

**FINAL DRAFT**

**SHINYANGA REGION HUMAN DEVELOPMENT REPORT**

**LIVESTOCK SECTOR STUDY**

**December 1997**

by

*Charles Nyamrunda*  
Regional Agriculture and Livestock Office  
P.O.Box 852  
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### **Summary**

This report describes an assessment of poverty in the rural livestock farming communities in Shinyanga region using participatory research techniques. A wide range of opinions on many issues touching the livelihoods of livestock keepers is explicitly presented. The main causes of poor livelihoods are identified as recurrent droughts, ignorance and lack of investment. As a precaution to the droughts, this vulnerable group keeps large herds of livestock, and thus the strong attachments. Further, livestock are the source of many other riches. Irrespective of this rich resource, livestock keepers are poor. To improve their livelihoods, livestock farmers need to change their farming goals: to produce for profit and not otherwise. This calls for a turnabout in attitudes; a development of skills in livestock farming; and some sound investment in poor rural areas.

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**1.0 Overview**

Livestock, especially cattle, form an important part of the Shinyanga regional livestock economy and have tremendous cultural and social significance as well as their economic function. There are suggestions however, that many households do not now own cattle, that the role of livestock is changing and that poor households are able to take on responsibilities for animal care and therefore livestock generating a source of livelihood for them. It is not clear though whether such opportunities are growing or whether they could be further developed through appropriate public policy.

**2.0 Objective**

Within the overall objective of preparing a Human Development Report and Poverty Eradication Strategy for Shinyanga Region, some information from the PPA and from other field work would be used to examine the livestock economy in the context of household poverty and identify locally-based, District and Regional opportunities to strengthen the impact of the livestock economy on the income and well-being of poor rural households.

**3.0 Terms of Reference**

In order to explore the above, a livestock sector study as part of the Shinyanga Human Development Report was carried out to:

- build on the existing literature on the local livestock economy,
- analyse such opportunities
- review the different relationships between poor households and the evolution of the livestock economy.

The study intended to:

- a) Review the present, past and potential future contribution of livestock production and marketing to the economy of Shinyanga region; assess the contribution of livestock to the regional GDP and describe the relative importance of livestock in each district.
- b) Examine the impact of livestock ownership on the economic and social status of rural households, including the participation of wealthy and poorer households: men,

women and children and the relative importance of livestock for income and employment generation; provide an analysis of variation in herd size and composition by type and use of animal including draught, milk and meat as well as by-products such as ghee, manure, hides and skins.

c) Assess the productivity of livestock keeping, including cattle, sheep, goats and other minor stock, under different management practices in different parts of the region; propose appropriate strategies for overcoming constraints and raising productivity.

d) Review the implications of livestock ownership and management for environmentally sustainable land use and examine conflicting demands on land use between grazing and other uses especially crops.

e) Examine the marketing and pricing of livestock, providing seasonal analysis and explanations of price differentials over time and space including the effects of interlinked transactions and the economic status of buyers and sellers; examine in particular livestock prices in relation to food prices and availability, utilising an entitlements framework to assess the role of cattle ownership in household food security strategy.

f) Examine the different responses of livestock owners to drought, and assess how risk, related especially to drought, affects the household livestock economy.

g) Discuss the involvement of women, children and men in livestock management and their share in the income; make an assessment of the changing social significance of livestock ownership in the rural economy and whether this has affected or is affecting gender relations with particular reference to welfare within the household, access of women to other productive resources, use of livestock for marriage payments, and roles of women and men in livestock production and marketing and in the control of the resulting benefits.

h) Review recent trends and current adequacy of service provision in the livestock sector, including measures for upgrading cattle and other stock, disease control, improvement of water supplies, grazing management, credit, marketing facilities, research and extension. Assess the adequacy of State, private or community based provision of these services, with particular attention to the impact on poorer families and female-headed households.

i) Review the way in which public policy, including recent or proposed changes in such policies, impact on the livestock sector and identify opportunities to improve this impact through new forms of land ownership, grazing controls, water management,



credit provision, veterinary and extension services. Relate this analysis explicitly to poor households in general and poor households with livestock interests in particular.

j) Summarise impact of livestock sector on poor people in Shinyanga region and suggest measures which would enable poor people including women to participate more fully and get more benefits from this sector.

#### **4.0 Livestock Sector Study**

##### *4.1 Study Design*

Soon after the training on Participatory Poverty Assessment and two weeks village-based PPA fieldwork in various villages in Shinyanga region, a number of sector studies including one on livestock were conducted in the region.

A livestock sector study was conducted between 15th August and 12th September 1997; and in addition to fulfilling the above terms of reference, the study was required to utilise participatory poverty assessment methods to seek for information from appropriate sources. The sources would include government offices, private firms, village groups, and individual livestock owners and non-owners.

The study was designed to cover all districts and a reasonable representation of the various livestock farming systems in Shinyanga region which was the recommendation domain. To enable this, the six rural districts in Shinyanga region (Bariadi, Bukombe, Kahama, Maswa, Meatu and Shinyanga Rural) were considered as separate blocks within which some randomised sampling of the villages and farmers to be studied was done. The seventh district (Shinyanga Urban) being more urban oriented than others was identified for studies on smallholder dairy farming.

Some main areas of livestock farming systems to be embraced in the study were: production and productivity, management and husbandry, environmental management and land utilisation, animal health, socio-economic dimensions and institutional influences.

Throughout the study some specific focus would be on poverty, gender balance and micro or household livestock economy. This is in recognition of two important facts: smallholder farmers and pastoralists whom significantly depend on livestock in the support of their livelihoods and lifestyle are a vulnerable group (Watson and Cullis, 1994); and in almost all countries there are more women than men at the lowest level of income (UN, 1997).

## *4.2 Methodology*

Three main factors influenced the choice of places to get the information, the people to give the information and the methods used to collect data:

- ◆ meeting the main objective set for the research ie assessing poverty amongst livestock farmers and opportunities for raising their livelihoods,
- ◆ the nature of the livestock farming systems in Shinyanga region whereby nearly all farmers are smallholder and subsistence, keeping livestock for survival rather than profit,
- ◆ the limited institutional support provided for the study, particularly time factor.

### *4.2.1 Village selection*

Most work was to be performed in poor rural villages in the region where although people reared livestock, their livelihoods were poor and they were a vulnerable group.

Another criterion for the study was to include various ethnic groups existing in the region because these practiced at least different livestock farming systems and had different perceptions towards livestock. Therefore the study covered the major ethnic community in Shinyanga ie the Sukuma and the minority groups as well ie Taturu, Nyamwezi and Sumbwa. Moreover, it considered a small but prominent immigrant Tusi community.

Two villages were selected from opposite sides of each district to allow a better cross-section and wider representation of the Shinyanga community. The selection also took into account that a third village in each district had already been assessed by a PPA team and the results would be incorporated in the report.

Each rural district office in the region provided names of two villages that fulfilled requirements of the study (Fig. 1). The villages were: Byuna and Bunhamala Mbugani (Bariadi), Mwang'holo and Lali (Maswa), Mbaragane and Mwabagimu (Meatu), Ikonda A and Butuyu (Shinyanga Rural), Kabanga and Malilita (Kahama), Ishololo and Munekezi (Bukombe).

Mr Mabula Mangu, a Sukuma from Malilita with 465 cattle and Mr James Petro, a Tusi from Msonga with over 600 cattle both considered to have relatively large herds of cattle were separately assessed to add to the lot. The assessment also covered two farmers with small numbers of cattle: Mr John Shilatu of Ikonda A with two cows and Ms Salu Maguta a female from Byuna who had just bought one heifer. More views were sought from Mr Masanja Masalu, a Nyamwezi from Kabanga and Ms Maria Maneno, a Sumbwa from Munekezi both keeping no livestock.

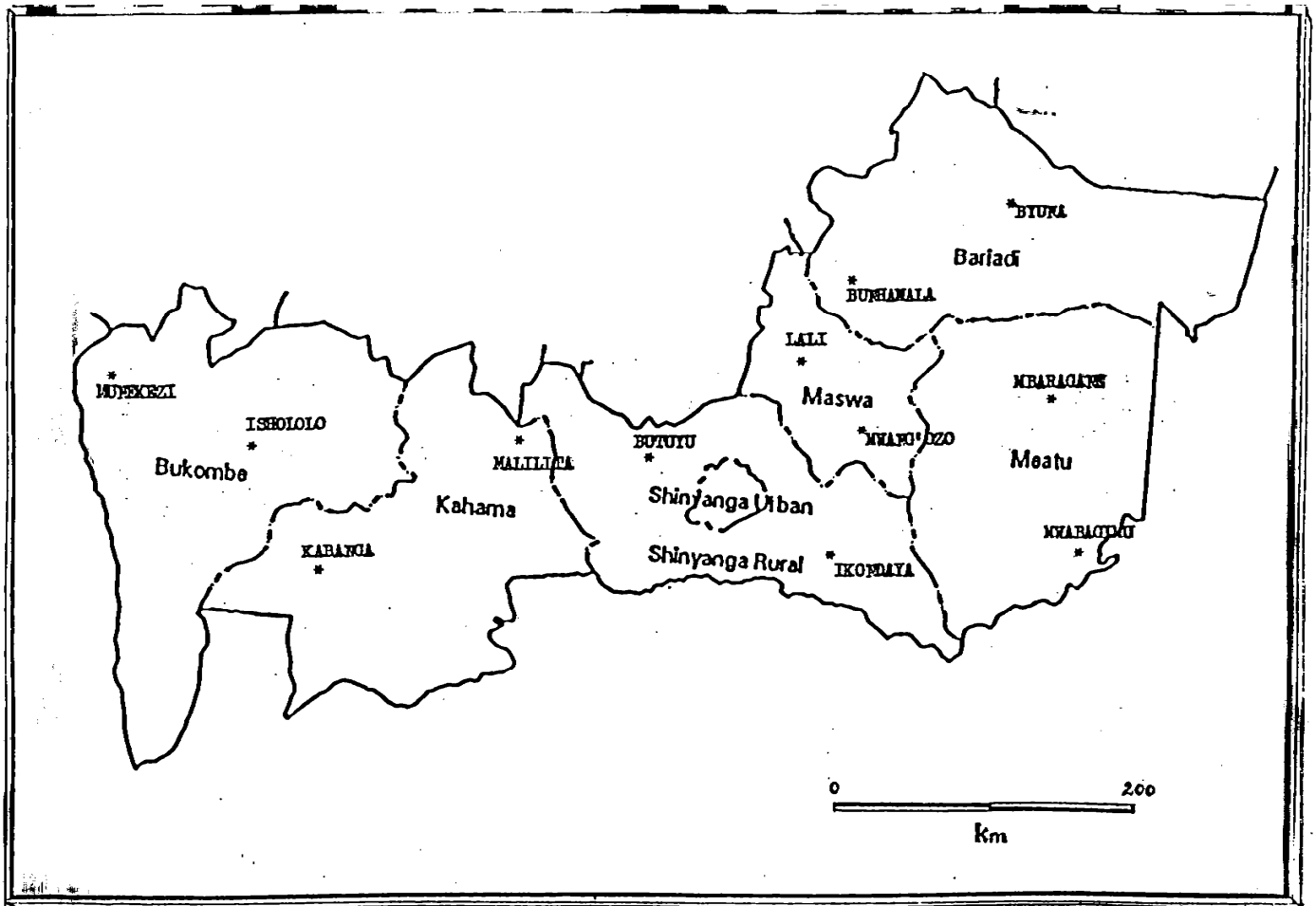


Fig 1: Distribution of villages for PPA

This approach on the overall, resulted in data from 20 of 817 villages, representing about 2.5% of all villages in the region. In addition, two smallholder dairy farmers in Shinyanga Urban, Mrs Regina Charles and Mrs Adeline Mbise with two and six cattle respectively were interviewed. These two farmers represented 143 dairy framers in the region. Some information on livestock marketing and pricing was gathered at Mhunze and Bukundi livestock markets. Lastly, some official data were gathered from the regional and district offices on livestock counts, production and sales to add to the information from the villages.

#### *4.2.2 Range of information*

The PPA sought information on importance of livestock to households and how they stood among other possessions; sizes and composition of livestock herds; ownership and management of livestock within households; and main beneficiaries from livestock. This work also looked into livestock farming systems, grazing patterns, management practices, land utilisation, and effects on environment. Further, it looked into source of labour, involvement of women and children, crop-livestock conflicts on land, stocking rates and stock movements, and effects of recurrent droughts.

The research assessed the levels of production of livestock, outlined the constraints behind low productivity and suggested interventions for change. Some information was further gathered on sales of livestock and livestock products, livestock marketing and consumption and implications of these on people's livelihoods.

During this work the effects of some major policy changes such as liberalisation of trade and privatisation of veterinary services were assessed; and some services currently provided by the public and private sectors were reviewed. Additional information was sought on existing local or village and household policies on livestock management and husbandry practices.

#### *4.2.3 Data collection: PPA methods*

Various participatory poverty assessment techniques were applied to establish data. The methods were to be informal, by not using specific questionnaires, but had an underlying precedence of involving community members in setting questions and giving possible answers to their own needs. The methods included:

- *Group discussions and semi-structured interviews* to exchange, debate and analyse information generated during participatory exercises on all aspects of the sector.
- *Transect walks and direct observations* to learn about the local or micro socio-physical environment eg landscape, land distribution, soil types, vegetation, fodder trees, fodder reserves, type and quality of pastures, crops and their by-products

available as livestock feeds, grazing lands, water sources, housing and kraal types, types of livestock in village and health and nutritional status of livestock.

- *Village maps* to show resource and social services allocation eg main topographical features, watering points, grazing areas, cropping areas, dip sites, veterinary service centres, localities of 'big' livestock farmers, other resource allocations and other infrastructures in the village.
- *Seasonal calendars* to see how some items eg grazing patterns, use of labour, rainfall, fodder and water availability, fodder conservation, livestock migrations, health and nutritional status of livestock, disease incidences, milk production, culling/selling of livestock and livestock prices fluctuate during the year.
- *Activity profiles* to explore the relative importance of various activities and when they are performed and by whom in the household eg grazing, milking, ghee preparation, dipping, selling of livestock and by-products, maintaining and cleaning kraals and reporting the sick animals.
- *Timelines* to point out main changes the community has undergone or events rememberable to them as being significant eg major droughts, pest incursions, disease epidemics, floods, significant livestock emigrations and immigrations, major fire breaks and major livestock policy changes.
- *Historical trends/time trend analysis* to analyse changes, physical or social over time eg changes in landscape, soil stability, vegetation cover and canopy, land use, pasture quantity and dominance, crop yields, water tables, livestock diseases, grazing patterns, husbandry practices and marketing/pricing.
- *Matrix ranking and scoring* to compare and prioritise constraints, opportunities and preferences of issues eg reasons for keeping livestock, perceived status of livestock versus crops, relative importance of different types and criteria of livestock, major setbacks to livestock productivity, ranking of livestock products and by-products, rating public and private service, dip management regimes, and fodder preferences.
- *Wealth and well-being ranking* to classify or stratify the community according to wealth or well-being, comparison of livelihoods of livestock-haves and have-nots, local criteria for poor and vulnerable households with or without livestock, regard for large versus small numbers of livestock and relative contributions of the two groups, and how female headed households with or without livestock fare.
- *Stakeholder analysis* to identify main beneficiaries of household livestock and livestock products, return to labour on grazing, milking, etc, gains or losses to community from livestock keepers, gains or losses to environment from livestock.

