

First impression of the livestock component in a MUS

Case study report MUS site; Lege-Diny, Dire Dawe

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FIRST IMPRESSION OF THE LIVESTOCK COMPONENT IN A MUS

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Abbreviations

CRS	Catholic Relief Service
HCS	Harar Catholic Secretariat
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
MoA	Ministry of Agriculture
MUS	Multiple water-Use System
NRM	Natural Resource Management
PA	Passant association
PRA	Participatory Rural Assessment

Introduction: MUS and livestock

Engineers use to design water use structures for household use (drinking, cooking, etc) or for productive use (irrigation). In practice local communities use the water supply systems for their actual needs which can be domestic and/or productive. In Ethiopia livestock plays a key part in the different farming systems and therefore is an important water user. Like water, livestock is both for domestic and of productive use to rural communities.

Part of the project (the second research question) is focussed on creating a knowledge base on existing MUS in rural and urban areas, including indigenous schemes. This report will give a first impression of the livestock component of the MUS in a site near Dire Dawe, Ethiopia. It will contribute to the description of the general features related to the livestock in livelihoods of agro-pastoralist and will propose indicators to measure the impact of the MUS on the users and uses of livestock in this system.

Brief site description

IWMI's development partner in Ethiopia is CRS (Catholic Relief Service). CRS is working with several Catholic missions through out Ethiopia. One of them is the Harar Catholic Secretariat. This mission has a special office focussing on development work. Lege-Diny is one of the sites where HCS has development activities like i.e. NRM and the establishment of a MUS. IMWI will use this site as one of their learning sites.

Lege-Diny is a passant association (PA=local government unit) situated 31 km east of Dire Dawe. The PA has 12 villages and covers about 6023 ha. One village exists of 50 to 70 households. Elevation ranges from 1100 to 1650 m above sea level and annual rainfall is between 400 and 650 mm. The people living in the area are called Gorgora: a tribe that has Somali and Oromo influences and is Muslim. Their farming systems vary from pastoralist to agro-pastoralist. The people that we visited are agro-pastoralists. They have a limited number of animals and the men travel max. 3 months in the dry season in search for water and feed. In the wet season they grow mainly sorghum. The average land size per family is 0,7 ha. About 60% of the households have one ox, 7% have two and the rest of the households have no ox to plough their fields. HCS did a base line study at the beginning of the project (2002?). Fig. 1 gives details on the numbers of animals in the PA.

Cattle	1996
Goat	2425
Sheep	1259
Donkey	208
Chicken	194
Honey bee colony	44

Fig. 1; Number of animals (HCS base line study, 2002?)

The area has been under food aid since 1984. The average household produces only enough food for about 3 months. Additional food is provided through food for work programs coordinated by HCS (?).

Methodology

We spend five days in the field and used PRA tools for data collection. The intention was to use cart techniques, but since none of the participants could read and write we switched from visual to a more verbal way of data collection.

The first field day was used to get familiar to the area and to make appointments with the two villages. Since this was the first meeting of the MUS project we just did an open invitation and a lot of people, both men, women and children, came to the meetings (up to 40 for each meeting). Information is therefore only specified for gender but not for differences in soc/ec. status¹. In both meetings around 12 people (men and women) participated actively in the discussion. The other group members would just listen and nod. Some came late and other left early. Reasons for this was that they had work to do and that the shady area was becoming smaller and smaller. In both meetings most of the men were consuming chat.

The focus group discussions were held with help of a checklist that we prepared in advance. In the first focus group discussion we identified the different type of animals that are within the livestock production system. Next we discussed the cost and benefits related to these animals. Finally we discussed who (men, women, children) were bearing the costs and gaining the benefits of livestock related assets.

During the second focus group discussion (with the second village) we briefly gave an overview of what we had discussed during the other meeting and continued with a ranking exercise. Appointed people explained what animal they liked most and why. Both women and men were asked. We further discussed what changed after the installation of the MUS in their livestock keeping system. Last topic that we discussed was the role of the PA in livestock keeping and the existence of other local groups/ social relations related to livestock.

For the meeting with the women milk group we also prepared a check list of topics related to their organisation and activities and the gaps in our information that we gathered previously. As we visited their daily meeting where they collect the milk we observed and asked questions that emerged from the circumstances.

