

# Pastoral Perceptions towards Livestock and Rangeland Management Practices in Kuraz District of South Omo Zone, South Western Ethiopia

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## Abstract

The study was conducted in Kuraz district of south Omo Zone, South Nation nationalities people regional state (SNNPRS), with the objectives of assessing perception of pastoralists on livestock-rangeland management practices. The mean family size of the study district per household was 6.86, with very low education coverage 9.6%, which means 90.4% of the pastoralists were non-educated. Pastoralism (68.3%) and agro-pastoralism (31.7%) were the dominant production systems. The sale of livestock and livestock products were ranked 1<sup>st</sup> and 2<sup>nd</sup> as the main source of income. Migration was the first measure taken to cope up drought followed by inter-clan dependence. Almost all of the respondents replied that compared to the past, their grazing lands are now covered with bushes and unpalatable shrubs. Drought and overgrazing were ranked to be the 1<sup>st</sup> and 2<sup>nd</sup> factors for bush encroachment in the district. Pastoralists in the study district ranked drought and feed shortage as 1<sup>st</sup> and 2<sup>nd</sup> major livestock production constraints respectively. Herbaceous pasture and browse species of rangelands were ranked as 1<sup>st</sup> and 2<sup>nd</sup> sources of livestock feed respectively. There is poor traditional knowledge of rangeland management practices mainly due to poor elders' coordination and presence of Island (Desset) for dry season feeding. Pastoralists in the study district replied that compared to the past now a days there is increased frequency in occurrence of drought. In general, this study revealed that pastoralists in the study district has poor knowledge of range resource management and utilization practices hence, they have to be trained and aware of appropriate ways of management and improvement practices like rotational grazing, enclosed area utilization and bush clearing in order to increase the productivity of livestock and rangeland for sustainable utilization

**Keywords:** Bush encroachment, coping mechanism, livestock constraints, Migration and Pastoralists

## Introduction

Pastoral livestock production remains the principal economic activity in the arid and semi-arid rangelands of Ethiopia. Pastoralism provides a living for about 6 Million Ethiopians, an estimated 10-12% of the country's total human population. Pastoralists keep about 40% of the national cattle, half of the small ruminants and nearly all the dromedaries. Through extensive rangeland management they use about 60% of the total area, mainly peripheral areas where no alternative production exists. Despite a strong subsistence orientation, pastoralists provide about 90% of the legal livestock exports in live animals, and 20% of the draught animals for the highlands (Coppock, 1994; Hogg, 1997; Sandford and Habtu, 2000).

Pastoralists have indigenous knowledge in range management by repetitive experience and progressive learning, inextricably linked to the seasonal and cyclical quantity and quality of natural resources, and the accessible biological diversity (Galvin et al., 2001). Despite the existence of such knowledge, researchers and development policy experts previously overlooked community-based knowledge when evaluating the rangelands. Development interventions that did not integrate traditional range management strategies have not been successful. Combining community-based knowledge with scientific knowledge may provide a more complete understanding of environment from the perspective of those utilizing the resources (Ayana and Gufu 2008). The need for incorporating community-based knowledge in assessing rangelands has been widely acknowledged (Fernandez-Gimenez 2000).

South Omo zone is one of the pastoral areas that located in south western part of the country, consisting of sixteen ethnic groups having different culture, livestock-range management practices. Of these pastoral groups, the study district consists of the dominant tribes namely Desanech and Bume that bordering Kenyan pastoralists. This pastoral group were ignored due to its being remote and escorted with fear of conflict with different pastoral groups like Kenya and Borana. Hence, it was very barbed to quarry information that would help for development interventions. So, knowing information's on such a diverse pastoral groups would help for further research and development interventions. Therefore, this study is designed with the following objectives to assess the existing range-livestock management practices, identify current livestock production constraints and file the perceptions of the pastoralists on rangeland degradation.