- *Venn or institutional diagrams* to explore the relative importance of institutions and services involved in making some decisions for the community eg governments (central, district and village), NGOs, crops, livestock, local services, infrastructures, external factors influencing livestock keeping eg drought, fodder, water, prices, livestock diseases, veterinary supplies, extension service, education and information.
- *Flow/casual diagramming* to investigate the causes, flows or sequences, linkages of events for example feeding regimes, breeding programs, production trends, marketing of commodities, pathogenesis of common diseases.
- *Secondary data review* from the regional and district livestock offices to build on these data and provide some referral information during the study.

## 5.0 Results

The first part of this section gives some background information on livestock and its economy as provided by the regional and district authorities. The second part presents exclusive information gathered from the villages during the research.

### 5.1 Secondary data: regional profile

#### 5.1.1 Brief geography

Shinyanga region is located between 31° 15' and 35° 15'E and 2° 15' and 4° 30'S in the Lake basin of Tanzania. It lies between 1000-1500m above sea level and characterised by small hills separated by undulating rolling or *mbuga* plains interspersed with large lowlands or *mbuga* flats and gentle slopes (Heemstra, 1992). It has a total land area of about 5,033,325 ha of which 3,073,696 ha are arable and grazable. The vegetation is mainly open bush savanna grasslands with few acacia and baobab trees. Soils are mainly black clays (cambisols and vertisols) but there are areas of clay loams and sandy clays (ferric aerisols).

The region receives about 600-1200 mm of rain falling between November and May but usually erratic and poorly distributed. Mean annual maximum temperatures range between 15°C and 30°C with an evapotranspiration rate of 6 mm per day that exceeds monthly rainfall almost every month, thus resulting in serious moisture deficits.

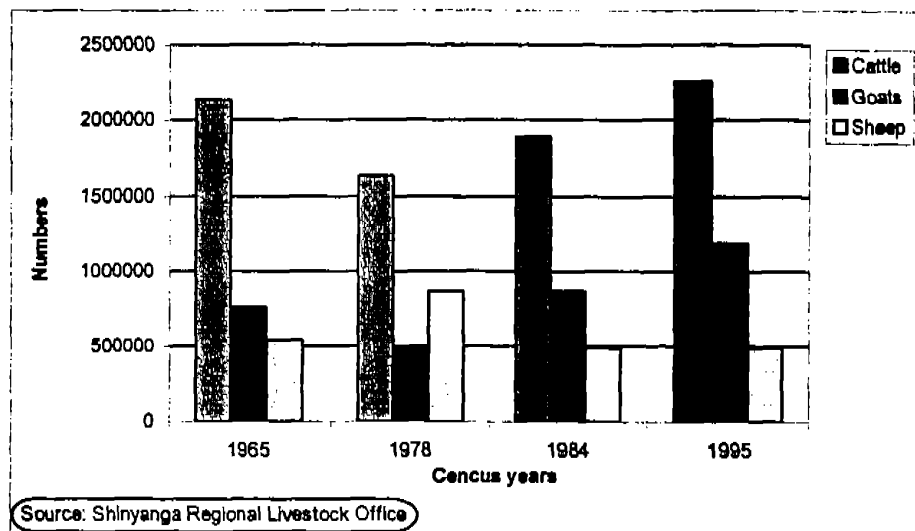
#### 5.1.2 Livestock population

Shinyanga has the second largest livestock population in the country after Mwanza (Bureau of Statistics, 1996). Despite low rainfalls, other harsh climatic conditions and land constraint experienced in Shinyanga, the numbers of livestock have reasonably been maintained for the last three decades (Fig. 2). Numbers of cattle and goats show

a similar increasing trend during the past twenty years but those of sheep appear to initially decline and later stagnate.

The numbers are considerably high because keeping livestock is part of the Sukuma culture and above that, livestock guarantee survival of the people. While official statistics indicate that cattle deaths of up to 2% are experienced in the region due to various livestock ailments, some more move out of the region annually (1%). They move to the central and south of the country because of land constraint and drought. However, the figures reported could be below actual ones because of misreporting.

Figure 2: Official livestock counts, Shinyanga



Apart from a few (about 5000) improved dairy cattle found in townships, most livestock are indigenous kept in villages; the most important ones being cattle, goats and sheep followed by donkeys and chickens. The least important are pigs, rabbits and other birds. In the last physical count conducted in 1984, Bariadi had the highest number of cattle while Maswa had that of sheep and goats (Table 1).

Table 1. Livestock population, Shinyanga: actual count 1984 and sample census 1995

	Kahama/ Bukombe	Bariadi	Maswa	Meatu	Shy (R)	Shy (T)	Totals	Sample census
Cattle	345347	444128	288625	306737	499161	39488	1,916,749	2,262,809
Goats	206259	245901	352779	43341	240270	32777	1,077,986	1,187,706
Sheep	70944	116127	159846	79816	124556	13675	455,145	488,267
Donkeys	3760	211	3377	3605	3895	244	11,487	22,639
Pigs	210	2	82	10	212	102	618	2,934
Chickens	39704	150820	16681	15666	182858	36406	953,613	2,768,913
Rabbits	51	23	43	0	353	167	637	?

?: Figure not available

Source: Regional Livestock Office, Shinyanga and Bureau of Statistics, Dar es Salaam.

### 5.1.3 Livestock services

The big livestock population above is served by 228 public workers (Table 2), 38 registered Part II Poisons private dispensing chemists and a number of unknown (unregistered) workers. Although most paravets have recently been retrenched from public service only one has officially gone private, on the contrary many of them are providing back-door service. They are unwilling to be registered because they have little capital initiative and do not want to pay tax. Those registered as Part II Poisons dispensing chemists or druggists work in all districts but the majority operate in Kahama and Shinyanga Urban (Fig. 3) and besides this, they provide clinical and advisory services to farmers.

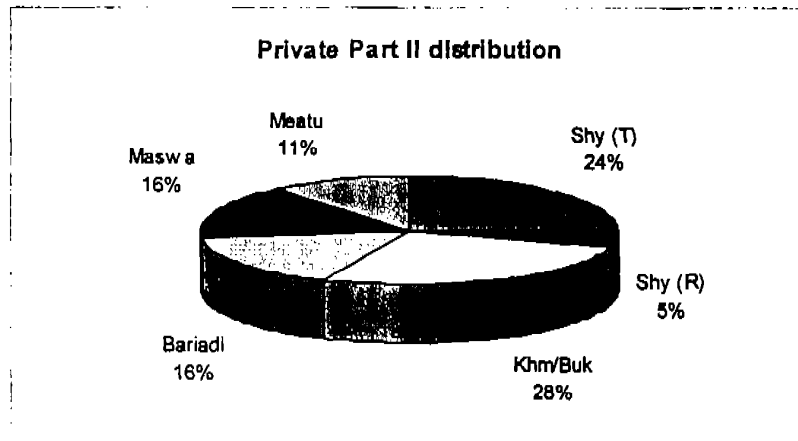
Table 2. Public livestock workers

	Region	Shy	Khm/Buk	Maswa	Bariadi	Meatu	Totals
Veterinary officers	2	2	1	1	1	0	7
Livestock officers	2	0	2	0	0	0	4
Livestock Field Officers	14	35	39	25	35	32	180
Tsetse Field Officers	0	1	3	0	0	1	5
Livestock Field Auxiliaries	0	6	13	1	6	4	30
<b>Totals</b>	<b>18</b>	<b>44</b>	<b>58</b>	<b>27</b>	<b>42</b>	<b>37</b>	<b>226</b>

Source: Regional Livestock Office, Shinyanga

Both public and private workers in the livestock sector attend livestock at various sites such as dip tanks, veterinary centers, livestock markets, abattoirs and slaughter slabs; and they also operate at individual farms.

Fig 3. Distribution of Part II veterinary shops in Shinyanga



Local governments and farmers' associations own most of the facilities mentioned above (Table 3). In the whole, farmers' associations operate effectively six dips, one hide stall, one veterinary drug store, five water charcos and an unknown number of "ngitiri" pasture reserves. On the other hand most facilities managed by local



governments are not functional, for example out of the 154 dips in the region only 10 are working. Along with managing such facilities, a few farmers do provide services to fellow farmers. The services include extension, dipping, hand-spraying, treating sick animals, hide dressing and distribution of livestock feeds. The feeds might be from factories or from the fields eg cut hay and crop residues.

Table 3. Some livestock infrastructures/facilities in the region

	Bariadi	Maswa	Meatu	Khm/Buk	Shy (T)	Shy (R)	Total
Livestock Dev. Centres	10	10	8	10	1	10	46
Dip tanks	31	37	8	40	6	34	154
Livestock markets	2	6	6	6	1	5	26
Slaughter slabs	4	3	3	2	7	6	25
Draught cattle	67273	41028	21214	28278	6494	74687	246461

#### 5.1.4 Regional livestock economy

##### a) Sales of livestock and livestock products

The contribution of livestock to the regional economy is paramount and in real farmer earnings, livestock rank second to cotton as a major source of income. It has been recorded for example, that earnings from the sale of various types of livestock and livestock products have increased significantly during the last three years (Table 4).

The major types of livestock sold include cattle, goats and sheep while the main products are milk, meat, ghee, hides and skins. It is likely that there are many more earnings on farms and from other informal exchanges of goods and services but not recorded.

Table 4. Income (TSh) from sales of livestock and livestock products 1990/91-1996/97

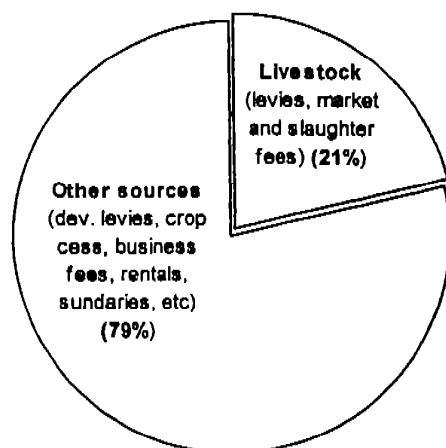
	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97
Cattle	1174473350	1744975505	1692281940	1995132087	4732016200	5971228850	9129058800
Goats	70520975	47671040	82388700	100277740	152927230	167462900	365963800
Sheep	13930125	14453970	14483510	18864066	34002500	40521100	96086000
Chickens	22559833	51503070	48363976	56837335	132646100	116668995	261770300
Eggs (doz)	4841417	14694603	15827071	14767465	67465200	56564206	97360480
Milk (lts)	22526375	34488882	37597328	30513880	59206380	42222330	36027690
Ghee (lts)	6289883	26293320	13870728	8482490	7083425	6997920	19522192
Hides/skins	34356000	47683500	69567500	84332990	78796600	89574790	103652525
<b>Total</b>	<b>1349497958</b>	<b>1981763890</b>	<b>1911769953</b>	<b>2309208053</b>	<b>5264143835</b>	<b>6491241091</b>	<b>10109441787</b>

Source: Shinyanga regional annual livestock reports

The relative importance of livestock in various districts in the region appears to be similar. All district councils collect levies from livestock (between TSh 200-500 per cow and TSh 50-100 per small stock) and charge livestock market fees and slaughter fees of up to TSh 1000 per cow. Livestock levies and fees constitute up to about 25%

of some districts' annual earnings where for example in Shinyanga Rural, out of a sum of TSh 167,648,912 collected as revenues between January and June 1996 a substantial amount came from livestock (Fig 4). On the other hand, of the region's GDP of TSh 30,920 per annum, about 25% is presumably generated from livestock.

Fig. 4. Relative contribution of livestock to districts' gross income (Shinyanga Rural district)



Source: Shinyanga Rural District Council

#### b) Livestock disease incidences and case fatalities

Quite a number of livestock diseases are endemic in Shinyanga (Table 5). The impact of these diseases is expressed by the many livestock deaths; tremendous losses in liveweight; slow or stunted growths and late maturity; abortions; poor quality carcasses and abattoir condemnations; low livestock market prices; exorbitant treatment costs; and other frustration. However, no manifestation or experience listed above can easily be quantified.

Table 5. Reported incidences and case fatalities (in brackets) of major livestock diseases, 1997

	Maswa	Bariadi	Kahama/Bk	Shy (R/U)	Meatu	Totals
East coast fever	1667 (120)	2095 (739)	3269 (938)	1995 (750)	719 (39)	9745 (2586)
Anaplasmosis	1001 (143)	1448 (199)	1221 (193)	2328 (206)	1502 (76)	6200 (817)
Babesiosis	2884 (607)	1415 (220)	1753 (184)	2018 (454)	989 (111)	9143 (1576)
Heartwater	911 (104)	777 (125)	916 (86)	761 (106)	505 (33)	3870 (454)
Trypanosomiasis	0	4936 (2551)	3898 (2770)	0	3458 (912)	12292 (6233)
MCF	0	0	0	0	3064 (946)	3064 (946)
Blackleg	1275 (343)	0	0	937 (83)	503 (94)	2715 (520)
FMD	26 (9)	0	0	33 (6)	0	59 (15)

Source: Regional Livestock Office, Shinyanga

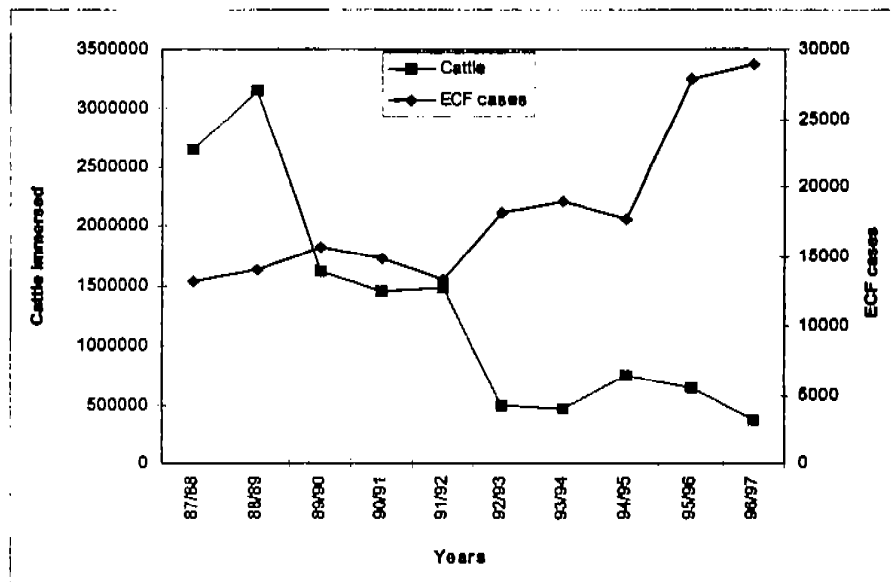
Of most recent, the region has experienced major disease insurgences including CBPP in Kahama and Shinyanga districts (late 1996), malignant catarrhal fever (MCF) in

Meatu ( June 1997), Blackleg in Maswa, Meatu and Shinyanga districts (April and August 1997) and FMD in Maswa and Shinyanga districts (May 1997).

