

*Baseline Survey Report: Equine Welfare and Health Conditions in Northern Bahr el Ghazal State, South Sudan: February, 2017.*

## 1. Background

Equines in South Sudan face enormous suffering from neglect and outright mistreatment by the owners and users, in addition to facing immense challenges such as poor access to water, pasture and healthcare services. This is despite their immense contribution in food security and livelihoods through provision of draft power among agro-pastoral and business communities. Equine use has been of particular contribution among women and youth in the country where motorized transportation is hindered by the poor terrain and infrastructure, particularly during the rainy season. Protracted civil strife in the country exacerbated by dysfunctional animal healthcare services, lack of veterinary drugs/equipment, scanty information on knowledge, attitudes and awareness on equine welfare concerns; in addition to prevalent equine diseases and conditions have led to immense suffering of equines in Northern Bahr el Ghazal. Northern Bahr el Ghazal is one of the former ten states of South Sudan bordering South Darfur to the north and Western Bahr el Ghazal state to the West and South and Warrap and Abyei to the East. Aweil is the state capital. The state has an area of 30,543 square kilometers. The state has five counties and both donkeys and horses are the predominant draft animals. State is the first level of the administrative unit, followed by County, Payam, Boma and village.

Vétérinaires Sans Frontières-Suisse (VSF Suisse), through funding from the Brooke UK's Innovation Fund is piloting a three month project "*Equine Welfare and Health Management Advocacy Campaign in Northern Bahr el Ghazal State, South Sudan*" specifically targeting Aweil East, North and Centre Counties. The project aims to ensure increased awareness and advocacy for the welfare, health and management of equines through relevant information dissemination, capacity building and equipping of service providers and stakeholders in the targeted counties. A baseline survey was conducted in January 2017 to validate existing information gaps, equine welfare, husbandry and health concerns in the targeted counties.

## 2. Objectives of the baseline survey

The objective of the baseline study was to collect and validate qualitative and quantitative data from all stakeholders on working equine welfare, husbandry and management to better target and guide project activities implementation. The

specific objectives were to i) establish knowledge, attitudes and practices of owners/farmers, users, traders and owners of working equines in husbandry and management in the NBG, ii) determine the health situation, availability and access of animal health service for working equines in Northern Bahr El Ghazal and iii) assess the presence and status of working equine welfare networks, regulatory frameworks and mechanisms for advocacy nationally.

## 3. Methodology

A cross sectional survey was undertaken whereby a total of one hundred and twenty (120) randomly sampled participants were interviewed using a standardized, structured questionnaire administered face to face in the local language. Selected participants comprised of traders, users, farmers, owners and care givers. A total of 6 Key Informant Interviews (KII) were conducted with two in each of the targeted counties. Three Focus Group Discussions (FDGs) involving different social groups (government representatives, local leaders, women, men and youth) were conducted one in each targeted county. Verification and quality control of collected data was done after interviews and subsequently entered in Microsoft Excel and analyzed.

## 4. Findings

### 4.1 Demographics

Majority of the baseline survey respondents were male. Out of 120 interviewed individuals, 86% of them were men while 14% were women. Most working equine owners are predominantly male, who are relatively wealthy businessmen. Most equines seen and used in the markets on market days are from the rural areas delivering mainly farm produce for sale and carrying commodities back home/to the respective Bomas and villages. It was found that more women than men, more youth than adults and more boys than girls handle working equines: the youth (18-35 years) at 44%, followed by adults (36 years and above) at 42% and children aged 17 years and below who use or take care of equines at 14%. The equines are either used directly by owners or rented out to users at a daily commission. The on commission-hire-out arrangements mainly involve traders and young boys' users. Equines under these terms and conditions are exposed to the most deplorable working conditions, as the boys/traders mishandle and mistreat them with the perception of improving their performance and income oriented objective.

67% of the respondents were married, 33% single and 0.83% widowed. 68% of equine users, owners, traders and care givers come from or have large families (7 family members

and above) while 32% were from/have average families (6 household members). Majority of the respondents (48%) have never been to school, 45% attended school up to primary level, 7% attained secondary level education and none had joined any other higher institution (s) of learning. 68% of the individual questionnaire respondents were typically owners of equines, 20% were traders, 9.2% were users and 2% were caregivers. The population density of equines is higher in towns/markets like Gok Machar in Aweil North and and Aweil town in Aweil Centre County. Most equines, especially horse markets are on the Kiir Adem River borderline such as Warguet, Majok, Yith, Dhieu, Mayom, Angok and Jaac.