## Materials and methods

### *Description of study area*

The study was conducted in Kuraz Woreda, which is found in South Omo Zone of SNNPRS, and it is bordered by Kenya in the South, Salamago Woreda in the north, Illime triangle in the west and Hammer Woreda in the east. It is (5<sup>o</sup>.14'N latitude, 36<sup>o</sup>.44'E longitude) 1000 km from Addis Ababa; 725 km from regional capital Hawassa and 225 km from Jinka, the Zonal capital and generally the area is located in the south west of Ethiopia. The temperature of the area ranges from 25-40°C and rainfall is 350-600 mm with bimodal rainfall and erratic distribution. The first rain starts from mid of March to the end of June main rain season and the second rain starts from September to end of November short rain season (BoA, 2007). Altitude of the study area is in the range of 350-900 m.a.s.l. spacious range of the area is with plane, and slight increase in altitude without surging scenery.

### *Data collection*

A single-visit formal survey method (ILCA, 1990) was employed to collect information on traditional grazing land management and utilization practices, livestock composition and feed resources available and pattern of utilization in the area. The study area has 40 peasant associations, out of which 13 peasant associations were selected based on accessibility and suitability of the area to generate socio-economic information of the district. From each peasant association depending on the number of pastoralists inhabited in each PA 8 household heads, and a total of 104 household heads were selected purposively to get reliable information. Four group discussions were made with key informants and the group included both sex and age categories' to get relevant information. Prior to the beginning of the actual work, the questionnaire was pre-tested and re-structured to easily convey the necessary information. The household was taken as a unit of analysis. Interviews were conducted through informal and formal survey to obtain specific information on feed resources and traditional grazing management systems.

Structured questionnaires and formal discussions were used during interview with the key informants. The questionnaires included wet season and dry season herd allocation to grazing areas, major livestock production constraints, vegetation composition, bush encroachment, feed resources available: pasture (herbaceous) species, browses species, crop residues and feed conservation methods, drought occurrence, coping mechanism and other indigenous rangeland management practices.

### *Statistical analysis*

The collected household data were summarized and analyzed using Statistical Package for the Social Sciences (SPSS, and version 16). Descriptive statistics such as mean, percentage and frequency were used to present the results. Ranking analysis: Household survey data related to causes of major livestock feed resources, major livestock production constraints, causes of bush encroachment and drought coping mechanisms were analyzed using ranking index method (Musa et al 2006).

## Results and discussion

### **Family size and educational status**

The average number of family size in the household was 6.83 persons/ household with standard deviation (SD of 3.3) (Table 1). The family size ranged from 2 to 22 with 0 to 14 males (4.16 mean) and 0 to 9 (2.69 mean) females. Family size of the district is lower than that reported for the Borana pastoralists (13.5) (Alemayehu, 1998) north Kenya (8.2), Uganda pastoralists (14.7), Admasu (2006) Hammer and Banna Tsemay 7.3, Llishan (2007) for Somali, Teshome (2006) Rayitu 9.45 and higher than that reported for Kereyu (6.17) Abule (2003).

Fewer numbers of family size is associated with continuous seasonal movement of male pastoralists to Island (desset) rather staying with their family. From the group discussions, key informants replied that pastoralists in the study district need high number of females (girls) than males (boys). This is because having high number female leads to being wealth for the family in case her family gets around 35 cattle during her wedding.

Even though the current government has given the chance of education to the pastoralists, the level of its coverage is very low *i.e.* 2.9%. During group discussions, pastoralists in the study district indicated that due to shortage of trained staff, low motivation of teachers, mobility and cultural taboo towards sending girls to school the level of education is very low; this situation is in line with report by (Beruk, 2003). Pastoralists in the study district do not allow their children especially girls to attend school mainly due to their cultural conviction; that if they send their children to school, they will overwhelm what they own (livestock).

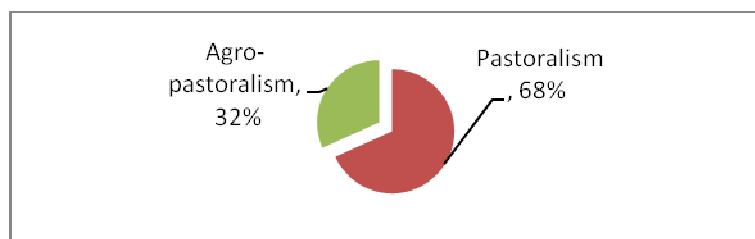
**Table 1. Family size and educational status of pastoralists in Kuraz Woreda South Omo Zone**