Observation has been an important information source in combination with the information we derived from our key informant and translator, Mesfin. Mesfin comes from the Harar region and is working for HCS as an agricultural technician in the Lega Diny PA. As he participated in the base line study and has spent a lot of his time since in the villages he is a good source for information.

Livelihood costs and benefits of livestock for men and women

Information for this chapter is mainly derived from the cost benefit analysis and the ranking exercise supplemented with the information of Mesfin. It specifies the gendered costs and benefits for the different animals that are in the system: chicken, goat, sheep, cattle, camel, donkey and bees.

Chicken

Benefits: The chicken seems to be a women's asset as it 'belongs to the house'. The main products derived are eggs and meat. Both are consumed at home but also sold in the market. When I ask how they are eating the eggs and on what occasion they answer that they just eat it like that (which I presume is like the highlanders who eat scrambled eggs for breakfast) and sometimes use it as medicine; mix the raw egg with sugar and feed it to their children when they are feeling weak.

The eggs are sold on the market for 25 cents a piece (approx 0.03 USD cents). The money is used for buying kerosene, salt and to pay the grinding of grains. Some of the money is also saved to invest in goats. It seems that this money is controlled by women. One lady stated that she could spend the money of the eggs without any discussion with her husband. Live chicken are most of

¹ May be interesting to know is that most of the food aid/food for work programs are based on community based poverty assessments

the time sold on special occasions like Christian holydays. They can also be sold when there is an immediate need for a little cash.

Costs: When we do a ranking exercise one man is joking that he prefers the chicken as they need no labour at all. When I ask if his wife agrees with this statement he replies she is not around. But there is a truth in his comment as women mainly invest in chicken. Men only help in building the chicken house and might sell some chicken on the market for their wives. During dry season chicken are fed with grains from their own field like; sorghum, maize and wheat. In the wet season the chickens just roam around to look for seeds and insects. The only medicine that they provide is garlic (I guess against flees). In the case of special breeds provided by Ministry of Agriculture (MoA), MoA also provides vaccinations. Both men and women purchase chicken on the market.

Goat

Benefits: People like goats as it delivers within 5 months, it can be sold immediately when there is a need for cash and it is more easy to sell a goat than an ox on the market – meaning that the chances of having sold a goat at the end of the market day are higher. Also, oxen are more expensive and people generally have fewer oxen so it means selling a large portion of one's assets. Male goats are fattened and then sold on the market, most of the time by the men but the money is looked after by the women and mostly spent on household needs. The selling of goats is mainly done in time of need for food or bigger spending like clothes.

Goat meat is also consumed as far as I understand on a regular basis as they refer to it as their vegetable. It is even fed to camels when they are weak. In the ranking exercise women mention that the advantage of a goat is that you can milk it whenever they like or feed the meat to their children.

Milk is both consumed at home, for example in the traditional tea and sold at the market by women. They mention that milk can also be used for people who are ill or weak as a medicine. As the selling procedure for eggs and milk is the same and going through the women's milk group I presume women have the control over this income resource. One man compares goats with sorghum; 'the immediate use is for females'.

At funerals a goat is slaughtered and consumed.

Costs: The herds are divided into fattening groups and animals for household purpose like milk and reproduction. As women are responsible for animals that are close to the house they are looking after the lactating goats and milk them.

At night goats are kept or in the house or in fenced areas near the house. Women are responsible for cleaning these areas while men are the one constructing them. Protection, the search for grazing area and the herding of (male?) goats is also a typical men task. Children can help both with household related tasks or herding.

Different types of medical help are practiced. Traditionally, skin diseases are being burned with hot metal. In times of drought they give a special type of mineral rich soil that is found up north. This soil provides animals with essential minerals that help them to stand long periods of little consumption. But also the MoA provides medication (unfortunately erratic available) and free vaccination.

Goats are purchased at the market when men are selling their oxen or as an investment of women's saving from eggs/milk. For no special occasion goats are also offered to relatives as a gift. According to Mesfin women bring some animals, mostly goats, with them when they get married. They have complete ownership over these animals and the cash in case of selling. The skin of the goat is used for sleeping and as a prayer mat. Nice to see is that when men are in the field watching their animals, or on their way to the market they carry their mat on their shoulder.

