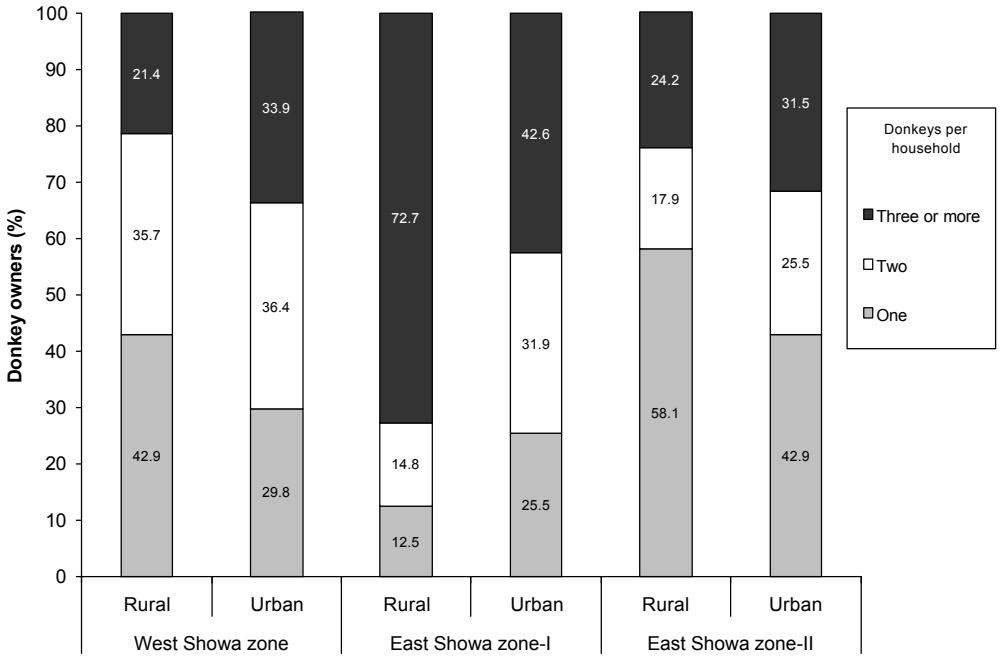


Figure 3.4. Proportion of owners owning one, two or three or more donkeys in rural and urban areas.

Use of donkeys

According to the survey, donkeys play a crucial role in transport services within both rural and urban communities in all the study zones. Donkeys were used to transport a wide variety of goods. In this way donkeys made a major contribution to facilitating the marketing system within the study zones. This observation agrees with that of Howe and Garba (1997) who reported that in remote regions of Ethiopia (Kaffecho zone) households were highly dependent on pack animals to develop an exchange economy. The range of various items that were transported by donkeys in the present study included:

- Crops from field to threshing ground
- Grain from home to market
- Grain to grinding mills
- Agricultural inputs from market to home
- Grain from market to home
- Vegetable crops to market
- Dairy products to market
- Fuel wood, dung cake and charcoal to market
- Water to home
- Household goods to and from markets
- Livestock feed to and from markets
- Disabled or sick people (in emergency cases)

Donkeys were also involved in activities concerned with agricultural land preparation like ploughing, consolidation of tef fields and harvesting. Donkeys also participated in weeding and harvesting activities especially in East Shewa zone-I and II. It is recognised that donkeys are a vital power source for smallholders, particularly in rural areas where mechanised transport is not accessible. Donkeys are being increasingly used for field operations and to some extent in transport in Tanzania (Mwakitwange *et al.,* 1997) and in many other African countries.

About 60 percent of the respondents in the urban areas used their donkeys to assist them in their business, with donkeys travelling as far 60 km per day to transport goods. There was little seasonal variation in the type of use donkeys were put to by urban owners.

Means of transport in rural areas

Rural households used different means of transport for different situations. A large proportion of rural households used donkeys to transport agricultural inputs (82%), essentials for household use (44%) and grain (78%) (Table 3.3). Donkeys tended to be used where loads were greater than 10 - 15 kg. If the load was less than this (the critical minimum size), rural households preferred to carry the load themselves either on their heads or on their backs. This was particularly the case when the rural householders returned home from market, when they carry small loads and ride the donkey. When a load is greater than the critical minimum size, some of the rural households are indifferent to whether they pack the donkey or carry it themselves.

Table 3.3. Means of transport in rural areas of the central parts of Ethiopia, 2000 (%).

Means of transport	Agricultural inputs	Essentials for household use	Grain
Donkeys	82	44	78
Head load	1	27	1
Donkeys and head load	7	10	3
Lorry	11	20	18
No of respondents	**385**	**385**	**385**

Rural and urban householders sometimes transport items using lorries. Sixty-six per cent of rural and 41% of urban donkey owners used lorries when there were large quantities of goods to be transported. In particular after crop harvests, some farmers who purchase large quantities of grain in the village at relatively cheap prices, use lorries to transport the grain and sell at relatively high prices in the towns.

Lorries are also used (37% and 19% of rural and urban householders respectively) when the donkey owner is in a hurry to transport large quantities of goods. Some farmers who produce large quantities of perishable goods such as vegetables (especially those who irrigate) use lorries to transport their produce to market (32% and 23% of rural and urban householders respectively).

Frequency of visits to markets

Ownership of donkeys enables rural householders to visit markets more frequently than non-donkey owners (See section 7). The frequency of visiting markets by rural householders depends mainly on cropping seasons. Ninety-three per cent of rural households visited markets at least once per week during the dry season before the planting season commenced. After the rains start, during the planting season the number of rural donkey owners who visited markets at least once per week decreased to 59%, with many only visiting markets monthly (32%). After planting was finished the number of rural donkey owners who visited markets at least once weekly increased again to 77%.

Costs incurred in keeping and working donkeys

A large proportion of rural donkey owners (93%) and urban donkey owners (81%) purchased straps from markets, which they use to secure loads to pack-donkeys, while the remaining donkey owners made the straps at home from local materials. About 40% of rural donkey owners and 46% of urban donkey owners purchased pack saddles from the markets. In East Shewa zone-II, all rural donkey owners interviewed purchased straps for harnessing and 47% purchased pack saddles. The survey showed that a large proportion of donkey owners purchase equipment for their donkeys, but some of them made harnesses at home from local materials.

The average price of harnesses was higher in East Shewa zone-II (Birr[1] 18.50) than West Shewa zone (Birr 3.75) and East Shewa zone-I (Birr 4.00). The average price of pack saddles was similar (~ Birr 20.00) in West Shewa and East Shewa zone-I, but it was lower (Birr 15.85) in East Shewa zone-II. The average unit price of straps was lower in East Shewa zone-II (Birr 7.55) than West Shewa zone (Birr 10.50) and East Shewa zone-I (Birr 14.45). In general, this study suggests that the unit prices of equipment for donkeys are affordable to most of the rural households.

Approximately 73% of respondents reported that donkeys required little management and cost little to maintain. In general donkeys were said to be able to tolerate harsh conditions and as a result any cost involved in their management was minimal compared to other animals. Nevertheless some farmers purchased crop residues to supplement grazing and others, especially in East Shewa zone-I, purchased concentrates for their donkeys. Rural households spent little or nothing on donkey health care. Urban households spent more than rural ones on donkey management. Since donkeys were mostly stall-fed in urban areas, a large proportion of the cost of maintenance was spent on purchasing feed. Urban households spent more on maintaining donkey health than rural households.

Some rural households suggested that the average economic life span of pack saddle and cart harness was about two years while that of a donkey cart was about ten years. Urban donkey owners in most cases replaced donkey equipment more frequently (twice a year) than rural donkey owners. This implies that donkeys are used more frequently in urban areas than rural areas. In rural areas, donkeys are sometimes loaded without use of a pack saddle on their back. This could make them more susceptible to sores.

Diversification of income

Ownership of donkeys offers an opportunity to diversify income and supplement on-farm incomes in rural areas. About 47% of rural households in the study areas reported that ownership of donkeys have given them an opportunity to conduct off-farm income generating activities. The proportion of rural households who used donkeys for off-farm activities was higher in East Shewa zone-II (70%) than East Shewa zone-I (50%) and West Shewa zone (28%). This might be due to the fact that the topography of East Shewa zone-II is flat and therefore more convenient for the use of a donkey cart, which may provide more opportunities to increase off-farm activities, than pack transport does. About 60% of rural households interviewed in East Shewa zone-II owned donkey carts.

Donkey cart ownership is beneficial in other parts of the Africa. In Limuru, Kenya, a survey found that the use of donkey carts is an essential component of the farming system (Fernando, 1997). In Sudan, daily income of donkey cart operators in Omdurman was often higher than the average formal sector wage (Abdelgadir, 1996). In Ethiopia Marshall *et al.* (1997) reported that many ex-soldiers post-war started lucrative donkey-cart businesses.

[1] One USD = 8.796 Birr

Many of the rural households interviewed engaged in petty trade of grain and other commodities in seasons when there were few farming activities. A few rural households (7%) especially close to urban areas derived additional incomes by hiring-out their donkeys to urban donkey pack transport operators either on a daily or contractual basis. Rural households of East Shewa zone-II also hired-out donkeys with carts or carts alone again mostly to urban donkey pack transport operators. The proportion of rural households who hired-out donkeys was higher in East Shewa zone-II (12%) compared to East Shewa zone-I (4%) and West Shewa zone (6%). Since owning donkeys creates conditions for increased marketing activity, it is inferred that donkey owning households are more secure in food than non-donkey owning households. A study conducted by Sieber (1997) in Matamba, Tanzania, also found out that households with donkeys are more prosperous than comparable households without donkeys.

The value of rented donkeys varied from location to location (Birr 1-15 per donkey per day). In East Shewa zone-II, the rural households that rented-out their donkey(s) and cart together did so at a price ranging from Birr 2-10 per day. Carts alone were hired-out by some rural households in East Shewa zone-II at a rent value ranging from Birr 1-4 per cart per day. In general, this study suggests that hiring-out of donkey or donkey-cart is not a common practice in the rural areas. Respondents indicated that most rural households, especially those away from towns, were able to borrow donkeys free of change from their neighbours, friends or relatives. As a result, donkey use seems to be part of the social network in rural parts of Ethiopia. In other countries, such as Kenya and Botswana, hiring of donkeys is becoming a common source of income in rural areas (Njenga, 1993; Aganga *et al.*, 1994).

Renting donkeys and donkey-carts is an alternative sources of supplementary income for some urban households. The proportion of households who renting-out their donkeys varied from location to location and season to season as in rural areas. Thirty-three per cent of urban households rented-out their donkeys in winter season and 29% rented out in summer season. The proportion of urban households who rented-out their donkeys in winter season (40%) and summer season (39%) was higher in West Shewa zone than other two zones. This may be because a large numbers of urban donkey owners are found in West Shewa zone. As a result, the demand for donkeys is high and some of the donkey pack transport operators rent donkeys from others when required. A total of 21 transporters provided information on rent costs. The average rental value of donkeys was similar in all the study areas (1-6 Birr) and seasonal variability was also minimal.

In general, people who do not own donkeys and donkey-carts have access to them either through local hiring systems or borrowing from their neighbours, friends or relatives. The results imply that renting-out of donkeys and donkey carts is a more common practice and a source of income to a larger proportion of urban donkey owners than rural ones.

Ownership and control of donkeys and benefits

In Ethiopia, in male-headed households, men own and control the resources of the household. This is culturally determined by the society and even by law. Hence

women have no right of administering common property other than their own earnings, salaries and income (Almaz, 2000). Similar observations were also noted by Fernando (1997) who found that though ownership of donkeys by women is not uncommon, in many societies in different countries they are owned and controlled by men. Studies of several communities in the Sahelian countries also show that the ownership of donkeys is almost entirely by men. In parts of Sudan and Senegal women rarely own donkeys. However, women do own and control donkeys in some countries of Africa. For instance, results reported by Bwalya (1997) indicated that in the predominantly cattle-keeping area of Western Zambia, most of the donkeys are owned by women who use them for work on the fields and to carry out most household chores. In general, in Ethiopia, donkeys are owned and controlled by men in male-headed households and by women in female-headed households. In most of the cases, the one who owns and controls the resources also controls the benefits. Hence, the benefits derived from the work done by donkeys are controlled by men in male-headed households and by women in female-headed households.

Access to donkeys

a) In rural areas

Even though the extent and purpose varies, all the members of a household had access to donkeys in the study areas. About 71% of men, 26% of women, and 1% of boys and girls have access to donkeys for different purposes in rural areas (Table 3.4). When the sample at zonal level is considered, it was interesting to note that women have more access to donkeys (54%) than men (44%) in rural areas of East Shewa zone-II. This might be due to the fact that Muslim population in religion dominates East Shewa zone-II and there is a culture of polygamy. Hence, the number of female family members per household is higher in East Shewa zone-II than other two zones. To sustain the livelihood of the household, women do a lot of work, both on-farm and off-farm. Donkeys are important for these activities and the proportion of women who use donkeys was higher than that of men. The situation is different in other two zones where 88% of men in West Shewa zone and 78% in East Shewa zone-I have greater access to use donkeys. Even though less in proportion, boys and girls also have access to use donkeys in West Shewa zone and East Shewa zone-II.

Table 3.4. Access to donkeys use by household members of rural areas in central parts of Ethiopia, 2000 (% of respondents).

Household members	West Shewa zone +Addis	East Shewa zone-I	East Shewa zone-II	Overall
Men	88	78	44	71
Women	11	16	54	26
Boys and girls	1	0	2	1
No of respondents	**140**	**128**	**117**	**385**

b) In urban areas

In urban areas, about 80% of men, 10% of women and 3% of boys and girls, have access to donkeys for different purposes (Table 3.5). When the sample is considered at zonal level, the proportion of men who have access to donkeys was 90% in West

Shewa zone, 77% in East Shewa zone-I and 72% in East Shewa zone-II. The proportion of women who have access to donkeys was larger in East Shewa zone-II (22%) than women of other two zones. However, boys are girls do not have access to donkey use in urban areas of East Shewa zone-I.

Table 3.5. Access to donkey use by household members of urban areas in central parts of Ethiopia, 2000 (% of respondents).

Household members	West Shewa zone +Addis	East Shewa zone-I	East Shewa zone-II	Overall
Men	90	77	72	80
Women	6	3	22	10
Boys and girls	3	0	6	3
No of respondents	**125**	**98**	**99**	**322**

In general, household members have different levels of access to donkey use in both rural and urban areas. The results indicate that the proportion of men who have access to use donkeys was higher in urban areas than rural areas, but the proportion of women who have access to use donkeys was higher in rural areas. This might be because the livelihoods of urban donkey owners are mainly derived from the transport work done by donkeys, and men are more responsible for conducting income-generating activities using donkeys than women. The livelihoods of rural households are mainly derived from farming activities (crops and livestock production) and the participation of women in these activities is considerable.

Roles of gender in the use of donkeys

In rural areas most of the activities that men use donkeys for are related to food production or income generation (productive activities), these activities include transporting crop harvests from field to threshing ground, grain and vegetables from farm to the market, agricultural inputs from distribution points to farm (Table 3.6). In urban areas, some of the productive activities conducted by men include transporting grain, sugarcane and other commodities from one market to another for trading, different items from one location to another for other individuals on contractual basis. Other activities that donkeys are used for involve maintaining the household (maintaining activities). Some of the maintaining activities conducted by men in rural areas using donkeys include collecting fuel wood for home use while in urban areas they include transporting grain to grinding mills.

Women mostly conduct maintaining activities using donkeys that are of importance for domestic needs. For instance, rural women use donkeys to transport water from rivers to home, grain from home to grinding mills and firewood from field to home. The productive activities conducted by women using donkeys include transporting grain and vegetables from farm to market for sale, grain from one market to another for trading. Maintaining activities conducted by women of urban areas using donkeys include transporting water from public tap to home, grain from market to home and from home to grinding mills, and fuel wood, dung.

Table 3.6. Activities conducted by household members using donkeys in rural and urban areas of central parts of Ethiopia, 2000.

Household member	Rural donkey owners	Urban donkey owners
Men	**Productive activities** ***Transporting:*** ▪ crop harvest from field to threshing ground ▪ grain from farm to home and to the market ▪ cash crops from farm to home and to the market ▪ feeds from field to homesteads ▪ agricultural inputs (such as fertiliser) from distribution points to farm ▪ manure from homesteads to farms ▪ Agricultural implements from home to farms and from farm to home ▪ For compacting tef fields **Maintaining activities** ▪ Transporting fire wood and charcoal from fields to home ▪ Transporting disabled or sick people from place to place	**Productive activities** ***Transporting:*** ▪ grain, sugarcane and other commodities from one market to another for trading ▪ grain, vegetables and other commodities from one location to another for individuals on contractual basis ▪ feed from market to homesteads ▪ sand and other construction materials ▪ grain from market or home to grinding mills ▪ industrial products from wholesale to retail shops ▪ renting-out donkeys **Maintaining activities** ▪ Transporting fuel wood, charcoal and other essentials from market to home
Women	**Productive activities** ***Transporting:*** ▪ grain from home to the market ▪ grain from one market to another for trading ▪ vegetables to the market ▪ fuel wood, dung cake and charcoal from farm to the markets ▪ seed from home to farm ▪ earthen ware to the markets **Maintaining activities** ***Transporting:*** • water from rivers to home • grain to grinding mills • fuel wood from field to home	▪ **Productive activities** ▪ Transporting grain and other commodities from one market to another for trading **Maintaining activities** ***Transporting:*** ▪ water from public tap and rivers to home ▪ grain from market to home and to grinding mills ▪ fire wood, dung cake and charcoal from market to home
Boys and girls	**Productive activities** ***Transporting:*** ▪ crop harvests from field to threshing ground ▪ vegetables to the market **Maintaining activities** ***Transporting:*** ▪ water from rivers to home ▪ feeds from field to homesteads ▪ grain to grinding mills ▪ grain from farm to home ▪ charcoal and fuel wood from field to the markets	**Productive activities** ***Transporting:*** ▪ feed from field to home ▪ Sugarcane and castor from one market to another for trading **Maintaining activities** ***Transporting:*** ▪ water from public tap and rivers to home ▪ fire wood from market to home

cake and charcoal from markets to home. Similar observations were also reported by Sylwander (1994), Bwalya (1997) and Marshall *et al.* (1997) who found that donkeys provide multi-purpose uses to women, such as in fetching water, firewood collection, transporting grain to the grinding mills and for generating income through provision of transport services. Donkeys have, therefore, reduced the domestic transport burden of rural women and have created employment and income generating opportunities for many people. Fernando and Keter (1996) reported that Maasai women in Kenya who used donkeys to fetch water saved up to about 25 hours per week.

The activities conducted by boys and girls using donkeys are mainly maintaining in nature and similar to the activities of women in both rural and urban areas.

In general, the activities which men, women, boys and girls conduct using donkeys are socially constructed and may change with the changes in level of economic development and social factors. Men mainly conduct productive activities while women, and boys and girls take responsibility for conducting domestic or maintaining activities using donkeys. Urban women are mostly confined to conducting maintaining activities using donkeys compared with rural women. Rural women however, participate more in productive activities than urban women.

Decision making in donkey use

a) In rural areas

In addition to conducting many of the on-farm activities, ownership of donkeys has enabled households to diversify incomes by using working donkeys to sustain the livelihoods of the family. Hence, household decisions are needed on when to use donkeys for various activities. According to about 55% of the rural respondents, men make the decisions on the use of donkeys for marketing purposes (Table 3.7). About 20% of respondents indicated that men and women discuss together and make common decisions in using donkeys for marketing purposes.

When the location is considered, a large proportion of the rural donkey owners in West Shewa zone (51%), East Shewa zone-I (66%) and East Shewa zone-II (48%) have reported that permission is sought from men when donkeys are required for marketing purposes.

Donkeys are also used to conduct activities that are important for domestic use. This includes using donkeys for such activities as transport of water, fuel wood, charcoal and grain to grinding mills. When decisions are required to use donkeys for such activities, women take the lead. Fifty-two per cent of rural donkey owners reported that women make decisions when donkeys are required for help in household/domestic activities. The proportion of women who made decisions on donkey use for household chores was higher in East Shewa zone-II (72%) than West Shewa zone (40%) and East Shewa zone-I (47%).

One of the major contributions of donkey power is in crop production. Donkeys are used for land preparation, compacting tef fields, weeding, threshing and transporting crop harvests from fields to threshing grounds. These activities account for a large proportion of the contributions made by donkeys in rural areas. The results indicate

that using donkeys for such activities is not possible without permission of men. When the overall sample is considered, about 79% of rural donkey owners reported that only men give permission when donkeys are required for crop production activities. This proportion is larger in East Shewa zone-I (84%) and East Shewa zone-II (82%) than West Shewa zone (73%).

About 52% of the respondents reported that, no householder can either sell or purchase a donkey without the permission of men. This proportion was higher in West Shewa zone (64%) than East Shewa zone-I (51%). A similar finding was also reported by Mutharia (1995) among the Maasai, in Kenya - though women have access to the use of donkeys, a woman cannot sell a donkey without a man's permission. The situation was a little different in East Shewa zone-II where a large proportion of rural donkey owners (56%) pointed out that men and women make common decisions either to sell a donkey or purchase a new one.

Table 3.7. Decision making on donkey use by household members in rural areas of central parts of Ethiopia, 2000 (% responses).

Issues for decision	Household members	W Shewa zone + Addis Ababa	East Shewa zone-I	East Shewa zone-II	Total
Marketing activities	Men	50	66	47	55
	Women	8	3	16	9
	Both	22	11	25	20
	Either	13	18	7	13
Household chores	Men	16	18	8	14
	Women	40	46	71	51
	Both	28	21	8	20
	Either	8	10	8	9
Crop production activities	Men	72	83	82	79
	Women	3	3	6	4
	Both	12	4	3	7
	Either	4	5	3	4
Sell or buy a donkey	Men	63	50	38	51
	Women	2	3	1	2
	Both	25	41	56	40
	Either	2	1	1	2
To hire or borrow a donkey	Men	51	47	67	55
	Women	3	3	2	3
	Both	22	14	13	17
	Either	4	12	0	6
No of respondents		**140**	**128**	**117**	**385**

Where householders face a shortage of donkeys different measures are taken to alleviate the problem. For instance, during peak seasons of harvesting or threshing activities, households offset the problem by hiring or borrowing donkeys from

neighbours, friends, relatives or others. Hence, decisions are required whether to hire or borrow a donkey in such occasions. About 55% of respondents reported that no householder could hire or borrow a donkey without the permission of men. This proportion was larger in East Shewa zone-II (68%) than West Shewa zone (51%) and East Shewa zone-I (48%).

b) In urban areas

The decision-making system is similar in both rural and urban areas. Sixty-one per cent of urban donkey owners reported that no one in a household uses donkeys for marketing activities without the permission of men (Table 3.8). This proportion was higher in East Shewa zone-I (67%) than West Shewa zone (59%) and East Shewa zone-II (58%). In some households, men and women also discuss together and make common decisions when it is required to use donkeys for marketing activities.

Household activities are mainly the responsibility of women and they make decisions to use donkeys for such domestic issues. Thirty-four per cent of respondents in urban areas said that women took the lead in making decisions when donkeys were required for help in household chores. This proportion was higher in East Shewa zone-II (53%) than West Shewa zone (26%) and East Shewa zone-I (25%).

Table 3.8. Decision making on donkey use by household members in urban areas of central parts of Ethiopia, 2000 (% respondents).

Issues for decision	Household members	West Shewa zone + Addis Ababa	East Shewa zone-I	East Shewa zone-II	Total
Marketing activities	Men	59	67	57	61
	Women	7	2	7	5
	Both	19	11	28	19
	Either	7	11	2	6
Household chores	Men	22	20	22	21
	Women	25	24	52	33
	Both	20	13	20	18
	Either	12	16	1	10
Crop production activities	Men	52	44	73	56
	Women	3	3	3	3
	Both	12	8	10	10
	Either	5	9	3	5
To sell or buy a donkey	Men	52	44	35	45
	Women	4	2	4	3
	Both	24	14	45	28
	Either	5	4	2	4
To hire or borrow a donkey	Men	51	35	50	46
	Women	4	1	4	3
	Both	16	2	24	14
	Either	5	14	1	6

No of respondents		**125**	**98**	**99**	**322**

Men are the decision-makers when donkeys are needed for crop production activities, as reported by about 57% of the respondents in peri-urban/urban areas. This proportion was higher in East Shewa zone-II (74%) than West Shewa zone (53%) and East Shewa zone-I (45%).

In urban areas, either selling a donkey or purchasing a new one is not possible without the permission of men as reported by about 45% of donkey owners. This proportion was higher in West Shewa zone (53%) than East Shewa zone-I (45%). Similar results were also reported by Coppock (1994) who stated that major decisions concerning sales or purchase of equines are made by men, in other areas of Ethiopia. The case is reversed in East Shewa zone-II where 46% of respondents said women took the responsibility of making decisions either to sell or purchase a donkey.

Forty-six per cent of respondents said that men would give permission either to hire or borrow a donkey. In some households, men and women discuss together and make common decision when it is required to hire or borrow a donkey.

The results of this study indicated that men took responsibility in making decisions related to donkey use in both rural and urban areas. When permission was required to use donkeys for domestic uses, women took the responsibility. In some households, men and women also discussed together and made common decisions regarding donkey uses. This was more common in East Shewa zone-II, where farming systems are agro-pastoral in nature.

Special constraints facing women in using donkeys

Training of donkeys

Training of donkeys is generally a man's job. Some female-headed households that are busy with domestic as well as farming activities reported they lacked the time and experience to train donkeys properly. The problem is especially severe for those women who do not have older boys at home. Hence, they have to look for some one, a volunteer neighbour or relative, to train their donkeys. This can result in delays in the use of donkeys during peak periods to perform specific activities. Sometimes, untrained donkeys stay idle for a large part of the year when they could be used efficiently to reduce the work burden of women. Hence, this problem should be appreciated and appropriate measures may be taken by the community to help women to use donkeys efficiently and sustain the livelihoods of their families. The community may create enabling conditions for some experienced individuals who may train donkeys for women on time with reasonable service charges.

Inconvenient local technology

Women using donkeys would often carry loads on their head or back while riding. Some people suggested that the local technology designed for donkey use might not be appropriate for women. However it may be that the technology is fine but the skills required to put it on to the donkey and to load and unload it effectively are skills that women do not have and may need to be taught. Further investigation of this issue is required to see if it is a problem with the equipment or a lack of knowledge or confidence in saddling/harnessing the donkey by the women. Institutions, such as the

Agricultural Implements Research Programme at Nazareth, may provide a good location to investigate the problem further, both training and technical needs.

Comparative advantages of keeping donkeys

Rural householders and peri-urban/urban transporters

The most important advantage of keeping donkeys reported was the ability to carry relatively heavy loads in relation to their small size (Table 3.9). The second advantage of keeping donkeys was ease of loading and unloading compared to horses and mules. This makes donkeys ideal for the short journeys involved in household chores such as fetching water, fuel wood and grain milling. Other rural households described the third important advantage of keeping donkeys was their ability to tolerate diseases compared to other livestock. Fewer transporters noted this as an advantage (Table 3.9). There was a considerable different in the reported advantages between groups (Table 3.9), e.g tolerance to disease, some people mentioned it other did not see it as a problem.

A study conducted by Ndlovu *et al.* (1997) reported that cattle were a major source of draught power in the communal areas of Zimbabwe but frequent droughts and high cattle mortality has led to an increase in the importance of donkeys as draught animals, especially in dry areas. Another study in Zimbabwe (Nengomasha *et al.*, 1997) found that donkeys as source of draught power in the small-scale farming sector were often more economically viable than cattle. Similar advantages were seen here.

Table 3.9. Advantages of keeping donkeys as perceived by rural and urban donkey owners in central parts of Ethiopia, 2000 (%).