Average family size	Mean	SD
Male	4.16	2.2
Female	2.69	2
Age category	Mean	SD
>60 year	1.1	1
16-60 year	2.8	1.4
6-15 year	1.7	1.1
<6 year	1.4	0.5
Status of education	Frequency	Percent
Formally educated	3	2.9
Informally educated	7	6.7
Not educated	94	90.4

*Formally educated:- by attending class, Informally educated :- educated through military and missionary services*

### Occupation and income sources

The main occupation for pastoralists in the study district is pastoralism (68.26%), this is mainly due to the low and erratic nature of rainfall in the study district. Rainfall does not support crop production unless it is irrigated in the area. However, 31.74% of the respondents produce crops by using over flow and/or wind mill pump of Omo River (figure 1). This implies that those who are living near the Omo River practice agro-pastoral livelihood based occupation. Whereas, those who have towering number of livestock and settled relatively far away from Omo River survive by only pastoralism (livestock production).



**Figure 1. Major occupations of pastoralists in Kuraz Woreda (n = 104)**

The main source of income for the pastoralists' in study district is derived from the sale of livestock and livestock products (Table. 2), and very few group get from the sale of crops. The income of a pastoral household is generally derived from specific economic activities, livestock and livestock related activities being the most important contributors (Ellis and Swift 1988). This high dependence on livestock as the main source of income is well documented in other pastoral areas of Ethiopia (Alemayehu, 1998; Abule, 2003), Admasu (2010) Teshome, (2006), Lishan, (2007) and East African countries (Ndikumana *et al.*, 2001). Pastoralists living hard by the town (Omo Rate), to some extent, get their income from sale of charcoal, firewood and gum (bareha-etan).

**Table 2. The main sources of income for pastoralists in kuraz woreda (n=104).**

income sources	1	2	3	4	Total	Index	Rank
Livestock	80	12	3	-	95	0.45	1
Livestock product	24	60	5	-	89	0.42	2
Crops	-	11	7	-	17	0.08	3
Sale of forest product	-	4	-	7	11	0.05	4

### Livestock production and Ownership

South Omo Zone has the largest livestock population in the SNNPRS next to Sidama Zone, of which the study district covers the largest proportion. In the study district, in the past pastoralists were categorized as wealthy, medium wealthy, poor and very poor depending on the number of cattle they own. Therefore, those pastoralists owning above 300, 150-300, 50-150 and below 50 cattle are pigeonhole as wealth, medium wealth, poor and very poor respectively. Such type of status classification is documented in some pastoral areas like for Somali (Amaha, 2006) and Hammer and Banna Tsema (Admasu 2006). However, currently this category of classification is not functioning; this is mainly due to cutback in rangeland quality and quantity and incidence of drought and draught instigated diseases. Hence, these factors abridged the number of animals owned per household.

Table 3. Mean number of livestock species in TLU owned per household in Kuraz Woreda (Respondents: 104)

Livestock species	Minimum	Maximum	Mean	SD
<b>Cattle</b>	<b>8.4</b>	<b>70.6</b>	<b>35.9</b>	<b>14.6</b>
<b>Goats</b>	<b>0.2</b>	<b>5.3</b>	<b>2.01</b>	<b>1.0</b>
<b>Sheep</b>	<b>0.1</b>	<b>2.6</b>	<b>1</b>	<b>0.5</b>
<b>Camels</b>	<b>0</b>	<b>2</b>	<b>0.46</b>	<b>0.13</b>
<b>Donkey</b>	<b>0</b>	<b>2.1</b>	<b>0.5</b>	<b>0.3</b>

### Livestock composition

Pastoralists, in the study district keep more than one species of animal mainly cattle, goats and sheep, very few group camel and donkey in the order of their importance. Hence, they can get advantages of various adaptation strategies from different animal species to diseases, feed and water shortage, and drought. On the other hand, diversified outputs can be obtained from the different species of animals. This is in line with the reports from the other pastoral areas of Ethiopia and the East African countries (Coppock, 1994; Solomon *et al*, 1991; Ndikumana *et al*. 2001).

Livestock composition in the study district can be evidence for that the proportion of cattle was higher than that of goat, sheep, camel and donkey (figure 1).