Sheep

Apart from the religious value of sheep within the Islam, sheep are quite similar to goats. The milk is used for butter making and home consumption and only sometimes sold to the market. Because of its religious status sheep is mainly consumed on religious days like Friday, the end of Ramadan, Mawlid and other celebrations like weddings. Men sell sheep at high prices at the end of Ramadan and Mawlid.

The skin of the sheep is also used for sleeping and praying but it seems that the goat skin is preferred as it has fewer insects (there seem to be a lot of jokes about sheep skins as sleeping mat...).

The costs for sheep are the similar to goats.

Camel

Benefits: Camel is known for its transportation utilities. If you look around a Dire Dawe shop where they sell TV sets or other electronics, the dimples in the boxes show that they have been on a camel's back coming from Djibouti. The people interviewed referred to their camels as their vehicles. They are also used to transport the mineral rich soil. The main advantage of camels is that it can stand severe drought, diseases and helps people to survive in this challenging ecosystem. A woman explains that it even eats the green cactus! (seems like a local indicator of coping with severe drought?) The camel provides women with milk that is being used both for home consumption and to sell it on the market. Also this milk is a women's asset. They are trying to make butter but are still looking for a started. The male camels are mainly used for the transportation and fattening. Camel meat is only consumed at a village level to celebrate for example the last day of rest before the harvest period.

Camels together with other animals are a status symbol. But at this time people have only two camels maximum. (It is not clear if this is a quota set by the community, government or because of the poverty criteria related to the food for work activities).

The income that is derived from selling camels is spend on: 1) purchasing of goats and sheep for rearing and fattening, 2) house construction, 3) or one male camel is changed for three female camels to increase the herd. This exchange is often done with the smugglers that are passing through the area.

Cost: The feeding of camels is less laborious than for other animals. It also does not need any protection against wild animals like hyena. Most of the work related to camels is done by men. Even the milking is a men's job as camels are very strong and big.

The MoA provides medicine and vaccination. But also traditional medication is used like special leaves or goat/sheep meat. The later is against weakness. They feed the camel this meat and do not feed him for the following two days. Also the young born need special protection against rain.

(purchasing of camel?)

Cattle

Benefits: Cattle are perceived as a difficult animal because it is very sensitive to drought situations. In the ranking, none of the people mention cattle as their favourite. Only after the meeting one man wonders why no body mentioned the cow as number one as in good years it gives a lot of benefits, more than other animals.

The cows are giving milk that is being sold by women at the market and used for own consumption. Women also process butter for own consumption. Oxen pares are used, similar to the highlands, for ploughing and for fattening. They are sold at the market by men and in some occasions eaten at a community level just like the camels. If a big ox is sold, the money can be invested in different ways: 1) they buy three smaller oxen for fattening purposes; 2) they buy

goats and sheep for rearing and fattening purposes which are later sold to meet household needs; and 3) house construction

The skin is used to pack manure and other things to transport on the back of camels.

When a man wants to marry he has to offer the mother of the bride a cow that is pregnant. If he has no pregnant cow he may offer an ox. He also needs to sell an ox to buy all the household utensils and construct a house.

When three or more children die in one family at once an ox is slaughtered and consumed as a sort of sacrifice.

Costs: The search for food, which is a male responsibility, is time consuming and sometimes costly. As cattle can not easy brows men and children sometimes have to walk far distances in search for feed. In some occasions men purchase industrial by products from Dire Dawe.

Most of the labour input is done by men except for the milking. Vaccination service is offered by MoA for free. Other medicine can be bought from MoA (if medicines are available). The mineral soils are used as traditional medicine.

When a family has only one ox they can share their ox with another family that has only one. (same system as in the highlands).

Donkey

Benefits: The donkey is mainly used for transport by both men and women. It transports goods to the market, grains to the mill, utensils to the field, water, etc. They are also used to transport the mineral rich soils. Donkeys are only sold if there are too many (more then 2 or 3). Lately the price of a donkey is becoming as high as for an ox. Advantage of a donkey compared to camels is that they can walk to more steep and sloping areas.

Costs: There are almost no costs involved in keeping donkeys. They look for their own food and no medicine are provided, except for the mineral rich soils. Farmers only need to protect them from hyena's and prevent them from damaging one's property.

Donkeys are exchanged between relatives that have a strong relationship. Also donkeys are bought on the market.