	West Shewa zone		**East Shewa zone-I**		**East Shewa zone-II**		**Overall**	
Advantages of keeping donkeys	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Relatively large load capacity	68	36	61	76	15	1	49	37
Small and convenient to use for loading and unloading	72	39	41	37	15	2	44	27
Tolerant to diseases	3	4	67	0	7	1	26	2
Survive on low quality feed	0	6	2	3	1	1	1	4
Tolerate unfavourable conditions	1	2	4	0	0	1	2	1
Easy to train and docile	0	9	2	5	19	1	6	5
Others[1]	23	42	11	28	55	92	28	55
No of respondents	**135**	**120**	**127**	**89**	**115**	**91**	**377**	**300**

[1]includes do not require good housing, donkeys are cheaper to purchase and affordable to small-scale farmers, can enable then to generate immediate cash, economical to use at smallholder level

Owners at meeting places

The advantages in ownership of donkeys as reported by owners at meeting places are given in Table 3.10. In East Shewa zone-II over half of the respondents said it was because the donkeys were hardy and could tolerate the conditions in the rift valley. Easy of handling, the multipurpose nature of use and cheapness relative to other animals were other reasons given. These were similar to those reported by householders and transporters above (Table 3.9). In East Shewa zone-I the main advantage given was easy of handling and multipurpose use. Hardiness was also mentioned. In West Shewa and Addis Ababa multipurpose use was considered an advantage. Ease of handling and hardiness were mentioned by some people, but most felt there were other advantages in keeping donkeys.

Table 3.10. Advantages of donkey keeping as indicated by people at meeting places.

Advantages	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Serves different purposes	20	30	17
Easy to handle and manage	9	54	17
Hardy animal	8	16	57
Less expensive than cattle	0	8	2
Other factors	76	7	7
No of respondents	**99**	**76**	**99**

Constraints in donkey use and management

Rural householders and peri-urban/urban transporters

Even though donkeys are easily managed as compared to other livestock, farmers still face different constraints in keeping donkeys. Overall a large proportion of rural donkey owners believed disease to be the most important constraint to keeping donkeys (Table 3.11). There are some important diseases in donkeys that cause considerable economic losses these include pneumonia, worms, external parasites, rabies, anthrax, skin tumour and foot rot. Disease problems were reported to be more severe in West Shewa zone than East Shewa zone-II and East Shewa zone-I (Table 3.11).

Unavailability of veterinary services for donkeys in the near-by localities has worsened the economic losses due to diseases. Rural householders report losses due to diseases could have been minimised if the veterinary services had been available in their vicinity. In East Shewa zone-I, there is a donkey welfare charity the Donkey Sanctuary which funds the Donkey Health and Welfare Project (DHWP). This project is based at Debre Zeit and gives treatment services to sick donkeys in the surrounding areas free of charge. The urban owners seem to be aware of this as only 7% report unavailability of veterinary services to be a problem, but those living further afield still regard unavailability of veterinary services to be a problem (53% of rural householders).

Feed shortage is one of the severe constraints on donkey management. Most donkey owners have prioritised feed shortage to be the most important constraint in keeping donkeys (Table 3.11). Interestingly, whilst donkeys are considered one of the most important animals for the security of household economy they have low priority in terms of access to good quality feed, particularly during feed shortages.

Table 3.11. Constraints in keeping donkeys as perceived by rural and urban donkey owners in central parts of Ethiopia, 2000 (%).

	West Shewa zone		**East Shewa zone-I**		**East Shewa zone-II**		**Overall sample**	
Constraints	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Feed shortage	37	61	59	53	19	15	38	48
Disease	51	40	17	30	44	14	39	30
Unavailability of vet services	31	31	53	7	8	25	31	23
Sores	5	20	24	7	5	4	10	12
Overloading	18	13	14	6	13	0	16	5
Road accident	6	19	21	15	3	2	10	14
Unavailability of breeding males	9	0	13	0	1	2	8	1
Others[1]	45	46	1	57	89	50	45	49
No of respondents	**101**	**105**	**70**	**86**	**72**	**59**	**243**	**250**

[1] includes difficulty of obtaining donkeys, unfavourable municipal regulations, and harness problems.

The proportion of rural donkey owners who prioritised feed shortage as the first important constraint was higher in East Shewa zone-I than West Shewa zone and East Shewa zone-II (Table 3.11). In urban areas, this proportion was higher in West Shewa zone than East Shewa zone-or East Shewa zone-II (Table 3.11). Sisay and Tilahun (1997) have also reported that in urban areas, donkey pack transport operators spent an average of Birr 24 per donkey per month for feed. This is because, there is little grazing space in the towns and no alternative other than depending on purchased feed.

Other important constraints reported included road accidents, unavailability of male donkey for breeding, lack of donkeys available for sale and poor veterinary services. Unfavourable municipal regulations and harassment are also constraints that were reported by a few urban donkey owners.

Owners at meeting places

Not everyone, particularly in the East Shewa zone-II, felt the need to or could identify problems (Table 3.12 and Appendix 1, Table 26A). However responses were generally similar to those given by householders and transporters (Table 3.11) with feed shortages and health being the main problems identified by respondents and factors

unrelated to animal management and health (Table 3.12). Other people also mentioned harnessing, reproduction and lack of veterinary services as constraints in using donkeys.

Table 3.12. Main problems in donkey use and management as indicated by people at meeting places.

Constraints	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Feed shortages	98	39	46
Health problems	11	49	49
Other than health and management	16	49	21
No of respondents	**111**	**97**	**57**

In summary

Ownership of donkeys clearly assists people living in both rural and urban to undertake maintaining and productive activities within their households. The emphasis in productive activities in rural areas is towards agricultural activities, in urban areas it is towards more general transport activities. Both urban and rural families make some use of donkeys in 'outside' income generating activities. Differences were seen between location, with donkey carts in East Shewa zone-II seeming to have greater potential for income generating activities than the donkey pack transport appropriate to the terrain in the other locations. Hiring out their animals is a more common practice and a source of income to a larger proportion of urban donkey owners than rural ones. Some rural householders reported loaning and lending donkeys to assist neighbours and relatives with no money transactions, rather than hiring for monetary gain.

Donkeys are regarded and first or second in importance in economic value to most families, with the draught oxen placed in higher regard. Despite this rural families have a low level of expenditure on their donkeys. Few are prepared to spend on health care, some purchase crop residues and concentrates as supplementary feed, and the main purchases are materials for securing loads and fixing pack saddles, which are obtained from markets. In contrast the urban/peri-urban transporters spend more on feed, veterinary care and equipment renewal and maintenance.

Urban/peri-urban donkey pack transport operators mainly keep male animals where as the ratio of male to female working donkeys is more equal in the rural areas. The donkeys are used for short trips and in marketing and transport situations where it is not economic to use lorry transport. Frequency of visits to markets by rural families are influenced by season, with trips decreasing during the growing season when there is much to do on-farm.

Resources, which include the donkeys, within a household are controlled by the head of the household (usually a man). However access to the donkeys is available to both male and female family members. The proportion of men that have access to donkey

use is higher in the peri-urban/urban areas than in rural areas, but the proportion of women using donkeys was higher in the rural areas than in the peri-urban/urban areas. This is likely to be because the livelihoods of urban donkey owners are mainly derived from the transport work done by men with donkeys, whereas the livelihoods of rural households are mainly derived from agricultural activities where the participation of men and women is more equal and both would use the donkey. Men tend to take responsibility in making decisions related to donkey use in productive activities and women in domestic activities, but in some households the decisions as to when and in what tasks to use the donkey are undertaken jointly.

In general men tend to conduct the productive activities while women, and children take responsibility for the maintaining/domestic activities, but the roles are not exclusive. Rural women have a more active role in productive activities with donkeys than do the peri-urban/urban based women particularly in East Shewa zone-II, and some men do undertake some maintaining activities with donkeys such as fuel and water collection.

The main advantages seen in having donkeys were their ability to carry loads in relation to their small size, and ease of loading and unloading due to size. Rural people in East Shewa zone-I felt disease tolerance was important, although few other people interviewed listed it as an advantage.

The main constraints in keeping donkeys were reported as feed shortages and disease, with shortage of vet services seen as a constraint in some locations, but not in the urban areas of East Shewa zone –I and in rural East Shewa zone-II. Overloading and sores were also mentioned and road accidents. Rural householders in West Shewa and East Shewa zone-I did also mention unavailability of breeding males.

Foals can be a useful spin-off when donkey mares are kept for work, but good management is needed to rear them sucessfully.

Roadside verges are an important source of food for donkeys in rural areas

4: HEALTH, MANAGEMENT AND REPRODUCTION OF DONKEYS USED FOR WORK

This part of the report records the results from the discussions on aspects of animal management, health and reproduction. These discussions were held with the 385 householders who owned donkeys from rural areas, 322 transporters who owned/used donkeys in peri-urban/urban areas and 346 people at markets and grinding mills who were using donkeys for transport.

4.1. HOUSEHOLDERS AND TRANSPORTERS

In the three locations described a total of 385 rural householders owning donkeys and 322 transporters in urban and peri-urban areas who used donkeys were interviewed about their management, and the health and reproduction of their donkeys.

Source of supply of donkeys

People mainly obtained their donkeys by breeding them at home or purchasing them from local markets, but there were some differences between transporters from urban and peri-urban areas compared with rural householders. Significantly more householders (50% of the 382 respondents) than transporters (24% of the 320 respondents) obtained their donkeys from breeding donkeys at home (χ^2_1= 48.3, P<0.001).

Table 4.1. Sources of donkeys used by householders and transporters – effect of occupation and location (percentage of respondents undertaking these activities).

	Respondents		Locations		
Source of supply	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	**%**	**%**	**%**	**%**
Bred at home	50	24	26	54	36
Purchased from market nearby	47	70	62	41	68
Purchased from market far away	7	18	15	13	7
Purchased from a friend	8	7	12	7	2
Gift from someone	4	9	4	4	11
Obtained along the way	0	0	0	0	1
Other source	1	2	2	1	0
No of respondents	**382**	**320**	**265**	**226**	**211**

There was a significant difference between the three zones (χ^2_2= 41.2, P<0.001) in terms of the proportions of respondents who bred donkeys for replacement, with the proportions being higher in the woredas of East Shewa zone-I compared to the woredas of East Shewa zone-II or West Shewa with Addis Ababa (Table 4.1).

Markets play an important role in the supply of donkeys to individual users, both transporters and householders. Many of the 320 transporters interviewed (70%), significantly more (χ^2_1= 34.7, P<0.001) than the householders interviewed obtained their donkeys by purchasing them locally (Table 4.1). There were significant differences between location (χ^2_2= 35.6, P<0.001). The lowest use of local markets to obtain donkeys was made in the East Shewa zone-I area, which obtained the most animals by home breeding. Significantly more urban transporters also made more use of markets further away to obtain their donkeys than rural householders did (χ^2_1 = 22.2, P=0.001), although use of far markets was relatively small by both groups. Only 7% of the householders and 18% of the transporters had obtained animals from markets a long distance away, with little difference between the woredas. Few people buy donkeys locally from friends or neighbours and donkeys were rarely given as gifts (Table 4.1).

Daily work and management practices

When asked what they used their donkeys for in business most transporters (about 50% in each area used them to transport goods from to and from markets, shops and residencies. In West Shewa zone, 34%, in East Shewa zone-I, 25%, and in East Shewa zone-II 23% of transporters used donkeys to carry people. More details of the uses are given in Appendix 1, Table 1A and Section 3.

Seventy-two per cent of the 125 transporters responding in the woredas in West Shewa and Addis Ababa, 92% of 98 responding in East Shewa zone-I and only 22% of the 99 responding in East Shewa zone- II (largely in Zway woreda) to the question of additional help, said that they employed other people to assist them in using their donkeys (Appendix 1, Table 2 A).

Table 4.2. Hours spent in various activities during the day (adjusted means).

Location	Respondent	Winter			Summer		
		Working hr	Grazing hr	Idle hr	Working hr	Grazing hr	Idle hr
W Shewa + Addis	Householders	3.0	7.1	2.3	5.4	5.4	-
	Transporters	5.0	3.9	2.4	6.4	3.0	2.6[1]
East Shewa zone –I	Householders	6.2	5.7	2.1	7.7	3.0	-
	Transporters	4.9	3.1	2.8	6.2	3.3	5.5[1]
East Shewa zone –II	Householders	4.6	5.2	2.4	6.9	3.3	
	Transporters	5.1	3.3	1.2	7.3	2.4	3.2[1]
S.E.M.	Max	0.25	0.28	0.23	0.25	0.25	-
	Min	0.32	0.36	0.30	0.33	0.33	-
Significance	Occup.	P=0.009	P<0.001		P.=0.5	P<0.001	-
	Location	P<0.001	P<0.001		P<0.001	P<0.001	-
	O x L	P<0.001	P=0.103		P<0.001	P<0.001	-

[1] Unadjusted mean

More use was made of donkeys in the summer months at all locations than in the winter months (Table 4.2). Transporters in West Shewa with Addis Ababa and in East Shewa zone-I used their donkeys more than the householders did, but in East Shewa zone –I the situation was reversed, with donkeys owned by householders being

used for about 2 hour more per day on average than those used by transporters in each season (Table 4.2). The hours worked in a day could vary from about 30 minutes to 12 hours depending on the season and task being undertaken.

Some of the 385 householders (12% in winter, 20% in summer) and of the 322 transporters (35% in winter, 38% in summer) did not graze their donkeys. Donkeys of householders generally had greater time at grazing than did those owned by transporters whose donkeys spent only about 3 hours a day on average grazing, regardless of season. Donkey generally spent more time grazing in winter than in summer, presumably because working hours were also usually less in these months. Details of the range of time spent in each activity by the donkeys reported by the respondents are given in Appendix 1 Tables 3A to 8A.

Attitudes in urban areas to donkey users

Over 93 of the 385 householders in all woredas questioned take their donkeys into urban areas when necessary. More people with donkeys stay overnight in urban areas in the East Shewa zone-I (25%) than in West Shewa zone (4%) or in East Shewa zone-II (2%). Overnight accommodation is almost entirely at the houses of relatives or friends, not in paid accommodation.

Table 4.3. Percentage of people questioned who thought the urban areas they visited were generally friendly towards donkey use.

Location	Householders %	Transporters %
W Shewa and Addis Ababa	68	39
East Shewa zone-I	52	37
East Shewa zone-II	63	42
No of respondents	**385**	**322**
Significance	Occup.	P<0.001
	Location	P=0.049
	O x L	P=0.289

Significantly more householders questioned than transporters said that the urban areas they visited were donkey friendly (Table 4.3). However there were differences in responses between woredas and between householders and transporters within the woredas. For example of the 47 transporters interviewed in Addis Ababa, 70% found the urban areas 'donkey friendly', but only 47% of the 43 householders interviewed did so. Only 21% of 29 transporters interviewed in Gimbichu found the urban areas friendly towards donkey use and only 17% of both the 40 householders in Adama and 33 in Zway found urban areas donkey friendly. In Negele Arusi, however, all but one of the 40 householders found the urban areas donkey friendly but only 61% of the 28 transporters did so.

Problems encountered in urban areas

More people commented on problems encountered when using donkeys in urban areas (388) than found the areas unfriendly towards donkeys (345). More rural householders (64%) cited problems in using donkeys in urban areas than did peri-

urban/urban transporters (43%). This implies they either found more problems, or were more concerned with the deficiencies they came across, than were the transporters. The main problems identified by both householders and transporters were a lack of anywhere to keep their donkeys in the urban areas, both during the day or overnight (Table 4.4). Lack of feed was the next most frequently mentioned followed by lack of water. Only a small proportion of people interviewed reported that the local authorities had a negative attitude to the presence of donkeys, but 29% of the 385 householders reported negative attitudes within the town dwellers themselves towards their donkeys (Table 4.4).

Table 4.4. Problems in urban areas for donkey users- percentage of respondents identifying these problems.

	Respondents		Locations		
Problems in urban areas	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
No place to keep donkeys during the day	68	80	64	64	82
No place to keep donkeys at night	59	50	43	37	79
Unavailability of feed	60	59	69	34	74
Unavailability of water	35	28	43	9	44
Negative attitudes of town dwellers on donkeys	29	12	14	18	33
Negative attitudes of authorities on donkeys	8	2	1	14	3
Other problems[1]	28	21	25	35	18
No of respondents	**249**	**139**	**109**	**125**	**154**

[1]includes lack of separate routes for donkeys (exposing animals to the risk of traffic accidents)

More problems were reported in East Shewa zone-II area than in West Shewa zone or East Shewa zone-I (Table 4.4). People in the woredas around East Shewa zone-I experienced fewer problems with feed and water availability than people using donkeys in other locations (Table 4.4).

Requirements for donkeys and work capacity

When asked whether they has sufficient numbers of donkeys for their requirements there were significant ($P < 0.001$) differences between locations and the interaction between location and occupation was significant (Table 4.5; $P = 0.0002$). In East Shewa zone-I more people were satisfied with the numbers they had, than in the other areas. In this area more transporters than householders were satisfied with the number of donkeys they had, in West Shewa zone the opposite was true and in East Shewa zone-II about equal numbers of householders and transporters were satisfied with numbers owned.

Table 4.5. Attitudes of respondents to the donkey resource they have access to - percentage of respondents satisfied.

Location	Occupation	Enough donkeys to meet needs	Donkeys big enough for the work they do	Want to increase the donkeys in future
		%	%	%
W Shewa and Addis Ababa	Householders	49	96	65
	Transporters	29	97	76
East Shewa zone-I	Householders	48	88	74
	Transporters	64	90	40
East Shewa zone-II	Householders	29	89	92
	Transporters	34	87	83
No of respondents		**707**	**707**	**707**
Significance	Occupation	P=0.824	P=0.905	P=0.0032
	Location	P<0.001	P=0.0002	P<0.0001
	O x L	P=0.0002	P=0.775	P<0.0001

Virtually all the people interviewed said their donkeys were big enough to carry the loads required of them, although there were significant differences between locations with about 10 % more people being satisfied in West Shewa zone than in the other two areas (Table 4.5). When asked what was the maximum load a donkey could carry householders and transporters gave similar responses. The 385 householders who responded gave a median of 100 kg, range 40 to 600 kg, and the 280 transporters who responded also gave a median of 100 kg, range 25 to 200 kg.

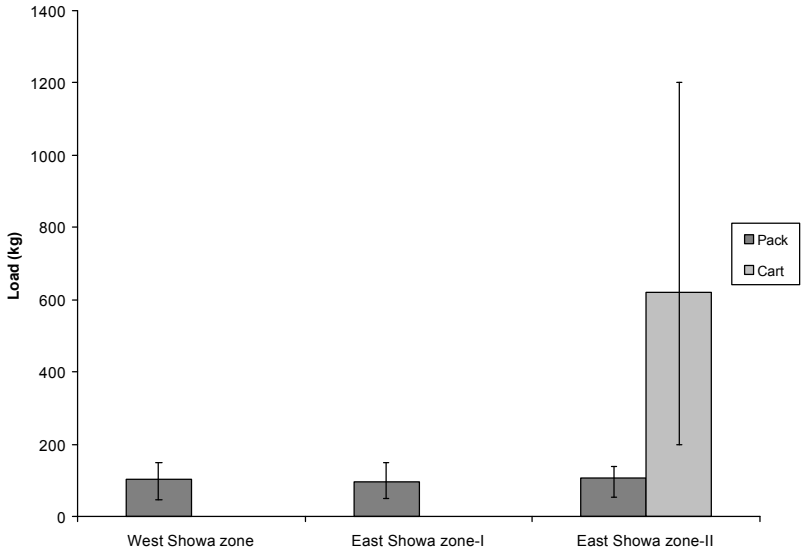


Figure 4.1. Capacity of donkeys to carry load (kg) as perceived by farmers while using them as pack animals and pulling cart.

Terrain influences the use of carts or pack transport. Donkeys were used as pack animals for transport mainly on the rugged terrain in the West Shewa zone and East

Shewa zone-I. In East Shewa zone-II, where the land is flat however, donkeys predominantly pulled carts and the use of this intermediate technology has also extended into rural areas as well as in the towns.

Sisay and Tilahun (1997) found that the average carrying capacity of a donkey was approximately 100 kg. Farmers reported that the minimum load that warrants the use of a donkey was 45 kg. The maximum load that donkeys were able to carry just for a shorter distance was 150 kg. The experiences of farmers of East Shewa zone-II in using a donkey cart confirmed that the potential of loading capacity of donkeys could be increased approximately six fold with a cart (Figure 4.1). Dilnesaw *et al.* (1997) who found that donkeys could pull a cart loaded with up to 600 kg for approximately four hours.

When asked if they wished to increase their donkey herd in the future there were significant differences in the number wishing to do so between location. More people interviewed in East Shewa zone-II area wished to increase the number of donkeys they kept in the future than in West Shewa zone or East Shewa zone-I. There were also differences between occupations at the different locations. In East Shewa zone-I which was the area where most transporters were satisfied with the numbers they owned, the number wanting to increase their herd in the future was low, compared to householders in the same area who were keen to increase herd size. In contrast in West Shewa zone householders were less keen than transporters to increase herd size.

Table 4.6. The main ways of increasing an individual's herd in the future as identified by respondents.

	Respondents	
Means to increase the number of donkeys kept	**Householders %**	**Transporters %**
By purchasing female donkey for breeding	52	24
By purchasing male donkey for breeding	29	49
By purchasing young donkey at cheap price and raising it	12	20
By renting in male donkey for breeding	3	3
By renting in donkey for transport use	2	3
By using other ways	4	3
No of respondents	**296**	**226**

When asked how they would increase their donkey herd size most people who replied cited the most important way was purchase of animals. The results are shown in Table 4.6 and in Appendix 1, Table 9A. Most frequently mentioned, as the most important way to increase the herd size was by purchase of either a female or male donkey for breeding, followed by purchase of young animals cheaply to raise for work. Very few people said they would rent male donkeys for breeding, or rent other donkeys to complement those they already had. Responses of householders and

transporters when asked to rank the means of increasing their herd size in order of importance were similar except that more householders favoured purchase of female animals than did transporters. Responses in different locations were similar Appendix 1, Table 9A).

People who did not want to increase the number of donkeys that they owned were asked why they were not interested in doing so. Fourteen householders and twelve transporters who said they did want to increase their herd size also suggested reasons why they might not want to increase numbers. These were included in the responses. The 104 householders (27%) and 103 transporters (32%) who responded gave the main reason they did not want to increase their donkey numbers was because they had enough. Other common reasons for not increasing herd size were a shortage of feed (26% of the 104 householders and 28% of the 103 transporters not increasing herd size), a preference to purchase cattle rather than donkeys (24% of the householders and 21% of the transporters responding) and a shortage of money (21% of householders and 17% the transporters responding). A preference to use other forms of transport, or purchase horses or mules were other reasons given by a small number of those respondents not wishing to increase their donkey holding. Differences between zones were apparent. A greater proportion of the respondents in East Shewa zone-II would prefer to purchase cattle than in the other woredas and would purchase horses, whereas more people in West Shewa and Addis Ababa gave feed shortages as a constraint than in the other locations (Appendix 1, Table 10A).

Determinants of the start of a donkey's working life

Responses of householders and transporters were different when asked about when donkeys should begin to work. Ninety-six percent of the householders said that they begin using donkeys when the donkeys have reached maturity, however only 40% of the transporters said this was when a donkey should start work. This low response by transporters may be because they have a greater tendency to buy in replacements than to breed them at home, compared to the householders. Differences between locations were not so marked with 79% of the 207 people interviewed in East Shewa zone-II, 72 % of the 222 people interviewed in East Shewa zone-I and 59% of the 248 people in West Shewa and Addis Ababa suggesting the donkeys should start work once they have reached maturity. Much fewer people considered that size was the main determinant of when to start working a donkey. Only 13% of the 385 householders and 31% of the 322 transporters felt that this was important. Significantly more people in East Shewa zone-I (35% of 226) than in West Shewa and Addis Ababa (18% of 265) or East Shewa zone-II (12% of 216) suggested that size was an important determinant of the time to start a donkey working.

The length of working life of a donkey

The maximum number of years a donkey is kept for work purposes was said to be a median of 13 years by the 378 householders (range 4 to 30 years) and 10 years by 297 transporters (range 1- 35 years), with no major differences between locations except for the transporters in Gimbichu who only expected their donkeys to work for an average of 7 years (range 1-15). It was suggested by some transporters that their donkeys have a shorter life expectancy because of greater work demands and less rest, but results from the survey did not reflect these comments.

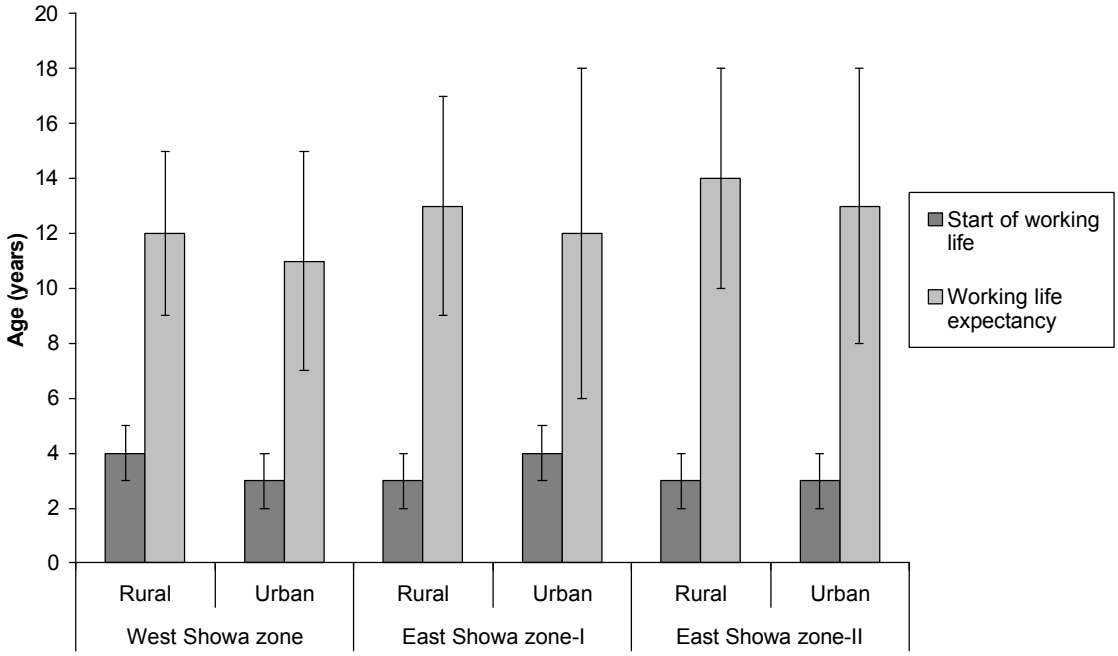


Figure 4.2. Age at which donkeys start working and their working life expectancy.

Feeding practices for donkeys

Householders and transporters were asked to indicate the main feeding practices they undertook while at home and also when travelling to markets. Some feeding practices were common to both householders and transporters, while others were more common in one group that the other. Some differences were apparent between locations. The feeding practices undertaken at home (in the villages) and during work (at the markets) are given in Table 4.7.

The most common ways of feeding donkeys 'at home' were on grazing, with supplements of straw and grain middlings also given. Some grain and household wastes were also fed. Fewer transporters made use of grazing than did householders, but transporters made more use of fodder supplements and oil cakes than did householders (Table 4.7). Little fodder supplement was used at West Shewa and Addis Ababa and few people in East Shewa zone-II used household wastes or anything available, but more of them supplemented donkeys with grain than in the other locations (Appendix 1, Table 11A). East Shewa zone-I has several flour mills and some agro-industrial processing as well as an active programme of planting trees for soil conservation and so a greater variety of feed resources for animal consumption is likely to be available than in the other two zones surveyed.

As might be expected, most donkeys are fed at home and there is virtually no access to grazing around the market places. However some people feed middlings, grain or straw to their animals in the market place. Notably, more transporters do this than householders, with the most common supplement being grain middlings. This may be due to a shortage of access to grazing by this group of users.

Table 4.7. Feeding practices carried out by householders and transporters in the areas surveyed (percentage of respondents undertaking these activities).