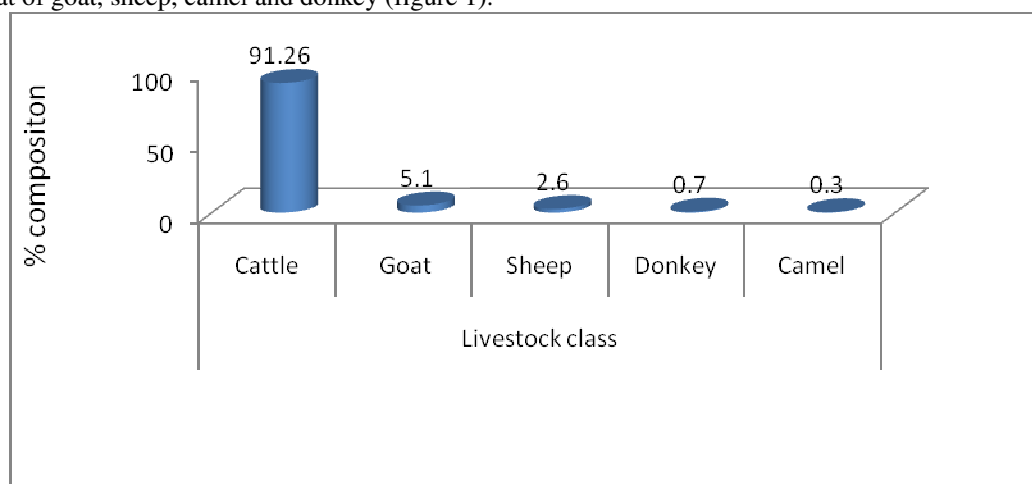


Figure 2. Herd composition of the livestock in the kuraz woreda

Pastoralists of the study district give priority to raise different livestock classes depending on its economic and social importance. Accordingly, cattle, goat, sheep, donkey and camel are titled as first, second, third, fourth and fifth respectively (Table 4), such prioritization of cattle as major livestock class was well documented by (Amaha 2006) for Afar pastoralists.

Table 4. Preference of pastoralists to raise livestock in the rank 1<sup>st</sup>-5<sup>th</sup> in Kuraz Woreda (n = 104)

Species	1	2	3	4	5	Total	Index	Rank
<b>Cattle</b>	<b>91</b>	<b>10</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>103</b>	<b>0.26</b>	<b>1</b>
<b>Goat</b>	<b>12</b>	<b>70</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>94</b>	<b>0.24</b>	<b>2</b>
<b>Sheep</b>	<b>2</b>	<b>12</b>	<b>45</b>	<b>24</b>	<b>0</b>	<b>83</b>	<b>0.21</b>	<b>3</b>
<b>Camel</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>44</b>	<b>0</b>	<b>49</b>	<b>0.12</b>	<b>5</b>
<b>Donkey</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>35</b>	<b>37</b>	<b>74</b>	<b>0.19</b>	<b>4</b>

### LIVESTOCK PRODUCTION CONSTRAINTS

Several factors can be pointed out about the constraints of livestock production in pastoral areas of Ethiopia. Pastoralists in the study district ranked drought as the major and primary problem for livestock production, which was pursued by shortage of feed, health problem and cattle rustling (table 5). This authenticates reports from different pastoral groups of Ethiopia by Beruk (2003) and Admasu (2006) in Hammer and Banna Tsemay, Teshome (2006) Rayitu district of Bale Zone, Lishan (2007) in Somali region Ketema (2007) in Gembella Region.

Table 5. Livestock production constraints in the Kuraz Woreda (n = 104)

Livestock production constraints	1	2	3	4	Total	Index	Rank
<b>Drought</b>	<b>70</b>	<b>14</b>	<b>8</b>	<b>-</b>	<b>92</b>	<b>0.31</b>	<b>1</b>
<b>Feed and water shortage</b>	<b>30</b>	<b>48</b>	<b>11</b>	<b>-</b>	<b>89</b>	<b>0.3</b>	<b>2</b>
<b>Disease</b>	<b>4</b>	<b>38</b>	<b>26</b>	<b>-</b>	<b>68</b>	<b>0.23</b>	<b>3</b>
<b>Cattle rustling</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>45</b>	<b>45</b>	<b>0.15</b>	<b>4</b>

**Indigenous pastoral rangeland management practices**

In the study district, all the respondents answered back that all animals are tolerable communally to graze/browse with no discrimination. Livestock species, age of the animals, physiological condition such as pregnancy and productivity are not considered during the wet season. However, during the dry season, those animals, which cannot move due to sickness and milking, are allowed to graze/browse separately around homestead. Unlike Borana, Afar, Somali and Gembella pastoralists, this pastoralist's do not use any system for rangeland management traditionally.