*c) Dipping*

Removal of ticks by dipping was, by legislation, a compulsory exercise in the past and until recently, it has been a routine but important one. In addition to removing ticks and thus minimising tickborne diseases, dipping reduced a number of skin problems. Following structural changes in management policies dipping has nearly collapsed (Fig. 5) and only a handful of dips has survived (6.5%). The main reasons for the failure are, without exception: lack of water, lack of maintenance, poor management and farmers being too poor to purchase acaricides.

Fig 5. Dropping trend of cattle dipped and increase in incidence of ECF in recent years

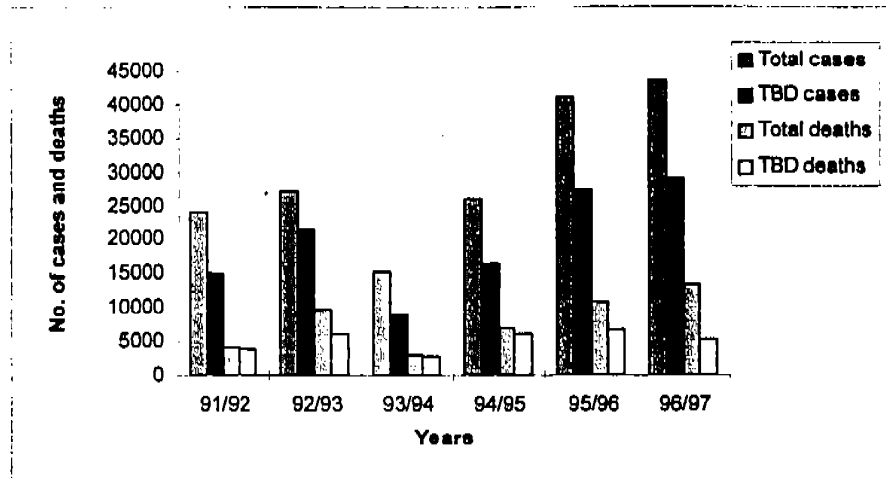


It has been urged that tickborne diseases usually come as a mixed infection in many parts of the country because of the mixed tick infestations usually seen on farms. It is no wonder therefore, that the common TBDs in the country ie east coast fever (ECF), babesiosis, anaplasmosis and heartwater are ubiquitous in all districts in the region (Table 5); and they are the major cause of cattle deaths in the region (Fig. 6). A slack in the rate of dipping coincides well with an increase in the of incidence of tickborne diseases as shown in Fig. 5 above.

Field anecdotes and literature suggest that the main prevalent tick species in Shinyanga include *Amblyomma variegatum*, *A. lepidium*, *A. gemma*, *Hyalomma rufipes*, *H. truncatum*, *H. albiparmartum*, *Boophilus decolaratus*, *Rhipicephalus*

*appendiculatus*, *R. evertsi* and less important *R. pravus*, *R. sanguineus* and *R. simus* (Yeoman, 1967b; Tatchell and Easton, 1986). According to the same authors there is apparent seasonal peaking towards the rainy months and more prevalence in the wetter western parts than the drier east.

Fig 6. Tickborne diseases as a significant part of all diseases in Shinyanga region



#### d) Feeding

Livestock are extensively reared in the region. Pastures are of low quality (CP: 3-4%) and cannot withstand the long dry spells (Skerman, 1968). Biomass production has been found to be 3420 kg/ha only sufficient to stock 1.5 L.U/year (Otysina *et al*, 1996). The depletion of pasture biomass is a result of the continued practice of stocking large herds of cattle on undeveloped lands despite some growth in the livestock population. The common natural fodder grasses, in order of dominance are: *Hyperrhenia rufa*, *Eragrostis superba*, *Cyperus* spp, *Cynodon dactylon*, *Chloris* spp, *Digitaria setivalva*, *Heteropogon contortus*, *Sporobolus pyramidalis*, *Urochloa* spp and *Dichanthium annulatum* (Tuju, 1997). There are also some undesirable fodder grasses eg *Arisitida adscensionis* and *Eleusine indica* that dominate in areas where the desirable ones have already been over-utilised.

In addition to grass pastures, there are a few desirable forbs and trees available as a browse. They include *Tephrosia pumila*, *Stylosanthes fruticosa*, *Acacia nilotica*, *A. polyacantha*, *A. totilis*, *Orchocapus trichocarpum* and *Leucaena leucocephala*. Dispersed among the desirable species are the undesirable *Tridax procumbens*, *Hygrophila acoriculata* and *Conyza* spp (Tuju, 1997).

Dry season pasture fallowing ("ngitiri" conservation) is a growing practice in the region. Here, standing hay, ranging from 0.2-500 ha (Issae, 1996) is conserved on

communal or private fields for use when there are no sufficient pastures in the grazing lands. Nonetheless, the system is constrained by insecurity due to lack of a proper land tenure system; over-use of grazing land; lack of fertiliser application and low fodder quality.

Dry season supplementation is only practised on a few dairy farms in townships and on draught oxen in some districts, particularly Maswa and Shinyanga Urban. Common supplements include maize and sorghum stovers, hay, rice straws, cotton hulls, cottonseed cake, maize bran and rice polishing. Crop residues are fed while standing in the fields.

Because of long dry spells in the region usually accompanied with recurrent droughts, Shinyanga is usually faced with shortages of drinking water. Apart from the 39 permanent sources of water (dams and bore-holes), the rest recurrently dry up. There is some exceptional work however, in Nindo ward in Shinyanga district whereby farmers dig their own charcos and these last up to near the end of the dry season.

#### *e) Breeding*

Apart from the introduction of the *Tarime* sub-species into Sukuma cattle, very little has been done to improve the genome of the indigenous shorthorn zebu cattle. *Tarime*, from Tarime district in northern Mara region, though smaller in size, is selected for its adaptability characteristics to tickborne diseases and ability to withstand reasonable levels of drought.

Within herds there is little or no selection towards balanced herd compositions. Culling programs for better management and farm efficiency are yet to be introduced. It is regrettable therefore, that most farmers continue to keep old and unproductive cattle in their herds irrespective of the high keeping costs they experience.

There are just over 6000 Holstein-Friesian crosses in townships for dairy purposes; their parents came from livestock farms in Mwanza (Mabuki), Kagera (Kikulula), Mara (Utegi and Baraki), Mbeya (Kitulo), Mwanza and Kahama. A handful of Mpwapwa and Boran cattle in Shinyanga township in particular, did originate from the defunct Malya Research farm. Individual producers continue to be the main source of dairy heifers.

Despite that urban dairying contributes significantly to the dramatic milk supplies in townships (for example Shinyanga receives approximately 7500 litres per day of which 70% is produced within the town), its future is highly questionable. The evolution of the system and its continuation will depend on changes in urbanisation policies and developments in hinterland milk production (Nyamrunda and Sumberg,

1996). Three scenarios are likely to emerge: a continued increase in urban cattle populations for unknown time, levelling of urban dairy populations (likely to be dictated by economics of production, with better farmers surviving) and a decline in urban cattle populations (supposedly stricter planning and environmental regulations are imposed, the public sector lives on satisfactory wages or there are more milk supplies from the hinterland).

## 5.2 Village profiles

### 5.2.1 Main concerns

Data from the 12 villages covered during the PPA consultancy indicate that the various pricking problems outlined by villagers are invariably similar, although at different magnitudes (Table 6). Problems relating to livestock production and management surfaced second to basic social requirements namely food, water, land, education and health services.

Table 6. Matrix ranking of main common problems in villages (1= biggest)

District	Village	P	R	O	B	L	E	M
		Shortage of food	Scarcity of water	Scarcity of land	Poor education	Poor health services	Poor crop farming conditions	Poor livestock services
Kahama	Malilita	5	1	7	2	3	6	4
	Kabanga	4	3	7	1	2	6	5
Bukombe	Ishololo	5	4	6	1	3	2	7
	Munekezi	1	2	7	4	3	5	6
Shinyanga	Ikonda A	1	2	6	4	3	7	5
	Butuyu	1	2	7	4	3	6	5
Maswa	Mwangh'olo	3	1	6	5	2	4	7
	Lali	2	1	3	5	4	7	6
Meatu	Mbaragane	1	2	7	4	3	5	6
	Mwabagimu	1	3	6	4	5	NA	2
Bariadi	Bunhamala	1	4	7	5	2	3	6
	Byuna	3	1	7	2	5	4	6

NA: Not applicable

#### a) Shortage of food

Although food deficiency appeared a very important issue in all villages, most participants admitted it was exacerbated by this year's drought. The issue was more pricking at Mwangh'olo where some people pledged that they had no food at all and

had no means whatsoever to acquire some, they totally depended on friends and relatives. Villagers in the rather drier Ikonda, Butuyu and Mbaragane villages however, stressed that it was rather a year to year problem, as some members could not recall at all when they had enough food reserves in recent years. However in all villages it was cited that the more notable droughts fell in 1938 (*nzala ya makenya*), 1948 (*nzala ya ng'ombe; nzala ya legulegu*), 1974 (*nzala ya yanga*), 1984 (*nzala ya makopo*), and 1995/96 (*nzala ya tudumu; nzala ya pumbulu = many unsuccessful deliveries of the young*) except in Ikonda A where they had experienced successive droughts since 1985.

A slightly different scenario was seen in the pastoralist Mwabagimu village where, although food scarcity was an issue, the precipitating reason was not drought, rather people did not grow much. They admitted it was their tradition to raise livestock and sell them to acquire food and now that there was food shortage in the neighbouring agricultural areas, they fell victims as well.

Malilita village that had sufficient rains as compared to most parts of the region suffered food shortage from quelea quelea attacks. The lowly lying village well suited for maize and paddy production experienced recurrent bouts of the birds. It was conceived that the attack was a prominent cause for food shortage. On the other side, monkeys and warthogs had similar detrimental roles in the hilly surrounded Mwangh'olo village.

#### *b) Stock movements*

Stringent droughts resulting into shortages of food, water and pastures have made some people vacate their villages temporarily or permanently with or without their livestock. Temporary livestock exits or *lubaga* are made to nearby riversides, swampy areas or forest reserves where there are supposedly enough pastures to meet the dry spell demands, and people go back to their places once the drought is over. A second group of migrants moves within the vicinity, say from one village or district to another, usually remaining in contact with household members who remain back, such migrants usually go back once the situation had improved. A third group is the one that moves westward of the region more so into Kahama and Bukombe districts. The last and more determined group moves permanently to distant places such as Tabora, Mbeya, Rukwa and Morogoro regions. These do so either risking their move or following some friends or relatives already in those areas. In Ikonda for example, six farmers had moved out of the village early this year although other villagers did not know precisely where they had left for. There were two general observations on this group: first, that they were mostly those with large herds of cattle and second that they

lived a more semi-sedentary life if compared to other people. In other words they were more prepared to leave the villages than those with smaller herds.

Drought was not the only cause of stock movements since other livestock keepers emigrated to other places because of insufficient grazing areas. Here, it was only those with bigger herds that were affected. Such movements significantly reduced disputes of grazing on other people's crop fields as urged at Kabanga and Bunhamala, but had little effect on quantity of pastures or revitalisation of the environment. Ikonda and Malilita on the other hand were recipients of such immigrants, but on the contrary they claimed that once the immigrants went away, the villages became well stocked with pastures. The sizes of livestock herds were subjectively judged depending on the place and the respondents. At Malilita for example, a large herd meant over 200 heads of cattle while at Lali it was hardly 50, thus on drawing village maps for example Fig. 7, only the large herds were shown.

Apart from drought and inadequate grazing areas as major causes of stock movements in most areas, some villagers in Mbaragane and Mwabagimu migrated to other parts because of theft threats. A robbery of about 1500 cattle from Mwabagimu by heavily armed Masai and Somali bandits in August 1997 for example, was a reason for some natives to leave their village.

#### *c) Land constraint*

Scarcity of land does not emerge as a pressing problem *per se* in most villages (Table 6) despite the stock movements outlined above. This implies that land is sufficient for most people except those with 'big herds' who either move to other places or agist some of their livestock. It was only in Lali village that people complained of land shortage due to encroachment by the mushrooming Malampaka township which is next to the village. Here, either people become part of the township or move to distant places for those wishing to cultivate larger lands or keep bigger herds of cattle.

Mbaragane village was not happy with HASHI who they claimed had acquired part of their land, otherwise they would have sufficient land for cropping and grazing. The villagers were interested in occupying part of the Maswa Game Reserve because it was of no good use to them as a reserve other than that it had enough pastures. Similar demands were made at Kabanga regarding the Kabanga Forest Reserve and at Byuna regarding the Serengeti National Park. Another demand but with different underlying reasons was made at Munekezi where villagers urged that neighbouring Lushimba Forest Reserve was a hiding place for bandits and thieves.