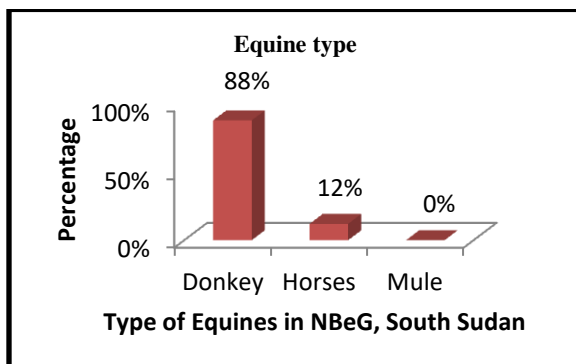
**Table 1:** Characteristics of respondents, age group and family

Respondents		Age group		Family typology	
Male	103	Children	17	Average	38
		Youths	53	Large	82
Female	17	Adults	50		
<b>Total</b>	<b>120</b>		<b>120</b>		<b>120</b>

## 4.2 Equines and other animals' statistics

### 4.2.1 Types and number of equines and other animals owned

Among the equine owning families, 88% of the respondents own donkeys, 12% own horses and none of the respondents own mules. A total of 202 donkeys, 24 horses are owned by the respondents. It was noted that most people are aware of the donkey and horse but are unable to distinguish a mule. Interviewees estimated that equines constitute less than 20% of total population of livestock in Northern Bahr el Ghazal State, of which 70% are donkeys while 30% are horses. Apart from equines, the respondents also keep a total of 246 other animals specifically 57 cattle, 76 goats, 28 sheep, 62 chickens and 23 dogs.



**Figure 1:** Types of equines in NBEG, South Sudan

### 4.2.2 Equines acquisition and cost

81% of respondents acquired their equines through buying from the local markets, 15% raised them and 4% through other means like gift (s). Furthermore, it is more costly to purchase a female donkey/horse compared to a male donkey/horse. A male donkey costs an average of 45,252 South Sudanese Pounds (SSP) (USD \$ 555), a female donkey 83,714 SSP (USD \$ 1,027), a male horse (160,000 SSP) (USD \$ 1,963) and a female horse 215,000 SSP (USD \$ 2,638). Yet females are hard to come by in the market. More poor rural households own donkeys while the horse is a relatively wealthier urban-based household owned animal. Most equines, especially in horse markets are on the Kiir Adem River borderline.

Comparatively, a horse is more expensive and lucrative for a household to own as it carries more loads at ago compared to a donkey, hence making it the better option in income generation. Some indicated the cost of a donkey back in the days (before the current inflation and economic hardships) to be 12,000 SSP (USD \$ 147), while a horse was valued at 25,000 SSP (USD \$ 638) in comparison to a cow valued at 20,000 SSP (USD \$ 245). This difference in price was attributed to daily income generation for transport of goods. At least 70% of KII and FGD participants acknowledged a horse's better performance compared to the donkey in terms of size of land cultivated per day, estimated at one *feddan* (175 square metres), on which a donkey may take two days. However, a donkey outperforms an ox and tractor in the quality of the plough and subsequent environmentally friendly outputs, improved yields and strengthened food security. Equine ownership was considered not ideal among poor households due to the high initial capital investments required. This is in addition to the delicate nature and care requirements including feeding and health care which poor households may not afford.

### 4.2.3 Availability of markets for equines

According to 63% of the respondents, locally, there is availability of a market in their area where people can buy and sell donkeys. 37% do not have a market in their area for the sale and buying of equines. It was noted that the neighboring Sudan, specifically the Darfur area is the main source of equines and equine traders are willing to sell only males, making it very difficult to get a female equine locally and hence constraining desired breeding.

## 4.3 Equine husbandry and management practices

### 4.3.1 Feeding and yypes of feeds given to equines

Donkeys and horses are mainly fed on grass (73%); while, 27% of the respondents indicated they feed their equines on sorghum stalks, maize stalks and groundnut stalks. Most equine keepers (53%) rarely give special supplements like salt licks to the equines while 47% occasionally do.