Feeding practice	Feeding practices at home		Feeding practices in the working day -at the market place	
	Householders	Transporters	Householders	Transporters
	%	%	%	%
Grazing	96	78	1	2
Grain middling	52	51	20	44
Straw feeding	49	56	17	32
Grain feeding	27	27	21	36
Anything available	27	27	10	12
Household wastes	20	30	1	5
Fodder suppl.	8	21	4	5
Oil cake suppl	3	12	0	3
Others	3	6	5	4
Number responding	**385**	**322**	**385**	**322**

Practices for holding and housing donkeys

Most people allow their donkeys access to some grazing during the day either free (75% of 385 householders, 52% of 322 transporters) or tethered (22% of 385 householders, 39% of 322 transporters interviewed). Donkeys also spend time tethered without access to grazing either under trees (28% of 385 householders, 36% of 322 transporters interviewed) or in housing or kraaled (36% of 385 householders, 19% of 322 transporters interviewed) during the day. There were differences between location. More people at East Shewa zone-II gave their animals access to grazing land than in the other woredas, and fewer people in Addis Ababa, Addaa and Gimbichu gave their animals access to free grazing in the day. All donkeys were confined at night, either by tethering, in stables, or in a kraal or at the home. Only three householders and two transporters interviewed said they allowed their donkeys access to free grazing at night, but 25% of the 385 householders and 33% of the 322 transporters interviewed said they did tether the donkeys on grazing land at night. Details of housing practices are given in Appendix 1, Table 12A and 13A).

Interviewees were asked whether they house or keep their donkeys with other animals. There were considerable differences between locations with most people in East Shewa zone-II woredas (87% of 216 respondents) keeping their donkeys with other livestock at night and the least people doing so in Addis Ababa woreda (24% of 86 people interviewed) and Wolemera woreda (28% of 80 people interviewed) doing so. More householders (76%) than transporters (45%) housed their donkeys with other livestock at night. Over 90% of the people who kept donkeys with other animals kept them with cattle, the exceptions to this were in Wolemera and Addis Ababa woredas, where only 68% of 22 people (Wolemera) and 48% of 21 people (Addia Ababa) keeping donkeys with other animals did so with cattle. Three people in Addis and two people in Wolemera kept their donkeys with small ruminants, and 62% (13 people) and 32% (seven people), respectively, in Addis and Wolemera, kept them with other equids.

Donkey health

Table 4.8. Number of respondents reporting health problems in their donkeys.

Location	Householders %	Transporters %
W Shewa and Addis Ababa	60	51
East Shewa zone-I	51	37
East Shewa zone-II	52	58
No of respondents	**385**	**322**
Significance	Occupation	P= 0.1041
	Location	P= 0.026
	O x L	P= 0.1037

Of the 385 householders and 322 transporters interviewed more than half of them said that their donkeys did get diseases, with some difference between locations (Table 4.8). The people who said their donkeys did get diseases attributed this mainly to overwork and to sores, other reasons and unknown causes. There were significant differences in responses between location for the most common causes (P<0.001), but not between transporters and householders who seemed to hold very similar views in each of the areas studied (Table 4.9).

Table 4.9. Predisposing causes of health problems in donkeys as reported by respondents.

	Respondents				Locations				
Reason	**House-holders**	**Trans-porters**	**$\times^2$ 1 df**	**P value**	**W Shewa**	**East Shewa zone-I**	**East Shewa zone-II**	**$\times^2$ 2 df**	**P value**
Over work	47	44	0.353	0.553	28	50	64	36.1	<0.0001
Sores	32	40	2.49	0.115	30	27	50	16.5	<0.0001
Not known	31	21	4.947	0.026	41	21	14	27.6	<0.0001
Lack of money for medicine	18	20	0.331	0.565	13	10	34	25.8	<0.0001
Inadequate feed	14	22	3.94	0.047	13	15	24	6.62	0.036
Inappropriate housing	9	17	4.98	0.026	11	18	9	5.69	0.058
Lack of money to buy feed	10	15	2.55	0.111	9	12	16	2.79	0.248
Old age	4	7	1.705	0.192	5	6	5	0.09	0.957
Other reasons	21	23	0.240	0.624	26	28	12	10.7	0.005
No respondents	**212**	**163**			**149**	**109**	**117**		

People in West Shewa and Addis Ababa were less certain of the reasons for disease in their animals (41% of the respondents did not know why their donkeys became diseased) than people in the other two locations (Table 4.9). In East Shewa zone-II 34% of the respondents said one of the reasons for disease in their donkeys was that they could not afford to buy the vaccines or drugs for donkeys that they would like to.

Only 13% or the respondents in West Shewa and Addis Ababa, and 11% of the respondents in East Shewa zone-I woredas gave this as a reason for disease in their donkeys. Poor food, lack of money to buy food and poor housing were also given by a small number of people in each location (less than 20%) as reasons for disease in their donkeys (Table 4.9).

When asked to rank the diseases which were most common, householders and transporters who responded listed pneumonia, anthrax and foot rot most frequently in the first two ranks (Table 4.10). Diseases that were not ranked highly were worms, external parasites, mange, tetanus, skin tumours, oedema and injuries. Twenty-six per cent of the 285 householders and 32% of the 322 transporters failed to rank any of the diseases when asked. This suggests either a low general incidence of these diseases or a fairly low level of awareness of disease amongst the donkey users. There were some differences in location (Table 4.10). Few people in East Shewa zone-II ranked foot rot as important, but they ranked anthrax more of a problem than did people interviewed in woredas in West Shew and East Shewa zone-I. More people in East Shewa zone-II were willing to rank the diseases than were people in East Shewa zone-I or West Shewa zone.

Table 4.10. Frequency with which respondents listed the various diseases in first or second rank when asked to identify which were the most common.

	Respondents		**Locations**		
Diseases	**House-holders**	**Trans-porters**	**W Shewa + Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Pneumonia	51	39	39	36	61
Foot rot	21	23	35	26	2
Anthrax	32	20	20	3	54
Skin tumours (sarcoids)	12	18	10	9	24
Rabies	13	11	10	11	15
Oedema	13	16	24	9	6
External parasites	2	10	3	10	4
Worms	7	6	5	10	4
Injuries	4	8	3	11	5
Mange	4	5	5	4	4
Tetanus	2	4	2	0	7
Others	15	19	19	28	5
No of respondents	**291**	**216**	**202**	**138**	**166**

There was a higher incidence of sores reported by transporters than by householders. Thirty-one percent of the 385 householders and 44% of the 322 transporters said that at least one of their donkeys currently had saddle or harness sores at the time of the interviews. Differences between locations were not significant. Table 4.11 shows the season in which people interviewed reported that sores were most prevalent. There was a significant difference in the seasonal incidence of sores between location (Table 4.11).

Table 4.11. Seasonality of sores on donkeys - percentage of respondents reporting sores.

	Location					
	W Shewa and Addis Ababa		**East Shewa zone-I**		**East Shewa zone-II**	
When do the donkeys have sores?	House-holder	Trans-porter	House-holder	Trans-porter	House-holder	Trans-porter
All the time	39	45	40	41	38	35
Only in the dry season	31	17	17	11	48	41
Only in the wet season	15	25	18	12	9	19
No sores ever	11	10	18	32	3	2
Others	4	3	7	2	2	2
No of respondents	**140**	**125**	**128**	**98**	**117**	**99**
Significance	Occup.	0.0084				
	Location	<0.0001				
	O x L	0.108				

Most people found problems with sores either throughout the year or only in the dry season. This may be associated with a loss in body condition, which is more likely to occur in the dry season when feed is less plentiful.

Interviewees were asked on which parts of the body of the donkey did sores most frequently occur. Householders and transporters did not differ greatly in their responses, although there were differences in responses between location. People in East Shewa zone-II reported more sores than those people in West Shewa and Addis Ababa did, with least sores generally being reported in East Shewa zone-I. Back sores were the most prevalent. They were reported by 93% of the 214 respondents in East Shewa zone-II, 90% of the 242 respondents in West Shewa and Addis Ababa and 90% of the 183 respondents in East Shewa zone-I. These respondents reported sores on the hindquarters by 53% in East Shewa zone-lI, 58% in West Shewa and Addis Ababa, and 44% in East Shewa zone-I. Sores on the shoulders were reported by 48% in East Shewa zone-II, and by 15% in the other two locations. The higher incidence of shoulder sores in East Shewa zone-II may have been due to the greater use of donkeys to pull carts in this area. Sores on the stomach were reported by 28% in East Shewa zone-II, 19% in West Shewa and Addis Ababa and 18% of respondents in East Shewa zone-I. Sores on the neck, head and other areas were not common, less than 9% of people interviewed reported seeing them (Appendix 1, Table 14A).

When asked the causes of sores on their donkeys the people who responded 352 householders and 280 transporters held very similar views. There were some differences between location but these were not large. Most people attributed sores to over work, poor saddle/harness design, and heavy loads (Table 4.12). Poor veterinary services were also implicated by some people. The low percentage of respondents giving this reason in East Shewa zone-I compared to the other areas may well be due to the presence of the Donkey Health and Welfare Project (DHWP) who offer free veterinary treatment for donkeys in the area. Poor feeding was considered a factor by some people, but not a major one. Other factors, such as poor

harnessing, lack of money to purchase improved designs of saddle or harness, lack of knowledge of what was available, housing, type of donkey, work or type of load, did not count as major causes of sores (less than 14% of people included these parameters as causative factors). Very few people, less than 3% in any location or group, said they did not know the causes of the sores on donkeys (see Appendix 1, Table 15A for details).

Table 4.12. Causes of sores on donkeys.

	Respondents		Locations		
Causes of sores on donkeys	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Frequency of work	75	70	78	71	68
Inappropriate saddle design	65	69	65	46	87
Weight of loads	37	23	27	34	33
Poor feeding	21	19	19	16	25
Lack of vet care	23	21	23	11	31
Inappropriate harness design	11	16	2	5	34
No of respondents	**352**	**280**	**243**	**176**	**213**

When asked how harness and saddle sores on donkeys could be reduced, both householders and transporters agreed very closely on methods to reduce sores (Appendix 1, Table 16A). The most common answer given was to stop working the donkey. Other ways identified included reduction in size and number of loads carried, improved feeding and improved saddle and harness design. Changing or increase the number of donkeys used was an option considered by some respondents. Few people considered that they would seek veterinary advice, particularly in East Shewa zone-I. (11%), although 23-28% of those respondents from the other locations said they would do so (Appendix 1 Table 16A).

When asked about treatment of sores on donkeys, rest was important. Fifty-five per cent of the 229 people responding from West Shewa and Addis Ababa, 38% of the 172 people from East Shewa zone-I and 46% of the 199 people responding from the woredas of East Shewa zone-II said that they just rest the donkeys without treatment. Traditional remedies are also used by 60% of the people near West Shewa and Addis Ababa, 54% of those in East Shewa zone-I area and 75% of those in East Shewa zone-II area. Few people buy drugs from the local vendors (9% from West Shewa and Addis Ababa, 2% from East Shewa zone-I and 14% from East Shewa zone-II did so), but several people said they would buy drugs for treatment of sores after veterinary advice had been given (25% of the people from West Shewa and Addis Ababa, 20% from East Shewa zone-I and 33% of the respondents from East Shewa zone-II areas). Details of responses are given in Appendix 1 Table 17A.

Reproduction and breeding practices

Most female donkeys in the survey areas have more than one foal in their lifetime. Eighty-four per cent of the 188 householders responding said that their female donkeys foal every 1-2 years and the 97 transporters who keep female donkeys said their female animals foal every 1-2 years. Taking the transporters as a whole, however, only 30% of those 322 interviewed had female donkeys that they bred from, whereas 50% of householders kept females for breeding. Many of the transporters preferred to own male rather than female donkeys for work (Section 3). Most people who kept female donkeys wanted then to have a foal (98%).

When asked to comment on problems in breeding donkeys more people that those who said that they were keeping breeding donkeys replied. All answers are included in Table 4.13. Both householders and transporters held similar views. The main problem was abortion and there were some differences between location in this. A lack of male donkeys to mate with was given as another problem. The main areas where male animals were in short supply were in Dendhi woreda (66% of 73 people said this was a problem) and Zway woreda, where 48% of 44 people complained of a shortage of males for breeding. In other woredas less than 15% of people were worried about a shortage of male donkeys for breeding. Sterility was not considered a major problem, however other factors were also thought by some people to be a problem in breeding, but were not identified (Table 4.13).

Table 4.13. The main problems in breeding from the female donkeys.

	Respondents		**Locations**		
	House-holders	**Trans-porters**	**W Shewa + Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
Abortion	54	39	29	47	84
No male to mate with	29	31	45	10	35
The female is too thin	18	18	10	18	29
Sterile	9	8	3	12	13
Do not wish her to have a foal	0	6	0	5	0
Other reasons	25	28	35	29	9
No. of respondents	**277**	**120**	**150**	**148**	**99**

When all donkey owners involved in breeding were asked if they would consider breeding from a specific male animal, only 13% of the 188 householders and 39 % of the 97 transporters said they would do so. These people said that in selecting a male for breeding they would look for size and then colour. Hardiness and age were not identified by transporters as factors, although some householders did say they would look for a young animal in selecting a breeding male. Fifty-seven per cent of the 49 respondents from East Shewa zone-II said other factors would be involved in the choice of a male animal for breeding, whereas only two of the 34 breeders from West Shewa and Addis Ababa and two of those 23 from East Shewa zone-I made this comment.

Twenty-seven per cent of householders and 29 % of transporters who kept female donkeys reported problems in foaling. No particular problem featured as most common. The following problems were identified: the foal being too large, retained placenta, insufficient milk from the mother and other factors (Appendix 1, Table 19A). Table 4.14 gives the seasons in which foals are commonly born. There was a significant difference between location. Owners reported that they think foaling is linked with the season in which feed is relatively abundant.

Table 4.14. Seasonality of breeding in the donkeys.

	Location					
	W Shewa and Addis Ababa		**East Shewa zone-I**		**East Shewa zone-II**	
When do the donkeys foal?	House-holder	Trans-porter	House-holder	Trans-porter	House-holder	Trans-porter
	%	%	%	%	%	%
Wet season; long rains	11	7	10	25	11	28
Wet season; short rains	67	65	51	41	82	44
Dry season	22	28	49	34	7	28
No of respondents	**116**	**109**	**84**	**43**	**44**	**39**
Significance	Occup.	0.0047				
	Location	<0.0001				
	O x L	0.0077				

People with young donkeys reported some losses. Fifty-four per cent of the 306 householders and 80 % of the 321 transporters responding to this question said not all young donkeys they have survive. They were asked what the causes of mortality were. The most common cause of loss identified was disease. Accidents on farm, attacks by wildlife or dogs, shortage of milk, weak foals, road accidents, poor mothering and other causes were all given as causes of loss in the youngstock (Appendix 1, Table 20A). Taken as a whole, transporters with the exception of those keeping female animals (98) tended to offer fewer reasons compared to householders ($P<0.001$) for mortality in young animals. This may be either because they do not know the reasons, or because few of them keep youngstock for any length of time or do much breeding with the female donkeys they do have.

Most of the 298 householders and transporters (119) asked kept the young animals for eventual work (84 % and 77 % of respondents respectively). Forty-two per cent of householders said they sold them in local markets. A small percentage of people questioned sold them privately (less than 10%), gave them to friends (10-20%) and some 6-7 % said they had had donkeys stolen. Most of the donkeys stolen or loaned to friends were in the Zway and Meki woredas. In the other woredas studied these practices were rare. A few people questioned (2-3) loaned young donkeys to friends or kept them as pets. Although fewer transporters responded to this question, the relative proportions of the different responses in this group were similar to those of the householders (Appendix 1 Table 21A).

The old animals were kept for work (50% of 378 householders responding, 38% of 322 transporters) or sold in the market (48% of householders, 28% of transporters responding) and some were retired from work and just kept (19% of the householders and 26% of the transporters responding). No one loaned then to friends or gave then away or sold privately, and few people said they left them outside the villages to survive on their own (5% of the householders, 2% of the transporters). Responses in each location were not generally very different although in Addis Ababa and Wolemera 60% of the people interviewed said they kept the old donkeys on in work, which was more than in the other woredas. Details of the responses are given in Appendix 1, Table 22A).

Markets are places where donkey owners congregate to buy and sell goods and produce

4.2. DONKEY OWNERS AT MEETING PLACES (MARKETS AND MILLS)

A total of 346 people who had brought their donkeys to market places were interviewed (120 at West Shewa and Addis Ababa, 104 at East Shewa zone-I and 122 at East Shewa zone-II) about their donkeys health and then a quick visual inspection of the animals was carried out. Of the people interviewed, 28% came from female-headed householders in East Shewa zone-II, 15% in West Shewa and Addis Ababa and 6% in East Shewa zone-I.

Table 4.15. Sources of donkeys used by people interviewed in meeting places and by transporters.

	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Market users:			
Owned	98	95	89
Hired for the day	2	3	6
Gift from a friend or relative	1	2	5
Hired for longer time	0	0	0
No of respondents	**120**	**104**	**122**
Transporters:			
Owned	90	91	93
Hired for the day	6	5	4
Gift from a friend or relative	4	3	10
Hired for longer time	0	1	1
No of respondents	**265**	**226**	**216**

There was no marked difference in the source of donkeys used by the market users group interviewed compared with the transporters interviewed. Most people owned their animals, and a small proportion hired them for the day. More transporters borrowed from friends and this was mainly in East Shewa zone-II (Table 4.15).

The donkey user's perceptions of their animals' health and body condition (Table 4.16) were significantly different in the three locations ($P<0.001$). Few people in West Shewa and Addis Ababa considered their animals in poor health, but more people did in East Shewa zone-I and East Shewa zone-II. Interestingly although more of the people interviewed in West Shewa and Addis Ababa area considered that their donkeys were in good health, most of them believed that the animals were in poor condition, whereas in the East Shewa zone-I the assessments from good to poor health and condition more clearly matched each other in terms of numbers of responses. In East Shewa zone-II, as in West Shewa and Addis Ababa, few people considered that their animals were in poor health, but most felt that they were only in fair to poor condition.

Table 4.16. Peoples perceptions of their donkeys' general health and body condition in the three locations at meeting places.

Donkeys		W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
		%	%	%
State of health	Good	86	45	46
	Fair	12	37	44
	Poor	3	22	10
State of body condition	Good	1	36	8
	Fair	39	40	64
	Poor	60	24	28
No of respondents		**120**	**104**	**122**

Table 4.17 gives the number of respondents given in each possible category of response. Most people tended to consider their animals in fair to poor condition and fair to good health.

Table 4.17. Number of respondents in each category in assessing the state of health and condition of their donkeys at meeting places.

State		States of body condition			
		Good	Fair	Poor	No of respondents
State of health	Good	29	106	69	**204**
	Fair	18	51	36	**105**
	Poor	1	10	26	**37**
No of respondents		**48**	**167**	**131**	**346**

In the West Shewa and Addis Ababa area 4%, in East Shewa zone-I 9% and in East Shewa zone-II areas 48% of people interviewed in the meeting places with donkeys said their donkeys did get diseases or have health problems. The response in East Shewa zone-II was similar to that reported by the householders interviewed at home and the transporters in the earlier informal interviews, but responses in West Shewa with Addis Ababa and East Shewa zone-I at market places and at grinding mills were very much lower than reports given by householders at home and transporters. The low reports of disease problems in West Shewa and Addis Ababa meeting places were in agreement with the views held by most of the interviewees, that they considered their animals to be in good health (Table 4.16). The lower incidence of disease/health problems in donkeys reported by people at some meeting places, where people were interviewed with others present, compared with those given by householders and transporters, may be because in public they are less prepared to report problems than they might be when at home. Householders and transporters were interviewed at home, where they might be more ready to discuss problems or deficiencies they have. It may depend on the season at which the interviews were conducted. All interviews were conducted in the period just after the end of the main rains, when animals would be expected to be in best condition, and into the dry period from October to January.

Despite the fact people reported a low incidences of disease in their donkeys they readily ranked diseases in order of prevalence when asked. There were considerable differences in ranking between location. Some diseases were identified as important in one area but not in another. This contrasts with the responses obtained from the householders and transporters in the previous discussions. It may be that people interviewed tended to emphasis those diseases that were currently a problem, or that they were poor at recognising the health problems that their animals could be subject to. Some confusion may have been experienced with the discussion in East Shewa zone-I where the number of 'other' diseases which were a problem were very high and largely attributed to sores and injuries on the body other than back sores.

Table 4.18. Frequency with which respondents at meeting places listed the various health problems in first or second rank when asked to identify which were the most common.

	Locations		
Diseases and health problems	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%
Back sores	88	2	37
Pneumonia	34	0	35
Foot rot	5	19	2
Anthrax	1	14	7
Skin tumors (sarcoids)	5	8	3
Rabies	6	2	1
Oedema	4	9	2
External parasites	13	9	0
Worms	37	9	0
Injuries	19	10	3
Mange	0	45	0
Tetanus	0	12	0
Others[1]	2	82	2
No of respondents	**120**	**104**	**122**

[1] Includes sores other than back sores.

Table 4.19 shows the seasonal incidence of sores on donkeys as reported by the people in meeting places whom were using donkeys. Responses were similar to those given by transporters and householders (Table 4.11). As with them most people said they found problems with sores either throughout the year or only in the dry season, which may be related to a reduced availability of food and loss in body condition in this season. Significant differences (P=0.001) were found between location in the number of people reporting sores all the time and in the dry season ($\chi^2_2 = 111$, P< 0.001). The highest prevalence of sores was reported in East Shewa zone-II area.

Table 4.19. Seasonality of sores on donkeys - percentage of respondents at meeting places reporting sores.

When do the donkeys have sores?	Location		
	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
All the time	32	47	96
Only in the dry season	66	52	3
Only in the wet season	0	0	1
No sores ever	2	0	0
No of respondents	**100**	**104**	**120**

When asked the causes of sores the market users held fairly similar views to those of the householders and transporters interviewed in the previous survey (Table 4.12). Most people again attributed sores to over work and heavy loads (Table 4.20). Poor saddles were again mentioned, however people in West Shewa and Addis Ababa also commented on poor harness design unlike the people in East Shewa zone-I or East Shewa zone-II. Poor feeding was indicated by 94% of people interviewed on this survey in West Shewa and Addis Ababa, but only 10% in East Shewa zone-I and 8% in East Shewa zone-II (Table 4.20). The reason for the high response in West Shewa and Addis Ababa is not clear and was in contrast to responses from householders and transporters. It may be that people's responses to this question are very seasonal in nature.

Table 4.20. Main causes of sores on donkeys as indicated by people at meeting places.

	Locations		
Causes of sores on donkeys	**W Shewa + Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%
Poor feeding	94	10	8
Frequency of work	64	5	88
Weight of loads	40	39	6
Type of load/work	65	17	23
Inappropriate saddle design	77	3	67
Inappropriate harness design	77	21	2
Cannot afford better saddle	9	84	3
Lack of vet care	13	1	18
No of respondents	**98**	**87**	**120**

Some people in West Shewa and Addis Ababa and East Shewa zone-II again mentioned poor veterinary services but those in East Shewa zone-I did not. In East Shewa zone-I they felt a lack of money for better saddles was a major constraint (Table 4.20). Other factors such as housing, lack of money for purchase of harnesses, lack of knowledge of what was available and type of donkey did not count as major causes of sores Appendix 1, Table 23A).

More information was gained from this group of interviewees on the effects of type of work or load on sores than from householders and transporters. People at the three locations all gave work or load as a factor in the development of sores on donkeys. Construction materials (42% of people in West Shewa and Addis Ababa), wood (24% in East Shewa zone-II and 89% in East Shewa zone-I) and the size or weight of the load were important contributing factors. Loads over 100 kg were considered by 40% at West Shewa and Addis Ababa, 33% at East Shewa zone-I and 3% at East Shewa zone-II to cause sores and 61% in East Shewa zone-I and 3% of people in East Shewa zone-II considered loads of 80 to 100kg would also cause sores (Appendix 1 Table 24A).

Few people said yes when asked whether they treated their sick animals any differently from their health ones. Only 7% of people interviewed from West Shewa and Addis Ababa area, 27% from East Shewa zone-I and 20% from East Shewa zone-II did so. People who did manage their sick donkeys differently isolated them from the others, or fed extra and/or treated them with drugs or local remedies. There were differences between areas in the practices done to sick donkeys:

In West Shewa and Addis Ababa people mainly gave the sick donkyesones extra feed and about a third of them said they isolated them and treated them with drugs and local remedies. In East Shewa zone-I about a third of the people did each of these practices. In East Shewa zone-II most people said they treated sick donkeys with drugs or local remedies, they did not isolate them and about half said they would feed extra to a sick donkey (Appendix 1 Table 25A)

Physical characteristics of the donkeys in the meeting places

The donkeys owned by the people interviewed in this group were measured and assessed visually by the veterinarians conducting the interviews. Observations are summarised in Table 4.21 and in full in Appendix 1, Table 27A.

Table 4.21. Mean and standard deviation (SD) age and size of donkeys examined at meeting places.

Characteristics of the donkeys	**W Shewa and Addis Ababa**		**East Shewa zone-I**		**East Shewa zone-II**	
	Mean	SD	Mean	SD	Mean	SD
Age of donkey (yr)	6.9	2.5	8.4	2.9	8.9	4.6
Height at withers (cm)	118	18	100	7	100	4
Length - elbow to tuber ischii (cm)	118	21	139	11	98	7
Heart girth (cm)	109	8	119	15	109	7
No of donkeys	**120**		**104**		**122**	

Both male and female animals were examined (68 %, 53% and 31% of the sample were female in West Shewa and Addis Ababa, East Shewa zone-I and East Shewa zone-II respectively). Length and girth measurements of donkeys from East Shewa zone-I were greater than those seen in the other areas, which may a real effect or due in part to small differences in measuring techniques.

Figure 4.3 shows the body condition score as estimated using the method of Pearson and Ouassat (1996). Donkeys in East Shewa zone-II were in generally better condition than those in the other two locations at the time of the surveys, which were two months into the dry season following the long rains (November to January).

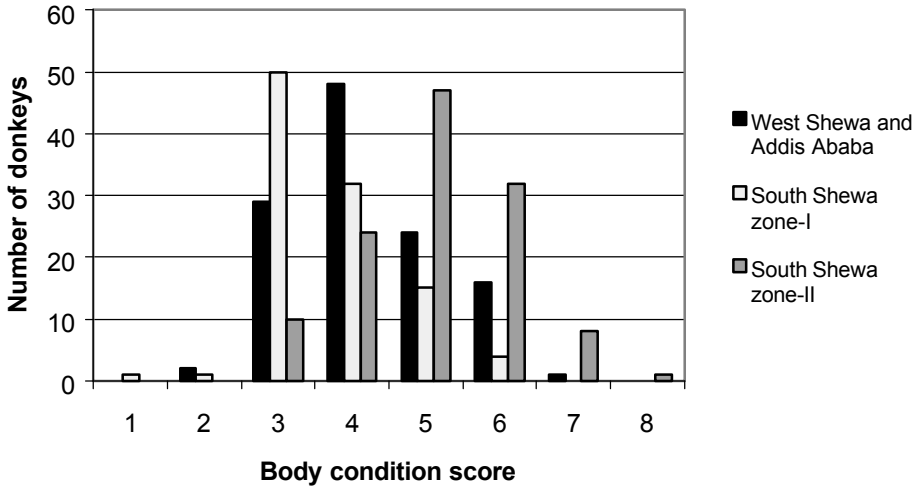


Figure 4.3. Body condition of the donkeys examined at meeting places.

The most common coat colours were grey, and brown with some black donkeys. There were more black donkeys in East Shewa zone-II than West Shewa and Addis Ababa and vice versa for brown animals. Most donkeys had a pale or 'mealie' muzzle colour (89% of donkeys) and a few had a dark black/brown muzzle colour (9%). Most of the donkeys in all locations had shoulder crosses and some had leg stripes. Less donkeys in East Shewa zone-I than in the other locations had leg stripes (Appendix 1, Table 28A). Over 95% of donkeys in West Shewa and Addis Ababa area and East Shewa zone-II woredas had short erect manes and large erect ears. In East Shewa zone-I 12% of the donkeys had longer manes, which fell over the neck, and 36%, had relatively small ears. Coat length was short to medium on most donkeys with less than 8% showing a longer coat hair in each of the locations studied.

Shine on the coat was subjectively assessed. In East Shewa zone-I and East Shewa zone-II, 12% of the donkeys had a smooth shine on their coat, but in West Shewa and Addis Ababa the proportion was much higher with 48% of donkeys having shiny coats and only 52% having a dull staring coat.