Moreover, it is not common to use enclosed areas and grazing area allocation for both dry and wet seasons. Generally, elders of study district were very poorly coordinated in order to manage communally grazing rangelands. This weak rangeland management practice corresponds with the report Admasu (2006) and Teshome (2006) in Hammer Banna Tsemay and Ratiyu districts of Bale Zone of Oromia region, respectively. Seeing that pastoralists answered back, weak rangeland management practice is allied with its being communal tenure, availability of feed during dry season around Island (Desset) and poor elders' coordination for resource management (Table 6).

Table 6. Factors contributing for poor rangeland management in Kuraz Woreda (n = 104)

Reason of poor rangeland management	1	2	3	Total	Index	Rank
<b>Communal ownership</b>	<b>60</b>	<b>16</b>	<b>4</b>	<b>80</b>	<b>0.35</b>	<b>2</b>
<b>Presence of Island</b>	<b>35</b>	<b>58</b>	<b>6</b>	<b>99</b>	<b>0.44</b>	<b>1</b>
<b>Poor elders coordination</b>	<b>7</b>	<b>10</b>	<b>30</b>	<b>47</b>	<b>0.21</b>	<b>3</b>

**BUSH ENCROACHMENT**

All most all the pastoralists in the study district replied that relative to the past, their grazing lands are more covered with bushes or less palatable plant species, which were responsible for a decline in rangeland productivity. Invader bushes start to produce seeds in abundance and so create opportunities for the establishment of new generations of bushes (Blench & Florian, 1999). The current study revealed that the main reason for bush encroachment in the study district is drought, overgrazing, uncontrolled livestock movements, and poor bush clearing practices (table 7). Similar report was documented by researchers in other pastoral areas (Ayana, 1999; Abule, 2003).

Pastoralists in the study district replied that feed shortage, tick infestation and growth of poisonous plants were major problems encountered due to bush encroachment (table 7). This study is in line with report by (Raj, 2005) he indicated that the major problems encountered due to bush encroachment are diminution in production of the herbaceous layer, restriction of livestock movement, damage to the body of the animals, may be home for tick and other parasites and finally these factors lead to a reduction in the out puts of animals.

Table 7. Responses of pastoralists on occurrence, causes and result of bush encroachment in Kuraz Woreda (n = 104)

Bush encroachment occurrence	Frequency					Percent	
<b>Yes</b>	<b>102</b>					<b>98.1</b>	
<b>No</b>	<b>2</b>					<b>1.9</b>	
Reason for bush encroachment	1	2	3	4	Total	Index	Rank
<b>Drought</b>	<b>36</b>	<b>48</b>	<b>11</b>	<b>3</b>	<b>98</b>	<b>0.31</b>	<b>2</b>
<b>Over grazing</b>	<b>56</b>	<b>40</b>	<b>5</b>	<b>-</b>	<b>101</b>	<b>0.32</b>	<b>1</b>
<b>Absence of bush clearing</b>	<b>6</b>	<b>9</b>	<b>35</b>	<b>28</b>	<b>78</b>	<b>0.25</b>	<b>3</b>
<b>Uncontrolled livestock movement</b>	<b>3</b>	<b>1</b>	<b>17</b>	<b>17</b>	<b>38</b>	<b>0.12</b>	<b>4</b>
Problem due to encroachment	1	2	3	Total	Index	Rank	
<b>Feed shortage</b>	<b>57</b>	<b>23</b>	<b>12</b>	<b>102</b>	<b>0.47</b>	<b>1</b>	
<b>Growth of poisonous plant</b>	<b>6</b>	<b>18</b>	<b>30</b>	<b>54</b>	<b>0.25</b>	<b>3</b>	
<b>Tick infestation</b>	<b>32</b>	<b>29</b>	<b>10</b>	<b>71</b>	<b>0.33</b>	<b>2</b>	