#### 4.3.2 Watering and sources of water for equines

Majority of the equine owners or keepers (50%) provide them with drinking water twice a day while 27% give water any time the animal wants to drink. 18% of owners/keepers give their equines water once a day, 4.2% depending on availability of water and 0.8% give their equines drinking water once in two days. In Aweil town, the main source of water for equines is boreholes (55.8%), followed by hand dug wells (38%), and a few (2%) owners/keepers buy water. Only 0.8% of owners/keepers fetch water from road side pools and 0.8% from swamps. 3% of owners provide the drinking water from more than one source for example a borehole, swamp and/or a hand dug well depending on the season and location.

#### 4.4 Shelter, housing and general care of equines

##### 4.4.1 Shelter for equines

75% of respondents allow their equines to rest within the family compound, 20.8% outside the home compound, 3% under a tree shed, 0.8% in the market place and 0.8% allow their animals to rest anywhere. 87% of the respondents do not change the resting place of equine (s) at all regardless of whether it is raining or not. Only 13% of respondents change the resting place of working equine (s) during periods of rains and/or sand storms. The highest percentages of equines (93.3%) rest/sleep in an ordinary sandy soil ground with no straw beddings, 3.3% rest on a cemented ground and 3.3% sleep/rest in a straw/grass piled floor.

##### 4.4.2 Problems experienced by working equines in their resting place (s)

The most common problem experienced as working equines rest/sleep overnight as highlighted by most of the equine owners is external parasites and/or insects. The insects including mosquitoes, ticks, fleas, flies and tsetse flies known as “Rum” or “Mau” in the local language constitute up to 58%. This is in addition to 8% of equines being attacked by wild animals like hyenas and snakes. Insecurity from theft due to lack of housing was acknowledged by 17% of respondents, 12% of equines being rained on and 5% of the respondents do not know what problem (s) their animals face overnight while resting.

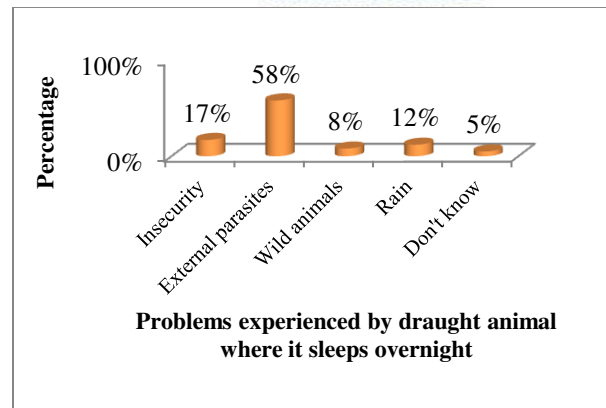


Figure 2: Problems experienced by equines while resting at night

##### 4.4.3 Breeding control among working equines

Generally, equine keepers/owners do not control their breeding at all. 85% of the respondents leave their animals free to breed; however, there are very few female equines in the targeted counties. 15% of respondents control their equines by fencing and/or tethering them at specific locations.

##### 4.4.4 Animal hoof care and availability of equine shoes

35% of the equine owners do not care and/ or deliberately ignore regular hoof care of their animals. 22% of respondents provide donkey/horse shoes while 14.2% replace worn out equine shoes. At least 10% of respondents acknowledged handling their equines properly. The majority (47%) of the respondents cited lack of horse/donkey shoes in the local markets in their areas while 32% reported their availability. However, 21.7% of respondents acknowledged availability of donkey/horse shoes in other markets outside Northern Bahr el Ghazal region but are limited by distance and high prices.