As a contrasting analogy to the above understanding, there are many people in most villages, particularly the young ones and immigrants who do not own land at all. They



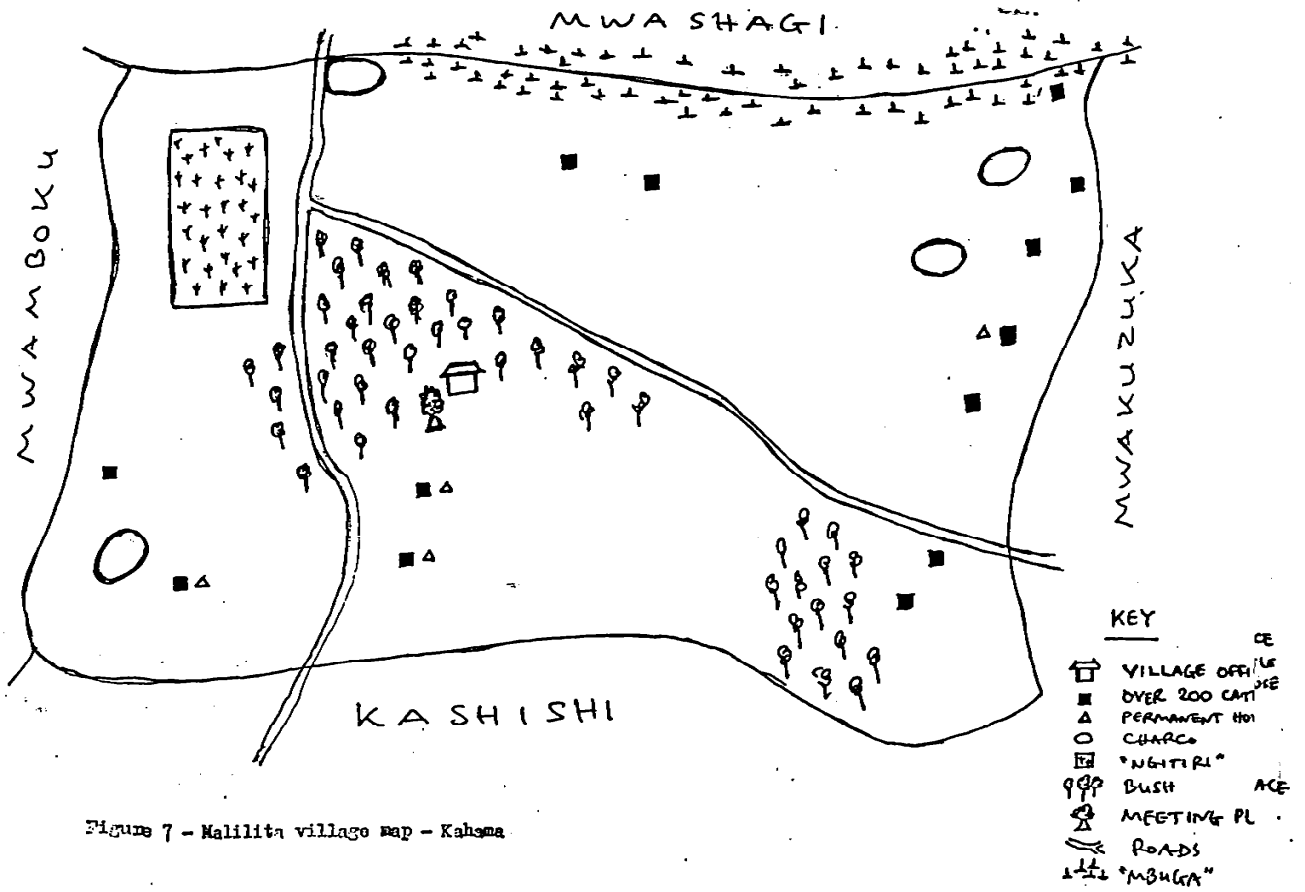


Figure 7 - Malilita village map - Kahama

manage their farming lives through hiring land from other people at a rate of TSh 4000-10,000 per acre or providing the equivalent through labouring on the farms. This amount is often not recovered because of drought, floods or pests. At the same time some people have excess land they cannot manage but keep it as an immovable asset for lending others over the years or progressively selling part of it. They acquired this land through inheritance, bought from those migrating out of the village or grabbing unoccupied land (*mbasa wakwe*).

Because of lack of proper land organisation and distribution, it is always difficult to state whether land is sufficient or not. In addition, the communal grazing practice practised in most villages further complicates the situation. Irrespective of the communal ownership existing in some parts, most people are increasingly realising that land is as an important resource for their survival.

Some explicit competition exists between farm crops and livestock. Kabanga village has observed over 20 livestock keepers moving to other places because they sold their grazing land to cotton growers. A more common phenomenon in nearly all villages is where livestock are left without land to graze on, but do so along roadsides and pavements during the cropping season. According to the villagers, this does not imply that livestock are ignored but farmers have to strike a balance between annual food and cash crops and the perennial livestock.

#### *d) Shortage of water*

People and livestock usually get water from the same sources thus any discussion on the item touches both groups of users. In places where there is an outcry for water, fingers point again to drought whereby main sources of water such as charcos, shallow wells, rivers and their tributaries dry up. For example at Mwangh'olo when every drop is gone from the pits dug during the driest months (Fig. 8), poor people and particularly women travel as far as 12 km to fetch for water. It is a day's trip. The slightly richer ones use bicycles and oxen-driven carts. It was conceived that only two women had bicycles in the village. However, members in Byuna and Butuyu villages attributed the problem to slitting of their dams rather than drought and were desperately unable to excavate them.

Out the 12 villages assessed only two had a Domestic Water Supply Programme and it was an issue called for throughout. It appears the only concern in these programs is to provide water for human consumption and not their livestock. This is one reason why there are fewer wells than the demand. Apart from being a good source of water, shallow wells provide clean and safe water when compared to dams. Some villages with shallow wells for example Bunhamala, are not totally satisfied with the wells,

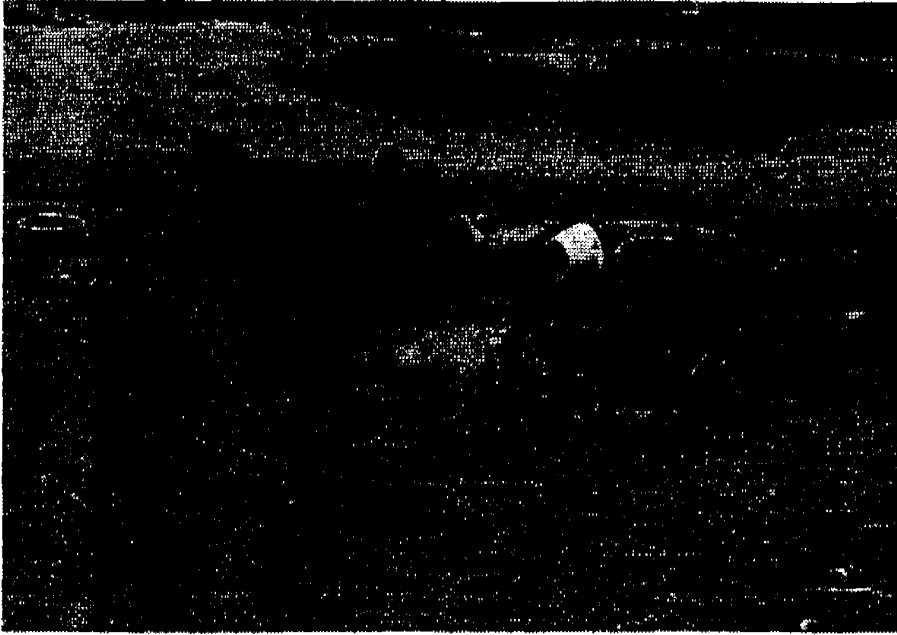
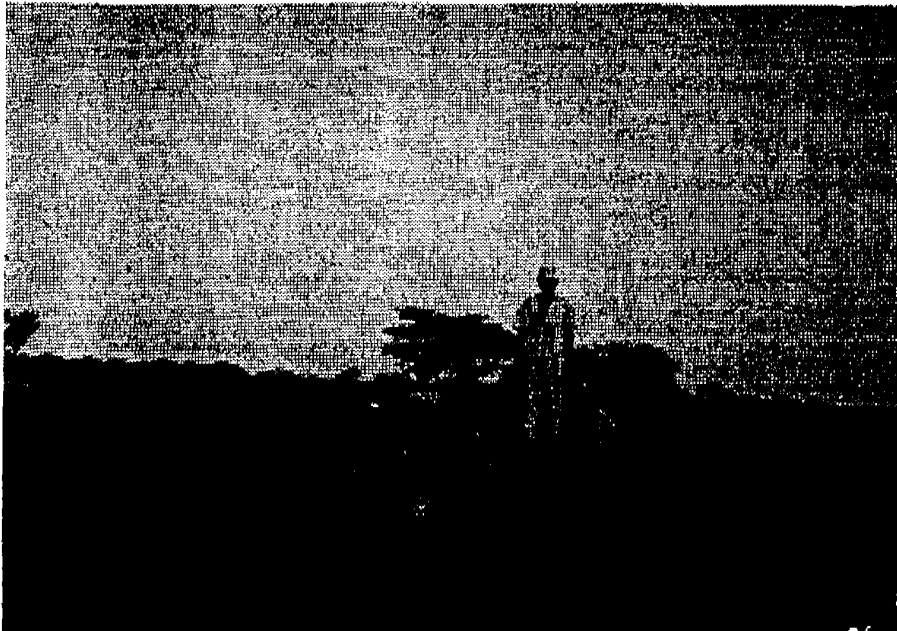


Fig. 8. A desperate  
look for water

a) Goats waiting in  
turns: Mwang'olo,  
Maswa



b) The water pits are  
dry, the girl has to  
hire a bicycle:  
Mwang'olo



c) The young girls are  
not sure when the  
pit will fill up again  
Lali, Maswa

demand for dams as additional sources of water. They urge that while shallow wells break down easily, dams are more reliable and it is easier to provide water to livestock from dams.

*e) Poor primary and adult education*

Low or poor quality of primary education also emerged as an important factor that blocks the development of villages. The various causes suggested were: insufficient teaching facilities, lack of permanent classrooms, small number of teaching personnel and absenteeism amongst pupils. Some far reaching examples were: Kabanga had only one building being a temporary classroom with only seven pupils, Lali had merely 15 desks in the school, only two teachers lived at Mwabagimu and a primary school at Munekezi had not been registered since 1991 when the village started.

Indeed it was an extreme case at Malilita where there was no primary school at all! The village had only three kids attending primary education in a neighbouring village situated 15 km away. A hidden explanation for this specific case was that livestock keepers used their children as herders thus obstructing efforts to build a school. Mwabagimu had a well-looking school but the pastoralist parents similarly used their kids for looking after cattle.

Some participants demanded for adult education on basic subjects such as nutrition, primary health care, appropriate farming techniques and civic rights. These demands came from the multicultural Kabanga village and in the highly crop productive Bunhamala village. No such demands were made in the pastoralist communities.

*f) Inadequate health services*

Health services were not appreciated in the villages, they were considered another reason for poor village life. Only half of the villages had dispensaries and these were ill-equipped with personnel, essential drugs and medical, maternity and nursing facilities. As such these dispensaries were most of the time overcrowded with patients thus resulting to favouritism and corruption. For example in one village, people laid complaints on some midwives who demanded tips before doing their noble job. Patients, including heavily pregnant women in villages that lacked dispensaries, for example Munekezi, travelled over 20 km to seek for this essential service. As an alternative and sometimes a complement to dispensaries, many people relied on herbs. Apparently no person volunteered to disclose the traditional medicines they used.

*g) Farming conditions and incentives*

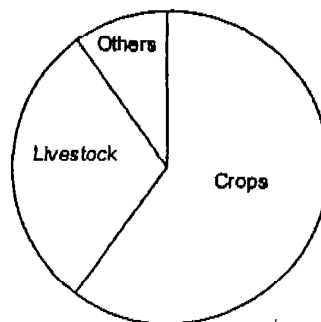
Crop and livestock farming are the main activities in all villages although the former supersedes the other by far (Fig. 9). A third source of income in some villages

includes labouring on other people's fields and herding other's livestock. At Lali, because of its location, people worked in nearby ginneries, made bricks and fetched water for some others.

Both crops and livestock farming are hampered by many factors, and while details for livestock farming will be narrated later, the most notorious ones concerning crop farming can broadly be grouped as:

- \* unreliable and usually erratic rainfalls
- \* inadequate application of recommended inputs
- \* unreliable or late delivery and usually expensive inputs eg seeds, fertilisers and agrochemicals
- \* lack of credit
- \* inefficient, obsolete or small-scale farm implements and technology eg hand hoes versus ploughs and tractors
- \* low crop prices
- \* inadequate extension service.

Fig. 9 Main resource components in households



Therefore, basing on the above many farmers produce far below average. Some tangible remedies aimed at improving agricultural production are: providing short-term maize, sorghum and rice seed varieties; giving freely cotton seeds as in the past; increasing the price of cotton twofold; giving instant payments; and reviving farm credits. Three villages pointed out that weighing scales should be inspected more often than now because through some tricks, they benefited the buyers on the contrary. Farmers at Mbaragane and Ishololo admitted it is a disadvantage not to own permanent cotton storage and selling posts; they consider these facilities essential for proper crop handling and efficiency.

Another broad finding is that liberalised crop trade has benefited most farmers because through competition, they almost do not give out their crops on credit. Actually only a few unpaid claims were pointed out during the study and they

involved all crop buying companies. Apart from enabling people to buy their requirements on time, liberalised trade is a stimulant to more crop production. However, at Mwang'holo some people blamed that this trade has put so much money in circulation such that many youngsters are increasingly becoming lavish and drunkards.

In villages that experienced longer and drier spells, the short rain period was over-utilised to satisfy both food and cash crop demands. Given the limited labour input and small-scale farm technology, culminate to mixing of both cash and food crops in same fields and an overall small crop production and vulnerability.

#### *h) Road transport*

A number of participants cited poor road communication between villages and major trading centres as another constraint to their production and development. Several times buyers did not reach crop produce in villages because roads were impassable or bridges had broken down. More specific examples include: Malilita village had no road access at all; the remotely placed Mwabagimu and Munekezi villages although accessible, had no vehicles in their way and people had to walk up to 30 km to catch the nearest car. Village-made roads are not strong enough and only temporary since they become swept off by annual rains.

#### *i) Flour mills and vendor shops*

Four villages did not have these services and women in particular bitterly complained of the long distances of up to 20 km they travelled to mill grains. Some village women ground grains in traditional manners, something very laborious and tiresome to them. It is no wonder therefore, that most households had only small stocks of grains or flour in their homes.

Lack of village shops or trading centres deprived people of day-to-day commodities such as washing soap, salt and kerosene. In addition it slackens the purchase of building materials for example, cement and iron sheets which require cumulated financial capital as some participants claimed at Ishololo, Mwangh'olo and Malilita villages. This was one main reason why some people had large amounts of cash but did not build permanent or good houses or have good clothing and bedding or purchase transport facilities for example, bicycles.

#### *j) Fuelwood*

Women in five villages claimed that they collected firewood, being the only source of fire in the village, from very distant areas. They were not certain for how long the sources would sustain because the forests or shrubs were being further depleted and

no efforts were instituted to replenish them. In Mbaragane however, the HASHI project had promised to offer villagers sufficient firewood once the *in situ* forest reserves were well taken care of. It was the only positive cause for villagers accepting this reserve.

*k) Livestock services*

From the farmers' point of view, livestock services include dipping, spraying, extension, farmers' education and clinical work. These services were not satisfactory to most farmers, but more concern was raised in the pastoralist communities than in the agropastoral ones. All villages had cattle, sheep, goats and chickens, but all households paid more attention to cattle than other stock. The argument was straightforward: cattle meant survival and development while shoats and chickens only played a supportive role.

*5.2.2 Aspects on livestock sector*

*a) Role and importance of livestock*

*i. A means for survival*

As already highlighted, livestock are next to food and cash crops for people's survival; but in addition they are the most stable 'crop' as they do provide a reliable means of stock capital. Further, most participants suggest that a household with livestock is more stable and less vulnerable to shake-ups than one without. They often quote local sayings and proverbs with interpretations that livestock meant wealth. For example, someone without livestock was compared to bare or unproductive land (*hape kuti na shule*). Another example considered someone with livestock as having no barriers (*wa ndege atanyamwaga na mongo*). These were possible reasons why more people wanted to keep more and more livestock and not otherwise. A wealth ranking exercise conducted in an agropastoral Ikonda sub-village categorised those with larger numbers of livestock in the wealthy groups (Table 7).