**Feed resources in the district**

Pastoralists in the study district ranked herbaceous natural pasture as the major feed resource (1<sup>st</sup>) followed by

browse species (table 8). Adugna and Aster (2007) reported that pastoral livestock production depends predominately on natural pasture. Availability of high quality forage remains for a short period of the rainy season and livestock are frequently exposed to periods of prolonged under-nutrition in dry seasons (Kakengi et al 2001; Kanuya et al 2006).

Table 8. Major feed resources available in the Kuraz Woreda (n= 104)

Major feed recourses	1	2	3	Total	Index	Rank
Herbaceous pasture	98	10	-	108	0.47	1
Browse	26	70	-	96	0.43	2
Crop residue	-	6	12	18	0.09	3
Crop aftermath	-	-	4	4	0.01	4
Supplementary feeds	-	-	-	-	0	-

About 86.5% of the pastoralists in the study district replied that natural pasture is available to animals for about 6 months, starting from April to June (main rainy season) and mid September to November (short rainy season) (Table 9).

Table 9. Types of major feed resources and length of its availability

Type of feed	Available period	Frequency	Percent
Grazing	6 month	90	86.5
	4 month	14	13.5
Browsing	6 month	72	71.2
	Throughout the year	32	28.8
Crop residues	During harvesting	33	31.8
	No use	71	68.2
Crop aftermath	During harvesting	4	3.83

Pastoralists in the district do not marmalade feeds for dry season. During group the discussions, for the questions raised a propos conservation of feeds for dry season they responded “what, how and where”. All the sampled respondents in the district came back with that there was a critical feed shortage during the dry season (December to March) and (July to beginning of September).

Migration is the foremost solution for pastoralists of the study district to alleviate feed shortage during dry season. Around 86.5% of the respondents migrate during drought or dry seasons. Elders of pastoralists during group discussions replied most of the pastoralists in the study district are engrossed to go to the Island (Desset) through migration for their continued existence. Mobility remains the most important pastoralist adaptation to spatial and temporal variations in rainfall, and in drought years many communities make use of fall-back grazing areas unused in ‘normal’ dry seasons because of distance, land tenure constraints, animal disease problems or conflict (Blench & Florian 1999). The decisive shortage of feed and actions taken to solve the problem are aligned with the general state of affairs customary across the rangelands in Ethiopia (Coppock, 1994; Oba, 1998; Alemayehu, 1998; Abule, 2003). The movement of pastoralists to Island is sometimes associated with cultural acceptance as true. They suppose that if someone goes to the Island once or twice in a year, he will be healthy and wealthy. Therefore, this circumstance enforced pastoralists in the study district not to give attention for rangeland management.

### Drought and their coping mechanisms

Pastoralists in the study district confirmed that as the frequency of occurrence of drought is increasing now a day, it is occurring every one to two years (figure 4). In the past drought occurs once every eight or more years. Drought also increases vulnerability of livestock to death and equally threatens the pastoralist’s livelihood (Tafesse and Mesfin, 2001).

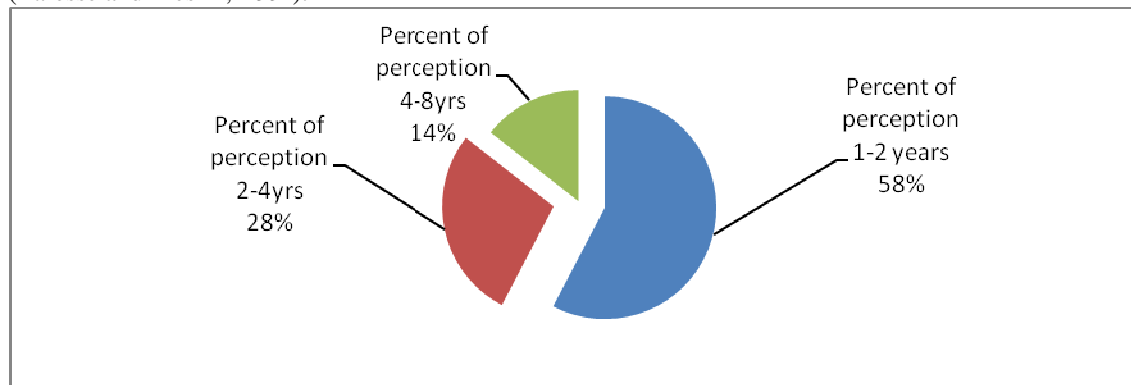


Figure 4. Perception of pastoralists on recent drought occurrence in Kuraz Woreda (n=104)