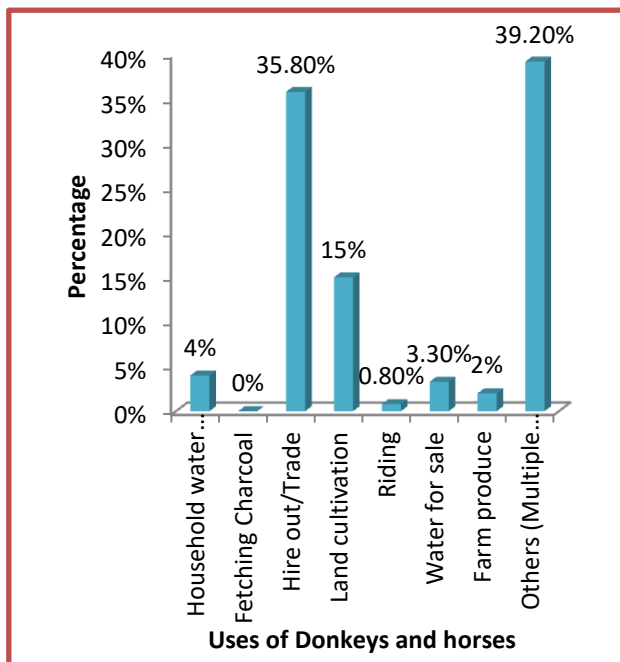
#### 4.5 Equine use and importance

##### 4.5.1 Uses of equines in Northern Bahr el Ghazal

Equines are either used directly by owners or rented out to users at a daily commission. The on commission-hire-out arrangement mainly involves traders and young boy users. It was reported that animals under this terms and conditions are exposed to the most deplorable working conditions, as boys occasionally mistreat and mishandle them in the notion of making them more efficient in work and hence improved income. Through their use, these equines are able to generate income and transport.

39.2% of working equines are used for multiple purposes such as transportation, land cultivation, riding and transporting of farm produce. During the dry season, horses are preferred to work in urban areas, mainly involved in transportation of commodities. 35.8% of working equines are used for transport (hire out), 15% of the equine population are used for cultivation (preferably donkeys), 4% for ferrying firewood/charcoal over long distances, 0.8% used for riding especially by the disabled, 3.3% for transporting water for sale in the urban centres and 2% for transporting farm produce to the local markets.

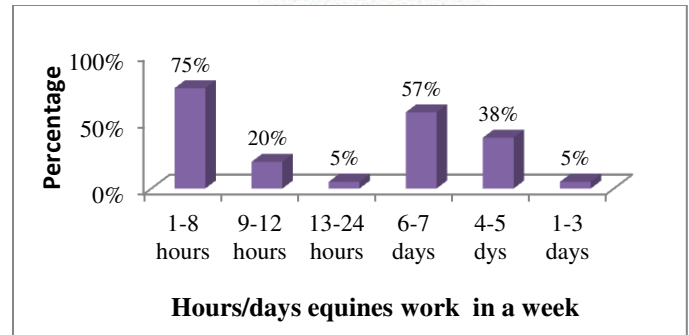
The use of working equines for income generation in rural areas, owners have mainly involved women who engage in water, firewood, sand, bricks and charcoal selling and transportation. In the urban areas, main items transported include market commodities for traders and bulk buyers



**Figure 3:** Uses of donkeys and horses

#### 4.5.2 Equine working hours and days

75% of respondents use equines to work for 1-8 hours a day, 20% for 9-12 hours a day and 5% for 13-24 hours a day. 57% of these animals work for 6-7 days in a week, 38% work for 4-5 days a week and 5% work for 1-3 days in a week. Hence most equines in the targeted locations are being over worked.



**Figure 4:** Number of hours equines work in a day/week

#### 4.5.3 Uses of equine dung

Majority (69%) of the owners/keepers use the equine's dung as manure while 3% use its dung for laying bricks, often mixed with soil. Five percent (5%) of owners/keepers sell the manure to generate income, 9.2% use it for both manure and sale while 13% do not use the equine dung.

#### 4.5.4 Harnessing, saddling and loading of equines

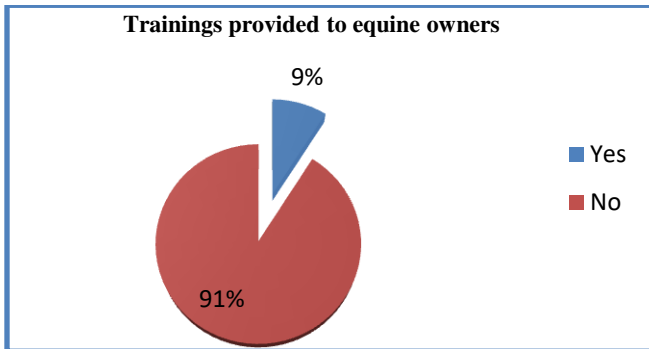
There exist locally made saddles, harnesses and carts in the state capital, Aweil, with 67% of respondents reporting their availability in the market. Out of these owners/keepers, only 33% have harnesses and saddles. Saddles and harnesses are made out of blankets, plastic sacks and sisal ropes. Some owners, due to ignorance, poor attitudes towards their animals' welfare coupled with financial constraints especially among poor households, either procure poor quality equipment or none at all. It is only 75% owners/keepers that use harnesses and saddles. 62% of equine owners, keepers and users load items/goods/commodities on a cart while 38% of users load items directly on the back of the equines.