Table 7: Wealth ranking, Ikonda sub-village (I=poorest)

	I	II	III	IV
CRITERIA	Destitutes, very old, widows divorcees	Can work, cattle less than 10, young households, have small land	Fair numbers of cattle: up to 50, temporary iron roofed houses	Large herds of cattle: above 50, large farms, permanent iron roofed houses,
REASONS	Old age, disabilities	Young families, loaned land	Stable households,	Established households
NUMBERS	9	17	14	5

An extraordinary attachment to livestock was shown by the Taturu and Tusi communities who equated livestock to their lives. In other words without livestock there would be no life. These communities depend significantly on milk and goat and sheep meat as staple foods and usually sell livestock to buy food grains and other requirements. They are essentially non agricultural; Taturu for example, have no cash crop other than livestock.

ii. Reasons for keeping livestock

In a matrix scoring used to compare the various reasons for keeping livestock in the agropastoral and pastoral communities, the output (Table 8) indicates that livestock are a 'reserve bank'. Livestock are though, not a major source of food in the agropastoral communities. Milk predominates as the main type of food in both groups but as already mentioned small stock are in addition another source of food in the pastoral areas. Ghee is sold in open markets and fetches up to TSh 1,500 per litre but it is usually available for home consumption. The use of ghee as a cooking oil is highly appreciated by claiming that food is no food without it (*kalile kasoga*).

Table 8. Matrix scoring for main uses of livestock in the pastoral and agropastoral systems

PURPOSE	AGROPASTORAL	PASTORAL
Security & savings	*****	*****
Food		
a) Milk	**	***
b) Meat	0	**
c) Ghee	*	***
Dowry	****	****
Draught	***	*
Manure	*	0

The use of livestock for marriage payment appeared more important in villages in the east of Shinyanga than in the west. The reasons were presumably: more livestock in those areas and second, being less agricultural, livestock was their main means of exchange. At Kabanga, a predominantly tobacco and maize growing village in the west of Kahama, only 5-8 cattle were given as payment for dowry compared to 30-40 cattle at Byuna in eastern Bariadi. In the west people preferred cash to livestock for marriage payments because they had less livestock and had money from various cash crops. Nevertheless, the general situation is that the number of cattle paid as dowry is going down: as an example, up to 60 cattle were given as dowry at Bunhamala two decades ago compared to 15 today. Some reasons suggested are: there is a slow but active distribution or diffusion of livestock among households unlike in the past when



only few dominated; value of livestock is growing because of limited carrying capacity and market forces; and livestock are now used for other economic purposes.

One of the main uses of livestock frequently mentioned by livestock keepers was ploughing crop fields. The practice is less time demanding, not tiresome and robust, thus suitable in places where rains are scarce. It enables farmers to cultivate relatively large fields and promises more harvest. Not only that hand-hoe cultivation lacks those merits as urged at Ishololo, it also depletes soil fertility. Those without ploughs hire at a rate of up to TSh 10,000 per acre or else they pay through guiding yokers in the owner's fields and later in theirs. One has to serve 3-4 acres or alternatively toil for 2-3 days before he or she is given a chance, but there are several ways of negotiating. Ox-cart traction is more important in the Taturu community than elsewhere. Because they have long distances to travel, Taturu prefer to use donkeys which are hardier than both bullocks and oxen (Fig. 10). Female cattle are not used for traction because they are considered weak, sluggish and of smaller size if compared to males.

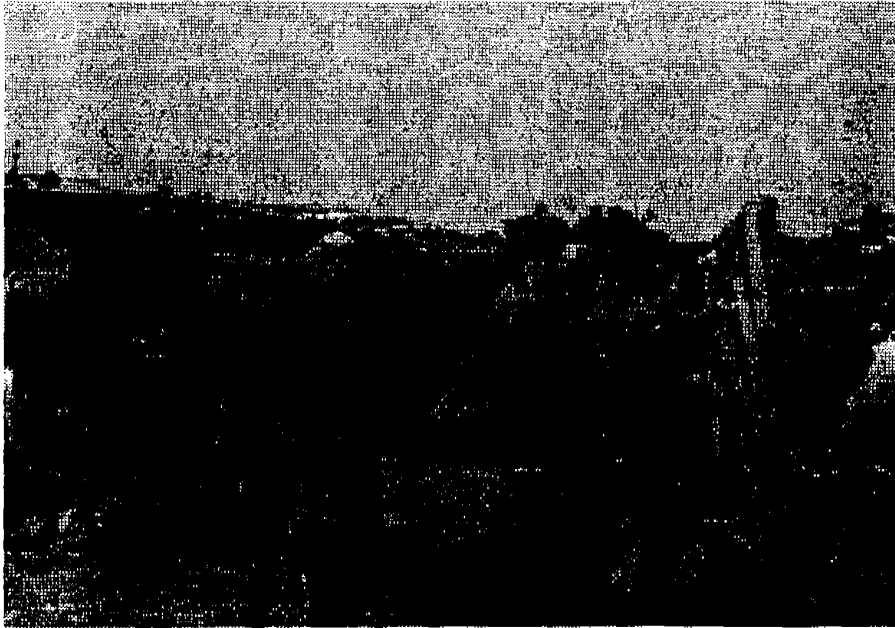
The use of manure is rarely mentioned. Some villages for example, Butuyu urged their clayey (*mbuga*) soils are fertile enough and do not need to use cow-dung manure. Most farmers realise the manure as useful and increases crop yield. They give examples of higher production in old and disbanded kraals but they are unable to explain why they do not use the manure on their fields.

#### *b) Ownership of livestock and distribution within households*

Livestock are a property of the whole household although there is strong contention amongst members that men by far override women on this issue. For example, during some debates some male participants urged vehemently that women should remain quiet because there was nothing in their favour, and that was the situation ever since. The only legitimate property that belongs to women are sheep offered as rituals (*maholelo*), usually by male by relatives, during the bride-giving. Further arguments categorise women as mere caretakers since it is men who make major decisions for example, only male head of the family stands in the herd to give dowry, woman cannot sell a cow in absence of male head, man can get married to a second wife using household livestock without alerting his wife or children.

Some female participants accept the situation but some disagree contending that men are being unfair and unjustful to them. They believe that since both spouses acquire the property while they are together it should be equally shared. At Bunhamala women put the current disproportionate ratio at 1:3 in favour of men. And the results of a stakeholder analysis (Table 9) done on two households at Ishololo and Mwabagimu respectively, concurred with the above finding. In the pastoralist Tusi and Taturu

Fig. 10. Livestock for draught purposes



a) Donkeys at Bukundi livestock market: Taturus use them extensively



b) Bulls and bullocks pulling a cart packed with people and seed cotton: Mwangolo, Maswa

communities women mandate the use and sale of milk and chickens belong to children. Such a clear organisation lacks in typical Sukuma societies where much of the decision depends on men. Upon selling livestock for household income and having met the intended requirements, a husband benefits more than his wife and children because he dubiously spends most of the remaining cash. Irrespective of the above, a male child equally enjoys the bulk of household livestock utility through paying dowry and through another lot dished to him when he separates from the household to start his own.

Table 9. Stakeholder analysis for two households, Ishololo village (1=highest)

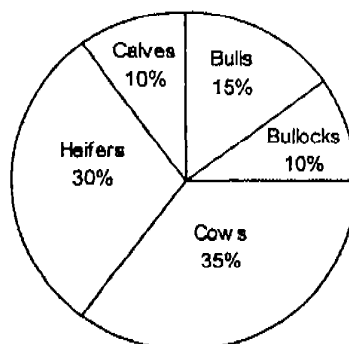
STAKEHOLDER	USES THAN HOUSEHOLD NEEDS	RATING
Husband	Dowry, clothing, enjoyment	1
Wife	Clothing	3
Male children	School fees, clothing, dowry, life-starter	2
Female children	Clothing, school fees	4

### c) Herd sizes and composition

The number of cattle ranged from 4000-7000 in most villages, with the biggest number at Mwabagimu (over 22,000) and the smallest at Munekezi (682). The figures are doubtful however, because some sources (Village Executive Offices) had conducted census over five years ago. The numbers of small stock and chickens were only sometimes given thus casting more doubts on the authenticity of the figures. Individual herds ranged from a single cow up to over 2000 but no exact figures could be provided. Despite the large herds in some situations most participants would like to increase the sizes of their herds. They are limited from doing so by lack of money, lack of land and low labour resources.

Herds were composed of all types of livestock but participants knew better of cattle than others. A pie (*chapati*) drawing produced by a livestock focus group at Mbaragane showed more female cattle than males in the herds (Fig. 11). Surplus bulls are either castrated or sold although any group of livestock would be sold if there was need. Generally, there is no selection among herds, and because of the communal grazing it is usually difficult to make a track of good sires. It appears it is only the Tusi who practise some selection in their livestock herds. They eliminate poor bulls (usually through morphological characterisation) and make some track of good milker cows. It is common here to find neighbours borrowing such bulls or buying females with a history of high milk yield.

Fig. 11. Herd distribution *chapati*, Mbaragane village



*d) Current farming systems and impacts on environment*

i. Extensive communal grazing

On the whole, livestock are extensively reared on open communal or individual grazing lands although a few are occasionally tethered. The latter system is found in a few villages for example Munekezi where the Sumbwa, being a less livestock-oriented community keeps a small number of cattle, and usually on rope. Tethering is however, a more common method of feeding goats in the western parts of Kahama.

Communal grazing is a habitual practice in most villages and is still a favoured practice. Some farmers urge that the system is advantageous because it does not require much keenness during grazing thus allowing young children to take care; allows sharing of some resources for example labour and pastures; encourages use of external sires; promotes social interaction and avoids confrontations. The arguments against include: misuse of pastures through uncontrolled grazing; land degradation and soil erosion through intensive tramping; trespassing others' fields; use of inferior sires; unnecessary and harmful bull fights; underfeeding; and dissemination of infectious livestock diseases.

In some villages in the east of the region ie Mwangh'olo and Mbaragane communal grazing is already being phased out. Here people are now grazing on own lands and fines of up to TSh 10,000 are charged for any trespassing. As an outcome of this grazing system, farmers are inclined to keep few livestock because of the underlying constraints, pastures and labour. Farmers with bigger herds migrate to other areas as already claimed or agist amongst friends and relatives to whom some payment is done as exemplified at Bunhamala, through leaving behind a bullock or more. Agistment has become another appreciable way of distributing livestock wealth to the poorer or have-not households. The labour provided in taking care of the agisted animals is outweighed by the value of livestock.

In between the two regimes Taturu graze their adult cattle communally but demarcate specific grazing areas for the calves. They are well concerned with the young stock which they believe are the basis for a future herd. Mixing this herd with the adults deprives them of sufficient feed and predisposes them to 'hidden' diseases.

#### ii. *Ngitiri* fallows and other supplements

Demarcated fallow pasture plots (*ngitiri*) are a means of conserving fodder in form of standing hay for the dry season in Sukuma communities (Fig. 12a). These traditional livestock-management practices are available in almost every village, private or communal, and are a common feature. They range from below one acre to above 50 acres and have shown to be an extraordinarily useful undertaking in villages. Some believe that without *ngitiri*, not many livestock would survive in Sukumaland. Because of strict by-laws imposed against trespassers, *ngitiri* conservation has become one of the sustainable farming systems in Shinyanga. At Butuyu for example, one would be fined up to five cattle for grazing in someone's *ngitiri*. But as already mentioned *ngitiri* do not receive specific attention for example, application of fertilisers or pasture improvement, they are therefore not fully exploited.

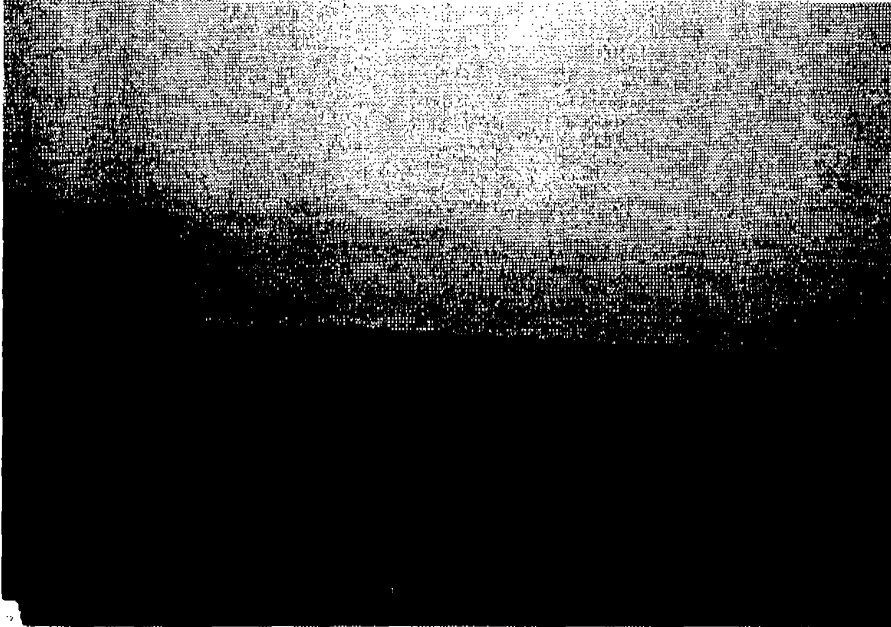
There are also less important forms of dry season supplementary feeding in the region. Some popular forms include feeding livestock some crop residues such as maize and sorghum stover (Fig. 12b) soon after harvesting; or farmers providing cotton hulls, a by-product from cotton ginneries. The latter is a common practice at Lali where they get the hulls free of charge from Malampaka ginnery.

#### iii. Fodder pastures and trees

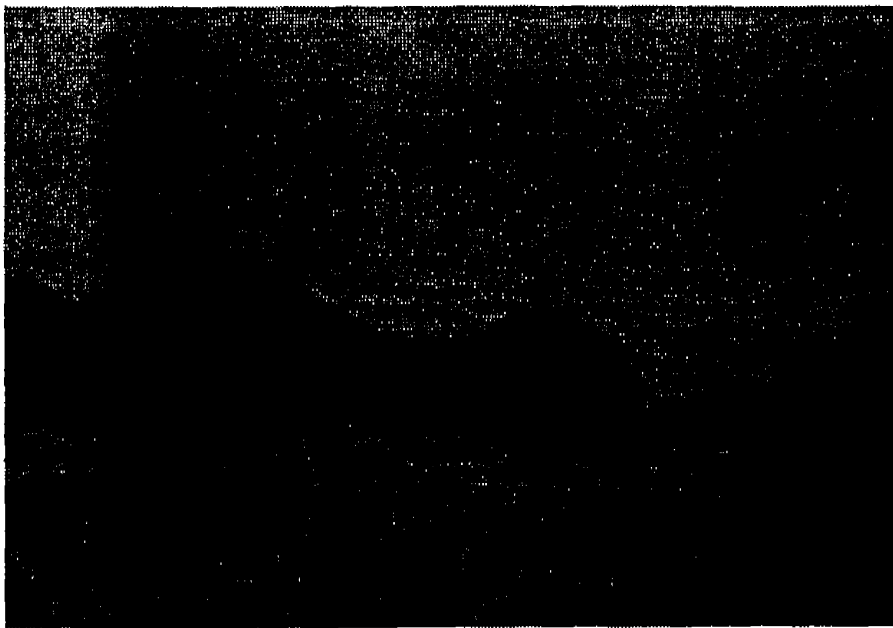
Livestock keepers can easily identify major fodder grasses and browse trees in their areas. During transect walks at Mwang'olo (Fig. 13) and Malilita, farmers identified and named a number of native grasses including *Cynodon spp* (*Ngobi* or *Lugobi*), *Hyperthenea spp* (*Legi* and *Ntelengu*), *Chloris gayana* (*Gulunya*), *Panicum spp* (*Huluda*) as better fodder compared to many others. They also identified *Digitaria scalarum* (*Lumbugu*), *Heteropogon spp* (*Sweya*), *Cenchrus ciliaris* (*Lugugu*) and *Cyperus rotundus* (*Tase*) as other species but of lower quality. *Huluda* was specified as a dry season pasture unlike the rest that flourished during the wet season but easily disappeared during the dry months. Pastures being so fragile is one possible explanation for land being bare and prone to erosion.