Foot shape tended to be more upright and narrow in East Shewa zone-II (79% of donkeys) than in West Shewa and Addis Ababa woredas (27%) and the woredas of East Shewa zone-I (21%), where the hooves were broader and flatter. A few of the donkeys examined in the market places had overgrown hooves. In West Shewa and Addis Ababa nine donkeys had one hoof overgrown and three donkeys had two hooves overgrown. In East Shewa zone-I six of the donkeys examined had two hooves overgrown. In East Shewa zone-II there were more donkeys with overgrown feet, 13 with one hoof, 10 with two hooves and one each with three and four hooves needing trimming.

Health status of donkeys on examination

There was a significant difference between locations in the incidence of sores seen on the donkeys examined (χ^2_2 = 26.47, P<0.0001). In West Shewa 28% of the donkeys had sores, in East Shewa zone-I 63% and in East Shewa zone-II 47% of the donkeys examined had sores. The highest incidence of sores were found on the back, around the tail, hindquarters, abdomen and shoulders. Fewer sores were seen on the lower legs, on the head, neck, and mouth (Table 4.22). The observations of the veterinarians confirmed the views of the householders and transporters interviewed earlier that back sores including the base of the tail, and sores on the hindquarters of the donkeys are the most prevalent in the locations studied. Interestingly in East Shewa zone-I donkeys were found to have the highest incidence of sores by the veterinarians although few of the owners from this area seemed aware of the existence of the back sores as judged by responses in Table 4.18.

Table 4.22. Sites on the body of sores on those donkeys found to have sores on examination at meeting places.

	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Back sores	79	63	95
Base of the tail	44	42	26
Abdomen	15	32	5
Hindquarters	15	25	4
Shoulders/chest	12	15	11
Lower hind leg	9	14	7
Forelegs	20	8	7
Head/neck	0	12	0
Mouth	0	2	5
No of donkeys with sores	**34**	**65**	**57**

The donkeys in the meeting places were examined for external parasites, but the incidence was very low with only three animals in West Shewa and Addis Ababa area and three in East Shewa zone-I found to be carrying ticks. Only one donkey in West Shewa zone and one donkey examined in East Shewa zone-II were found to have skin disease or other injures. However in East Shewa zone-I 15 of the donkeys examined had skin disease and 10 donkeys examined had other injuries. The time of all examinations was in the dry season following the end of the long rains in September.

In Summary

Management

People usually acquired donkeys by purchase at local markets or breed their own. More rural people bred their own donkeys than those transporters interviewed from peri-urban/urban areas. Transporters particularly in West Shewa and East Shewa zone-I employ people to help manage and work their donkeys. The animals can work from 30 minutes a day to 12 hours per day, depending on season and task. More work is undertaken in the summer than in the winter months and transporters generally use their animals for longer hours than do rural householders in winter. In

summer the differences are less marked between rural and peri-urban/urban working hours.

People transporting from rural areas into the urban areas will often stay overnight with their donkeys, but usually with relatives or friends. People from different woredas differ in opinion as to whether the urban areas are 'friendly towards donkeys', with generally more rural people finding them so compared to transporters. More rural people cited problems in using donkeys in urban areas than did the peri-urban/urban transporters. Space for leaving the donkeys and feed and water shortages were the main problems reported. Negative attitudes towards donkeys were reported to come from the town dwellers more than from the local authorities.

There were mixed feelings as to whether the people owned enough donkeys for their needs, but virtually everyone believed the donkeys were up to the load carrying tasks they required. Responses of rural householders and peri-urban/urban pack transporters were similar. More people in East Shewa zone-II would increase the numbers of donkeys they had than in the other locations, but responses tended to reflect whether people thought they had enough donkeys for their requirements. People not wanting to increase numbers said either they had enough, preferred cattle or were constrained by feed or financial shortages. Purchase of working/breeding donkeys from local markets was the main means of increasing herd size, with more rural householders favouring purchase of female animals than did transporters.

Most rural people said they start using a donkey for work when it has reached maturity. Few transporters cited this as important. Few people specifically considered size important in deciding when to start working a donkey. Donkeys are expected to have an average working life of 10-13 years. People kept old animals in work or sold in the markets, a few retired them from work and virtually no one said they abandoned them.

Some of the free time is spent in grazing the donkeys, but a proportion of owners stall-feed their animals only (more transporters than rural householders). Transporters tended to buy in more feeds, fodder and by-products. Both rural householders and transporters used a range of feedstuffs to supplement grazing and crop residues, with the transporters often providing some feed during the working day. When not working in the day donkeys are tethered on grazing or free-grazed, more so in East Shewa zone-II than in the more density-populated woredas of West Shewa and Addis Ababa. Most donkeys are confined/tethered at night near the house. In rural areas they are more likely to be housed with other livestock, usually cattle, than in the peri-urban/urban areas.

Health

Rural householders and peri-urban/urban transporters held similar views on diseases and injuries. Over half the owners interviewed reported health problems with their donkeys, with the main causes reported as over work, sores, and unknown causes. The most common diseases reported were pneumonia, 'foot rot' and anthrax. A quarter of householders and about a third of transporters did not respond when asked to rank diseases of importance, having either a low incidence or a low awareness of

disease in their donkeys. In contrast at meeting places in West Shewa and East Shewa zone-I few people reported health problems, but most people at meeting places readily ranked disease in order of prevalence when asked. There were some differences between locations and responses were a little different from responses given by householders and transporters. Worms and mange were considered important disease problems in some woredas in addition to the pneumonia and foot rot listed by the householders and transporters.

When asked about sores almost half the transporters and a third of the householders and people at meeting places reported that at least one of their donkeys had a sore at the time of interview. There were seasonal differences in incidence with more sores found in the dry season than in the wet season. Back sores were the most common, but some were also found at other contact points of the harnesses. Common causes of sores were given as over work, poor saddle/harness and heavy loads and people interviewed at meeting places in West Shewa cited poor feeding as a major cause. Most people had views on the causes of sores, few said they did not know. To treat sores, most people recognised that stopping work was the best solution and reducing the work done. Few considered they would look for veterinary advice on treatment of sores. Traditional remedies and rest were the main ways people would treat sores and few people would spend money on treatment. People asked at meeting places how they treat their sick animals gave extra feed and treated with local remedies.

Donkey owners at meeting places generally perceived that their animals were in good/fair health, but many considered them to be in fair to poor condition, with the people in West Shewa showing the most contrast – good health: poor condition. On veterinary examination a quarter to two thirds of the donkeys had sores, mainly on the back, around the tail, hindquarters and abdomen. In East Shewa zone-I veterinarians found over half the animals with back sores although owners reported a low incidence. However some measures of disease correlated well. The incidence of skin diseases in East Shewa zone-I was highest of the three locations, and mange was reported a disease problem by more owners at meeting places in this area than in the other locations.

Breeding

Householders and transporters owning female donkeys expected to breed from them. Most people expected a foal every 1–2 years. They held similar views on the problems in breeding donkeys. The main problem was abortion, followed by a shortage of males for mating and poor condition of the female. Few people planned to breed with a specific male, but those that did said they would select the male on size and colour. People in East Shewa zone-II also said other factors may also be important.

Foals were born in the season in which feed was most abundant, (usually the short rainy season) with a quarter to a third of the people interviewed reported problems in foaling. Mortality in young stock was reported by over half of the respondents, generally associated with disease or problems in management. Most people keep the home bred animals for work, but would also sell in local markets. Few people sold their donkeys privately or gave them away to friends/relatives.

Occasionally women trade in donkeys

Men are usually the main people trading in donkeys

5: PEOPLE DEALING/TRADING IN DONKEYS

Introduction

In many parts of Ethiopia there are people who engage in the business of donkey dealing (buying and selling of donkeys). Donkey dealing is apparently becoming a dependable business. This survey aimed to discover more about the business, its potential to move donkeys in and out of an area, its income generating potential and any specific technical constraints or problems in donkey husbandry.

A total of 257 people who trade in donkeys, buying and selling them, were interviewed (104 in West Shewa and Addis Ababa, 73 in East Shewa zone-I and 80 in East Shewa zone-II). Only one female trader at Meki, East Shewa zone-II was interviewed who was involved in the business. Traders in the East Shewa zone-II area had larger families (9±4.6 family members) than those in West Shewa and Addis Ababa (6±2.7 family members) or in East Shewa zone-I woredas (6±2.8 family members).

Entry into the business of donkey dealing

The donkey dealers interviewed on average started dealing during the mid 1980's. Some started as early as the 1960's and others as late as the 1990's. Donkey dealers of West Shewa zone and Addis Ababa zone started dealing earlier than in the other two zones. This may have been due to the proximity of big towns where there is high demand for donkeys. Traders in East Shewa zone-I were the more recent traders. The adoption of donkey dealing as a livelihood may be related to the shortage of arable land as a result of population pressure.

Most people ranked agriculture as the most important activity they were involved in. Several of the donkey traders interviewed put trading in other livestock as of first or second importance. Other occupations such as artisan, commodity trader and government employee were also undertaken by a small number of this group of people (Appendix 1, Table 32A).

Table 5.1. The main activities undertaken by those people who trade in donkeys.

	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Agriculture	87	94	96
Trader in other livestock	28	32	63
Transport	11	1	12
No of respondents	**104**	**73**	**80**

When asked why the traders liked trading in donkeys there were several different reasons given particularly by the traders based in East Shewa zone-II (Table 5.2). It seems donkey dealing is lucrative, but despite this many individuals are not engaged in the business. It was interesting to note that some donkey dealers took their license in the name of cattle than donkeys. This may be related to traditional beliefs about donkeys. Despite their economical viability the attitude of people towards donkeys is usually negative, hence engaging in dealing of such an animal makes an individual

feel they may be less respected in the society. Only those individuals who dispelled this myth are engaged in donkey dealing. In other countries there are also sometimes negative attitudes against donkey trading. For example in Kenya, Mutharia (1995) reported that the Maasai believe that donkeys can only be exchanged and not sold, because selling a donkey will bring the vendor misfortune.

Table 5.2. Reasons why people prefer the business of trading in donkeys.

Reasons why people prefer trading in donkeys	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Overall
	%	%	%	%
Good margins	51	66	79	64
Less competition	50	32	68	50
Easy to maintain and handle donkeys	34	21	74	42
Easy to get donkeys	32	25	60	38
Easy to transport to markets	20	15	70	34
Other reasons	18	11	1	7
No of respondents	**104**	**73**	**80**	**257**

The traders most frequently sold their donkeys to farmers. The second most important buyers were other donkey dealers (intermediaries). As might be expected in Addis Ababa transporters were another important purchaser, but were not to the same extent in the other locations in West Shewa or in the East Shewa areas. People selling commodities were also identified as buyers of donkeys for use in their businesses (Appendix 1, Table 33A).

Market sources and preferences of donkey types

Dealers purchased donkeys from different sources. Some dealers said the travelled long distances to markets located 2–4 days walk away while others purchased from the near-by locality (Table 5.3). Some donkey dealers generally perceived that the greater distance between purchase and sale location, the higher the margin. It would appear that regardless of the different localities they can benefit from spatial price variation.

Table 5.3. Sources of donkeys where donkey dealers purchase from in central parts of Ethiopia, 2000 (% respondents).

Sources	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Overall
Locally in the village	35	15	56	36
Near-by markets	42	32	86.	53
Distant markets	66	57	89	71
All of these	25	19	15	20
Other sources	15	7	30	18
No of respondents	**104**	**72**	**80**	**256**

Some types of donkey are preferred to others; as a result, donkey dealers offer the types of donkey demanded by their customers. Adult, male donkeys are preferred to other donkeys (Table 5.4). This might be due to the need of their customers to use the adult male donkeys immediately. Blench (1997) found a similar demand in Niger and Mali, which have a considerable trade selling donkeys, usually males, to communities further south. Sisay and Tilahun (1998) have also reported that most of the donkeys used by donkey pack transport operators are males. Adult female donkeys were preferred next to male donkeys for sale. This might be due to the need of their customers to replace donkeys by breeding.

Table 5.4. Types of donkeys most often sold by dealers in central parts of Ethiopia, 2000 (% of the 257 respondents).

Type of donkey	Most preferred	Second preferred	Third preferred	Least preferred	Not ranked
Adult male	46	22	8	4	20
Adult female	13	33	5	10	39
Young male	16	13	12	5	54
Young female	3	9	13	9	66
About the same of each	22	4	5	3	66

Price determination

Even though price is a function of supply and demand forces, dealers of donkeys have pointed out some important factors that influence prices. Age and body condition were reported by about 31% and 27% of donkey dealers respectively as the two most important qualities that considerably influenced the price of donkeys (Table 5.5). Donkeys between the age of four to five years and in good body condition are in high demand at markets. During purchase, age of a donkey is determined by assessment of the state of their teeth and hooves. Size and sex are also two of the important qualities that affect the prices of donkeys. Dealers said large donkeys are preferred to small ones due to their ability to carry more loads. Moreover, large sized donkeys can ford rivers more easily during the rainy season when water levels are high. With respect to sex, male donkeys are preferred to female ones due to their ability to carry more loads throughout their working life. Female donkeys are preferred mainly for breeding and cannot carry large loads when in late pregnancy.

Table 5.5. Factors determining the price of donkeys in central parts of Ethiopia, 2000 (% of 256 respondents).

Factors	Most important	Second important	Third important	Least important	Not important
Age	31	36	21	10	3
Size	18	25	27	10	21
Body condition	27	15	17	26	16
Sex	18	19	19	30	14
Colour	3	4	6	39	49
Training/experience	3	2	6	32	57

Seasonal and annual price variation

Almost all of the respondents reported that prices of donkeys vary considerably between seasons. About 75% of the donkey dealers interviewed reported that the price of donkeys was most expensive during the dry season (Table 5.6). The second most expensive season was the wet season-short rains (53%) and the least expensive season was the wet season-long rains (57%). In the dry season, donkeys are in greater demanded for both on-farm and off-farm activities than in the other seasons (see Sections 3 and 4). The seasonal price differentials would seem to confirm this, assuming price reflects demand.

Table 5.6. Season in which prices of donkeys is high as perceived by donkey dealers in central parts of Ethiopia, 2000 (% of 255 respondents).

Season	Most expensive	Second expensive	Least expensive	No effect
Wet season - long rains	7	17	57	20
Wet Season - short rains	16	53	20	12
Dry season	75	18	6	1

During the dry season, the price of adult male donkeys was reported to be highest and during the wet season long rains, the price of an adult male donkey was at its lowest. The price of female donkeys showed less seasonal variation that that of a male (Table 5.7). This may be because the demand for female donkeys is more even during the year. In the dry season the female is required for transport work and in the wet seasons required for breeding.

Table 5.7. Price ranges of donkeys in different seasons in central parts of Ethiopia, 2000 (Birr/per head).

Season	Adult male donkey Price (Birr)	Adult female donkey price (Birr)
Dry season	270 - 400	180 – 200
Wet season – short rains	250 – 300	180 – 200
Wet season – long rains	200 – 300	160 – 200

Traders report that the price of donkeys has increased over the past ten years. This might be due to an increasing demand for donkeys for transport use. A large proportion of respondents in each location observed that the price of donkeys has increased over that past ten years (Table 5.8). Ten years ago the price of an adult male donkey was Birr 50 - 150 while that of adult female donkey was Birr 45- 75; present day prices have increased three to four fold (Table 5.7). In general, the proportionate price increase for donkeys and oxen has risen in an identical fashion.

Table 5.8. Price trends of donkeys in the past ten years in central parts of Ethiopia, 2000 (% or 257 respondents).

Trend	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Overall
Increased	86	62	78	76
Decreased	12	15	21	16
No change	2	4	1	2
Don't know	1	19	0	6
No of respondents	104	73	80	257

Capital requirement for donkey dealing

One of the most important requirements to start donkey dealing is capital. Due to limited access to other sources of credit, a large proportion of the dealers interviewed started their business with their own capital (Table 5.9). When their own capital is not adequate, the next option is seeking informal, interest free credit from friends, relatives and neighbours. The third and last option was borrowing from village moneylenders with exorbitantly high rates of interest (about 120% per annum). Getting credit from formal sources, such as banks, was hardly possible especially for the low-income individuals due to preconditions and complex formalities.

Table 5.9. Means of getting capital for donkey dealing in central parts of Ethiopia, 2000 (% of 257 respondents).

Sources of capital	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Overall
Own capital	74	80	80	77
Credit from friends or relatives	24	21	11	19
Credit from village money lenders	15	8	5	10
Formal credit from banks	1	0	4	2
No of respondents	**104**	**73**	**80**	**257**

Market intermediaries

Wholesaler dealers purchase a large number of donkeys from distance markets and hire an individual to help in transporting donkeys to the point of sale. Wholesalers sell donkeys either to retailers or final users. Retailers purchase a few donkeys either from wholesalers or from original markets and they themselves transport to the point of sale. Brokers played an important role in facilitating selling and purchasing of donkeys. In West Shewa with Addis Ababa 14% of dealers said there were brokers involved in donkey trading. In East Shewa zone-I 10% and in East Shewa zone-II 34% of dealers had seen brokers involved in donkey dealing. One of the most important roles was influencing the price by acting either on the side of the buyer, seller or as an intermediary between the two. Most donkey dealers reported that brokers acted on the side of sellers and bargained for increased prices (Table 5.10). They also saw some brokers acting on the side of buyers and bargaining for decreased prices. The same trend occurred in all the study areas (Table 5.10).

Table 5.10. Role of brokers in the donkey markets in central parts of Ethiopia, 2000 (% respondents).

Roles of brokers	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II	Overall
Influence price to increase	96	92	85	92
Influence price to decrease	67	36	55	54
No influence on price	9	6	6	7
No of respondents	**89**	**66**	**53**	**208**

In the livestock markets, the local government collects excise tax either from the sellers or buyers. If the animal is sold, the buyer pays the tax, otherwise the owner of the animal is requested to pay, even if he may not sell the animal that day. The rate of tax varies from to market to market. About 46% of the donkey dealers in West Shewa zone paid Birr 2 per head of donkeys in some markets, while about 11% of donkey dealers paid Birr 25 per head of donkey in other markets. Across woredas, Dendhi markets seemed to average the highest rates of tax with Addis Ababa markets next. Donkey dealers in East Shewa Zone-I (36%) and East Shewa zone-II (66%) paid Birr 1 in some markets while about 22% in East Shewa zone-I and 33% in East Shewa zone-II paid Birr 2 per head for donkeys in other markets. Nobody in these two zones paid more than Birr 3 per head, whereas rates in West Shewa often exceeded Birr 5. It is not paying tax that was a problem, but the unaffordable rate and the condition of payment. The donkey dealers of West Shewa zone complained of the high rate of tax charged per head of donkey in some markets. Moreover, paying tax when donkeys are not sold was also perceived as a problem by donkey dealers. The rate of tax paid by the respondents of West Shewa zone on average was about Birr 7.30 ranging from Birr 1 - 25 which is significantly higher than in the other zones ($P < 0.001$). The average tax paid per head of donkey by dealers of East Shewa zone-I was Birr 1.80 and East Shewa zone-II was Birr 1.40 in both cases ranging from Birr 1 - 3.

Management of donkeys by dealers

In order to get the donkeys to market for sale the traders walk them there by foot. Nobody interviewed used motorised transport to move their donkeys to sales sites or livestock markets. Time taken for trekking to market for sale was a minimum of 1 hour and maximum of 48 hours for those respondents providing the information in East Shewa zone-I (median 6 hour) and East Shewa zone-II (median 3 hours). The information was not collected in West Shewa and Addis Ababa. In contrast dealers often use lorries to transport cattle and small ruminants from distant markets to bigger towns. This is because the price of cattle and small ruminants that are sold for slaughtering is determined on a weight basis.

Dealers have a number of strategies that they use when they fail to sell their donkeys in the livestock markets (Appendix 1, Table 34A). Most take them home and would keep until the market improves, although over half would try and sell later locally, or in East Shewa zone-II, try at another market the next day. Some donkey dealers get income by renting out the donkeys until they are sold.

Donkeys for selling are housed by traders in a similar way to those maintained by householders and transporters for work. The donkeys are for periods of time: tied up outside the home, kept in a shed or stable, or kraaled. Few people in Addis Ababa,

Gimbichi or Adama allowed their donkeys to roam free, but in East Shewa zone-II 25% of the donkey traders said they allowed their donkeys for sale to roam free most of the time (Appendix 1, Table 35A).

Some traders keep their donkeys with other livestock over night. This is most common in East Shewa zone-II where 69% of donkey owners keep them mainly with cattle. In the woredas of West Shewa and Addis Ababa only 23% of donkey traders keep them with other animals, mainly with cattle, but some with horses (33%). In the woredas of East Shewa zone-I 59% kept donkeys with cattle, and other equids (36%). Details are given in Appendix 1 Table 36A.

Table 5.11. Feeding practices undertaken by dealers for donkeys being sold.

Feeding practices	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%
Grazing: only	42	37	44
+ crop residues	51	70	50
+fodder	27	20	24
+concentrate	0	1	4
Stall feeding: crop residues	49	30	61
fodder	31	26	21
Concentrate	1	1	6
Grain middlings + household waste	43	48	50
All of these	3	0	3
Other	0	12	7
No of respondents	**104**	**73**	**80**

As with the householders and transporters (Table 4.7) much use is made of grazing, crop residues, grain middlings and household waste as a feed resource by the traders keeping donkeys to sell. They clearly adopt a number of different strategies to feed donkeys at home (Table 5.11).

Table 5.12. Waterng arrangements at the market for donkeys being sold by the traders.

Watering practices	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%
Wait until they get home or are sold	58	48	44
Take to water point	33	33	60
Do not provide water	20	45	33
Bring water to the donkeys	2	1	8
Other	15	7	0
No of respondents	**104**	**73**	**80**

Only about one third of the traders in West Shewa, Addis Ababa and East Shewa zone-I provided water while the donkeys were at the market place/selling point, but it was noticeable that significantly more traders in East Shewa zone-II, in the hotter

drier Rift Valley zone, did take the donkeys to water points, but did not actively bring water for their donkeys (Table 5.12).

Constraints in donkey dealing

In this study, constraints related to donkey dealing were identified and prioritised. Feed shortage and lack of credit were the two most important constraints prioritised by about 20% of respondents (Table 5.13). Most of the donkey dealers purchase donkeys from far markets about 2 to 4 days trek away. During this trek donkeys may not get adequate feed.

Lack of credit facilities with reasonable rates of interest is a serious constraint in the business of donkey dealing. Formal credit sources are not easily accessible for the low-income borrowers due to complex and unaffordable formalities required. Informal sources, such as village moneylenders, charge unaffordable rates of interest. Disease was reported to be the second most important constraint in the study areas. The donkey dealers of the study areas noticed that disease incidence causes considerable economic losses.

Table 5.13. Constraints in donkey dealing as perceived by donkey dealers in central parts of Ethiopia, 2000 (% of 257 respondents).

Constraints	Most important	Second important	Third important	Least important	Not important
Feed shortage	21	13	14	8	44
Lack of credit	20	11	5	7	58
Disease	13	18	15	11	44
Sales tax	16	11	9	12	53
Accidents in transporting donkeys to point of sale	9	14	12	14	51
Lack of holding facilities in the towns	6	5	5	9	76
Negative attitude of officials	1	2	4	5	87

In summary

Donkey dealing was reported to be a dependable and lucrative business. However, there is some social stigma attached to it, which may restrict more people from becoming involved. Donkey dealers interviewed had all started in business from 1960s-1990s, with those in West Shewa starting earlier than the rest, possibly due to the proximity of Addis Ababa. People usual start as a dealer using their own capital. Most traders were farmers and several traded in other livestock too. Most dealers sold to farmers or to intermediaries or directly to transporters in Addis Ababa area. Dealers obtain their donkeys from markets often 3-4 days away and they move them to and from the areas for sale on foot, rather than by lorry. Lorries are used for the cattle and small ruminants as they are sold by weight.

Customer demand is greatest for adult males. Dealers select animals on the basis of age, size and body condition with 4-5 year old donkeys in good condition fetching the highest prices. Prices are highest in the dry season when animals are most in demand, especially for male donkeys. The price of females shows less seasonal

fluctuation than the males. Prices of donkeys have increased 3 to 4 fold over the last 10 years, in line with prices for oxen.

At livestock markets brokers often play a role in facilitating buying and selling, usually acting for the seller. Excise tax is paid to the local government at the market, usually by the buyer, but if not by the seller. Tax rates vary between markets with rates 10 times higher in the Addis Ababa area than in the East Shewa markets. If the donkeys are not sold they are usually taken home until the price/demand improves. During this time they may be rented out. Feeding, management and housing is similar to that reported by householders and transporters in Section 3 and 4. Some donkeys are grazed in the day, others stall-fed only. At night animals are tethered or confined near the house. Crop residues, fodder, household wastes and by-products are used to supplement any grazing, depending on availability.

The main problems reported by dealers in operating their donkey trading business were feed shortages, particularly when moving animals from far markets, and lack of credit. Diseases were also mentions as they had an economic affect on the business.

Donkey carts are used in the flat land in the Rift valley areas of East Shewa zone-II by men and women

Many of the goods arriving at and leaving markets travel on the back of a donkey

Some donkeys arriving at markets are not always managed well, being poorly hobbled and left in the sun

6: PEOPLE ARRIVING AT AND DEPARTING FROM MARKETS

Introduction

The work described in this section involved the collation of information gathered from people transporting and trading goods in and out of the market place. The aim was to determine and highlight the main benefits of using a donkey for these tasks. This involved the investigation of a number of key points.

- Donkey ownership
- Products/merchandise being transported
- Methods of transport
- Length of journey to and from market

From each of the woredas, the following categories of respondents were identified:

- Market arrivals: Includes farmers who arrive at the market on market days.
- Market departures: Includes farmers who go back home from the market on the market days.

Approximately equal numbers of people arriving and departing from markets were interviewed in each woreda and asked the same questions. The results from the arrivals and departures were pooled. A total of 757 people were interviewed, 327 from West Shewa (including Addis Ababa), 233 from East Shewa zone-I and 197 from East Shewa zone-II.

Results and discussion

Household structure

Seventy five percent of the people interviewed were from male-headed households with an average family size of 5-7 family members. Ninety-three per cent of those people interviewed said agriculture was the main means of existence of the household. Other activities by less than 12% of those interviewed were trading, transporting and handicrafts.

Donkey ownership

Most people interviewed (92%) owned at least one donkey. The maximum owned was 12 in East Shewa zone-II and 4 in the other two zones. This extent of ownership is not surprising as the Shewa zone is one of the most densely populated areas in Ethiopia for donkeys, with approximately 13.2 donkeys/km² (Admassie *et al*, 1993). The number of people owning male and female donkeys was significantly different between zones (chi-squared test, $\chi^2_2 = 37.60$; $p<0.001$ for male donkeys owned and $\chi^2_2 = 8.14$, $p<0.017$ for female donkeys owned). Ownership of female donkeys was lowest in East Shewa zone-II, whilst ownership of male donkeys was lowest in West Shewa zone. However at least 50 % of people interviewed in each zone owned male and at least 50 % of people interviewed owned female donkeys. (Table 6.1). Sisay and Tilahun (1997) when interviewing transporters in Addis area found that male donkeys were generally preferred as pack donkeys because females could not be worked when in late pregnancy. From the present study it would seem that in the peri-urban markets both female and male donkeys were used in similar proportions to transport to and from the marketplace.

Few people had rented a donkey for the day (29 of the 757 people interviewed – 4%), rates for rental varied from 1 to 6 Ethiopian Birr when hired on a daily basis.

Table 6.1. Number of market users interviewed owning male and female donkeys.