#### 4.5.5 Animal tethering

Majority of respondents (91%) tether their equines on the foot while 9% tether the animal on the neck. None of these respondents tethers on both neck and foot.

#### 4.5.6 Training on equine husbandry and healthcare

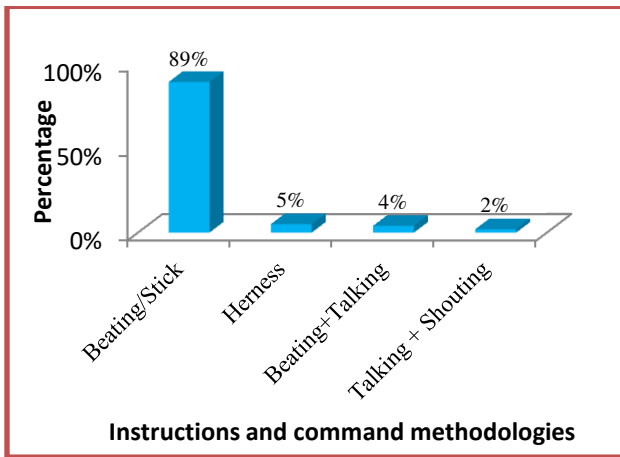
Majority (91%) of the equine owners, users and keepers have never been provided with equine husbandry and handling training. However, Community Animal Health Workers (CAHWs) have been trained generally on livestock husbandry and healthcare management but with a focus on food animals only (cattle, sheep, goat and poultry). It is only 9% of the respondents who have attended a general CAHW training (s) provided by VSF Suisse (90%) and the government (9%).



**Figure 5:** Trainings on equine husbandry practices and treatment

#### 4.5.7 Equine training instructions and commands during traction

The most popular method applied during traction and directions is by using a stick and/or beating (89%). 5% of respondents use the harness to drive the animals faster, 4% beating and talking co-currently while 2% only talk and shout to give directions/instructions.



**Figure 6:** Methodologies applied while instructing equines on certain commands during traction

### 4.6 Health care service provision and management

#### 4.6.1 The incidence of equine conditions and diseases, prevention and treatment

Several conditions and diseases have been affecting working equines in the targeted locations with external parasites being most commonly observed. There are also high cases of skin

and respiratory diseases. Parasitic infestations ranges from external parasites/insect bites (mosquitoes, flies, fleas, ticks, tsetse flies among others) to internal parasites, skin conditions mainly characterized by alopecia, itching, crackling and rashes. However, cases of snake bites, swellings, lameness, respiratory infections, diarrhoea, eye infections and colic are also common. Epistaxis, emaciation, tetanus, pneumonia and anthrax have been reported.

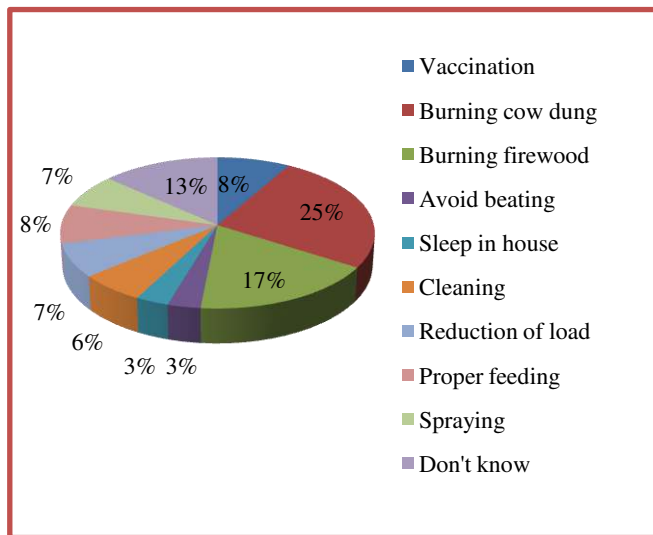


Besides the above listed diseases and conditions, the common causes of injuries among working equines are inflicted wounds resulting from beating by their owners and users. However, most wounds are as a result of hyena bites, bad harnessing techniques, thorns, poorly constructed housing shed/structures and fences. Other handling malpractices like overloading, poor harnessing, long distances covered with heavy loads are contributing factors. It was noted that appropriate response to conditions and diseases is very slow and wounds are often infected by the time of reporting for medical attention.