Pastoralists in the study district ranked migration as major coping mechanism during prolonged drought followed by inter-clan dependence (Table 10) and these coping strategies are similar to other pastoralists in Ethiopia (EARO, 2001) and in East Africa (Ndikumana *et al.*, 2001).

**Table 10. Coping mechanisms against drought by pastoralists Kuraz Woreda (respondents 104)**

Copping mechanism	1	2	3	4	Total	Index	Rank
Migration	90	9	-	-	99	0.38	1
Sale of animals	-	11	12	10	33	0.12	4
Food aid	6	12	17	21	56	0.22	3
Inter-clan dependence	8	13	18	31	70	0.27	2

**View of the pastoralists towards migration**

Migration is proficient in the study district twice in a year. The first is for around four months (December to March) and second two months from July to mid of September. Most of the pastoralists replied that migration is a practice undertaken even though there are many challenges like moving long distance and ambient temperature. On top of these, some of the problems that pastoralists face during mobility are incidence of diseases to humans and livestock, death of animals and human beings, water and feed shortages, attack by wild animals and conflict (Table 11). These problems are more or less well documented and reported by many researchers for other pastoral areas of Ethiopia (ESAP, 2000; Sharon, 2000; Abule, 2003).

**Table 11. Major problems that pastoralists face during migration in Kuraz Woreda**

Problem faced	Frequency	Percent
Do not migrate	14	13.5
Conflict	41	39.4
Disease for human and livestock	37	35.6
Death of livestock	12	11.5

Pastoralists in the study district move different level of distances during migration for search of feed and water even though there is hardship during migration. In the study district, around 13.5 % of the pastoralists do not move because of having smaller number of cattle and with smaller family size, but the rest all move to Island (desset) during drought. Nigatu *et al.*, 2004, stated that in case of prolonged drought, livestock can be moved out of the drought prone area either through mobility or de-stocking (sale) or livestock can be maintained in the area by supplying fodder. Mobility characterizes the pastoral production system. It is a very important strategy of pastoralists to exploit scarce vegetation and water resources in dry lands and it is in harmony with the harsh environment.

**Table 12. Average distance traveled during migration by pastoralists in kuraz Woreda (n = 104)**

Distance in (km)	Frequency	Percent
Do not migrate	14	13.5
10-20	6	5.8
20-30	11	10.6
30-40	17	16.3
40-50	23	22.1
50-60	33	31.7

of the pastoralists perceived migration as advantageous, with few group opposing practice of migration (figure 5).

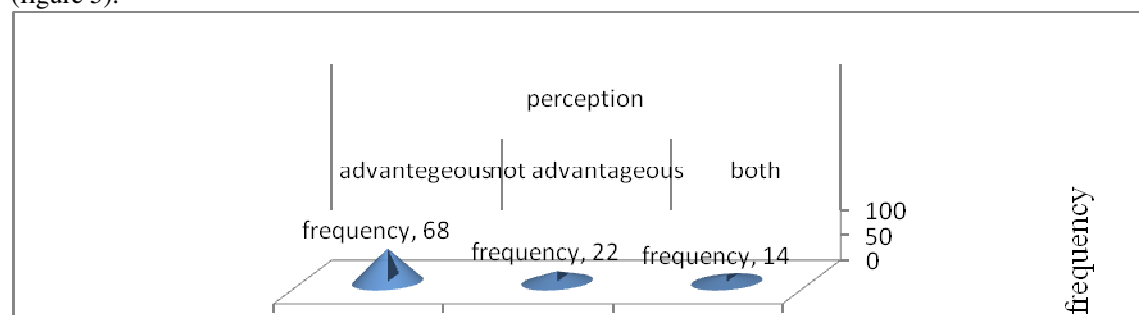


Figure 5. Perception about migration by pastoralists in Kuraz Woreda (n = 104)