	Male donkeys		Female donkeys		No donkeys	
	N	%	N	%	N	%
West Shewa (+ Addis Ababa)	175	54	197	60	41	12
East Shewa zone-I,	174	53	152	65	15	6
East Shewa zone-II,	148	75	102	52	6	3

The main reasons given for owning a donkey by those interviewed were the increase in load carrying capacity that a donkey gave to a household and the low cost of a donkey for transport when compared to other forms of transport. This suggests that if a farmer needed to transport a large amount of goods to market on a regular basis a donkey would be the cheapest option. This agrees with observations reported in Section 3 and 4 by rural householders and periurban/urban transporters

Sixty-two of the people who were interviewed at the markets did not own a donkey. The reasons they gave for not having a donkey for transport and the proportion of the 62 interviewees giving that reason are shown in Table 6.2. Of the percentage of farmers who claimed not to own a donkey, the majority described the main reason as being the lack of money to purchase and maintain a donkey (Table 6.2). Others felt that they simply did not transport a large enough load to and from market to warrant owning a donkey of their own.

Table 6.2. Reasons given for not owning a donkey, by 62 non-donkey owners interviewed.

Reason	N	%
Lack of money	30	46
Not enough to carry	18	27
Use other means of transport	5	7
Do not like using a donkey	1	2
Other reasons	8	13

Length of journey to and from market

Some people interviewed lived next to the market, but the majority travelled some distance to get there. The average distance travelled in West Shewa zone with Addia Ababa was 11 km over 2 hours, at a speed of about 1.54 m/s. The furthest distance travelled by people interviewed in this zone was 36 km. In East Shewa zone-I the average distance travelled was 8 km over 1.8 hours, at a speed of about 1.19 m/s. The furthest distance travelled by people interviewed in this zone was 48 km. In East Shewa zone-II the average distance travelled was 12 km over 2 hours, at a speed of about 1.46 m/s. The furthest distance travelled by people interviewed in this zone to or from market was 36 hours. Box plots 6.1 and 6.2 were produced from the data to show the range.

When goods were carried by a donkey the distances and time taken tended to be longer than when manual carrying was involved, but differences in time and distance were not significant (Table 6.3).

Table 6.3. Distances and time spent travelling to and from market when using a donkey and when carrying loads manually.

Location	Load carrying	No interviewees	%	Mean	Standard deviation	Max	Min	Median
Distance travelled (km)								
W Shewa +Addis Ababa	Donkey	263	80	11.4	5.5	30	0.1	10
	Manual	216	66	10.6	5.5	30	0.1	9.0
East Shewa, zone-I	Donkey	192	83	8.2	8.7	48	0.1	6.0
	Manual	115	49	7.5	7.5	48	0.1	6.0
East Shewa zone-II	Donkey	124	63	13.5	7.6	36	2.0	12.0
	Manual	38	19	11.4	6.8	24	3.0	10.5
Hours taken (hr)								
West Shewa +Addis Ababa	Donkey	263	80	2.0	0.93	5.0	0.1	2.0
	Manual	216	66	1.9	0.92	5.0	0.1	2.0
East Shewa, zone-I	Donkey	192	83	2.0	1.41	8.0	0.1	2.0
	Manual	115	49	1.6	1.20	8.0	0.1	1.3
East Shewa zone-II	Donkey	124	63	2.4	1.81	16.7	0.3	2.0
	Manual	38	19	2.3	2.64	16.7	0.5	2.0

Products/merchandise being transported

Many people (72 percent of the 757 interviewed) used a donkey to bring goods to the market, but fewer used a donkey to take goods away from the market (49 percent of the 575 people interviewed). Often more than one product was being carried and some people in addition carried head or back loads, with the heavier materials being carried by the donkey (Tables 6.4 and 6.5).

Table 6.4. Products transported by donkeys on the day of interview and the proportion of people interviewed (757) who were doing so.

Product	To market	From market
	%	%
Grain	51	22
Household goods/crafts	4	44
Fuelwood	19	2
Horticultural produce	10	7
Charcoal	9	3
Concentrate feed	2	6
Construction wood	2	5
Crop residues	3	1
Livestock products	2	2
Manure	2	1
Fertiliser	0	1
Other products	5	6

Table 6.5. Products transported by head load on the day of interview and the proportion of people interviewed (757) who were doing so.

Product	To market	From market
	%	%
Household goods/crafts	2	39
Grain	6	4
Horticultural produce	4	7
Livestock products	7	3
Charcoal	2	0
Fuelwood	1	0
Concentrate feed	0	1
Construction wood	0	1
Crop residues	0	0
Manure	0	0
Fertiliser	0	0
Other products	5	6

Of all the products and items traded and exchanged at market using donkeys, grain was by far the most frequently traded, followed by types of fuel, e.g. fuelwood, charcoal and manure. Agricultural products such as horticultural crops, fodder and crop residues for feed were also commonly seen carried by pack donkeys. These are items, which are not delicate and therefore not susceptible to being damaged during a journey. They are also the items that would be transported in large amounts to market, and using a donkey to do this would increase the possible size of load for travel. Pack donkeys were used to transport the majority of grain and fuel in all three areas studied (Table 6.4). These products must be generally transported and traded in large quantities. The average carrying capacity of donkeys employed in transporting grain has been reported as one quintal (100kg) by Sisay and Tilahun (1997) in a study of the grain market in Addis Ababa.

The majority of items transported from place of purchase back to the farmer's dwellings were household or domestic goods and items. Although the general preferred form of transport was again using pack donkeys, there was an increase in the percentage of head and back loads carried out of the market to all three areas. This was more than likely to protect the more delicate or valuable items purchased from being damaged during the return journey.

In East Shewa zone-II, the use of donkey-drawn carts was a more common form of product transport than in the highland areas. Eighty people (41% of those interviewed from this area), used donkey carts to transport goods to market, and 101 people (52% of those interviewed from this area) used them to take goods away from the market.

Only two people in the highland areas, in East Shewa zone-I, used a donkey cart and this was only to take goods to market. Horse carts were used by only seven people interviewed in the highland areas to take goods to market and by only two people in the highland areas to take goods home.

Mechanised transport, e.g. truck, car, bicycle, proved to be rarely used to transport goods in both directions of travel. Only one person used a bicycle to move goods to market and four people used a bicycle to take goods home. Ten people in the highland areas used a car or truck to take goods to market and four of the people interviewed used the same means to take goods back. These figures were small in relation to total numbers interviewed at market places (327 people in West Shewa zone, 233 in East Shewa zone-I and 197 people from East Shewa zone-II). Perhaps these forms of transport proved to be too expensive an option to be used on a regular basis or perhaps it is due to the infrastructure. Throughout Ethiopia the quality of route infrastructure is low and restricts transport in many areas largely to the use of pack animals and back/head loading. For example, in the Kaffecho Zone of Ethiopia neither the climate nor the terrain will tolerate an all-weather road surface. This only allows very small insignificant lengths of road to be laid, incapable of supporting any large population of motor transport or carts (Howe and Garba, 1997). As a comparison, in Sukumaland, north-west Tanzania, the importance of donkeys declined in the 1970's with the improvement of roads and tracks which allowed equine-pulled carts, bicycles and motorised forms of transport to be used (Ngendello and Heemskerk, 1997).

When asked which products did they commonly transport to market by donkeys the materials stated were very similar to those actually being transported on the day of interview (Table 6.4). These are given in Table 6.6. The results, not surprisingly, show the important role that a donkey plays in reducing the human drudgery of carrying heavy, bulky materials for trading at market. The alternatives instead of a pack donkey, are head/back loading or the more expensive motorised transport, used only by a small proportion of people.

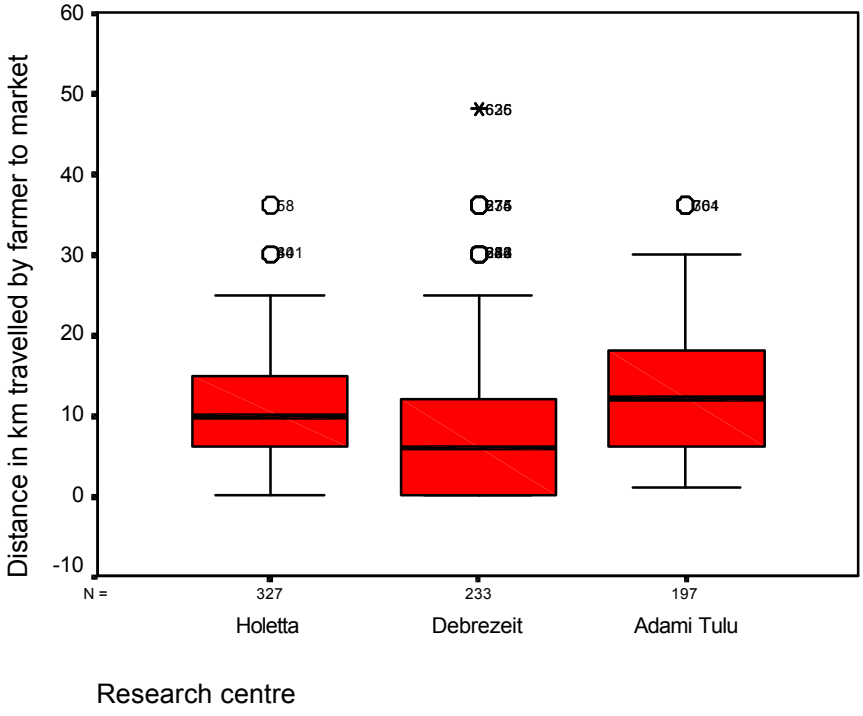
Table 6.6. Products commonly transported to market by donkeys in the year and the proportion of people interviewed (757) who would do so.

Product	%
Grain	79
Fuelwood	37
Horticultural produce	27
Fodder/crop residues	19
Household goods/crafts	8
Livestock products	8
Manure	8
Raw materials for trades	6
Construction materials	5
Fertiliser	5
Manufactured goods	2
Concentrate feed	2
Other products	10

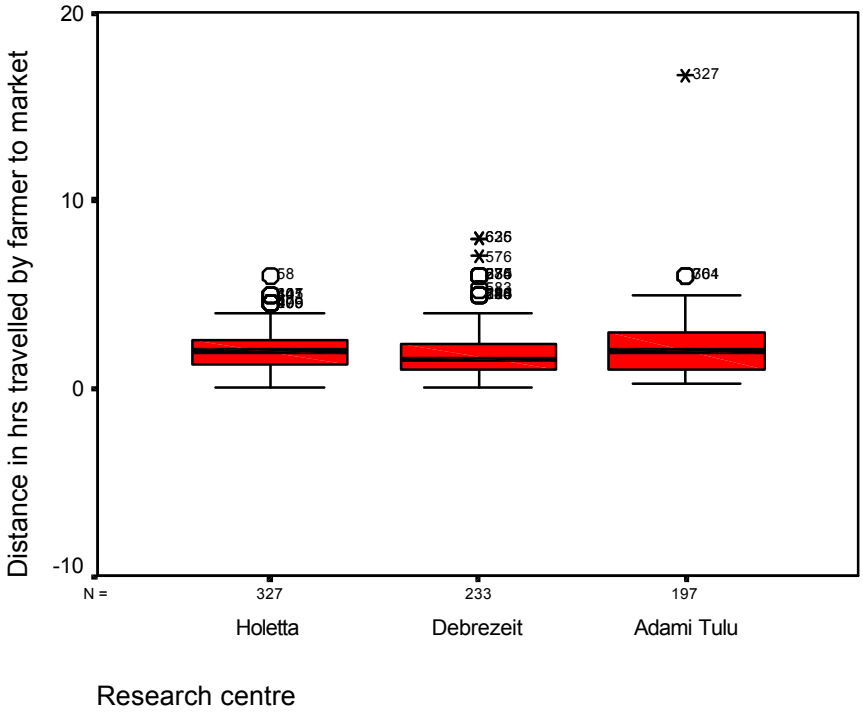
In summary

Most people interviewed arriving or departing from markets owned at least one donkey and used donkeys for transporting goods to and from markets. They travelled an average of 8-12 km to get to the markets. Main reasons given for ownership of a donkey were because they could increase their load carrying capacity and also, donkeys were a cheap form of transport. People who did not own a donkey said it was due to lack of finance or simply not having large enough loads to warrant the use of a donkey. Most people used their donkeys to bring goods to market, often more than one product. Some people also carried head or back loads themselves, putting the heavier materials on the donkey or in the donkey cart (where used). Main materials carried by donkeys on the day of interview were grain, fuelwood, and horticultural produce to the market and household goods on the way back. Mechanised forms of transport were thought to be too expensive to use on a regular basis.

Box plot 6.1 Distance travelled in km by farmer to market.



Box plot 6.2 Distance travelled in hours by farmer to market



Women in Ethiopia spend many hours gathering and carrying fire wood for sale. Without a donkey they have to carrying to load themselves

Donkey pack transport can alleviate the burden of carrying loads for women

7: THE HOUSEHOLD ECONOMY OF DONKEY OWNERS COMPARED WITH THAT OF PEOPLE NOT OWNING DONKEYS

Introduction

Publications from many countries indicate that the contribution of donkeys to the household economy is considerable (see reference list page 109). Even though, there is a large population of donkeys in Ethiopia, there are still thousands of households that cannot own or get access to one due to economic and various other reasons. It is possible that donkeys make a greater contribution to livelihoods than oxen during periods of significant food insecurity. In this case, non-donkey owning households are, therefore, likely to be exposed to more insecurity than those who own donkeys.

Traditional attitudes towards donkeys in many parts of the world have been negative and have, in some instances, inhibited the adoption of donkey power. This attitude has led to a lack of investment in research and development of donkey power by formal institutions. Ethiopia is no exception to this, although it has a large population of donkeys.

No adequate studies have been conducted so far that characterise and quantify the contribution of donkeys to the household economy and livelihoods of poor people. This survey was designed to bridge this gap and generate information on the comparison of non-donkey owner households with donkey owner ones in respect to some important socio-economic parameters in the household economy. The information generated will contribute to the identification of appropriate interventions to help improve the livelihoods of the poor people.

Results and discussion

A total of 805 households were interviewed in this study, of which 420 were non-donkey owners and 385 were donkey owners (Figure 7.1). In the non-donkey owner category, 366 of them were male-headed households and 54 were female-headed ones. Among the donkey owners, 361 of them were male-headed households and 24 were female-headed ones.

Pearson's Chi-square test indicates that there is no significant difference between sample sizes of donkey owners and non-owners in all the study areas (χ^2_2=1.45, P>0.05).

Family size

Family size per household especially in relation to the economic status of the households has implications on asset holdings, diversity of activities conducted to support the family members and livelihood status of the household in general. For instance, there was a positive and significant correlation between family size and livestock ownership (r^2 = 0.41, P<0.001). This relationship holds true until a certain level of family size. The implication is that a household with relatively more family size owns more labour that enables them to use the existing resources at household level more efficiently than households with less family labour.

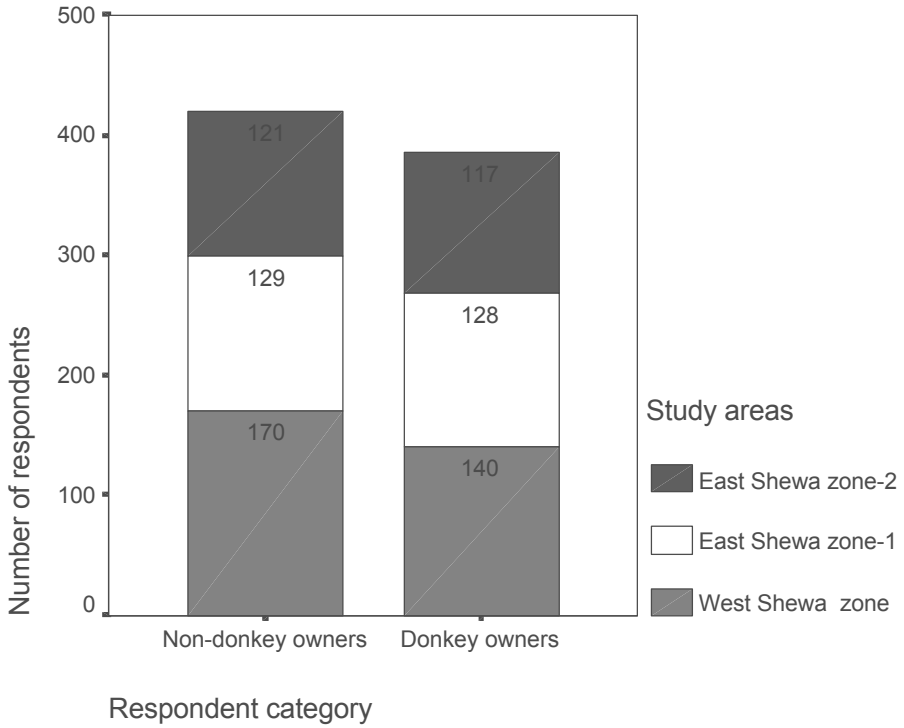


Figure 7.1. Sample sizes of donkey owners and non-owners selected for the study.

Analysis using a General Linear Model (GLM) indicated that the average family size of donkey owner households was significantly higher than that of non-donkey owner households (F_1=103.84, P<0.001; Table 7.1). One of the reasons might be the issue of increased mortality of children within the non-donkey owning households where fewer children may survive to adulthood due to poor economic status (malnutrition, poor health care, etc.). There was also a significant difference between the three study areas in terms of family size (F_2=54.50, P<0.001).

Table 7.1. Mean family size of donkey owners and non-owners in central parts of Ethiopia (with s.e.)

Study area	Non-donkey owners	Donkey owners	Total
West Shewa zone	5.1 (0.22)	6.5 (0.25)	5.7 (0.17)
East Shewa zone-I	4.7 (0.25)	7.0 (0.26)	5.8 (0.18)
East Shewa zone-II	6.9 (0.26)	9.5 (0.27)	8.2 (0.19)
Total	**5.5 (0.14)**	**7.6 (0.15)**	**6.5 (0.10)**

The Least Significant Difference (LSD) test indicated that the mean family size of households in East Shewa zone-II (8.2) was significantly higher than other two study areas. The interaction between donkey ownership and location was also significant (F_2 =2.87, P=0.05) implying that the difference in family size between donkey owners and non-owners was not consistent across the locations. In general, especially in households where the major source of labour is family itself, a household with a

larger family size has an opportunity to conduct farming activities on time and diversify income-generating activities. In East Shewa zone-II, use of the donkey cart is becoming a common practice which increases the opportunity that families have of diversifying different income generating activities to support the large family sizes.

As presented in Figure 7.2, the most common family size was four for non-donkey owners and six for donkey owners. In general, about 72% of the non-donkey owner households possessed family sizes ranging from 3 - 7 while this proportion was 52% for donkey owners. However, the family sizes of donkey owners spreads further up to 23 persons per household.

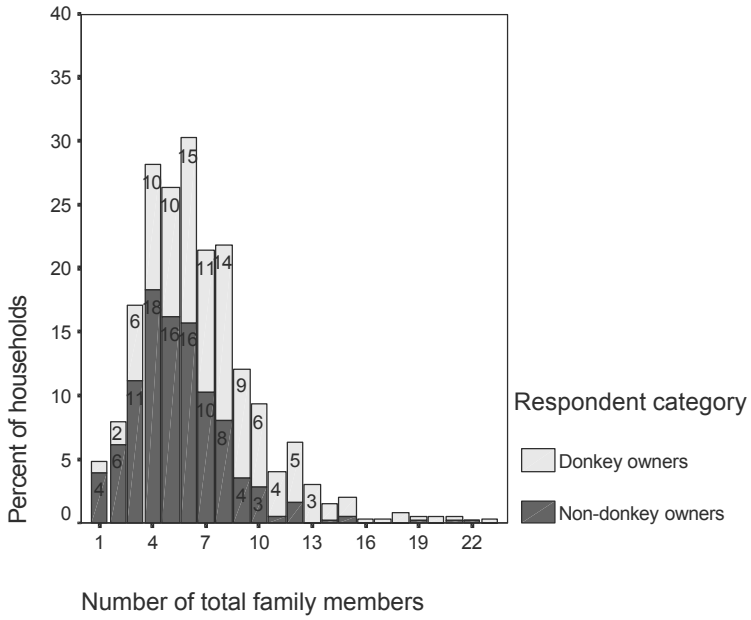


Figure 7.2. Family sizes of donkey owner and non-owner households.

Means of existence

Table 7.2. The means of existence ranked first or second in importance by donkey owners and non-donkey owners.

Main occupations	**Donkey owners**	**Non-donkey owners**
	%	%
Agriculture	99	98
Trader in commodities	10	11
Daily labourer	1	16
Handicrafts	3	4
Government employee	4	4
Transport	2	1
Other	2	3
No of respondents	**385**	**420**

Both the donkey owners and non-owners spent much of their time occupied in farming activities, which is an easily accessible occupation in the country. Even

though there is a possibility of diversifying different income generating activities, lack of initial capital was reported to be one of the important constraints that limited their occupation to farming. The problem is worse for non-donkey owners who again do not have access to donkeys. More of the non-donkey owners were engaged as daily labourers in urban and rural areas to maintain the lives of themselves and their familie than were donkey owners (Table 7.2).

Livestock ownership

Cattle

The GLM uni-variate analysis indicated that there was a significant difference between donkey owners and non-owners in cattle ownership (F_1=131.59; P<0.001). The donkey owners on average owned eight cattle per household as compared to non-donkey owners who owned only four cattle per household (Table 7.3). There was also a significant difference between the study areas in cattle ownership (F_2=15.11; P<0.001). The mean number of cattle owned in East Shewa zone-II (eight) was greater than mean number of cattle owned in West Shewa zone (six) and East Shewa zone-I (five). The LSD test also confirms that there was significant difference (P<0.001) between the mean number of cattle owned between West Shewa zone and East Shewa zone-II, and East Shewa zone-I and East Shewa zone-II. However, the mean number of cattle owned in West Shewa zone and East Shewa zone-I was statistically similar.

The interaction between donkey ownership and location was also significant (F_2=10.33, P<0.001) implying that the differences in cattle ownership between donkey owners and non-owners was not consistent across the three locations.

Table 7.3. Mean number of cattle owned by donkey owners and non-owners in central parts of Ethiopia (with s.e.).

Study area	Non-donkey owners	Donkey owners	No of respondents
West Shewa zone	4.0 (0.38)	7.3 (0.40)	289
East Shewa zone-I	3.3 (0.49)	5.9 (0.41)	216
East Shewa zone-II	3.9 (0.51)	10.4 (0.44)	200
Number of respondents	**324**	**381**	**705**

The proportion of non-cattle owners in both East Shewa zone-I and East Shewa zone-II (16%) was higher than that of West Shewa zone (7%) as shown in Figure 7.3. A large proportion of households owned less than five cattle while very few owned greater than 15. The proportion of households who owned greater than 15 cattle was higher in East Shewa zone-II (10%) than other two study areas (less than 1%) as shown in Figure 7.3.

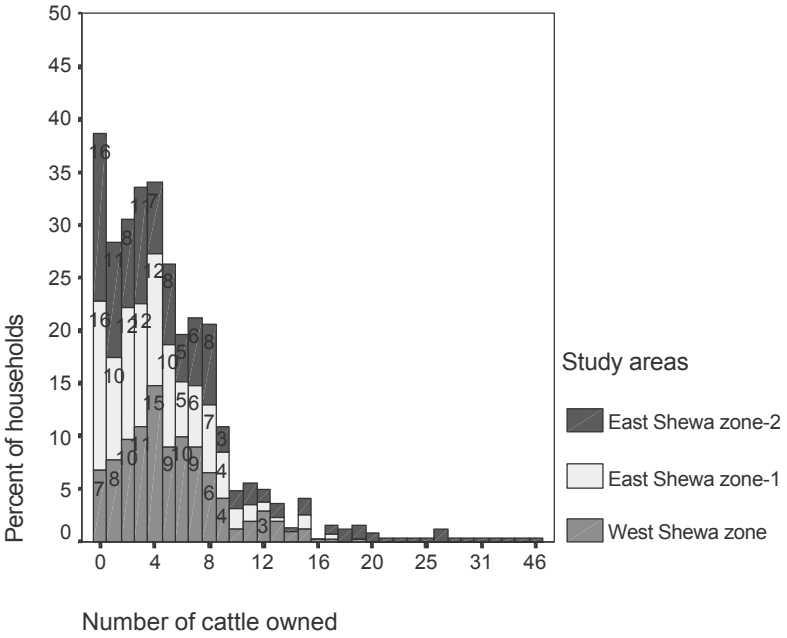


Figure 7.3. Number of cattle owned in the study.

Figure 7.4 also shows that 23% of non-donkey owner households do not own cattle at all, while almost all of the donkey owners own at least one. About 63% of non-donkey owner households own less than five cattle as compared to 38% of the donkey owners who own the same number of cattle. Sixty-one per cent of the donkey owners own more than six cattle as compared to 14% of the non-donkey owners who own the same number of cattle.

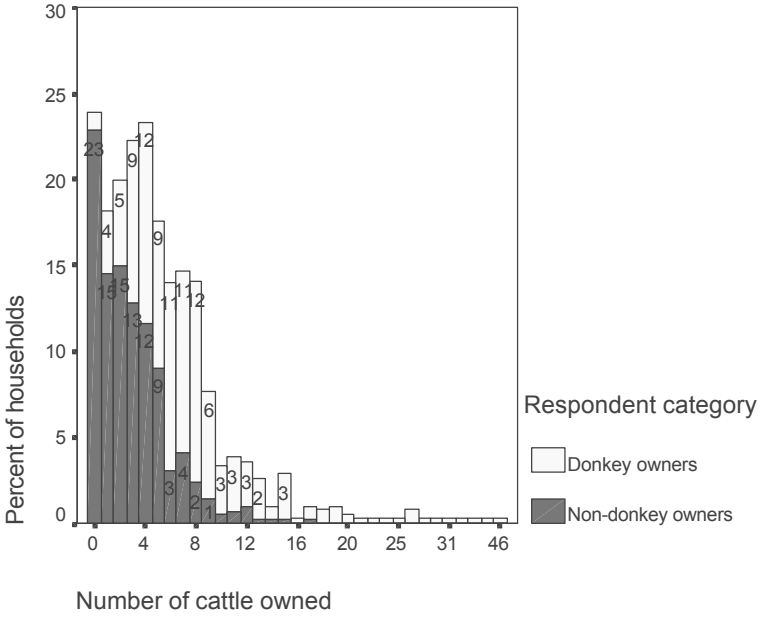


Figure 7.4. Number of cattle owned by households of donkey owners and non-owners.

Equines

GLM with uni-variate analysis indicated that there was significant difference between donkey owners and non-owners in equine (horse and mule) ownership (F_1=5.00, P=0.026). The donkey owners on average own three equines per household while the non-donkey owners own only one (Table 7.4). However, there was no significant difference between the study areas in equine ownership (F_2=0.70, P>0.05). The difference between donkey owners and non-owners in the mean number of equines owned was also consistent between the study areas (F_2=0.59, P>0.05).

Table 7.4. Mean equines owned by donkey owners and non-owners in central parts of Ethiopia (with s.e.).

Study area	Non-donkey owners	Donkey owners	Number of respondents
West Shewa zone	1.1 (0.40)	2.4 (0.14)	156
East Shewa zone-I	1.3 (0.92)	3.2 (0.14)	131
East Shewa zone-II	2.0 (1.13)	2.3 (0.15)	119
No of respondents	**21**	**385**	**406**

It was interesting to note that the proportion of non-equine owners (50%) was similar in all the study areas (Figure 7.5). The proportion of household who own 1 - 2 equines was higher in East Shewa zone-II (36%) than East Shewa zone-I (14%) and West

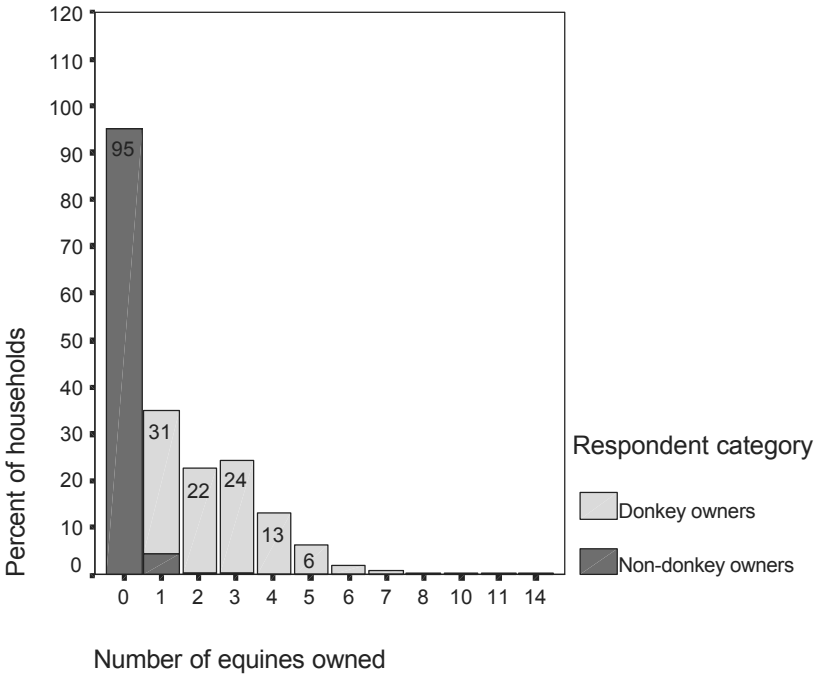


Figure 7.5. Number of equines owned in the study areas.