87% of reported cases of ill health were due to external parasites, 4.2% internal parasites, 30.8% skin diseases, 10.8% snake bites, 5% swellings, 5.8% foot conditions, 17% respiratory diseases, 9% diarrhoeal conditions, 2% eye infections, 0.8% urinary infections, 0.8% colic, 8% epistaxis, 3% lameness, 3% emaciation, 5.8% wounds and/or injury and 7% recumbence. Most (52%) of the working equine diseases and conditions occur in the rainy/wet season (May-September), 20% in the dry season (October-April) and 28% occur in both dry and wet seasons.

A number of mechanisms put in place to prevent equine diseases and conditions include proper feeding, burning of equine dung, burning of firewood and/or leaves, load reduction, spraying, vaccination, gentle handling, regular grooming, use of local herbs and construction of a housing structure/shed. 25% of respondents who use burning of cow/equine dung believed that this prevents insects/ external parasites like mosquitoes from biting their animals while 17% burnt firewood and/or leaves. 13% of the respondents are not aware of any interventions to prevent occurrence of equine diseases and conditions. However, other disease prevention strategies employed by respondents were proper feeding (8%), reduction of load the equine ferry (7%), spraying (7%), vaccination (8%), gentle handling (3%), house/shed

establishment (3%) and regular grooming, cleaning of where the working equine sleep and establishment of equine premises (6%). Among respondents, 47% do not know how to treat various diseases and conditions affecting their equines. 27% acknowledged injecting their equines while sick, 3% provide drugs for treatment, 2% do occasional vaccinations, 4% do occasional deworming, 7% use spray while 10% use local herbs.



**Figure 7:** Methods of preventing equine diseases and conditions

#### 4.6.2 Common causes of skin diseases

The most common causes of skin diseases among equines are external parasites (22%) such as mosquitoes, fleas, tsetse flies, flies among others; over loading (17%), beating (15%), snake bites (15%); improper handling (10.8%) such as bad harnessing techniques, skin infection (8%), and direct loading (5%) without using saddles/harnesses. 7% of respondents do not know the causes of skin diseases and conditions affecting their equines.

#### 4.6.3 Availability and access to equine healthcare services

Generally most equine owners, users and traders who out rightly neglect their animals, have a poor attitude towards sick equines as witnessed further by late reporting and late treatment response. Depending on respondents' residence, those in urban/market areas felt that access to animal health services was good in terms of distance from the nearest service provider (CAHW) while others; especially rural areas felt access was poor. In addition, depending on wealth status, some can afford the services while majority poor find the services too expensive. Most (58%) respondents expressed

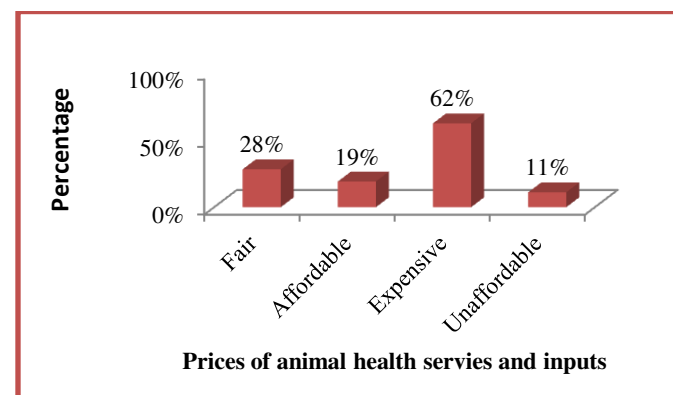
limited availability of equine health care services. 42% of respondents have access to equine health care services. Service providers felt that veterinary supplies (drugs and equipment) specifically for equines were not available hence unable to deliver effective services. Service providers cited lack of training in treatment and handling of equines and would mainly base their interventions on previous training on ruminants. Service providers were only confident on rabies vaccination of equines.

#### 4.6.4 Service providers and their constraints

On the calibre of the animal healthcare service provider approached, 52% of the equine owners, users and traders treat their animals by themselves when they are sick, 18% visit/call veterinary doctors, 13% visit traditional herbalists, 9% visit Stock Persons or AHAs and 8% visit CAHWs to treat their sick equines. On the category of animal healthcare service provider engaged, 48% access private enterprises, 28% from the Non-Governmental Organization (NGO) employees, 8% from the public or government health facilities and 16% don't know. Service providers (CAHWs) cited various constraints in delivering animal health services which include long distances to access veterinary pharmacies, lack of appropriate protective gear, veterinary drugs, vaccines and equipment.