Like in the highlands relatives lend their donkeys to each other (gender?) when there is a need.

Bees

We did not discuss bees in detail. It was only mentioned when we did the ranking exercise. The advantage of having a bee hive is that it can be used as collateral for credit. It also does not need a lot of labour or other inputs. HCS is intending to improve the bee keeping in the near future.

Enabling change through MUS

Before the establishment of the MUS people, mainly women and children had to walk between 4 and 6 hours to fetch water. We discussed what changed after the establishment of the MUS.

Apparently so much changed that people did not know were to start to answer this question. The direct changes related to livestock can be divided in three main categories; time allocation, human health and increased production.

Time allocation

The women explain that they save a lot of time, around 4 hours to spend in a different way.

Before men or older children where looking after the smaller children in the morning when the women would fetch the water. A lot of accidents happened like children eating dirty things from the floor. Women also have more time to feed their young children. As men do not have to watch children and small ruminants any more they can go to their fields earlier in the morning.

Men were telling that women now have time to prepare and bring the traditional thee and food to the field. Also women are helping their husbands now crop production activities. Women have time to organise themselves into the women milk group and go to the market for business. For the children also a lot changed. Before the project the school was not functioning. I do not know why, but now half of the children is going to school. The other half is attending the Koran school.

Human health

Before people were even drinking water from the pond which was also used for the animals. Now they only drink the groundwater which is not polluted. The women tell me specially diarrhoea amongst children has diminished.

Crop-livestock production

Different aspects influence the production: 1) frequency of drinking 2) the amount of water that animals drink, 3) amount of feed consumed, 4) and energy that it costs to drink and eat. Before animals used to drink only once in the two days but now this changed into two times a day. Because of the shorter distance animals are less exhausted and have more appetite. Also the number of spontaneous abortions diminished noticeably. Both men and women indicate a direct link between the improved diets of animals (amount of water and feed) and the increase of milk production per animal.

Indirect changes related to livestock

There seems to be an increase in income as more milk and animals are being sold at the market. When we ask how this extra money is spend the women answer it is used to upgrade the basic living conditions. We visit one of the houses to see what improvements are made. In the house we see different improvement promoted by HCS. For example a division between sleeping area for people and animals, cupboard to keep food in order to protect from insect and animals, and a simple improved 'stove' to save energy.

The milk association is also called as a new activity that is started after the instalment of the MUS. Because women have more time and milk they can go to the market. With a little assistance of HCS the milk groups were formed. A few small groups (3 persons) already existed. The idea of the milk group is based on the traditional idder groups that are also known in the highlands. The newly formed milk groups exist of 14 women. The women gather every morning to collect the milk (mixed cow, goat and camel milk) and eggs and they go in turns to the market. The money earned is partly for the woman selling it and the other part is for collective saving. They developed their own regulation system. As no body can read or write they just remember who's turn it is to go to the market and how much everybody is contributing. Women contribute 0.5 or 0.75 litres of milk a day. In total they are selling around 8 litres per day on the market. They have a special calabas for the 0.5 and the 0.75 litre which is equal to 2 and 3 birr (1 USD= 8 birr). Every woman remembers how much the others contributed in 'her' round and she will return the same amount to these women in 'their' rounds. If women have no milk because their cow or goat is pregnant, they can contribute eggs to stay part of the group. When I asked what the women do when they are pregnant themselves they answered very proudly that they will walk until the last month of their pregnancy. If they can not go themselves they will send a relative. Only women that are married are part of the women's group.

It seems that the women are very proud on their achievement of the milk group. They are saving for a generator to grind their grains. I asked where they spend their personal money on. Part of it is kept aside for saving the other part is spent for household purposes.

Direct changes not related to livestock

These findings are mainly based on observations, discussions I had with Mesfin and some of my own thoughts. In the discussions with the community I focussed on livestock but this information might be of interest for people looking at other research areas.

- Men have more time and water for crop production and are experimenting with new crops and management techniques.
- Papaya production provides extra income for both the association and for women who grow papaya in the backyard. People also seem positive about home consumption of papaya. Interesting part of this experiment is that women were not included in the training but even though they are planting papaya in their backyards. They told me that their children who were involved in the training or who were working at the communal papaya field informed them how to manage papaya trees. The same happened to the production of chilli peppers. (interesting example of learning)
- To maintain the different water structures water association were formed composed of men and women. Their responsibility is to maintain the water infrastructure and to collect the water fee. Also for the papaya plantation an association is formed. Till now all income of this plantation is saved to enable new community based investments.