Shewa zone (33%). Very few households own greater than five equines - only 3% in both East Shewa zone-I and East Shewa zone-II, and less than 1% in West Shewa zonewith Addis Ababa. A large proportion of households own 1 - 2 equines.

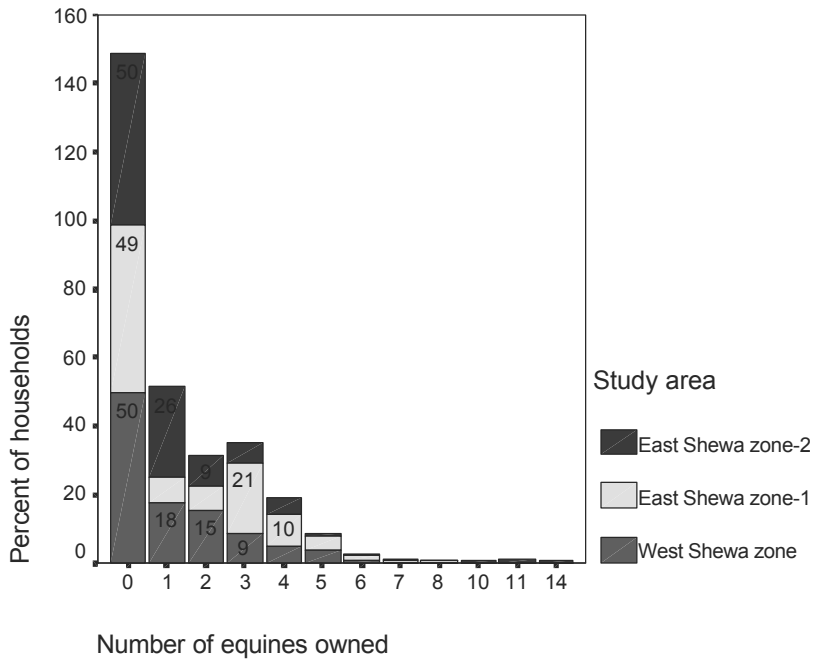


Figure 7.6. Number of equines owned by households of donkey owners and non-owners.

When equine ownership is viewed from the point of view of households who own donkeys and non-owners, about 95% of non-donkey owners did not own other equines too while all of the donkey owners owned at least one other equine (Figure 7.6). Fifty-three per cent of donkey owners owned 1- 2 other equines as compared to only 5% of non-donkey owners. Moreover, about 45% of donkey owners owned more than three equines. This suggests that if the non-donkey owners cannot afford to own donkeys, they cannot afford to own the more expensive mules and horses.

Small ruminants

The results of GLM uni-variate analysis indicate that there was a significant difference between donkey owners and non-owners in the ownership of small ruminants (F_2=16.24, P<0.001). Donkey owners on average owned seven small ruminants per household while non-donkey owners owned only four (Table 7.5). There was a significant difference between the three locations in the ownership of small ruminants (F_2=6.85, P=0.001). The mean number of small ruminants owned in East Shewa zone-II was eight per household as opposed to five in East Shewa zone-I and four in West Shewa zone. The LSD test confirms that there was a significant difference between East Shewa zone-I and East Shewa zone-II, and West Shewa zone and East Shewa zone-II in the mean number of small ruminants owned per household.

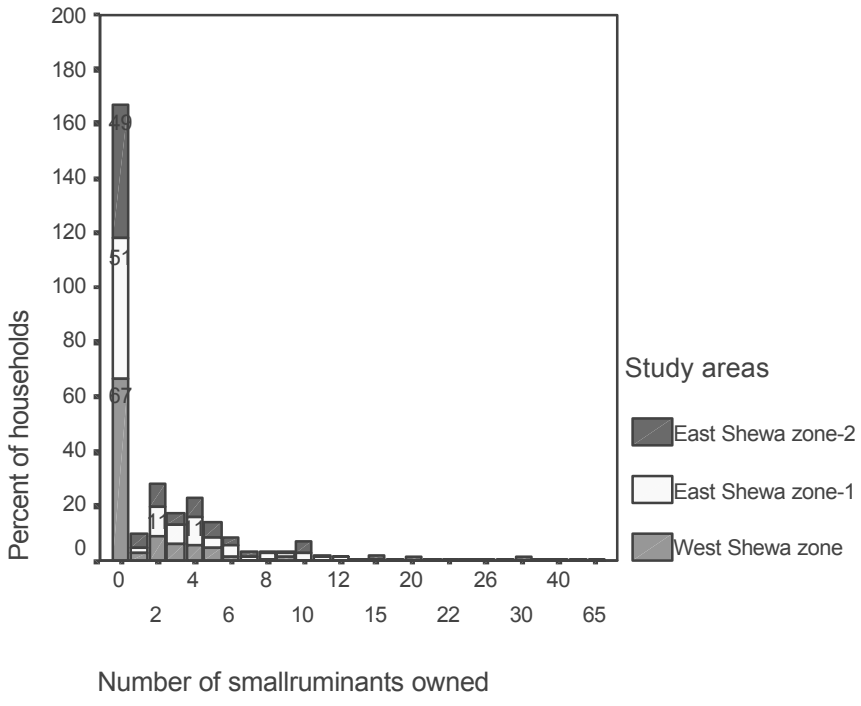
The interaction between donkey ownership and location was also significant (F_2=4.75, P=0.009) implying that the differences in the ownership of small ruminants between donkey owners and non-owners was not consistent between the three locations.

Table 7.5. Mean number of small ruminants owned by donkey owners and non-owners in central parts of Ethiopia (with s.e).

Study area	Non-donkey owners	Donkey owners	No of respondents
West Shewa zone	3.5 (0.89)	3.9 (0.93)	102
East Shewa zone-I	3.8 (0.97)	6.2 (0.72)	126
East Shewa zone-II	4.0 (1.06)	10.0 (0.72)	121
No of respondents	**136**	**213**	**349**

The proportion of households who did not own small ruminants was larger in West Shewa zone with Addis Ababa (67%) than East Shewa zone-I (51%) and East Shewa zone-II (49%) (Figure 7.7). A large proportion of households seem to own less than five small ruminants, which is about 29% in West Shewa zone, 34% in East Shewa zone-I and 30% in East Shewa zone-II. The proportion of households who owned greater than six small ruminants was higher in East Shewa zone-II (21%) than West Shewa zone (4%) and East Shewa zone-I (16%). In general, the results seem to indicate that more small ruminants are owned by households of East Shewa zone-II than other study areas.

Figure 7.7. Number of small ruminants owned in the study areas.



Sixty-eight per cent of non-donkey owners did not own small ruminants while this proportion was 45% for donkey owners (Figure 7.8). Thirty-four per cent of donkey owners owned less than five small ruminants as compared to non-donkey owners (28%) who owned five. The proportion of donkey owners who owned greater than six small ruminants per household was 22% as compared to only 5% of the non-donkey owners who owned the same number of small ruminants.

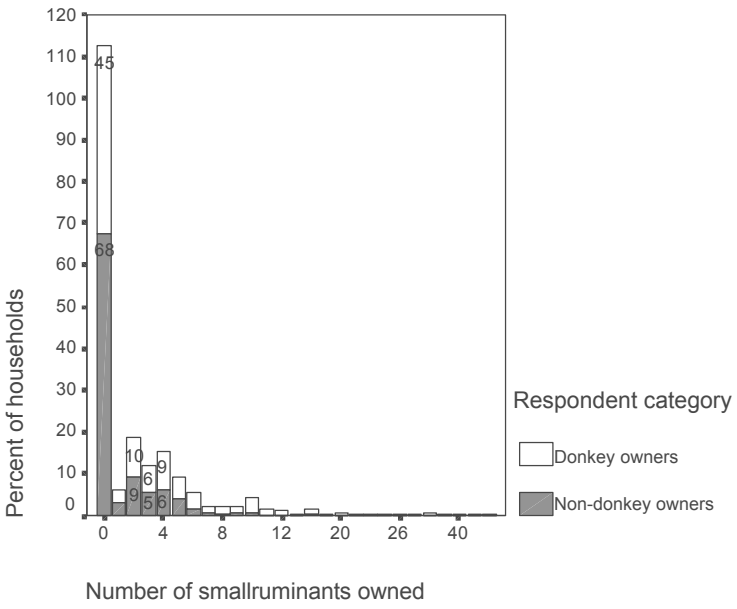


Figure 7.8. Number of small ruminants owned by donkey owners and non-owners.

Total livestock units

To make the comparison of total livestock ownership between donkey owners and non-owners possible, the numbers of the different species of livestock (cattle, equines and small ruminants) was converted into the same common unit of Total Livestock Unit (TLU)[1] based on FAO (1994) standards. These conversion factors are recommended for general use (Payne and Wilson, 1999).

The GLM uni-variate analysis indicated that there was a significant difference between donkey owners and non-owners in the mean number of livestock units owned (F_1=156.06, P<0.001). Each of the households of the donkey owners owned seven livestock units on average as compared to the non-donkey owners who owned only three (Table 7.6).

There was also a significant difference between research centres in terms of livestock ownership (F_2=14.12, P<0.001). Households of donkey owners and non-owners in East Shewa zone-II owned seven livestock units on average as compared to five in West Shewa zone and four in East Shewa zone-I.

The interaction between donkey ownership and locations was also significant (F_2=8.91, P<0.001) implying that the differences in the mean number of livestock units owned by donkey owners and non-owners was not consistent across the three study areas.

[1] Conversion factors of animals to livestock units (TLU):
Horses and mules = 1.0, Cattle=0.8, sheep and goats=0.1

Table 7.6. Mean number of total livestock owned (in LSU) by donkey owners and non-owners in central parts of Ethiopia (with s.e.).

Study area	Non-donkey owners	Donkey owners	No of respondents
West Shewa zone	3.4 (0.34)	6.5 (0.36)	292
East Shewa zone-I	2.5 (0.42)	5.4 (0.37)	229
East Shewa zone-II	3.1 (0.44)	9.1 (0.39)	207
No of respondents	**344**	**384**	**728**

Figure 7.9 shows that about 13% of households in East Shewa zone-II, 11% in East Shewa zone-I and 6% in West Shewa zone did not own any of the livestock species. Almost all of these were non-donkey owner households (Figure 7.10). Forty-eight per cent of households in West Shewa zone, 37% in East Shewa zone-I and 44% in East Shewa zone-II owned more than four livestock units. When this is viewed by household type, about 69% of donkey owner households owned more than four livestock units as compared to 20% of non-donkey owner households who own the same number of livestock.

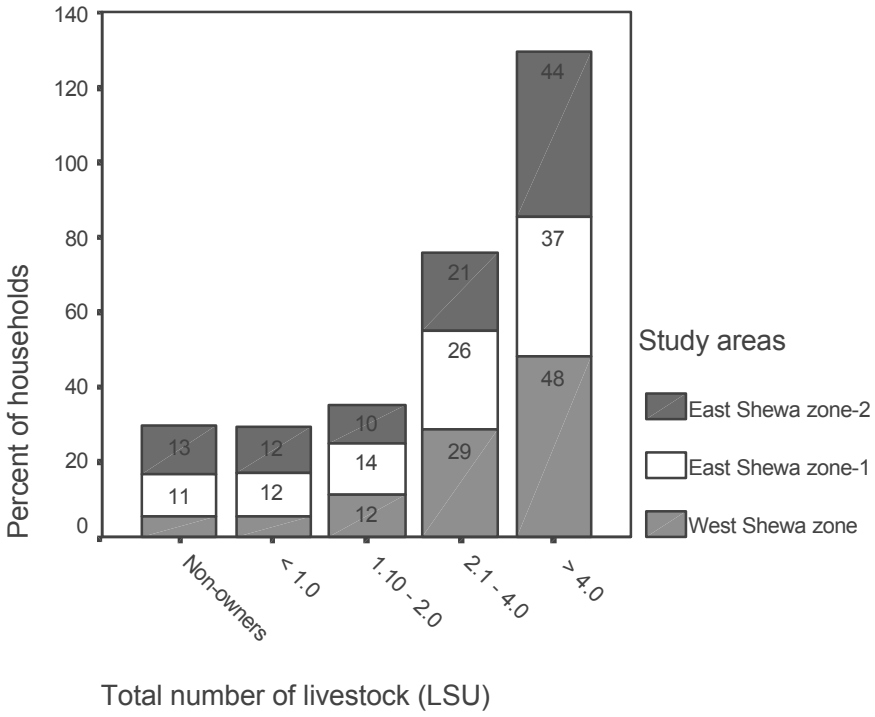


Figure 7.9. Total number of livestock owned (in livestock units) when viewed across locations.

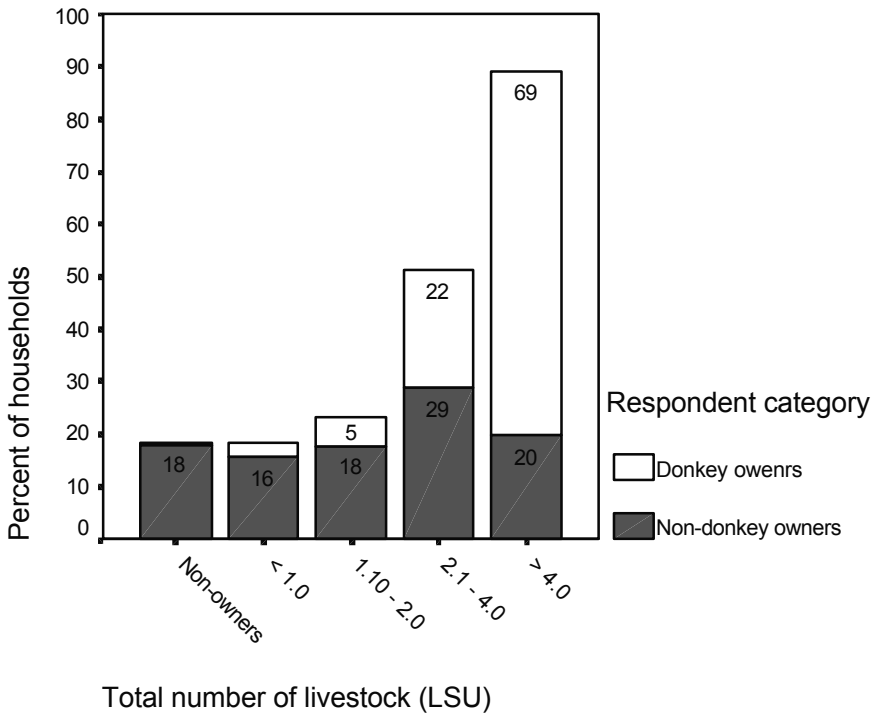


Figure 7.10. Total number of livestock owned (in livestock units) by donkey owners and non-owners.

Access to road[2] facilities and vehicles

Investigation of access to road facilities and vehicles is an important aspect to be considered in this study, because, it has implications on access to markets and potential diversification of income generating activities. The results showed that accessibility of all-weather roads for vehicles was similar for both of the household types (Table 7.7).

Table 7.7. Access to roads of donkey owners and non-owners to the nearest market in central parts of Ethiopia (%).

Study area	Non-donkey owners	Donkey owners	Overall
West Shewa zone	43	46	44
East Shewa zone-I	68	62	65
East Shewa zone-II	95	90	92
Number of respondents	**276**	**248**	**524**

However, there is variability of access to roads when viewed across locations. Differences in the proportions of non-donkey owners who have access to roads was statistically significant across the three locations (χ^2_2=85.68, P<0.001). Moreover, the difference in the proportions of donkey owners who had access to roads in all the three locations was statistically significant (χ^2_2=54.51, P<0.001). In both cases, more people have access to roads in East Shewa zone-II (92%) than East Shewa zone-I (65%) and West Shewa zone (44%). This might be one of the reasons why the use of a donkey cart is becoming a common practice in East Shewa zone-II. A greater load

[2] Implies all-weather roads for vehicles

can be carried using carts than pack donkeys, which is an indication of availability of opportunities to conduct more income generating activities. However carts can only be effectively used in flat areas such as the rift valley, and in the highlands where the land is hilly animal transport is largely restricted to pack carrying due to the nature of the terrain. Hence topography has a major effect on the extent of use of carts. Topography is also a limiting factor for easy access to the households to the roads. In West Shewa zone, the topography is relatively undulating and this contributes to the difficulty of constructing more roads as compared to other study areas, which are relatively flat.

Both donkey owners and non-owners have access to the use of donkeys either by owning, borrowing or renting. In addition to this, they also have access to motor vehicles such as buses and taxies, and cart services (Table 7.8). The differences in the proportions of donkey owners and non-owners using bus and taxi services was statistically significant ($P<0.05$). Cart service was found to be equally accessible for both donkey owners and non-owners (Table 7.8). This difference in use might be connected to the ability to afford bus and taxi fares of the two household types.

More than half of the non-donkey owners interviewed said that they had owned a donkey in the past, but either had sold the donkey due to grave financial difficulty or the donkey had died. In all the study areas more than 95% of the farmers who once owned a donkey would purchase another if conditions permitted them to do so.

Table 7.8. Access of donkey owners and non-owners to vehicle transport in the central parts of Ethiopia (%).

Access to transport	Non-donkey owners	Donkey owners	No of respondents
Bus service	5	11	62
Taxi service	19	26	180
Cart service	23	26	195

In most of the cases, the households use buses and taxies for human transport and some loads of fewer quantities. To transport greater loads lorries are used. Pearson's Chi-Square test indicates that the differences between donkey owners and non-owners in terms of frequency of lorry use was significant in all the study areas ($P<0.001$).

In West Shewa with Addis Ababa, a large proportion of non-donkey owners (71%) and donkey owners (91%) did not use lorries to transport of their commodities as compared to people in the other study areas (Table 7.9). This might be due to their limited accessibility to roads (Table 7.7). It also indicated that lorry use is not a common practice. The proportion of non-donkey owners who sometimes use lorries was higher than that of donkey owners in all the study areas (Table 7.9). This might be because they do not own a donkey, they need to use lorries to transport loads more frequently than donkey owners.

The results suggest that using of motor vehicles (Tables 7.8 and 7.9) as a means of transport is in accordance with accessibility to roads (Table 7.7). Even though choice is similar for non-donkey owners in all the study areas, almost all of those from East

Shewa zone-II used lorries sometime in a year. This might be due to greater accessibility to roads and motor vehicles in their vicinity.

Table 7.9. Frequency of lorry use in donkey owners and non-owners in central parts of Ethiopia (%).

Study area	Frequency of lorry use	Non-donkey owners	Donkey owners
West Shewa zone	Not used	71	92
	Mostly	3	2
	Sometimes	26	6
	No of respondents	**170**	**140**
East Shewa zone-I	Not used	19	74
	Mostly	3	9
	Sometimes	78	16
	No of respondents	**129**	**128**
East Shewa zone-II	Not used	0	56
	Mostly	1	9
	Sometimes	99	34
	No of respondents	**121**	**117**

With about 33% of donkey owners and non-owners, the decision to use a lorry is taken when there are large quantities of items to be transported while about 15% of the respondents used lorries when there are perishables that need to be transported and marketed with minimum physical losses (Table 7.10).

Table 7.10. Conditions when lorries are used by donkey owners and non-owners in central parts of Ethiopia.

Conditions to use a lorry	Non-donkey owners	Donkey owners	No of respondents
When there is large quantity to be transported	31	35	265
When there is a need to transport timely	9	20	113
When there are perishables to be transported	14	17	122
Other conditions[1]	11	10	85

[1]includes when there is enough money to pay for the fare, when there is access to a lorry.

There was no significant difference between donkey owners and non-owners in terms of using lorries when there is too much to be carried (χ^2_1=1.03, P>0.05) using continuity correction. There was a significant difference between donkey owners and non-owners in use of lorries when there was a need to transport timely (χ^2_1=17.27, P<0.001), but no significant difference between donkey owners and non-owners in using a lorry when there were perishables to be transported.

Access to markets

Donkey owners tend to visit markets less frequently than non-donkey owners. Thirty-four per cent of donkey owners visited markets only once in two weeks (twice a month), whilst 10% of non-donkey owners visited markets once in two weeks, 30% once a week and 36% visited twice a week (Figure 7.11). This may be because the resource status of the non-donkey owners is lower than that of the donkey owners. People often as a result practice petty trading of commodities. They buy commodities early in the morning and sell again in the same day in the same market later in the evening. This is to make meagre margins, which may be better than doing nothing. Sometimes, they purchase commodities from local markets and sell them at district markets. In such cases, they mostly carry the load themselves either on their head or back. Use of a borrowed or a rented donkey is limited and is also not always accessible at the time when they would like to use it most.

Seasonal differences in the frequency of market visits between donkey owners and non-owners was statistically significant ($P<0.001$) using the Wilcoxon non-parametric test. The mean ranks of non-donkey owners were higher than donkey owners in seasons before and after planting, implying that they visited markets more frequently than donkey owners in these seasons. This might be because, the non-donkey owners have lower food reserves and hence need to go to the markets more frequently to buy food. Ranking suggested that donkey owners visited markets more frequently than non-donkey owners in the planting season.

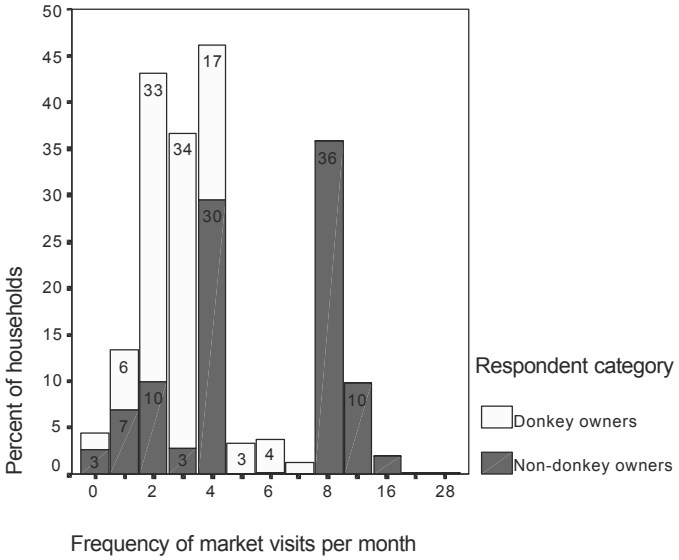


Figure 7.11. Frequency of market visits before planting by donkey owners and non-owner households.

When the graph of planting season is considered (Figure 7.12), about 25% of non-donkey owners visited markets only once in a month, 36% once in a week and few (8%) twice in a week. On the other hand, about 34% of donkey owners visited markets once in two weeks while about 32% visited once in five days. The reason why the frequency of market visits for non-donkey owners declined in the planting season may be because they take longer to complete crop preparation, planting and cultivation, having less access to donkeys and oxen to conduct the farming activities timely. As a result, they have less time to visit markets than the donkey owners. They

also borrow spare animals from donkey owners especially during the days when the donkey owners go to the markets.

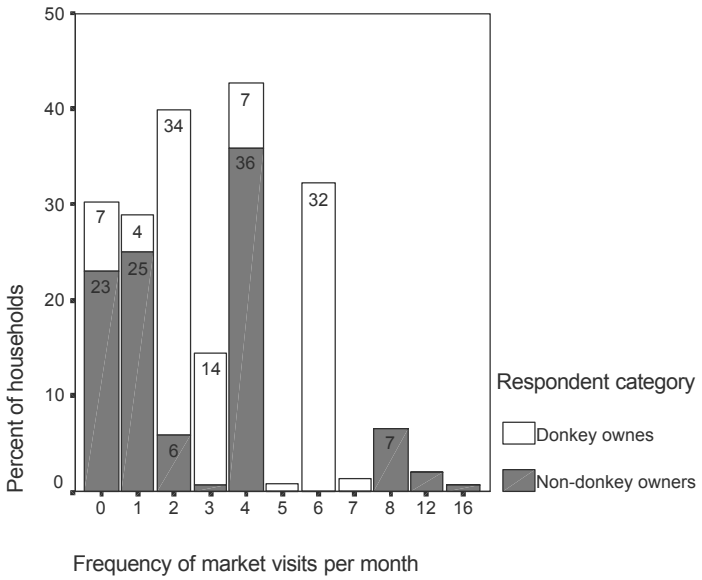


Figure 7.12. Frequency of market visits during wet season at planting by donkey owners and non-owners.

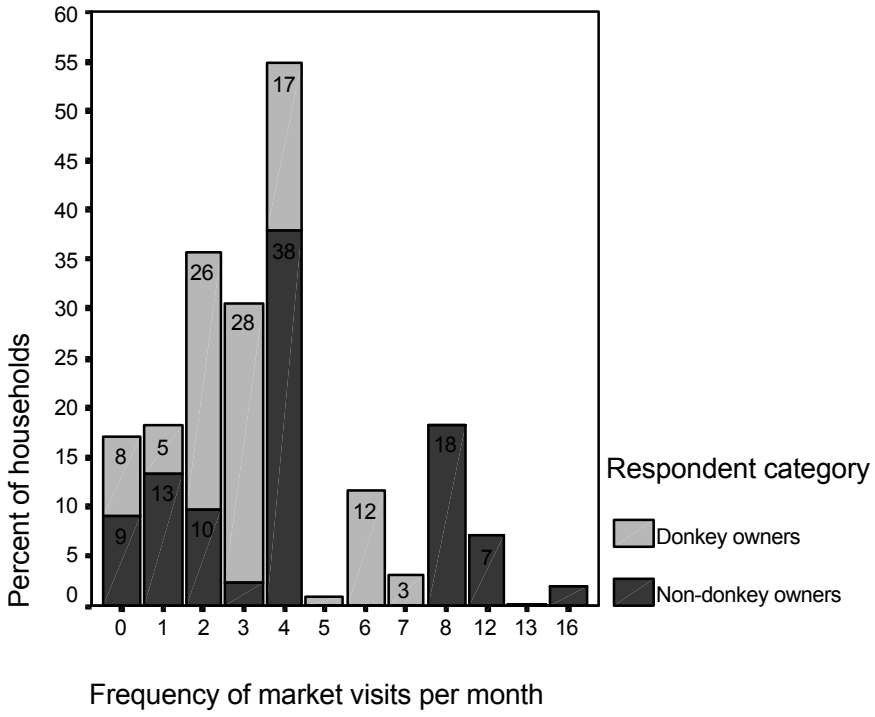


Figure 7.13. Frequency of market visits during wet season after planting by donkey owners and non-owners.

About 28% of donkey owners visited the markets once in 10 days while about 38% of the non-donkey owners visited once in a week (Figure 7.13).

The results indicate that non-donkey owners tend to visit markets more frequently than donkey owners, except in the planting season. This may be because, they are relatively poorly resources and the income obtained from on-farm activities is not sufficient to support the lives of themselves and their families throughout the year. Hence, they may conduct some additional activities, such as petty trading and engagement as daily labourers. On the other hand, the donkey owners mainly use donkeys for transporting activities related to farming and to sale of their produce at the markets. The important point to note here is that when visiting markets, the non-donkey owners carry the commodities themselves either on their head or back while the donkey owners use their donkeys. Hence, irrespective of frequency of market visits, donkeys make life easier in transporting materials.