#### 4.6.5 Means of accessing equine health services

In order to access animal health services, majority (50%) of respondents walk, 17% use bicycles, 14% use motorbikes, 10% use public vehicles, 0.8% use mobile phones to call, and 8% use more than one of the mentioned means to reach the animal health service provider and/or inputs. 62% of respondents cited equine health services being expensive, 11% unaffordable, 28% cited them being fair and 19% were affordable.



**Figure 8:** Perceptions on cost of equine health services and inputs

#### 4.6.6 Vaccination, treatment and deworming and priority disease/conditions among equines

77% of the population do not vaccinate/treat equines and only 23% vaccinated/treated them on occasional basis. Majority (60.7%) of the treatment was against pneumonia, 14.2% was treatment of parasites while 25% had no idea what their equine was being treated/vaccinated against. 28.57% of the animals are treated/vaccinated by a CAHW, 28.57% by NGO, 32.14 (majority) their animals are vaccinated/treated by the government and/or ministry and 10.71% their equines are treated/vaccinated by themselves. In internal parasite control, 67% of respondents have never dewormed their equines while 33% have dewormed on occasional basis. Majority (55%) deworm their animals in the dry and wet season, 30% deworm the animals in the dry season, 12% deworm their animals in the wet/rainy season and 3% deworm their animals anytime when need arises.

CAHWs FGDs participants ranked trypanosomiasis as the most important disease, followed by mange, pneumonia, foot rot, skin conditions, anthrax, rabies, tetanus, external parasites and colic, described as internal parasites that cause the animal to roll on the ground, as the least important. In this case they were unable to tell the difference between different causes of colic, something that will need emphasis during training. Of these, both dry and rainy season witnessed cases of trypanosomiasis, pneumonia, rabies, foot rot, tetanus and tick infestations. Mange was mainly reported during the dry season (October – March) while anthrax (July-September) and colic (April-September) during the wet season. Pneumonia was reported throughout the year.

**Table 4:** Working equine priority disease list

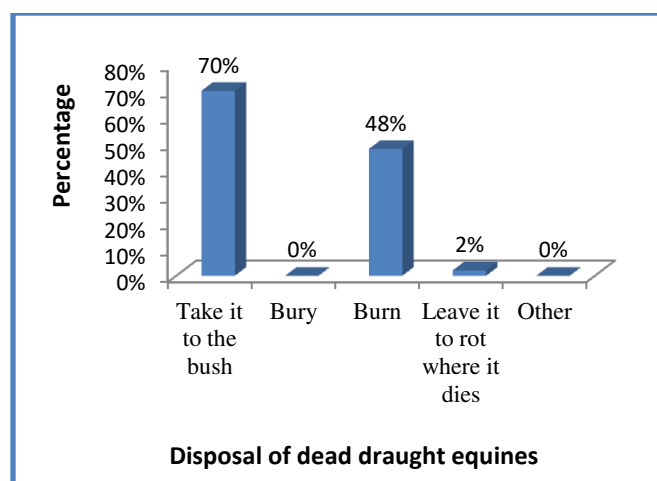
Rank	Disease	Local name
1	Wasting syndrome (Trypanosomiasis)	Manyiae
2	Mange	Manyuen
3	Pneumonia	Abuot
4	Footrot	Achony
5	Skin conditions	Not specified
6	Anthrax	Jong Nhial
7	Rabies	Wath
8	Tetanus	Rieng
9	External parasites eg, ticks, lice, fleas etc	Achar
10	Colic	Not specified

**Table 5:** Seasonal equine disease calendar in Northern Bahr el Ghazal

Disease/Condition	Mai Jan-Mar	Ker/Yak Apr-June	Ruel July-Sept	Rut Oct-Dec
Trypanosomiasis (Manyiea)	++	+++	++	
Mange (Manyuen)	++			+++
Pneumonia (Abuot)	+	++	+	+
Footrot (Achony)		+	++	++
Skin disease (fungal/bacterial)		+	+	
Anthrax (Jong Nhial)			++	
Rabies (Wath)	++	+++	+	
Tetanus	+	++	+	+
Ticks (Achar)		++	++	+
Colic (worms)		++	++	