Similarly farmers named the following trees as browses: *Acacia tortilis* (*migunga*), *A. nilotica* (*mihale*), *A. polyacantha* (*migu*), and *A. drepanolobium* (*malula*).

Fig. 12. Dry season supplementary feeding in villages

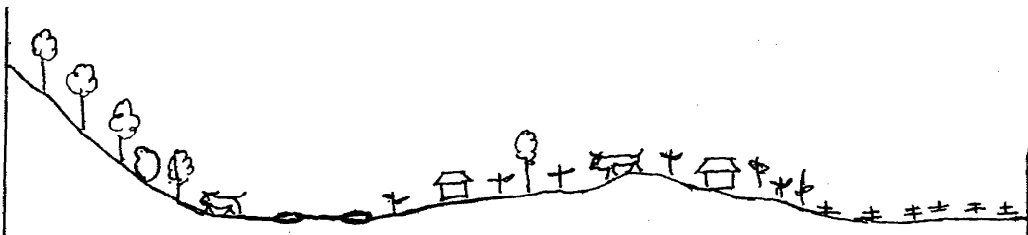


a) *Ngitiri* plot: Mwendakulima, Kahama.



b) Maize stover carried for homestead: Nyakabindi, Bariadi.

Fig. 13. Transect walk through Mwang'oto village, Maswa.



SOIL	Rocky Gravel	Clay	Red clayey loams	Loams	Black-clay Hardpan
LAND-USE	Grazing	Grazing Water pits	Grazing Farmlands	Farmlands Grazing (stover)	Rice fields Grazing (straw)
VEGETATION	Hills, Forests, Trees	Low grasses	Shrubs Trees	Trees	Grasses
CROPS	-	Sweet potatoes	Cotton	Maize, Sorghum, Cotton	Rice
PASTURES	Hyperhenia Cynodon	Cenchrus	Panicum Hyperhenia	Urochloa, Panicum	Aleucine Cenchrus
WATER	-	Seasonal pits	-	-	Seasonal swamps
PROBLEMS	Rocks Erosion	Drought Hardening	-	Plant pests	Drought Hardening
OPPORTUNITIES	Timber Fuelwood	Water	Farming Pastures	Farming Stover	Farming Straw

#### iv. Dairying

Dairying is nearly twenty years old in Shinyanga and is considered as a backyard industry to supplement low wage earning and household milk. The industry is faced by constraints such as stiff competition from hinterland milk, scarce pastures and water during the dry season and a surge in production costs. Thus, compounded with a low milk production of about 6 litres per day per animal and a stagnant milk price of about TSh 150-200, dairying does not look to be a promising enterprise. Prices go farther lower during the wet season to levels that farmers can't breakeven. Most management including grazing and milking is done by herdsman who are paid about TSh 15,000 per month. This excludes food and housing which are catered for by the landlord. To cut down production costs, only lactating dams are supplemented with a small amount of cottonseed cake or maize bran.

#### v. Livestock and the environment

The effect of grazing large herds of livestock on the environment, is a debatable issue to many livestock farmers. Some believe those herds destroy land surface as they tramp along thus making it viable to wind erosion and gullies. It is urged for example that the previously barren looking Ikonda, has revived its grass canopy after emigration of some big herds of livestock. A closely similar example was given at Malilita, where fodder grasses become nearly depleted when some *lubaga* move into the village and grasses resume to normal once the 'visitors' leave the village.

Another line of argument considers livestock as friends of the environment because they fertilise pastures while grazing. Livestock control shrub and grass overgrowths during grazing, thus continuously keeping the surroundings both clear and manageable. Some support was achieved at Mbaragane where people claimed that with some good control on tree cutting, the village was not barren regardless of the large livestock population. They urge a well-maintained tree canopy provides wind breaking and eludes erosion. They strongly incriminate reckless tree-felling for destabilising the environment. They believe it is the extensive cotton growing in Sukumaland that has depleted the vegetation and not livestock. To defend their argument, they give examples of villages inhabited by pastoralist Taturu but having good cover despite the large herds in those areas. Irrespective of the two arguments above, many farmers consider drought as the main cause of depletion of the environment. The successive long non-rain periods starting from 1974 have been condemned all around and a historical trend analysis points them out (Table 10). This extended dryness has exclusively resulted into fall in water tables; under-development



Table 10. Historical trend analysis of successive droughts associated with famine:  
Butuyu, Shinyanga Rural.

YEAR	NAME OF EVENT	CAUSE	INTERVENTION	RANK
1935	NZALA YA MBOLI (GOATS)	LOCUTS	SOLD GOATS TO BUY FOOD	2
1938	NZALA YA MAKENYA (HARD MAIZE GRAINS FROM KENYA)	DROUGHT	FREE MAIZE PROVIDED BY GOVERNMENT	2
1948	NZALA YA LEGULEGU (A TATURU FORESEER)	DROUGHT	MANY CATTLE DIED; FRRE FOOD BY GOVERNMENT; PEOPLE MIGRATED	1
1974	NZALA YA YANGA (YELLOW CORN)	DROUGHT VILLAGI- SATION	SOLD CATTLE TO BUY FOOD; PEOPLE MIGRATED	3
1984	NZALA YA MAKOPA (DRIED CASSAVA)	DROUGHT	SOLD CATTLE AND GOATS TO BUY FOOD; LIVESTOCK MOVED TO OTHER PLACES	4
1994- 1996	NZALA YA PUMBULU (SKIN RUSHES)	DROUGHT	PEOPLE LABOUR ELSEHERE TO GET MONEY TO BUY FOOD; LIVESTOCK MOVED TO SOUTH	5

or disappearance of some vegetation cover; and loss of soil fertility. As a consequence, people in these areas have experienced recurrent food and water shortages; inadequate pastures; and human and livestock migrations.

*e) Household management practices*

Any member within a household can look after livestock because it is everyone's duty regardless of age (*jitana ntale*), although it is children who do the bulk of it. It is indeed a major reason for poor school attendance in some villages, for example Mwabagimu (down to 10%). Both male and female children herd livestock before joining primary schools, after class hours and immediately after completing primary education. Women practise grazing only when children and men have other commitments, they are usually excused to do other household and housekeeping duties.

Households without such labour source or over-engaged with other income generating activities for example at Lali, do hire other people to do the job. Common hire charges range between TSh 3000-6000 per month but there are other modes of payment that include tilling one's land, milk or a cow per year. But if one does the job for a longer period he might be given a reasonable number of livestock sufficient for dowry payment. These modes of employment have enabled some poor households to establish slightly better livelihoods; but these people have a more demanding seasonal calendar (Fig. 14) than others.

Livestock are grazed for 6-10 hours and the amount of time provided for grazing is considered satisfactory by most livestock keepers. During the dry season however, some good time is spent while trekking animals to distant pasture areas or fetching for water. This inevitably reduces grazing time and animals become malnourished, thrifty and weak. It was alleged at Mwang'olo for example, that during the dry months it took up to four hours to trek livestock to a nearby watering point.

Milking is performed usually in the mornings and only rarely in the evenings. In most cases calves graze together with their dams except the newly born. Because the Tusi and Taturu milk their animals twice, they leave behind all suckling calves. In the Sukuma community men do the milking but where necessary women are involved (Fig. 15). Women are solely responsible for the processing of milk into ghee and whey; and a daily activity profile of women established at Byuna village (Fig. 16) includes these activities. In the Tusi and Taturu communities on the other hand, women do both the milking and processing and this is because milk and milk products are women's property, although any member of the household would do the selling.

Fig. 14. Seasonal calendar for a poor household, seasonal work as an additional to routine grazing work: Bunhamala, Bariadi.

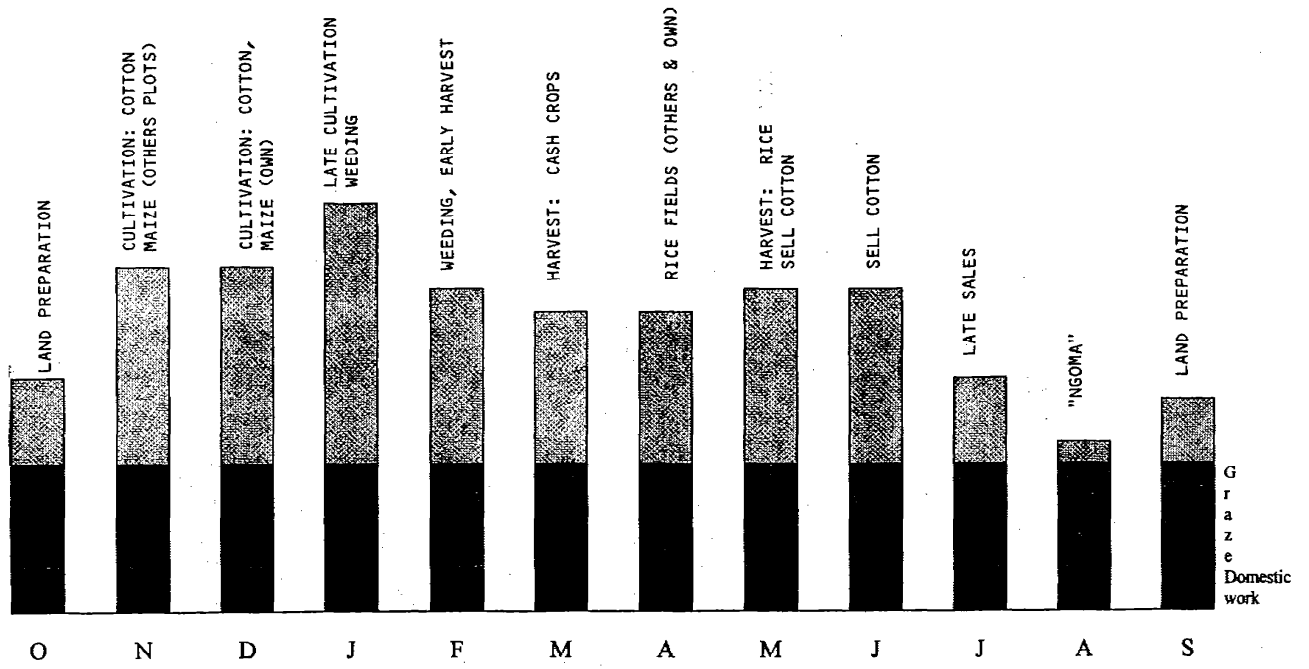
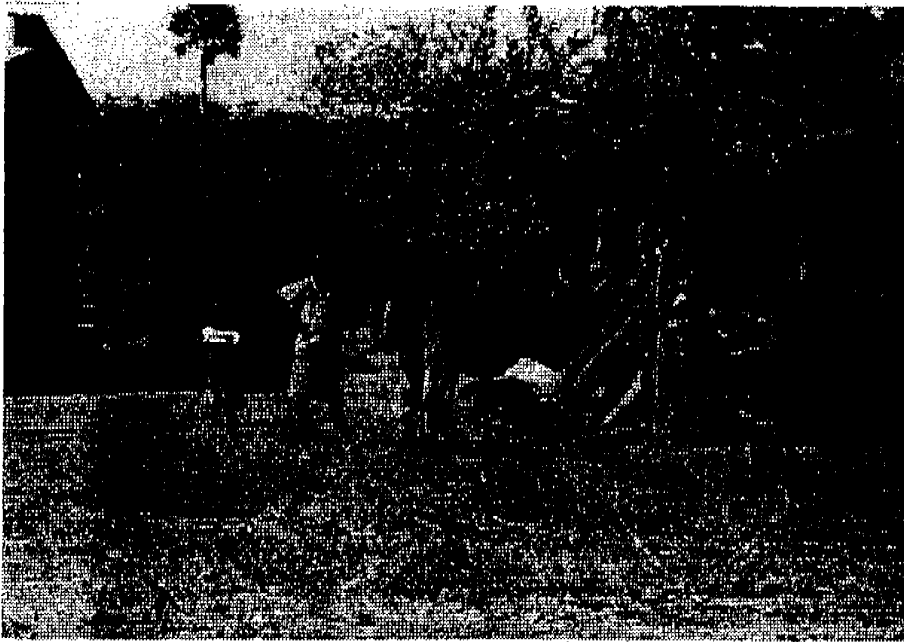
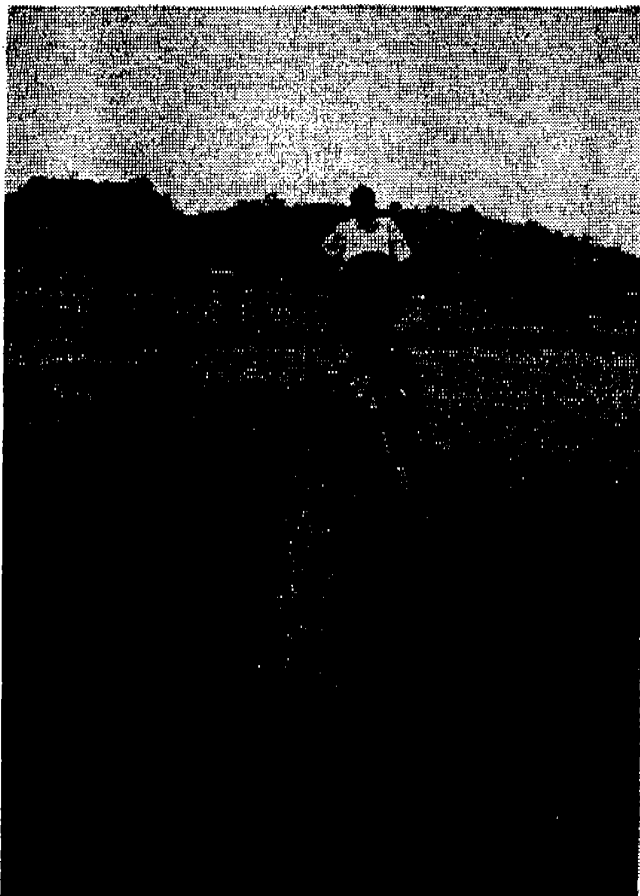


Fig. 15. Some women activities in villages



a) Milking cows is mainly women's activity: Kabanga, Kahama.



b) This woman cannot fancy any traces of water in her sight: Mwangolo, Maswa.

Fig. 16. Women's daily activity profile: Lali village, Maswa.