In summary

As in the other surveys, family size was greater in East Shewa zone-II than in the other locations surveyed. Donkey owners had larger families than non-donkeys owners within each location. They also on average owned more livestock – cattle, horses and small ruminants than non-donkey owners did. Ownership of more livestock implies that the livelihood status of donkey owners is better than that of non-donkey owners. Access to road facilities was the same for each household group, but non-donkey owners made less frequent use of bus and taxi services than donkey owners, perhaps reflecting their lower financial status. Both groups made similar use of animal-drawn cart services. Lorries were used more frequently by non-donkey owners to move goods to markets than by donkey owners. Both groups reported using lorries only when they had large loads to move, or high priced perishable goods to carry.

Non-donkey owners visited markets more frequently than donkey owners, except in the planting season. The non-donkey owners carried the loads themselves. Rental of donkeys was rare, often because animals were not available when they were needed. In the planting season non-donkey owners may be spending more time on agricultural activities than the better resources donkey owners, and therefore have less time for market visits.

Virtually all non-donkey owners who once owned a donkey would purchase another if conditions permitted them to do so.

8: DISCUSSION

Key issues arising from the survey findings

The purpose of Phase I of the project was to characterise donkey use and management practices and identify problems and constraints within the system. This was achieved by informal interviews of people associated with working donkeys within three areas of Ethiopia, West Shewa with Addis Ababa, East Shewa zones I and II. Potential areas of intervention in phase II of the project, to help overcome constraints and improve livelihoods of poor people are suggested here, based on the findings from the informal interviews.

The results confirm the premise at the beginning of the project that use of donkeys for transport provides a means in which poorer members of society can generate income to support or improve their livelihoods. The results suggested that donkey ownership benefits all family members, providing a low cost means of transport in productive and maintaining/domestic activities within the households. They are used for a range of different tasks on- and off-farm, including 'outside' income generating activities through transport contracts and renting opportunities, the latter more so in the urban areas. A range of different commodities and agricultural products are transported to and from markets by donkey power. Non-donkey owners seem to be significantly poorer (defined in terms of livestock ownership) than donkey owners within the same community and have to place greater reliance on lorry transport for marketing, an expensive and often unavailable as well as unaffordable option.

The income generating potential in some areas is impressive with incomes standing up well in comparison to other urban-unskilled occupations. Comments such as "With my four pack donkeys I can earn more in a week in Addis than a taxi driver does", serve to quantify what many interviewees expressed qualitatively. Most owners were consistent in saying the main benefits of owning a donkey were its ability to move a variety of types of materials over short distances at low cost to the owner, over the terrain and road infrastructure present in Ethiopia. Savings in time and effort are also seen. The fact that non-donkey owners in rural areas seem to make less frequent visits to the market places in the busy planting/growing season indirectly shows just how important ownership of working animals is, in providing independence, improving timeliness of operations, saving working time and reducing drudgery. While oxen are needed for the land preparation, the donkey has a vital role in the transport of crops off the fields at harvest time, in transporting grain to markets and crop residues to the farmstead. All owners with crop land used their donkeys to undertake these activities.

Most donkey owners and those who have owned donkeys, recognise the financial and timesaving benefits of owning a donkey. When asked to rank their animals in order of economic importance many livestock owners regarded the donkey as second in economic importance to their oxen, above a cow. One farmer also said that with the money he could earn from the donkey he could buy his cows. Some donkey owners did rank the donkey first, when they were close to urban areas. The reason given by some that this was because it provided a regular source income throughout the year. The results suggest that a donkey owner views his/her donkeys positively because of the contribution they can make to family well-being.

Increased access to donkeys, but preferably increased ownership, is something while needs to be explored in more detail. The surveys have provided information to substantiate the hypothesis that donkey ownership can have a positive effect on livelihoods of poor people. The need now is to identify ways to improve accessibility, both economically and practically, particularly for those people within the communities who do not own a donkey. Shortage of funds and a lack of appropriate credit facilities have been cited by several of the target groups as a constraint to acquisition of a donkey. Non-donkey owners asked for credit to purchase donkeys. Owners found a shortage of appropriate credit facilities a problem in increasing herd size or setting up a business in dealing in donkeys. Donkey trading is a lucrative business for those who practice it and demand for donkeys within the communities means dealers often source animals from far markets. Improvements in reproductive performance and survival of youngstock in local communities would help increase the supply of donkeys available.

The results have shown some gender differences in the use of donkeys. Professional donkey transporters were virtually all men around Addis Ababa, however within some of their households women did seem to have access to donkeys for maintaining activities. In the other woredas studied, donkey use was not so exclusive to men. Women and children, particularly in East Shewa zone-II made considerable use of the animals. In general while the head of the household (usually a man) made the major decisions regarding livestock when it came to the day-to-day use of donkeys in domestic/maintaining activities relevant to the household, the women mostly made decisions regarding working practices and use. Use of donkeys for productive activities in agricultural and transport seem to be the domain of the man in the household both in rural and urban areas. As the different genders have different demands on donkeys for transport their respective incomes/benefits from donkeys might also be different, as might be their attitudes to the animals and any interventions.

Gender differences in use vary with location e.g. in East Shewa zone-II many donkey users were women, but in East Shewa zone-I and West Shewa with Addis Ababa, fewer women used them. It appeared from the informal interviews that in some areas women, more so than men, may lack some of the technical skills to train, use and manage their donkeys effectively. The accessibility to donkey use within the household over the year, and the knowledge levels of the men and women working and managing donkeys are areas which warrant further investigation.

Despite placing considerable value on their donkeys as an economic resource, people were reluctant to spend money on their donkeys to improve health and management and hence improve performance (days available for work, longevity of use, reproductive capacity). More periurban/urban donkey pack transporters spent money than did people living in rural areas, possibly because of the more regular use by transporters and their greater reliance on the donkeys for income than that of a rural farmer who has other livestock and crops. A shortage of grazing around the towns also means that more animal food has to be purchased by people keeping donkeys in these areas than in the rural parts. These findings suggest that difference in attitudes to interventions can be expected, as one moves out from the urban-based to the rural-based donkey owner.

Attitudes to interventions may also be changing amongst owners because the value of a donkey has increased. When relative price increases were compared over the last ten years, the price of a donkey had increased more than the price of any other livestock, except oxen.

The seasonal variation in donkey use was more marked in rural households than in the periurban/urban transporters households. The average working day varied from 3 to 8 hours, in most households, but with considerable variation around this. This suggests that there may be some scope for households to expand the use of their donkeys and look at other operations they might undertake with them locally. However hours worked can be misleading and in view of the feeding constraints that many owners report, short working days and rest days between periods of work, may be vital. These allow the animals to replenish nutrient reserves, re-hydrate and recover. Demand for donkeys especially in agricultural-related operations is seasonal, with everyone wanting them at the same time, so opportunities for hiring out or expanding use can be limited. As part of a study into improving access of poor communities to donkeys, there is a need to look more closely at the demand for their activities over the season. This is in order that a clearer pattern of use can be established, and so the peak times of agricultural use and the times and conditions in which spare capacity is present can be identified. The economic implications of more work, both in number and length of the working days on individual animals needs to be considered. Economically it may be more cost effective especially where grazing is not in short supply (usually rural) to increase numbers of donkeys a household keeps available for work, whereas in a stall-fed situation (usually urban) it may be more cost effective to keep fewer donkeys, but feed them better and work them more often.

Ownership of donkeys can contribute to social cohesion within the poorer communities. The surveys found that borrow and lending was a more common activity that hiring for monetary gain. Owners lent to friends, relatives and neighbours when they did not need the animals themselves.

The work an animal can do is positively correlated to its size. Interestingly few owners identified size of their donkeys specifically as a main limitation to the work their donkeys could do. People with young donkeys started working them when they reached 'maturity', which could be construed as being size related. It seems that generally, most people make the best of the donkey they have. "A donkey is better than no donkey at all". Traders did commonly say the best prices were for male animals of 4-5 years old in good condition, but size was not the main criterion for price. People that did select a male animal to breed from, choose on size, in addition to colour and if asked if they would like a bigger animal, most people said "yes". Hence it would seem that donkey users do place some importance on size, but there are more immediate constraints to donkey use. Clearly it is useful to promote size selection in a breeding programme to improve the 'product', but it is not seen by many owners as a major problem. The owners tend to make do with what they have or can afford.

Reports of negative attitudes of local authorities to donkey operations, were not widespread or common throughout the locations surveyed. They tended to be specific to some areas. Poor attitudes were more likely to come from the town-dwellers and even these were not cited in every woreda. Unfavourable municipal regulations were

cited as a constraint by some householders and some traders felt high tax rates in some areas deterred them from operating there. At the time of the surveys urban attitudes to donkeys did not seem to be a main problem limiting or deterring people from using donkeys for transport in peri-urban/urban areas. There did seem to be potential for future conflict if numbers of donkeys visiting urban markets increased. Most owners however felt that provision of holding places to leave their animals while in the market, and watering points would go far to alleviate potential conflict with town-dwellers and authorities. This would also improve the welfare of the working donkeys, not all of which get access to water during the working day.

Donkey owners readily identified technical problems, which limit their earning capacity in transport. More than half the owners reported health problems with most attributing these to over work, sores and feed shortages, a major constraint identified, in addition to disease, in West Shewa and East Shewa zone-I. A variety of feeds are given to working donkeys to supplement grazing and donkey pack transport owners do purchase feeds in where grazing is limited. Seasonal shortages in the availability of feed and an unwillingness or inability to purchase feeds for donkeys seem to be the main reasons for feed shortages. There is scope to investigate this in more detail to see where the deficits occur and what in what circumstances people would consider that purchasing feeds to supplement their donkeys was economic.

Large variation existed within communities in the condition of the donkeys, with some in good condition, but others in very poor condition at survey. Clearly there were some people providing enough feed to meet requirements, while some, in the same area, were not getting enough feed. People, when asked, considered their animals good/fair in health but fair/poor in body condition. This suggests that they may be more receptive to preventative interventions to improve condition such as worming than some of the preventative disease measures such as vaccination.

While people identified 'disease' and 'health problems' in their animals, householders and transporters when asked about diseases showed considerable variation in their willingness/ability to rank them. This can be construed two ways, either there is a low incidence of the diseases or a low awareness by owners of disease in their donkeys. The people who did respond consistently put pneumonia (respiratory problems), 'footrot' and anthrax, at the top of the rankings. All these are relatively visible diseases, and those that affect work performance markedly. Interestingly when people at meeting places were interviewed later in the dry season in January, as part of the survey of donkeys and owners at meeting places, mange and worms were higher on the list in some woredas. Veterinary inspection confirmed the presence of skin problems in some of the donkeys seen. In thinking about disease the survey findings suggest that people may tend to consider the immediate diseases common at the time and those that have a markedly visible effect on their animals, rather than the less visible ones. Worms were only mentioned in West Shewa with Addis by about a third of the people interviewed at market places. However some donkey owners when questioned on feeding reported their animals did not respond to extra feeding when it was available. The attitude to disease seemed to be very much one of treatment rather than prevention. There was little evidence that people were practising preventative strategies. They seemed more willing to treat the problem once it had arisen. However this is not to say they would be unreceptive to preventative interventions if they were available.

People seemed to be much better informed on sores, which are clearly a major problem in the working donkeys. They identified them as a main cause of health problems in their donkeys. People commented knowledgeably on sites, causes, preventative measures and treatment. Some discrepancies in East Shewa zone-I were noticed between the incidence of back sores reported by the owners and those seen by the veterinarians on examination of the animals. However this was not seen in other locations and may have been a problem of question interpretation. Most people attributed sores to over work, inappropriate harnessing and saddle design and heavy loads. Few would consider spending money on treatment. Few would seek veterinary advice or assistance for sores. Most people recognised the solution was to rest the animal and/or reduce work. Attitudes of owners surveyed suggest that people would be receptive to low/no cost harness/saddle interventions to reduce the incidence of sores and reduce the number of lost working days for their donkeys.

Informal interviews with people keeping female working donkeys revealed a high expectation of a foal once 1-2 years, but with in reality a high wastage between conception and weaning. Little planned breeding, a high incidence of abortion and poor survival of the foal from birth to weaning were found in all of the locations. Local feed supplements are available but are usually given to the working donkey after work, not the young animal. Often mothers are separated from their foals for long periods in the day, which potentially reduces access of the foal to milk. There would seem to be some scope for improvement. There is a demand for donkeys within the communities surveyed and so interventions to improve management of the pregnant mare and the youngstock warrant consideration.

The reluctance of owners to spend money on husbandry and veterinary interventions of owners mean that the technical interventions that are most likely to be successful, have greatest impact and be easier to justify are those that are targeted at owners which have the most to lose if their donkeys are not health and fit to work. These members of the community have been identified in the surveys as owners of young donkeys and those donkeys that provide the only earning opportunities that the people have.

The extent of contribution of donkeys to the household economy varies by location, season, social category, gender and livelihood strategies. As a first step towards increasing access, there is a need to investigate routes to improved livelihoods for owners and non-owners of donkeys within the poor communities studied. The enabling conditions and wider interventions that can help to increase access to donkey for those people who are not yet donkey owners need to be highlighted and promoted within the relevant sectors of society communities. The interrelating factor that can help to improve livelihoods within poor donkey owning communities, the main constraints to improvement in livelihoods and the range of interventions that can be considered are summarised in Figures 8.1 to 8.6 (Tesfaye *et al.*, 2000).

Areas of study proposed for Phase II of the project

Longitudinal monitoring of seasonal changes

This is to establish the need for and timing of practical management interventions. Produce and disseminate charts and accompanying guidelines showing seasonal changes in earning capacity, use, burden of selected parasites, sores and body

condition, to help identify the need for and timing of practical management interventions.

Assess potential of interventions

Identify existing best practice in indigenous harness technology; test it in study areas; and develop and promote generic principles of harness design for use in conjunction with local materials. Older donkeys in regular use as pack animals will be targeted for harness/saddle interventions.

Evaluate the impact on young donkeys (growth rate and survival) of improved management (feed, anthelmintics) of pregnant jennies and young donkeys; and produce and promote practical recommendations.

Socio-economic issues

Assess, and as far as possible address, socio-economic factors affecting (a) people's access to donkeys and (b) the impact of improved donkey health and welfare on the livelihoods of donkey users; and identify indicators to assess this impact.

Donkey owning families in Ethiopia are better-off than those who do not own a donkey. In order to investigate whether donkey ownership is the cause or the effect of improved livelihoods a socio-economic study will be carried out to compare the livelihoods of donkey owning and non-donkey owning households..

The impact of improved donkey health and welfare on livelihoods will be evaluated using two study groups, one of which has access to veterinary care through the 'Donkey Sanctuary' project and the other that has not.

Enabling environment

Determination of target groups for dissemination, acceptable pathways of dissemination to donkey users and their preferences as to form of extension message. This is necessary to optimise uptake of the recommendations from the project. Identify any gender implications. Studies of smallholder farmers elsewhere in Africa found that people had different attitudes to extension messages depending on where they received them from (e.g. messages from churches and women's groups were well received, whereas some from government offices were not). Similar attitudes may exist within donkey using communities in Ethiopia.

Conclusions

The information collected in phase I of the project shows the contribution that donkeys can make to the livelihoods of poor societies in Ethiopia and the management and use made of these animals. Main constraints to improvement have been identified and some areas for intervention that could be implemented in Phase II have been suggested. Results implied that the contribution of a donkey to the security of a household is considerable, with some households almost entirely dependent on donkeys for their livelihood. Increasing donkey ownership among the poorest sections of the community, or in the case of those who are already donkey owners, enhancing the work output of their donkeys could have a significant impact on livelihoods within the poor communities.

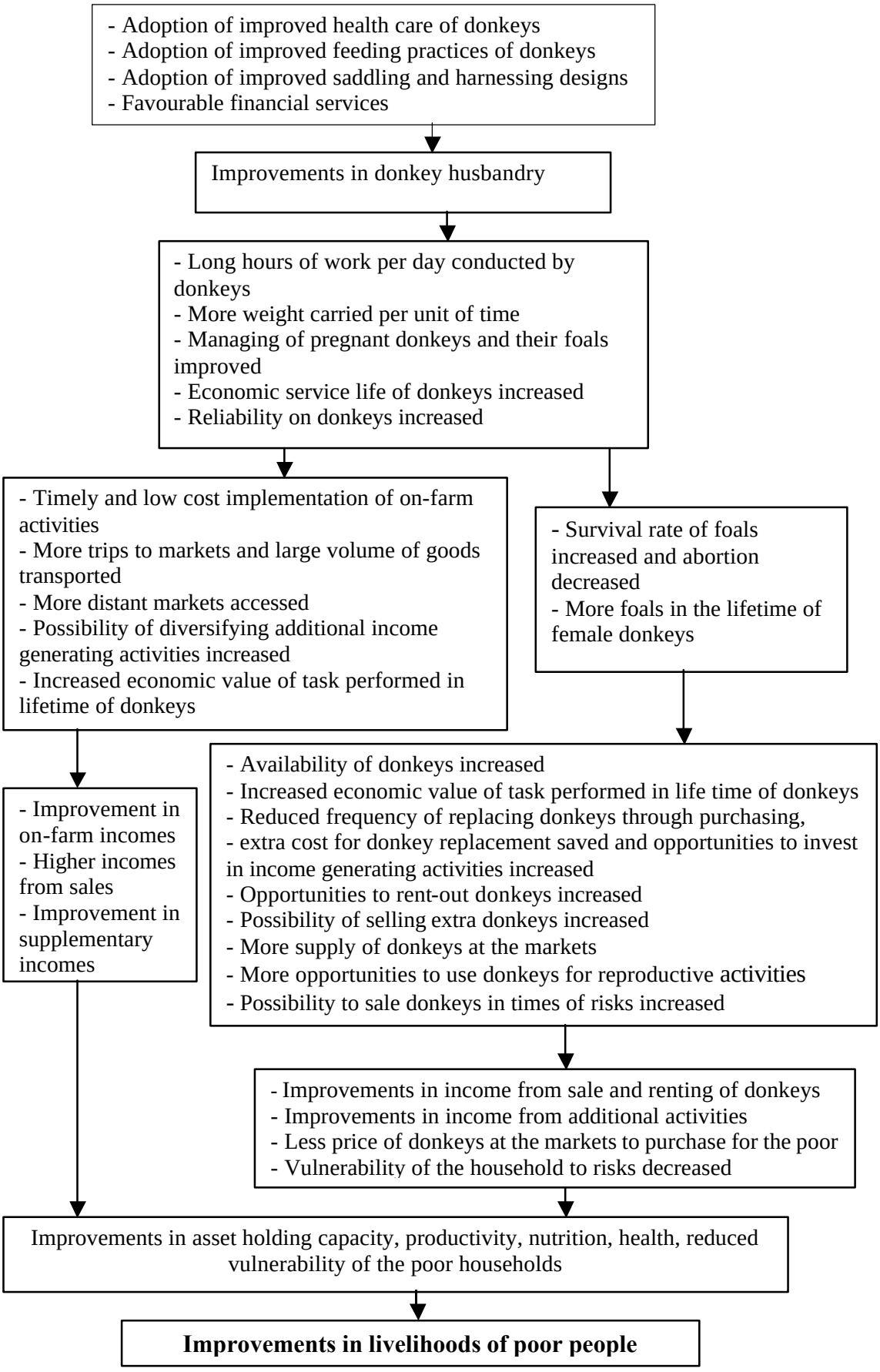


Figure 8.1. A diagram of routes to improved livelihoods of donkey owners.

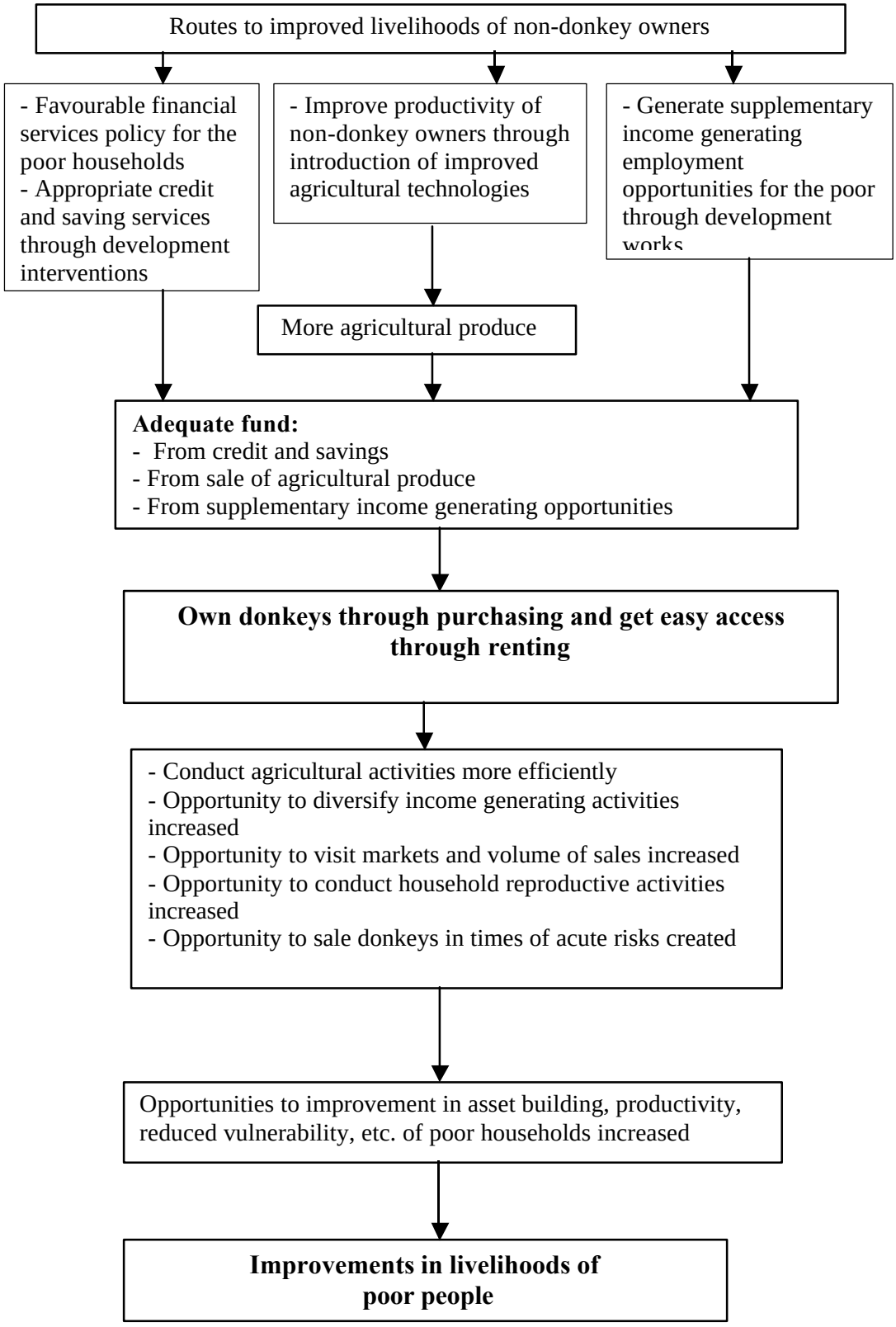
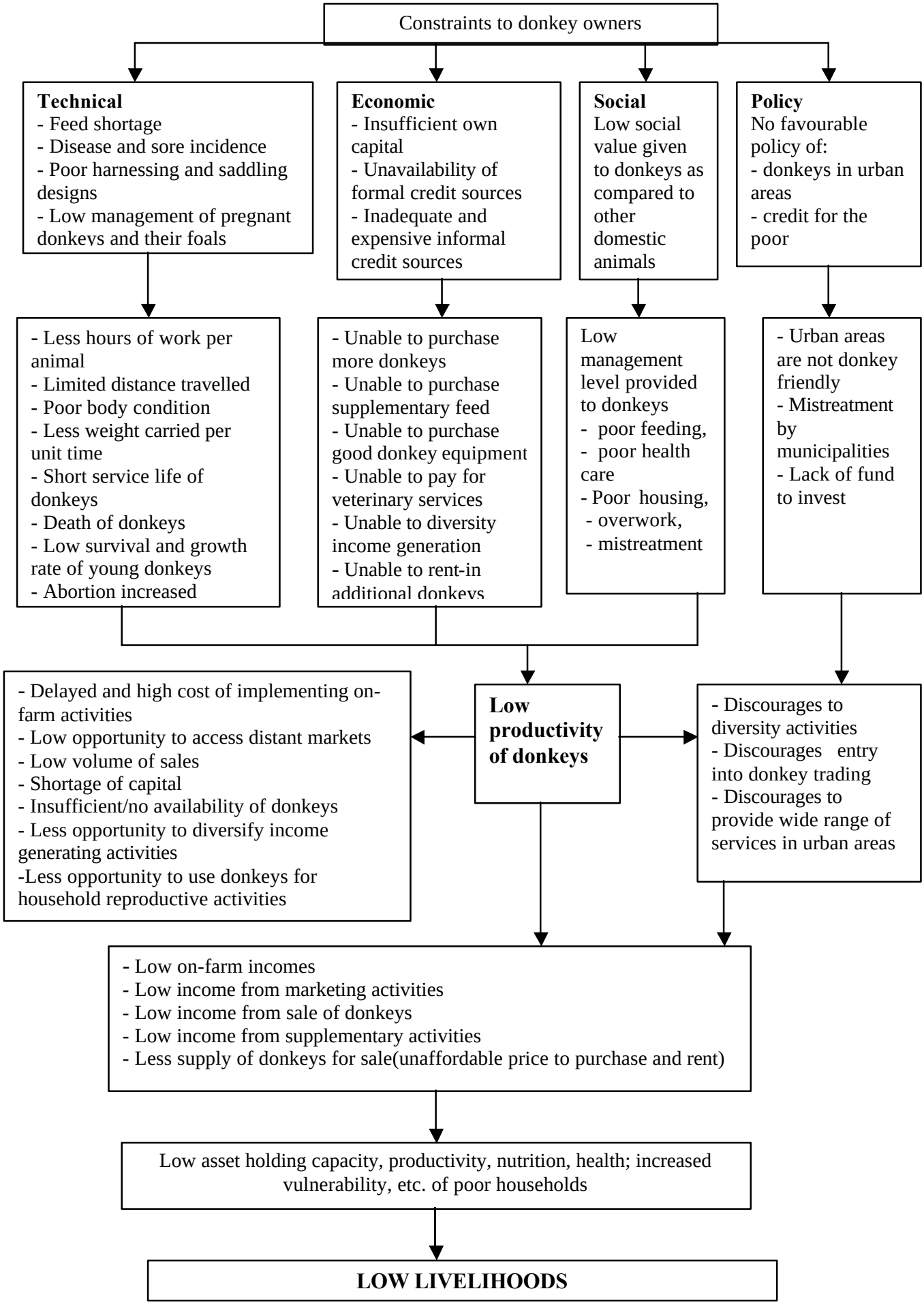


Figure 8.2. A diagram of routes to improved livelihoods of non-donkey owners.



8. 3. A diagram of constraints that contribute to low livelihoods of donkey owners.