#### 4.6.8 Handling of old, weak, lame equine including disposal of dead equines

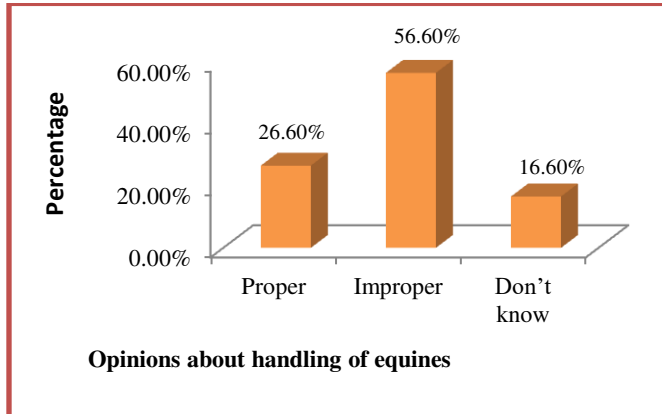
In most cases, old, weak, terminally sick working equines are abandoned to die. In some cases owners bury carcasses or leave them to rot in the open, upon which town council will bury the carcass. The main method of carcass disposal is usually abandoning them in the bush (58%), burning (40%) and 2% of carcasses are left in the open.



**Figure 9:** Methods of carcass disposal in Northern Bahr el Ghazal State

#### 4.6.9 Opinions on appropriate handling of equines

Majority (56.6%) of respondents thought that the handling of the working equines is not appropriate, 26.6% thought that the handling of equines is appropriate while 16.6% do not know if the handling of the working equines is appropriate or not.



**Figure 10:** Equine keepers/owners opinions on handling

#### 4.6.10 Responsibility assigned for the welfare of equines

There is no specific association or institution concerned with enforcing equine/animal welfare. However, nutritional (meat and milk), cultural (marriages and compensation for loss of life) and therefore the concomitant economic value attributed to cattle, commands a near innate welfare attention from the community unlike the working equines. This is observed in the resistance that ox plough promotion to enhance food production has faced locally. The livestock health service providers previously initiated a “medical fitness” procedure, which required examination of working animals prior to certification for use. However, this has not been enforced as it requires resources hence neglected. Most respondents recommended that owners/handlers should be the most appropriate target for training on humane and proper handling of the working equines. Majority (63.3%) of the respondents think that the owner/user should be responsible for the welfare of the donkeys and horses, 20% NGOs, 12.5% the government and 4.2% think it’s the responsibility of the CAHW.

### 5. Conclusions

- Working equines provide a critical livelihood means for a significant number of households through leasing to perform a range of tasks for income generation. This is

particularly important for women and the youth that are traditionally disempowered and marginalized in the society.

- Working equines provide owners / users with alternative labor saving solutions for the labour requirements in food production (donkey ploughing) and transportation of agricultural produce, general mechanize and even water for marketing and or household use. This contributes positively to the wellbeing of household members, especially women and the youth who are the major sources of agricultural labour at the household level.
- Working equines in Northern Bahr el Ghazal face a range of physical problems that adversely affect their welfare, most of which are attributed to generally lack of awareness, knowledge, information and skill necessary appreciate the importance of working equines, their welfare and health management among owners, users and service providers.

### 6. Recommendations and Way forward

- Current equine welfare and health management problems can be ameliorated through targeted owner/user /trader and stakeholder awareness, sensitization and education campaigns to create gradual behavioral change.
- Although protracted conflict, poverty and poor accessibility are likely to continue to play a key role in working equine related welfare concerns; improved knowledge, attitudes and practices on appropriate working equine husbandry practices and handling, capacity building of various service providers and stakeholders and provision of equine drugs, supplies and handling equipment as planned under this pilot project will likely address prevailing equine welfare concerns.
- The findings of this baseline survey shall be used as an advocacy tool to bring on board more partners and to mobilise more resources which will enhance response to working equine welfare concerns. These are vital in informing and improving working equine welfare and related interventions to maximise benefits to working equine health and welfare.
- However, there is need for further research on impacts of the pilot project, importance of equines in alleviating food insecurity in an emergency context and countrywide statistics on equines.

*Compiled by Juru, R., Machuchu, D., Miheso, K, and Barasa, M.*