I n t e n s i t y				
A c t i v i t y	Milking, prepare kids for school, farm work, fetch water	Prepare breakfast, washing clothes and kitchenware, clean house and premises; collect fuelwood	Prepare lunch, ghee preparation (occasional)	Collect fuelwood, prepare dinner, fetch water
Time	7.00-9.00 am	9.00 am-1.00 pm	1.00 pm-4.00 pm	4.00 pm-7.00 pm

*f) Livestock productivity*

Farmers consider the following as indicators of low productivity: slow growths; late maturity; long calving and kidding intervals; lack of culling; inappropriate female to male ratios; low milk production; and small adult sizes. Common examples on the farms are: adult male cattle hardly reach 200 kilogram mature liveweight, many old and unproductive cows and bulls in herds, heifers mounted above 4 years of age and milk production not exceeding 5 litres per day. Livestock keepers agree that their livestock are relatively poor producers if compared to exotic ones. Although they do not know the exact reasons for the difference, they believe the harsh physical environment coupled with the low-input farming systems are main causes for the low productivity. They point out recurrent rain failures, lack of water and pastures, small sizes of zebus, overstocking and inefficient livestock services as examples. Farmers explain that animals gain weight considerably during the rain season when there is enough water and pastures. Calves born during the wet season grow fast because their mothers have sufficient milk. There is also enough milk for household consumption and sale during this time. And it is during this time that ghee is available in most villages.

In contrast, livestock are more or less unproductive during the dry season. They tremendously lose body weights and become severely emaciated and weak to a point where they cannot walk. And more severe cases succumb to drought. For example, people recall the big number of livestock that died during the harsh drought of 1949 and thus the name '*nzala ya ng'ombe*'. During such droughts most milking cows do not produce milk at all. Young calves become stunted because they do not get enough milk and those born during this time are very weak. Some few pregnant cows abort during the dry season and most likely because of malnourishment.

*g) Marketing and pricing*

i. Household marketing system

Unlike in some situations where livestock are kept for economic purposes and thus disposed when time comes, in Shinyanga cattle are sold when a pricking problem arises in the household. In other words no household would sell a cow in order to stock money for future use, but do so when a problem is already at hand. Therefore livestock are more a fixed asset than a variable transferable into money reserves or economic goods or services. In that situation therefore, any category of cattle would be sold to meet the demand including some lactating cows with their calves. In case the household demand is a minor one, small stock or sometimes chickens are sold instead. Usually a household meeting decides on what animal to sell and predetermines the

tentative market price. The male head of the household or his elder son(s) takes the animal(s) to the market place and women usually remain behind. The money obtained is presented to the head of the household who distributes according to the needs and where possible keeps the remaining. However, as already urged some male members take selfish decisions of selling livestock without a household consent and sometimes spend money dubiously.

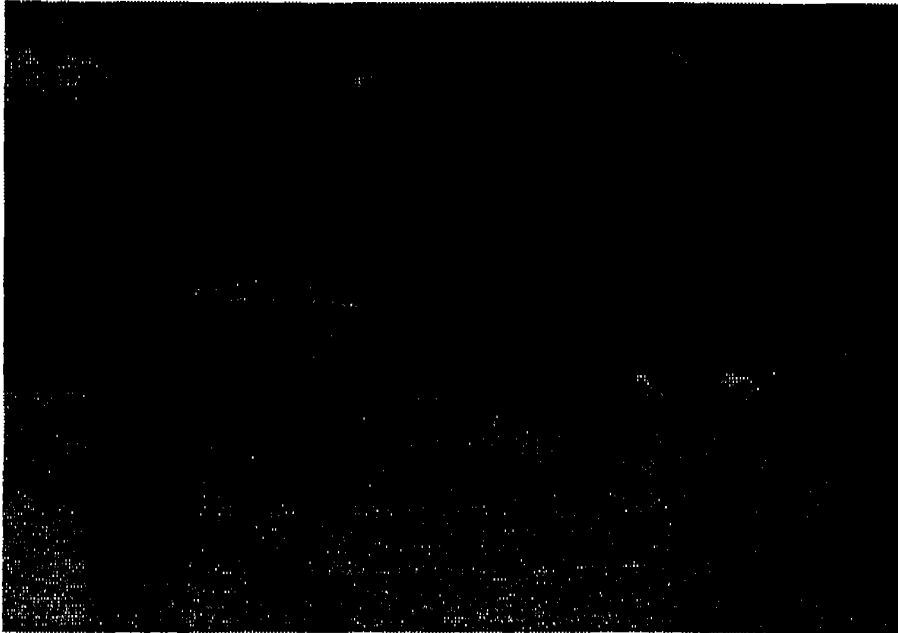
#### ii. Go-betweens and the open market

The sale of livestock is performed on open livestock markets or at the homesteads. In the latter situation, non-licensed go-betweens (*wagaragaja*) move from house to house looking for livestock to purchase and they acquire them at negotiable prices. Middlemen are a helpful group to sellers because in so doing the latter save time, get rid of banditry since no third party notices the exchange, use the money as intended without attraction to other expenditures as would be in market places, do not pay market fees, and do not lose any of their livestock. On the contrary some farmers claim *wagaragaja* are a cause of low livestock prices because they hamper competition; thus they exploit farmers by setting low prices. Moreover, the participation of *wagaragaja* potentially encourages livestock thefts. The practice has already penetrated into the local governments' owned livestock markets where livestock-auctioning is no longer in place. Here prices are also negotiated between formal buyers and sellers instead of the buyers competing against one another in an auction ring (Fig. 17).

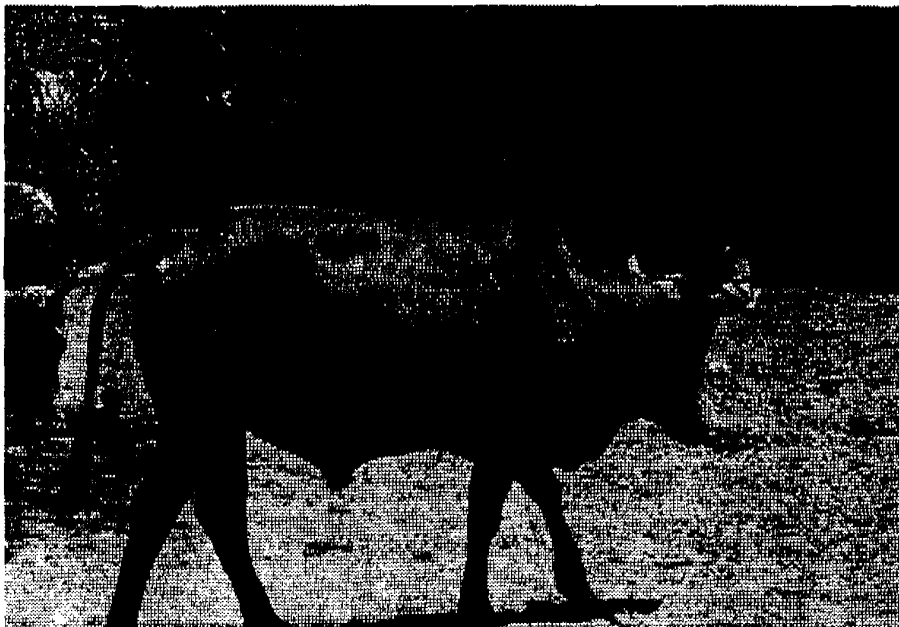
Three to four types of livestock fees are claimed from farmers at a livestock market and totalling up to TSh 3000 per cow. Farmers consider these payments exorbitant because there are no substantive returns for these charges. They give examples of the dilapidated livestock markets that have not been repaired ever since the local governments came into power. Another disturbing practice is that payments are not made in a package but to various parties (central, local and village governments) at their own convenience thus causing confusions and a waste of time. And some parties for example, central and local governments have more than one fee. Each district has its own livestock market places and at least one operates on a day. Some villages are too distant from the markets hence limiting people from readily selling their livestock, or making sellers trek animals over long distances, for example 25 km for Mwabagimu. Long distances make animals lose weight and in consequence fetch low market prices.

Among the classes of cattle, bulls and bullocks fetch the highest prices followed by heifers and cows. Calves have the lowest prices because of their small sizes and the

Fig. 17. Livestock marketing: who benefits?



a) Bukundi livestock market: go-betweens dominate the market.



b) A bullock at Munekezi village, Bukombe: prices depend on season.



potential keeping risks a buyer has to take. While the price of a bullock might stand at TSh 200000, a calf might fetch hardly TSh 15000. Prices of livestock do not differ much within the region but sometimes vary according to the reasons to be described.

### iii. Effects of seasonality

Despite that prices of livestock are not purely competitive as described above, they are reasonably dictated by season of the year. Livestock trade deteriorates as rain season begins (November) and slackens as more people become involved with cultivation. People become busy in the fields to maximise the short and unreliable rainfalls to grow both food and cash crops. Although buyers are customarily not regular in their practice, they are far fewer now because they know the market trend. The few livestock reaching markets become relatively cheaper as a result. For example, a bull weighing about 300 kg at Munekezi would fetch about TSh 200,000 in June of a good year compared to a takeaway price of TSh 120,000 in December. As food reserves accumulate in the households and having sold cash crops, livestock prices rise again. This seasonality (Fig.18) guides livestock sellers to withhold their casual problems until when prices become attractive.

The seasonality above guides livestock farmers as well of when to buy livestock for replenishing their herds. Farmers replenish herds to cover up for livestock they had sold or lost through diseases on one hand or as an enterprise to invest in after selling cash crops or surplus food crops. Most livestock keepers prefer to buy heifers as a replacement stock but also purchase young bullocks for draught purposes.

The price of red meat in Dar es Salaam and Arusha is another factor determining local livestock prices. A surge in meat demand in these major outlets brings up more buyers than usual hence a better price. Some livestock buyers at Mhunze market claim an interest margin of up to 30% above normal when there is more demand in Dar es Salaam for example, times close to Christmas. Another unusual price hike occurred early this year where livestock that were diverged to Tarime found an abrupt better market, presumably originating from Kenya.

### iv. Effects of drought

The numbers of livestock sold and pricing of livestock fluctuate considerably over years depending on the extent of drought (Fig.19). Livestock being a means of saving and security find a very significant place in rural households during such periods. Households with livestock prove to thrive through these harsh periods far more comfortably than those without. Some elderly participants at Ikonda for instance, asserted that the strong attachment of rural communities to livestock is more a precaution to droughts than wealth *per se*; it is the underlying reason for why people

Fig. 18. Livestock prices seasonality: Munekezi village, Bukombe  
(a bullock of 300 kg liveweight)

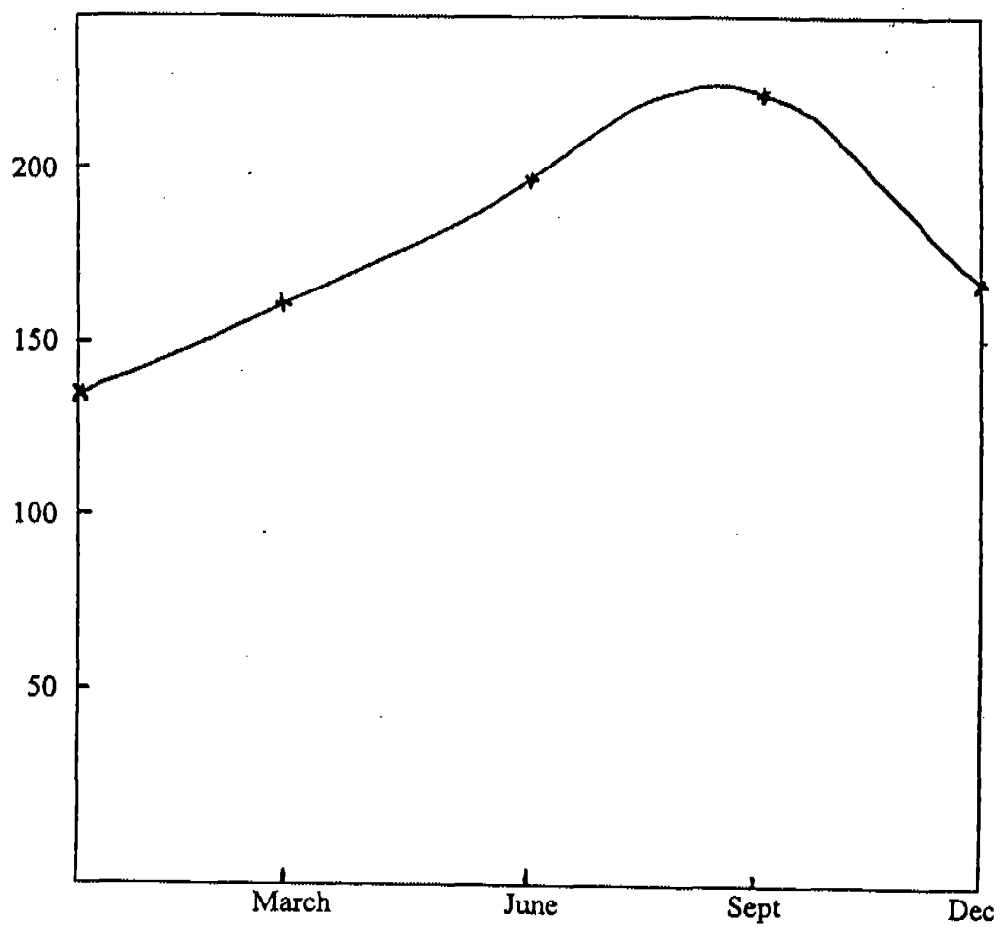
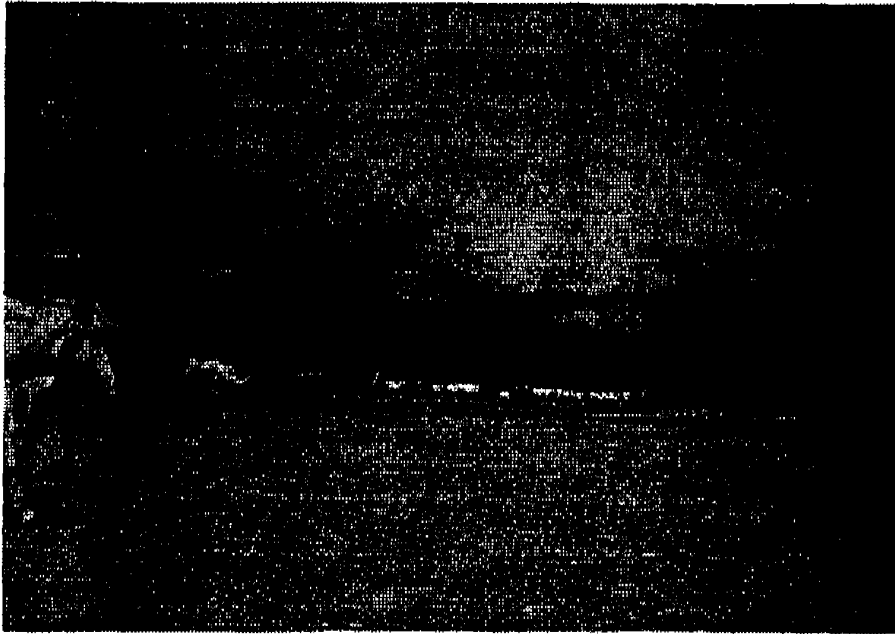
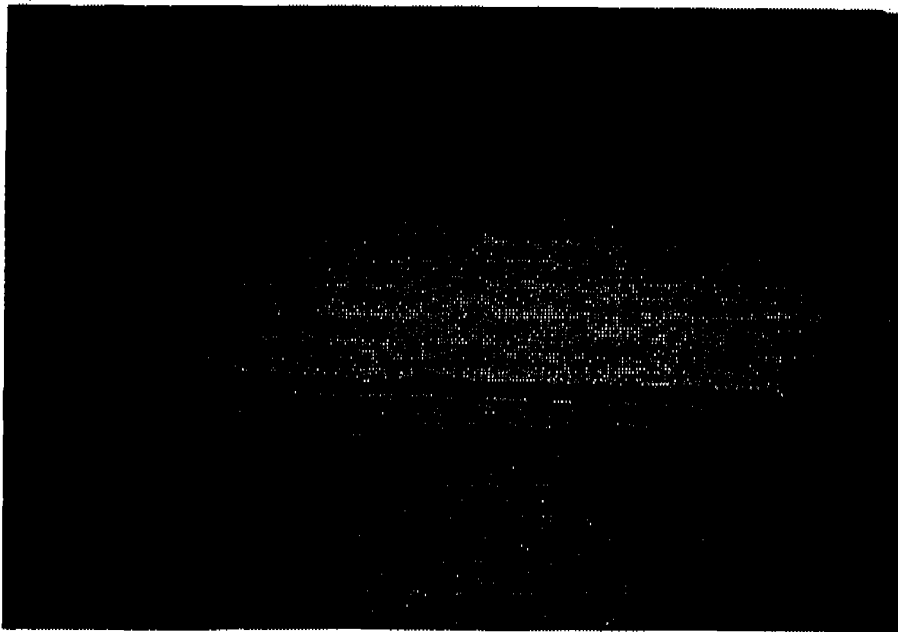