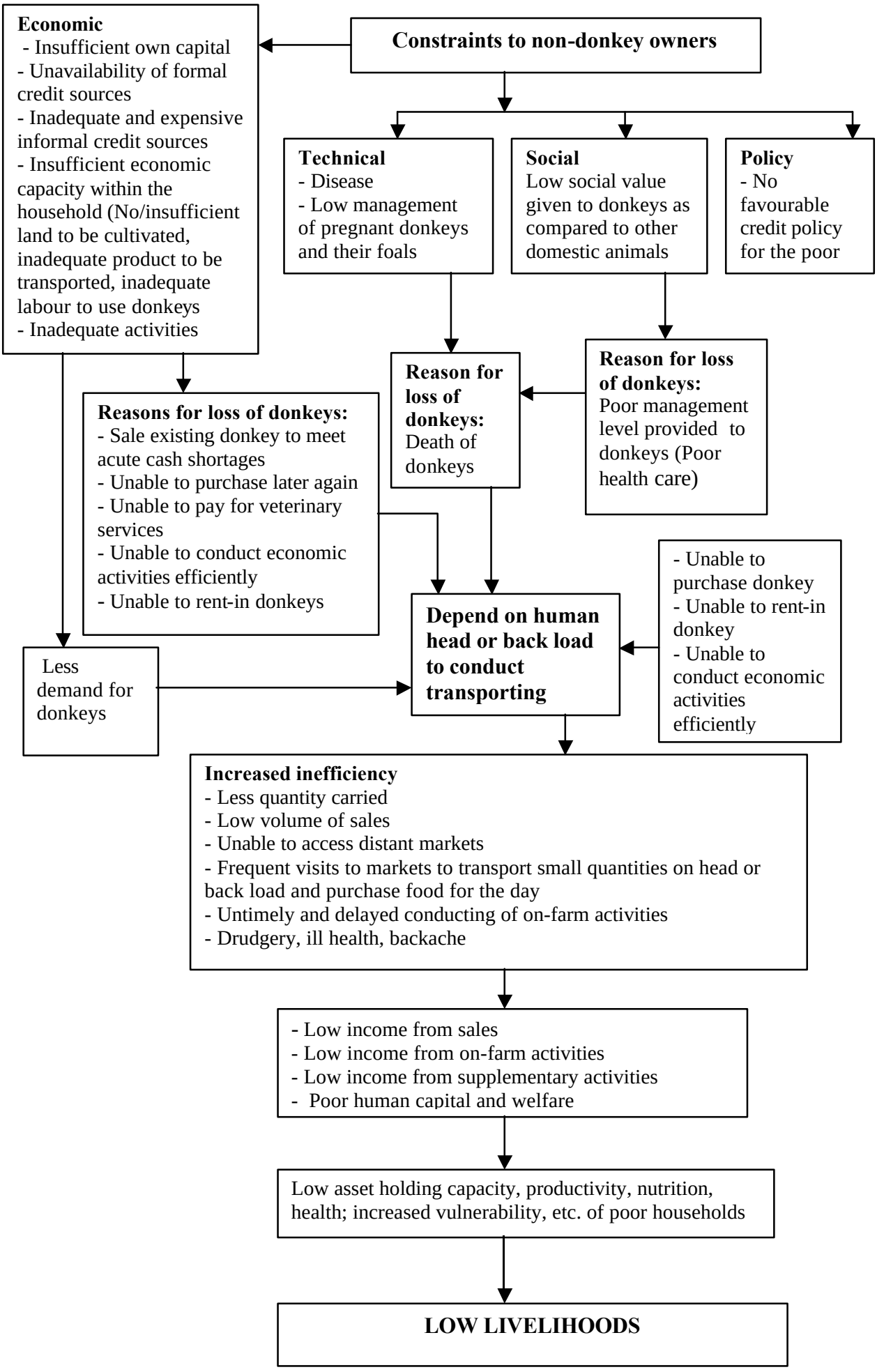


Figure 8.4. A diagram of constraints that contribute to low livelihoods of non-donkey owners.

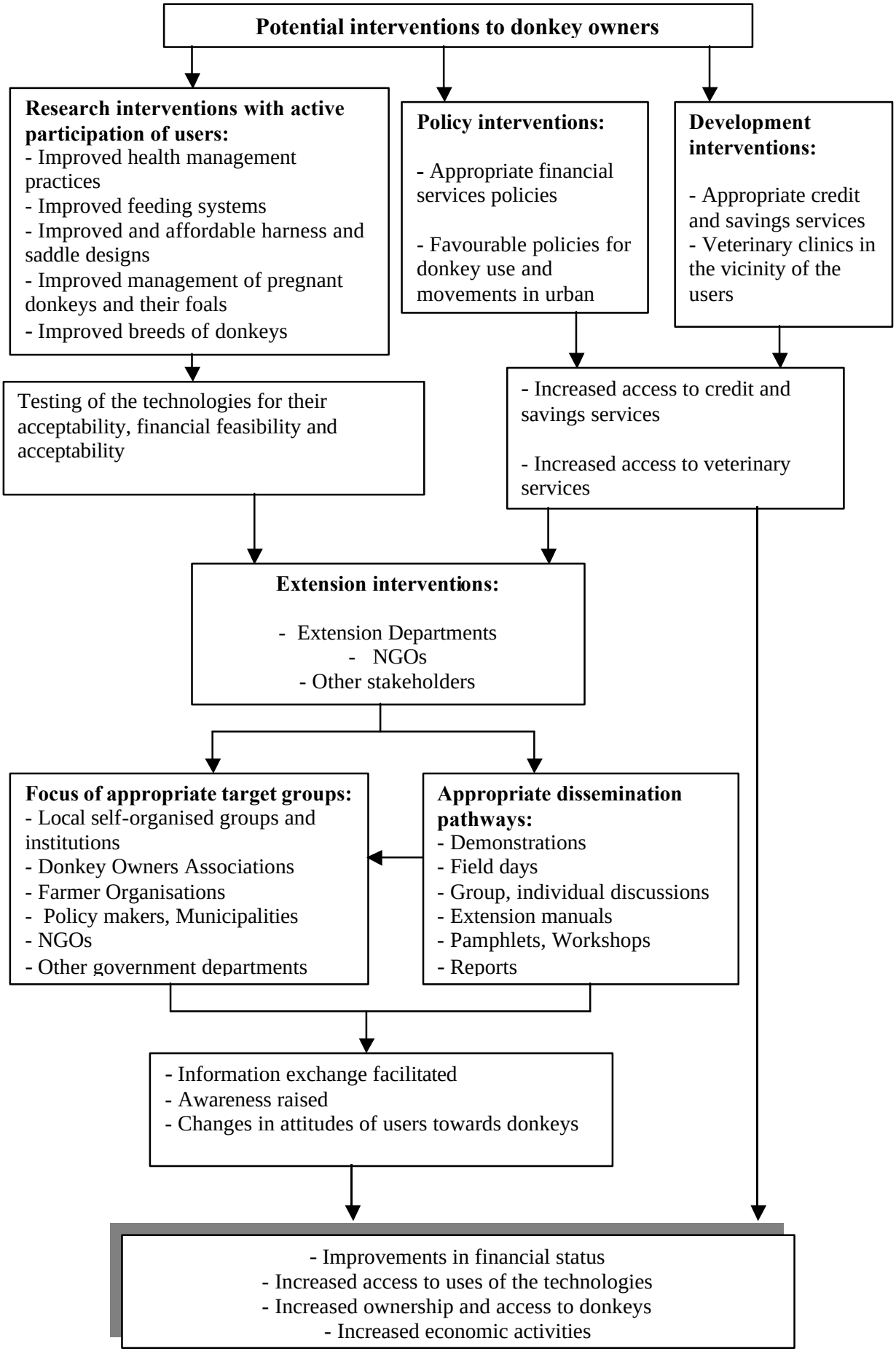


Figure 8.5. A diagram of potential interventions to donkey owners.

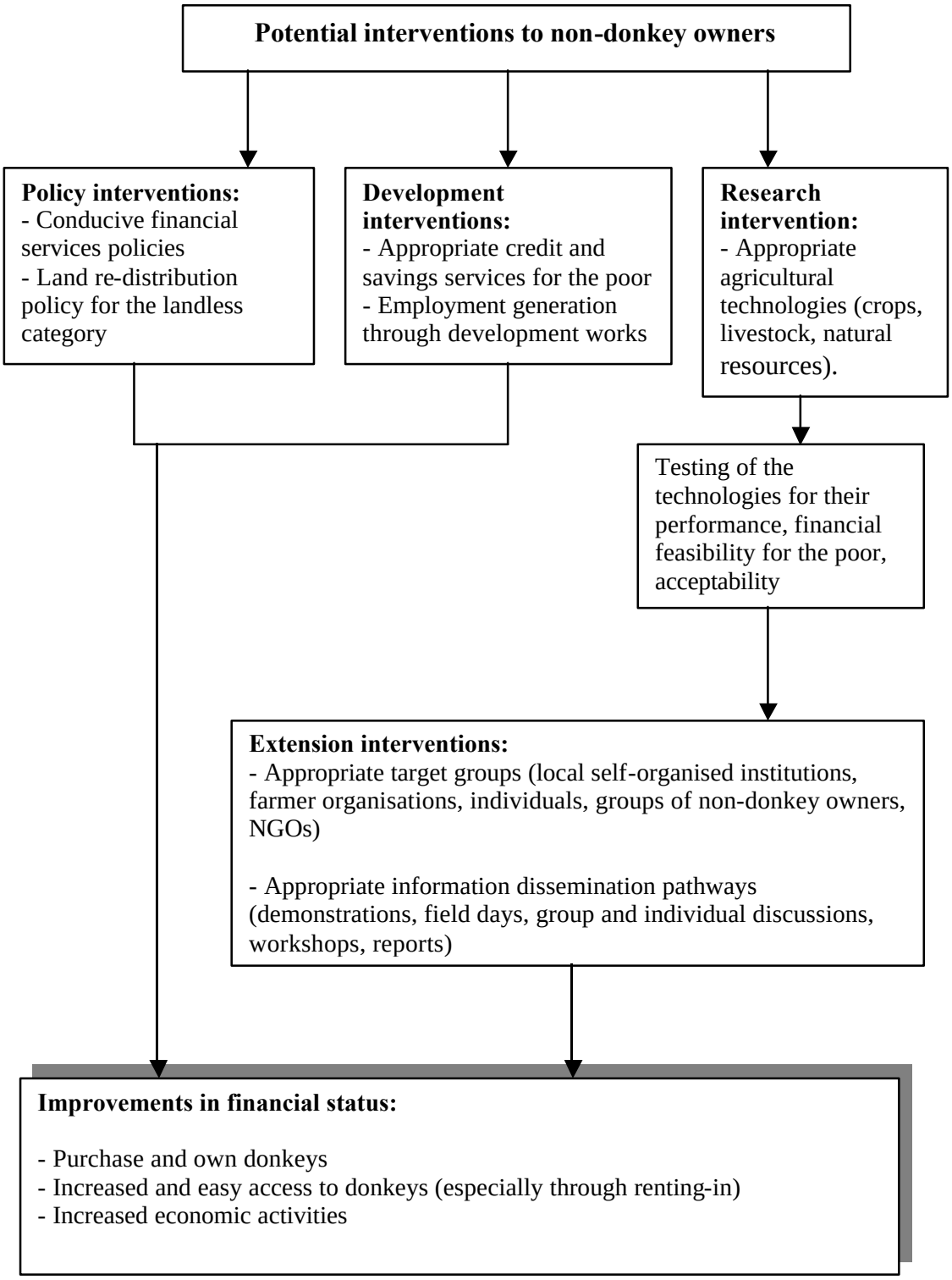


Figure 8.6. A diagram of potential interventions to non-donkey owners.

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Some of the Ethiopian Agricultural Research Organisation scientists who worked on the project

Participants who attended the workshop held at the end of phase I of the project, visiting the Donkey Health and Welfare Project in Debre Zeit

10: Appendix

Table 1A. The percentages of transporters undertaking various activities involved with their occupation

Activities	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
To transport marketable goods from one market place to another	55	42	59
To transport goods from market to residents	54	41	55
To transport people (elderly, disabled, young)	43	25	23
To transport marketable goods (collecting materials) from shop to market place	34	18	36
To undertake household tasks	22	37	94
Other activities	23	37	4
No of respondents	**124**	**98**	**99**

Table 2A. The number of all transporters who employ extra people to help them in their work with donkeys

Do you use extra people to help in your business?		W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
		%	%	%
	Yes	72	92	22
	No	28	8	78
No of respondents		**125**	**98**	**99**

Table 3A. Hours spent by donkeys transporting or pulling a cart in winter (repeat excluding the people who failed to respond to the question on hours in various activities).

Location	Respondents	N	Mean	SD	Min	Max	Median
W Shewa and Addis Ababa	Householders	125	3.02	1.89	0	8	3
	Transporters	118	5.06	2.47	0	12	5
East Shewa zone-I	Householders	124	6.24	3.48	0	12	6
	Transporters	73	4.92	2.55	0	10	4
East Shewa zone-II	Householders	113	4.59	2.67	0	12	4
	Transporters	98	5.14	3.15	0	12	5

Table 4A. Hours spent by donkeys transporting or pulling a cart in summer (repeat excluding the people who failed to respond to the question on hours in various activities).

Location	Respondents	N	Mean	SD	Min	Max	Median
W Shewa and Addis Ababa	Householders	125	5,45	2.45	0	10	6
	Transporters	118	6.36	2.92	0	11	7
East Shewa zone-I	Householders	124	7.69	3.26	0	12	8
	Transporters	73	6.22	2.60	0	11	6
East Shewa zone-II	Householders	113	6.94	2.20	0	10	7
	Transporters	98	7.34	3.21	0	12	8

Table 5A . Hours spent by donkeys grazing in winter (repeat excluding the people who failed to respond to the question on hours in various activities).

Location	Respondents	N	Mean	SD	Min	Max	Median
W Shewa and Addis Ababa	Householders	125	7.07	2.84	0	12	7
	Transporters	118	3.92	3.17	0	12	4
East Shewa zone-I	Householders	124	5.68	3.67	0	12	5.5
	Transporters	73	3.09	3.24	0	12	3
East Shewa zone-II	Householders	113	5.15	2.72	0	12	5
	Transporters	98	3.27	3.08	0	11	3

Table 6A. Hours spent by donkeys grazing in summer (repeat without the people who failed to respond to the question on hours in various activities).

Location	Respondents	N	Mean	SD	Min	Max	Median
W Shewa and Addis Ababa	Householders	125	5.39	2.45	0	12	5
	Transporters	118	3.04	2.63	0	10.5	3
East Shewa zone-I	Householders	124	3.00	3.54	0	12	1.15
	Transporters	73	3.29	3.30	0	12	3
East Shewa zone-II	Householders	113	3.28	2.24	0	10	3
	Transporters	98	2.39	2.75	0	12	2

Table 7A. Hours spent by donkeys idle in winter (repeat without the people who failed to respond to the question on hours in various activities).

Location	Respondents	N	Mean	SD	Min	Max	Median
W Shewa and Addis Ababa	Householders	125	2.27	1.81	0	10	2
	Transporters	118	2.36	2.18	0	12	2
East Shewa zone-I	Householders	124	2.10	3.02	0	12	0
	Transporters	73	2.79	4.02	0	12	1
East Shewa zone-II	Householders	113	2.20	2.22	0	11	2
	Transporters	98	1.21	2.04	0	11	0

Table 8A. Hours spent by donkeys idle in summer owned by transporters (repeat without the people who failed to respond to the question on hours in various activities).

Location	Respondents	N	Mean	SD	Min	Max	Median
W Shewa and Addis Ababa	Transporters	89	2.61	1.85	1	10	2
East Shewa zone-I	Transporters	39	5.46	4.12	1	12	0
East Shewa zone-II	Transporters	33	3.21	3.17	1	12	0

Table 9A. The main ways of increasing an individual's herd in the future as identified by respondents.

	Respondents		Locations		
Means to increase the number of donkeys kept	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
By purchasing female donkey for breeding	52	24	30	45	44
By purchasing male donkey for breeding	29	49	43	36	34
By purchasing young donkey at cheap price and raising it	12	20	6	1	2
By renting in male donkey for breeding	3	3	15	12	17
By renting in donkey for transport use	2	3	3	2	3
By using other ways	4	3	4	7	0
Number of respondents	296	226	188	144	190
No of respondents	**249**	**139**	**109**	**125**	**154**

Table 10A. Reasons for not increasing the number of donkeys owned in the future.

	Respondents		Locations		
Reasons for not increasing donkey herd size	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Has enough donkeys	73	61	67	62	88
Has not enough feed for donkeys	26	28	45	16	13
Prefers to purchase cattle	24	21	24	12	63
Has not enough money	21	17	16	24	8
Prefers to purchase either horse or mule	3	10	4	4	25
Prefers to use other means of transport	2	6	4	3	8
Other reasons	6	12	6	12	4
No of respondents	**104**	**103**	**82**	**101**	**24**

Table 11A. Feeding practices carried out by householders and transporters in the areas surveyed (percentage of respondents undertaking these activities).

Feeding practice	**Feeding practices at home**			**Feeding practices in the working day (at the market place)**		
	W Shewa and Addis Ababa	**East Shewa zone-I**	**East Shewa zone-II**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%	%
Grazing	90	79	95	2	1	1
Grain middling	45	56	55	31	26	36
Straw feeding	47	56	54	18	30	26
Grain feeding	21	23	40	33	27	20
Anything available	29	35	16	19	6	6
Household wastes	28	30	13	3	2	3
Fodder suppl.	6	17	21	2	4	7
Oil cake suppl	4	11	8	2	1	1
Others	3	8	4	5	5	4
Number responding	265	226	216	265	226	216

Table 12A. Practices for housing and holding donkeys.

	Respondents		Locations		
Activity	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Free to graze in day	75	52	66	51	76
Tied up for grazing in day	22	39	23	25	44
Tied up under tree in day	28	36	11	40	47
Other ways of keeping in day	11	12	9	20	5
Kept in shed over night	18	41	42	27	14
Tied up for grazing over night	25	33	5	53	31
Other ways of keeping in night	29	10	16	13	33
Free to graze in the night	1	1	0	1	1
No of respondents	**385**	**322**	**265**	**226**	**216**

Table 13A. Practices for keeping donkeys with other livestock.

	Respondents		Locations		
Activity	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Keep with other livestock at night	76	45	37	66	87
Keep with cattle at night	71	42	29	65	85
Keep with small ruminants at night	2	1	3	1	0
Keep with other equids at night	7	2	9	1	3
Keep with all other domestic livestock at night	2	1	2	1	1
No of respondents	**385**	**322**	**265**	**226**	**216**

Table 14A. Areas on donkeys where sores are most frequently seen.

	Respondents		Locations		
Where do donkeys get sores most frequently?	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
On the back	88	94	90	90	93
Hindquarters	56	48	58	44	53
Stomach	25	23	21	22	29
Shoulders	25	27	15	15	48
Neck/head	8	7	5	7	10
Others	7	6	7	10	4
No of respondents	**354**	**285**	**242**	**183**	**214**

Table 15A. Causes of sores on donkeys as indicated by respondents.

	Respondents		Locations		
Causes of sores on donkeys	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Frequency of work	75	70	78	71	68
Inappropriate saddle design	65	69	65	46	87
Weight of loads	37	23	27	34	33
Poor feeding	21	19	19	16	25
Lack of vet care	23	21	23	11	31
Type of load	12	13	15	11	11
Poor housing	9	15	16	10	10
Cannot afford better saddle	12	9	10	9	14
Inappropriate harness design	11	16	2	5	34
Type of work	11	9	13	9	7
Type of donkey	6	4	5	3	8
Don’t known a better way of saddling	3	3	1	4	4
Cannot afford better harness	1	2	0	1	4
Don’t known a better way of harnessing	2	0	0	3	1
Don’t know	3	2	3	1	3
Other	10	15	11	23	5
No of respondents	**352**	**280**	**243**	**176**	**213**

Table 16A. Ways in which people say they can reduce sores on their donkeys.

	Respondents		Locations		
	House-holders	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Stop working the animal	70	64	70	56	73
Reduce loads carried	57	48	49	44	47
Improve feeding	33	25	31	22	34
Improve saddle/harness design	30	42	30	30	35
Change the type of donkey	30	28	26	19	32
Seek veterinary help	23	24	23	11	28
Increase no. of donkeys you use	13	14	13	7	15
Don't know	4	6	5	8	2
Others	19	25	16	18	24
No. of respondents	**334**	**270**	**226**	**171**	**207**

Table 17A. Ways in which people treat sores on their donkeys.

	Respondents		Locations		
	House-holders	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Use traditional remedies	64	62	60	54	75
Just rest the animal	43	52	55	38	46
Purchase drugs after vet advice	25	23	25	20	33
Do nothing	12	8	14	12	4
Purchase drugs from vendor	7	11	9	2	14
Other ways	13	14	11	17	14
No. of respondents	**334**	**266**	**229**	**172**	**199**

Table 18A. Characteristics looked for when selecting a male donkey to breed from.

	Respondents		Locations		
Characteristics looked for when selecting the male donkey to breed	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Large size	75	71	91	87	53
Good colour	25	21	41	35	4
Hardy	15	2	9	17	2
Young age	13	0	15	4	0
Other	29	28	3	4	57
No. of respondents	**48**	**58**	**34**	**23**	**49**

Note 30 people in total replied yes to 'other reasons'- worth seeing what these were???

Table 19A. The problems associated with foaling as reported by profession and location.

	Respondents		Locations		
Problems associated with foaling	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Foal too big, difficult birth	26	52	28	26	58
Retained placenta	27	37	15	21	68
Donkey no milk	31	18	36	24	19
Other	48	25	50	44	26
No. of respondents	**93**	**40**	**40**	**62**	**31**

Table 20A. Causes of mortality amongst young donkeys.

	Respondents		Locations		
Causes of mortality/loss in young donkeys	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Disease	53	59	61	42	69
Accident on farm	32	44	49	20	44
Shortage of milk	35	23	40	33	15
Attack by wildlife/ dogs	37	38	19	34	71
Born small and weak	27	32	35	21	31
Road accident	19	24	26	9	33
Poor mothering	19	11	13	19	17
Other	21	18	30	21	6
No. of respondents	162	66	80	96	52

Table 21A. What is done with the young donkeys that are produced.

	Respondents		Locations		
Fate of the young donkeys bred	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Kept and used for work	81	77	74	77	90
Sold in market	42	43	43	26	63
Given away to a friend	10	20	5	1	38
Sold privately	10	8	12	6	10
Stolen	7	6	1	1	21
Loaned to a friend	1	5	3	1	3
Kept as pet and not used for work	3	3	2	3	5
Other	7	11	10	11	2
No. of respondents	**298**	**119**	**148**	**153**	**116**

Table 22A. What is done with the old donkeys.

	Respondents		Locations		
Fate of the old donkeys bred	**House-holders**	**Trans-porters**	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%	%	%
Kept and used for work until they die	50	38	58	44	29
Sold in market	48	28	43	30	44
Kept and not used for work	19	26	18	26	15
Sold privately	2	1	1	2	2
Given away to a friend	1	0	0	0	1
Left to survive on their own by the road	5	2	4	6	1
Loaned to a friend	0	21	0	0	0
Other	8	26	15	7	28
No. of respondents	**376**	**301**	**251**	**216**	**210**

Table 23A. Causes of sores on donkeys as indicated by respondents at meeting places (feed mills and market places).

	Locations		
Causes of sores on donkeys	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%
Poor feeding	94	10	8
Frequency of work	64	5	88
Weight of loads	40	39	6
Type of load/work	65	17	23
Inappropriate saddle design	77	3	67
Inappropriate harness design	77	21	2
Cannot afford better saddle	9	84	3
Lack of vet care	13	1	18
Poor housing	5	2	0
Type of donkey	1	6	2
Cannot afford better harness	9	0	0
Don't known a better way of harnessing	2	1	0
Don't known a better way of saddling	0	0	2
Don't know	1	13	3
Other	6	0	3
No of respondents	**98**	**87**	**120**

Table 24A. Conditions predisposing to sores as identified by donkey owners/users at meeting places.

Activities	**W Shewa and Addis Ababa**	**East Shewa zone-I**	**East Shewa zone-II**
	%	%	%
Donkey : Coat colour	0	3	0
Other	1	1	2
Type of work/load:			
Wood	1	89	24
Stone	1	8	0
Grain	1	0	0
Construction materials	42	0	0
Other	8	3	0
Size/weight of load:			
Very heavy - over 100kg	40	33	3
Heavy – 80-100 kg	0	61	3
Number of respondents	**120**	**104**	**122**

Table 25A. Practices used when a donkey is sick as identified by people with donkeys at meeting places.

Activities	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Keep isolated from the health ones	38	33	4
Feed extra	75	25	54
Treat with drugs or local remedies	38	35	79
Other	0	50	0
No of respondents	**8**	**48**	**24**

Table 26A. Problems in donkey use and management as indicated by people at meeting places.

Constraints	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Feed shortages	98	39	46
Health problems	11	49	49
Lack of veterinary services	2	5	0
Harnessing and implements	1	0	1
Reproduction related	1	0	0
Others	16	49	21
No of respondents	**111**	**97**	**57**

Table 27A. Size and age of donkeys examined at the meeting places.

	Location	N	Mean	SD	Median	Max	Min
Age of donkey (yr)	W Shewa and Addis Ababa	120	6.9	2.5	7	15	2
	E Shewa zone-I	104	8.4	2.9	8	17	1
	E Shewa zone-II	122	8.9	4.6	8	28	1
Height of donkey (cm)	W Shewa and Addis Ababa	120	118	18	119	152	89
	E Shewa zone-I	104	99	7	99	142	80
	E Shewa zone-II	122	100	4	100	110	87
Length of donkey (cm)	W Shewa and Addis Ababa	120	118	21	105	157	83
	E Shewa zone-I	104	139	11	140	171	110
	E Shewa zone-II	122	98	7	100	118	74
Girth of donkey (cm)	W Shewa and Addis Ababa	120	109	8	109	165	89
	E Shewa zone-I	104	119	15	114	155	87
	E Shewa zone-II	122	109	7	110	122	94

Table 28A. Coat colour of donkeys examined at meeting places.

Coat colour	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Grey	63	37	16
Brown	27	30	3
Dark brown	1	0	38
Black	8	27	37
White	1	6	6
No of respondents	**120**	**103**	**122**

Table 29A. Mouth colour of donkeys examined at meeting places.

Mouth colour	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Black	2	13	3
Grey	0	11	0
White/mealie colour	98	76	97
No of respondents	**120**	**103**	**122**

Table 30A. Physical markings and some physical characteristics of donkeys examined at meeting places.

Markings	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Shoulder cross	92	92	86
Leg stripes	81	36	79
Mane stand: Erect	95	88	96
Falling	5	12	4
Ears: Erect	96	85	93
Lop-eared	5	15	7
Ear size: Large	92	63	98
Small	1	36	2
Medium	8	1	0
No of respondents	**120**	**103**	**122**

Table 31A. Coat type of donkeys examined at meeting places.

Coat characteristics	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Coat hair: Short	83	92	93
Long	7	8	7
Medium	10	0	0
Coat appearance: Shiny	48	12	12
Dull	52	88	88
No of respondents	**120**	**103**	**122**

Table 32A. The activities ranked first or second in importance of those people who trade in donkeys.

Occupations of people trading in donkeys	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Agriculture	87	94	96
Transport	11	1	12
Trader in other livestock	28	32	63
Trader in commodities	9	3	4
Artisan	4	1	4
Government employee	4	0	8
Other	21	15	5
No of respondents	**104**	**73**	**80**

Table 33A. Main buyers of the donkeys sold by the donkey traders (those people ranked first or second by the traders).

People buying donkeys from the traders	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Farmers	80	98	92
Other donkey traders	66	65	72
Transporters	25	3	10
Commodity traders	14	23	14
Others	1	0	0
No of respondents	**104**	**73**	**80**

Table 34A. Strategies adopted by donkey traders with unsold donkeys.

Strategies	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Keep until market demand improves	70	86	88
Take home and sell later locally	59	56	58
Take home and keep	11	13	31
Take to another market tomorrow	21	20	70
Keep until next market day in the same place	10	10	16
Contract someone to sell for you	8	17	0
Other	3	3	0
No of respondents	**104**	**73**	**80**

Table 35A. Practices for housing and keeping donkey that are for sale by donkey traders.

Practice	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Tie up outside home	54	54	81
Kraal	67	37	24
Tie up in shed	31	35	54
Leave free to roam	7	18	26
Tie up in family home	9	10	5
Other	20	37	27
No of respondents	**104**	**71**	**78**

Table 36A. Number of people keeping donkeys with other livestock at night and type of animals housed with them.

Practice	W Shewa and Addis Ababa	East Shewa zone-I	East Shewa zone-II
	%	%	%
Percentage of people housing donkeys with other livestock at night	23	59	69
No of respondents	**104**	**73**	**80**
Type of livestock kept with donkeys:			
Cattle	62	100	100
Other equids	33	36	2
Small ruminants	5	10	2
No of respondents	**21**	**42**	**54**

Livestock Production Programme Project R7350 – Donkeys in peri-urban Africa – University of Edinburgh, Easter Bush, Roslin, Midlothian, EH25 9RG,UK

DFID Department for International Development

Centre for Tropical Veterinary Medicine
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ISBN 0-907146-13-9