**Conflict over resource use**

Over ninety percent of the respondents replied that there is conflict over range resource utilization and sometimes for social prestige among clans of Hamer, Bume, Karo, Mursi and Erbore tribes in the Zone. Similarly they indicated as there is conflict with and sometimes with Borana pastoralists. In addition, about ten

percent of respondents said that culture and social values are great initiators of conflict among clans and north Kenyan pastoralists at Ethiopian border. Most of the time conflict between the Kenyan pastoralist and that of Dessentch is not related with rangeland utilization but it is related with cattle rustling and tribe social values. In the study district, killing other tribes gives higher social value in the community. Luke G and katja G (2011) reported that border regions in the Horn of Africa are rife with pastoralist conflicts that usually include tit-for-tat cattle raids, thefts and revenge killings.

Seventy two (72) percent of the pastoralists answered back that conflict is proverbial during migration and about 6% of the respondents alleged that in good season i.e. when there is ample amount of food and feed for both human beings and animals in the district. Moreover, around 17% of pastoralists responded that conflict occurs always be it inter or intra clan and/or cross border it does not need time to occur.

Table 13. Conflict occurrence, causes and mechanisms of resolution in the Kuraz Woreda (n=104).

Conflict occurrence	Frequency	Percent
<b>Occurs</b>	<b>94</b>	<b>90.4</b>
<b>Does not occurrence</b>	<b>10</b>	<b>9.6</b>
Season of conflict occurrence	Frequency	Percent
<b>No conflict</b>	<b>10</b>	<b>9.6</b>
<b>During migration</b>	<b>71</b>	<b>69.3</b>
<b>Always</b>	<b>17</b>	<b>16.3</b>
<b>Available feed for both animal and people</b>	<b>6</b>	<b>5.8</b>
Conflict resolution	Frequency	Percent
<b>No conflict</b>	<b>10</b>	<b>9.6</b>
<b>There is conflict resolution</b>	<b>94</b>	<b>91.3</b>
Responsible body for conflict resolution	Frequency	Percent
<b>Elders</b>	<b>38</b>	<b>36.5</b>
<b>No conflict</b>	<b>10</b>	<b>9.6</b>
<b>NGOs and GOs</b>	<b>21</b>	<b>20.2</b>
<b>Both</b>	<b>35</b>	<b>33.7</b>

Elders of the district came back with that conflict is reducing among other tribes and ceased with intra-clan due to involvement of governmental and none governmental organizations like pastoral community development project (PCDP), Pact Ethiopia, Farm Africa and Ethiopian pastoral agricultural research development authority (EPARDA) in conflict resolution mechanisms. Even though, elders of the study district are weak in harmonization of resource management, they are good in conflict pledging. Cultural traditions and customary institutions feature significantly in conflict initiation and resolution. As a result, efforts to encourage and employ these institutions in conflict prevention and resolution programmes present an opportunity to achieve more sustainable peace by utilizing internal cultural factors (Luke G and katja G, 2011). Culture is an important component in conflict resolution (Burton & Dukes 1990; Kozan 1997; Bryne & Irvin 2000).

### Conclusions

- From the existing rangeland resource utilization point of view it is impossible to sustain life with better livelihood condition in the study district unless there is intervention through ways of livelihood improvement mechanisms like income diversification, for example involving the community in trade and fishery.
- Generally, improving the level of education and infrastructure in the study district needs due attention.
- Erratic and unreliable nature of the rainfall cannot support crop production in the area. However, pastoralists can be supported by large-scale irrigation in the area due to the presence of large Permanent river. Therefore, government and non-government organization should intervene on such facilities.
- Pastoralists are weak in rangeland management practices hence; they must be advised on proper rangeland management and improvement measures or practices. (e.g proper grazing management, resting of grazing lands, rotational grazing and seasonal range condition assessment and rangeland burning).
- There should be experience share concerning traditional rangeland management practices with other pastoral groups like Borana pastoralists. .
- Pastoralists utilize crop residues when feed is available, hence, appropriate utilization of crop residues during dry season should be facilitated.



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