Fig. 19. Extreme losses of pastures in the dry season



a) Drought-stricken Ikonda village: no more grasses, only trees standing.



b) Drought-hit Bukundi village: no grasses, no trees, a large kraal in isolation.

keep many livestock. During severe droughts therefore, most people sell livestock to get money for buying food. However, because of the large numbers of livestock brought into the market at the same time, prices become extremely low. Moreover, because the animals are severely emaciated and weak at this time, they are not presentable to buyers. It is no wonder therefore that prices drop down to quarter or a third of the price. For example a bull that usually sells at TSh 150,000 at Bukundi market could fetch a mere TSh 50,000 in those situations.

#### v. Livestock products

Livestock keepers sell milk, ghee, hides and skins for their income. These products are not as important as livestock regarding household income but they are a useful complement. They provide poor households in particular, with some money to buy their requirements. But as previously stated, milk and ghee are also foodstuffs for most households. The amount of milk and ghee available depends on the number of cattle in a household. Price of milk ranges between TSh 50 and TSh 100 and that of ghee about TSh 1500 per litre in most villages. Farmers situated farther interior find it difficult to sell their milk. In Malilita village for example, farmers do not sell milk at all because there is no market, the nearest market place is about 30 km away.

Household members depend far less on hides and skins because these products become available only when some livestock die or following an occasional slaughter. And because their prices have tremendously dropped during the last few years (from TSh 1200 in 1990), hides and skins have become even less important. These products do not have a reliable and competitive market like other products; their market is controlled by irregular few buyers. The current price of hides is about TSh 400 per kilogram and that of skins about TSh 600 per piece.

#### *h) Provision of livestock services*

Quite many farmers concede that good services to livestock could improve livestock production and health. Farmers would achieve optimum benefits from their animals and raise their livelihoods through such an improvement. Therefore one explanation to why livestock keepers lead a poor life is the unsatisfactory livestock services provided to their livestock. Worse still, the few and poor services provided are not available to all villages in Shinyanga; there are places where farmers have never seen someone rendering such services. For example, two farmers at Mwang'olo had not received any public or private service since they started livestock keeping a decade ago.

The only livestock services known to villagers are dipping, spraying, advice, mass vaccination and treatment of sick animals. These services are neither regular nor properly organised. Service providers do not pay routine visits to farmers but do so

when they feel like or when they are called upon. And sometimes they do not respond to any call. The result is that livestock owners become very disappointed and some despair completely not knowing what to do next.

#### i. Dipping and spraying

Although only three out of the twelve villages had dips, dipping was a well-recognised service. It was equally popular in villages that had no dips. This service was efficient since colonial times up to early 1980s but slowly started to slacken until it completely disappeared a decade ago. Dipping collapsed altogether when farmers started paying for the service. Farmers considered the service highly expensive and not worthy the returns. One participant at Byuna complained that he sold up to five cattle to serve the rest of his herd something that looked detrimental to his livelihood. Dips on the other hand, have totally deteriorated because local governments and villages are disinterested in their management. At Mwabagimu village for example, villagers do not know whether the dip belongs to the local government or to the users. Irrespective of the above most farmers believe dipping is important and needs to be revived. They suggest however, that it should be a free service or highly subsidised by the central or local government. After all this would be an appropriate return for the livestock levy farmers pay to the government.

Dipping keeps animals clean and healthy and controls ticks. Since the collapse of dipping however, numerous livestock diseases have surfaced and an increase in cattle deaths recorded. Most livestock keepers describe well some clinical signs of diseases on the increase but neither do they associate them with ticks nor dips. The clinical signs they describe match broadly those of east-coast fever and babesiosis.

A few participants at Mbaragane and Mwang'olo mentioned hand spraying as another method of controlling ticks but the practice was not familiar to many people. Those who had sprayed their animals complained that it was expensive. Further, they believed it was not efficient because people rendering this service sometimes used weak acaricide dilutions. The providers of this service were in most instances not well known people nor trusted by villagers.

#### ii. Clinical and advisory services

Clinical services are not satisfactory despite that they are in the hands of the government. There are not enough workers to satisfy farmers and the few ones are not well equipped. In many situations each worker attends up to five villages something that leads to inefficiency. Many clinical cases go unattended because it is always not easy to have a worker at hand when in need. Although the government claims these services as free, farmers pay some cost through exorbitant prices of drugs and tips to

the workers. It is not clear yet if the money reaches the government or goes into the workers' pockets. Many farmers do not go for these services because they cannot afford them. Instead they use herbs and other traditional medicaments to cure the sick animals. Apparently no medicine person would volunteer to disclose his or her stuff. Besides east coast fever and babesiosis, farmers can easily recognise blackleg, heartwater, cowpox, pneumonia and foot and mouth disease. Progressive weakness, most likely due to worms, was mentioned as a common ailment but farmers did not know the cause.

Farmers receive technical advice and education from the same workers and these do so when attending clinical work or separately. Farmers regret that they have not changed much despite the technical advice given over years. The reasons behind include: the advice being not clear or appropriate, the change requiring high costs and farmers being unnecessarily adamant or not seeing immediate benefits. Farmers cited destocking of cattle as an example, where they lamented that technicians did not provide alternatives.

Vaccination of cattle against rinderpest is another popular service to farmers. It attracts masses of cattle because it is a free service. Farmers believe through it cattle are able to withstand the many diseases surrounding them. They remain sceptical however, if this service will continue to be popular when some fee is introduced. Some farmers at Butuyu suggested that other mass vaccinations for example, against CBPP and rabies were not successful because of the cost factor.

### iii. Breeding

Farmers use own bulls for breeding and only occasionally do some hire other's as earlier said. Neither the government nor private workers involve themselves in breeding programs. Nevertheless, most farmers would like to own better and more productive livestock - heavier, attractive, resistant to diseases and producing more milk. A few however, are happy with their livestock because they believe any change to the genome would bring in unwanted characteristics, for example polledness and lack of hump.

### iv. Watering

Water has been dwelt on in some detail in other sections and suffices to say, it is still a poor service to livestock. Farmers consider the service very vital for the survival and development of their livestock. Most water sources are natural and little has been done to improve them. Further, they are temporary and efforts to provide permanent ones are usually limited by financial resources. Through district water projects some villages for example Butuyu, have launched water funds as part of self-help water

scheme. Such a scheme has not been introduced in others for example, Mwang'olo where people are desperate because they do not see an eminent solution to having water. The small charcos they dig dry up because of drought. As a result more and more people leave the village with their livestock to other places.

*i) Impacts of policy changes: current and potential*

i. Liberalised trade and participatory ownership

Rural communities realise there is already some shift from the previous socialist organisation and management to a more liberal and private one. Some activities previously shared by village members such as communal crop farms and village shops, have disappeared. Apparently there were no such activities to do with livestock; people owned and managed their herds. In addition every farmer benefited from the sale of his or her livestock or livestock products. But they shared grazing land and sources of water as it were before the socialist regime.

Changes in public policies on trade and private ownership cutting across the nation are slowly being noticed by villagers. In the livestock sector in particular, they are aware that nearly all services are in private hands. Nothing is any no longer free; even the so called government services have some hidden fee. Some goods and services they pay for include clinical work, advice, dipping, acaricides, veterinary drugs and equipment and some vaccines. They also contribute in voluntary work and monetary terms towards village water schemes. Above all, they pay a property tax to their local governments for every animal they own. Farmers suggest that dipping, among other services, be provided freely in return for this tax.

A liberalised trade has brought more goods in the market but their prices have tremendously escalated. Prices of the various items mentioned above have all gone up despite the many sources now available. There are all sorts of veterinary drugs and equipment on the market but their authenticity is questionable. Some druggists sell or dispense expired drugs or those below standards. There is also concern on the efficacy of veterinary drugs exposed to the sun during business hours.

In Byuna and Bunhamala where villagers are making contributions towards construction of water wells, they believe such self-help schemes are appropriate but pledge external assistance. They need help because they have limited resources and have other obligations eg to build new schools, dispensaries, roads, dams, etc. They also need credits for such projects but do not know how and where to acquire them. Although demanding, villagers feel these projects belong to them and it is their responsibility to take care of them. Such projects are likely to be managed better and thus last longer.

## ii. Attitudes towards communal grazing

Some extensive talk has been made on communal grazing under the section on current farming systems. This is a controversial topic because some farmers prefer the practice while others would like to see private land for grazing. In between there are those who think communal grazing is fine, but should be done on demarcated lands. Those against urge that if a policy promoting the grazing on private land is instituted it has to deal with land ownership as well. It might involve a fresh re-distribution of land and new village settlement. This idea is acceptable to those without enough land but completely rejected by people with large lands. Those for the idea think the re-distribution will force people to keep less livestock, an approach that will preserve the environment.

People with large herds of livestock do not favour this policy because they fear land will be scarce for grazing their herds. Further worse, they predict this policy will require them to rear fewer livestock than they have, something they compare to suicide. They urge communities with smaller herds of livestock are easily predisposed to famine than those with larger herds.

## 6.0 Discussion

The results of this study indicate that farmers have a range of views on a variety of issues surrounding them. They provide information freely, openly and honestly once they understand the theme of the assessment. And the more the interaction between villagers and researchers the more the participation. In many occasions participants do not come to conclusions, rather end up giving absolute views. This is extremely important for purposes of the PPA because there is neither prejudice nor bias in presenting views. The views given in the different villages are remarkably similar on: issues rural people consider prime for their livelihoods, problems stagnating those communities, approaches to alleviate some of the problems, role of women and children, livestock farming systems, and the way livestock are attached to the rural people. The major differences appear to be in ethnic perceptions, location in relation to activities performed, availability of land for cropping and grazing, existing infrastructures and susceptibility to droughts.

Although many issues are highlighted as causes of poor livelihoods and poverty, the major ones are successive droughts, illiteracy and lack of investment. Droughts result into famine, shortage of water and shortage of pastures. People live a rather temporary lifestyle, unable to predict and invest in the future but prepared to move to other places at any time. It is true therefore that the keeping of many livestock and the movements of stock to other parts are ways or sustaining humankind and his



livestock. While strong attachment to culture is an impeding factor to positive change, literacy can significantly reduce such attachment. Archaic ideas dominate in these communities because people are not well exposed to new skills and developments. This might be an explanation for why men consider women inferior, children deprived of basic education and people sticking to obsolete farming techniques. Ignorance of basic rights and knowledge and recurrent droughts precipitate to poverty in Shinyanga. Local people are too poor to invest in something tangible and the rich outsiders cannot invest because the rural poor have little purchasing power. This is a grave vicious cycle!

There is no doubt that livestock are more important to the rural communities than most authorities think. Livestock are the means for survival, going through droughts, livelihood, wealth, money, farmlands, food, marriage, identity, etc. It is explainable therefore why people are so attached to livestock and why they keep large herds. Regardless the large herds, rural livestock keepers are still poor and seemingly desperate. But looking at the aims of keeping livestock in these communities, one can suggest that livestock can merely sustain their livelihoods but cannot alleviate their poverty.

An important step is to keep livestock for purposes beyond survival - produce for profit. The new aim will change the whole spectrum of livestock farming. It means patterns of ownership and responsibility within households will involve all members; management systems will improve; overstocking and overgrazing will be checked; selection of better producers and culling of the unproductive will take place; herd sizes and composition will match the demand; productivity will go up and market forces will dictate prices.

This vital turn-point calls for skill and investment from both within and outside. The poor communities have to understand this aim and invest the little they have towards production and the rich outsiders to facilitate them. To enhance the change some support services for example marketing, transport, communication and extension have to be improved too. Here, the government and other external groups have to intervene. Introduction of cooperate business is another initiative that will give farmers some command on their products.

One conclusion from this study is that in the light of the slow progress and desperation poor communities are experiencing because of ignorance, poverty and alienation on one hand, and the intrinsic resources they have particularly land, livestock and experience on the other, the overarching policy guideline should be one of exposure to better management practices and legitimate support by investors, donors and

governments. Left on their own devices livestock keepers have failed to change their livelihoods over decades because they have been unable to use the vast livestock resource at hand. Attempts to raise these people's livelihoods should extend to improving their attitudes towards livestock and improving livestock to meet these new attitudes and demands.

#### **7.0 Some key recommendations**

- Land ownership and distribution be revisited to encourage its proper utilisation and management.
- An intensive education and extension package be provided to livestock keepers on how to manage their livestock profitably, for example through better feeding, selection, husbandry and disease control; this will encourage investment.
- Local governments should establish better livestock marketing facilities; and buyers and investors to provide incentives to attract livestock trade.
- Farmers should form associations or groups to have common production and marketing strategies for their livestock and livestock products.
- Overstocking be discouraged through education or legislation because it depletes grazing land and predisposes to destruction of the environment.
- *Ngitiri* have proved to be efficient fodder conservation practices, they be introduced throughout the region and improved through introduction of better quality fodder, and harvested as cut hay.
- The use of crop residues be emphasized to promote dry season supplementary feeding.
- Male livestock keepers be discouraged through education or by legislation from neglecting other household members, particularly women, on the allocation and distribution of wealth.
- Children be given a chance to get education for their future and not to remain a workforce for the households.
- When governments, donors or community members construct a water well or dam, a keen consideration for both human and livestock consumption be made.

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