LEGS

Livestock Emergency Guidelines and Standards

COVID-19, Livestock and Livelihoods

A Discussion Paper for the Livestock Emergency Guidelines and Standards (LEGS)

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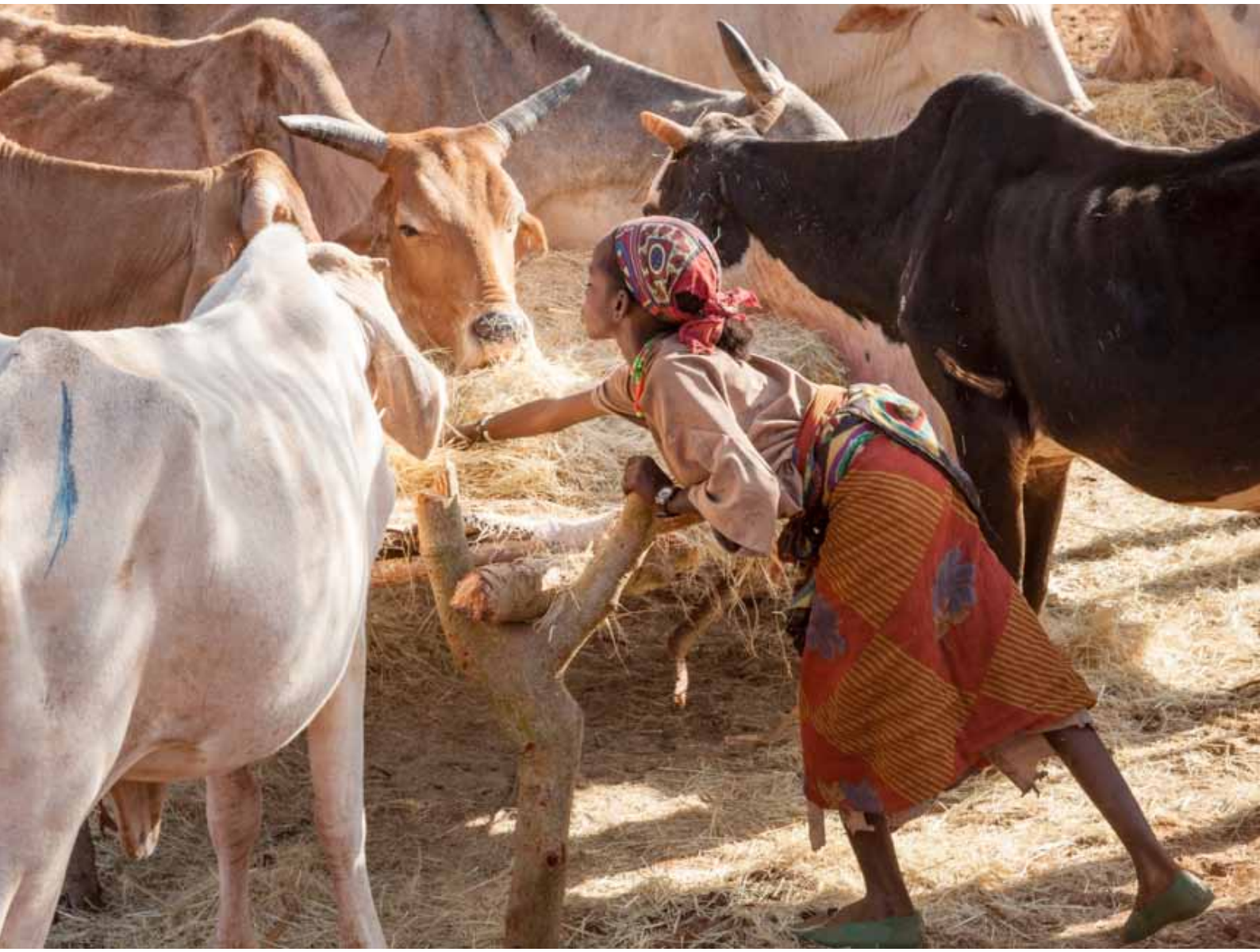