The interesting part is that people learn to organise themselves, learn to plan, manage and learn how to save money at the bank as some of these associations also have a bank account. Traditionally Ethiopian society knows different kinds of credit and saving groups (idder, ekub). Most of the time these groups are related to cultural events like funerals and religious days and not for productive use. People do not have much experience with the formal banking system and tend to invest in livestock as a personal saving. This often is a risky investment, specially in an area that is drought prone. When discussing this one man explained that it is risky to sell animals before severe drought as he might not be able to replace their animals by the time the drought has ended as the cash will be spend on other matters and the prices are higher. So the fact that people are now 'experimenting' with a different type of saving might contribute to a more thrust worthy saving habit in the future. It looks that people in this area trust each other more than in the highlands.

Note: I do not know what type of people are in these different associations (relation to PA) and who appointed/choose them.

Intended change in the future

An other change that HCS intends to make also relating to livestock production is the introduction of a cut and carry system in the NRM site close to the villages. Effort is put in soil and water conservation measures and the reforestation of the area. Local grasses are multiplied near the MUS and will be sown next year. The idea is to regenerate this site and only allow people to gather fire wood. In two or three years from now people will also be allowed to cut and carry the grass and leaves of the forage trees. According to Mesfin even women could do this job which might have a gender implication as women will then be responsible for the feeding of animals.

Ideas for indicators/ indicator areas

In the 'Draft framework for Research on Implementing MUS at End-user Level' a uses and benefits baseline is proposed looking at the impact of MUS in a system. Uses and benefits can be domestic, productive or cultural. Livestock here is seen as a productive asset.

In this chapter five indicator areas are proposed to measure the impact of MUS on the livestock component of a (crop)-livestock system; 1) number of animals; 2) composition of herd; 3) inputs/costs; 4) outputs/benefits; and 5) gender roles and responsibilities.

Number of animals

- The change in the number of animals in total and the increase/decrease for the different species

Composition of herd

- **change in number of different animal species (incl. sex) within the household

'Costs'

Costs and benefits are analysed based on the five capital values derived from the Sustainable Livelihood Approach.

natural

- change in amount of water used for drinking and growing of forages
- change in area used for grazing (in m²)

financial

- **change in livestock related financial investment (medical care, animal feed, purchase of animals)

physical

- *change in veterinary services (governmental, community based)
- *change in extension services provided by the government, NGO's (...)

human

- ***change in time spend on livestock production activities (watering, feeding/herding², milking, cleaning, protection, construction of shelter, health care, marketing of animal products and services)
- **change in knowledge on livestock-water productivity (milk/meat production, services, health, etc.)

social

- ***change in dependency on social networks (ox and donkey sharing, [food for work³, child care, etc.]

'Benefits'

natural

- change of grazing areas (vegetation cover improved/degraded, signs of erosion)
- the use of animal dung as fertiliser

financial

- ***changes in income derived from livestock products and services (meat, milk, transport, eggs, live animals, butter, hides, honey)
- **changes in credit and saving system ([formal/informal system], investment in livestock, bee hives)

² If a cut and carry system is introduced feeding might become a women's task!!

³ Safety nets are part of the new strategy of the Ethiopian government to reach food security. Food for work is considered to provide safety nets.

- **[changes in saving habits (amount of money saved, type of investments)]

physical

- ***change in animal traction, transport (number of oxen, donkey and camels per family)

human

- ***change in health situation (nutrition, disease related to livestock and water, to heavy work load)
- ***[change in school attendance/ literacy]

social

- ***changes in social network/activities (in)direct related to livestock (new groups, different types, formal/informal, power position in community, achievement of goals)
- *change in the role of livestock in social/cultural events like marriage and burials (dowry, etc.).

Gender roles and responsibilities

- indicator 2-4 are marked with * to indicate the importance to specify this indicator for gender (incl. children). * interesting to know but not essential, ** valuable to the project *** crucial in relation to poverty alleviation

[] not directly related to livestock

(?) indication that I am not sure about this information, or that this information is missing