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EXECUTIVE SUMMARY

This Discussion Paper for the Livestock Emergency Guidelines and Standards (LEGS) reviews the impacts of COVID-19 on livestock keepers in lower-income countries, and providers of livestock services and programmes. It also reviews the responses of livestock keepers and organizations to the pandemic. The paper covers the period from March 2020, when many countries introduced COVID-19 lockdowns, to October 2020. It is based on a review of literature, supported by a small number of interviews with practitioners in India, Nepal, Somalia and South Sudan; practitioners from these countries and Thailand also provided information by email.

At the start of the COVID-19 pandemic there were concerns that the disease could spread rapidly in lower-income countries, overwhelm health systems in these countries and cause substantial human mortality. However, to date the health impacts of COVID-19 in lower-income countries have been reported to be far lower than in parts of Europe and USA; these impacts are reflected in human mortality data by country. As the pandemic is still running its course, and because different countries use different types of data to report disease incidence and mortality, the final health impacts of the pandemic will only be known retrospectively, and in some countries might never be known. It is possible that human mortality will rise in lower-income countries over time.

In lower-income countries, the use of COVID-19 lockdown and other measures varies widely between countries and likewise, the impact of these measures on livestock keepers is highly variable. In general, severe and negative impacts on livelihoods are evident when markets and businesses are closed, the supply of inputs such as livestock feed and veterinary medicines is disrupted, and in the case of pastoralists and agro-pastoralists, when livestock movements are hindered. These impacts are consistent with the common framing of COVID-19 in lower-income countries as an economic and food security crisis. A review of impacts on livestock keepers also shows the importance of understanding the seasonality of livelihoods, with COVID-19 impacts depending heavily on the types of seasonal livestock production and marketing activities that were disrupted by lockdowns and other measures. Impacts varied between countries and within countries, with examples of livestock keepers in more remote areas being less affected. Small-scale dairy producers were badly affected in India and Bangladesh, reflecting the reliance of these systems on external inputs and daily milk sales.

FAO, LEGS and partners in the Food Security Cluster produced guidance notes on livestock programming during the pandemic as early as April and May 2020, and this guidance remains highly relevant. Various regional, national and sub-national organizations were active in collecting and sharing information on COVID-19 impacts, and lobbying for support for livestock keepers, such as the need to enable the movement of pastoralists' herds. At the programming level, there were good examples of development programmes shifting emphasis and designing and implementing activities that were specifically designed to address problems caused by COVID-19 restrictions.

LEGS provides standards and guidelines for livestock projects in humanitarian crises, whereas the main impacts of COVID-19 so far in lower income countries are economic. As the pandemic evolves, it is not possible to know the final health or economic consequences, or if the pandemic will lead to a humanitarian disaster in some countries. Therefore, **any changes to the LEGS Handbook should only be considered when the pandemic is over, when its impacts are better understood, and when livestock support during the pandemic has been evaluated**. At present LEGS is relevant in situations where COVID-19 is superimposed on a pre-existing emergency, or when a humanitarian crisis occurs in a region or country where COVID-19 measures are in place and humanitarian access or input supply is restricted. Future editions of LEGS will need to consider how to provide guidance on quality livestock interventions when disasters such as droughts, floods or conflicts occur at the same time as a pandemic such as COVID-19.

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ABBREVIATIONS

CBPP Contagious bovine pleuropneumonia

CAHW Community-based animal health worker

FAO Food and Agriculture Organization of the United Nations

FSC Food Security Cluster

GAM Global acute malnutrition

GEEL Growth, Enterprise, Employment, and Livelihoods Project'

LEGS Livestock Emergency Guidelines and Standards

NGO Non-governmental organization

OIE World Organisation for Animal Health (Office International des Epizooties)

UN United Nations

WHO World Health Organization

INTRODUCTION

On 11 March 2020 the World Health Organization characterized COVID-19 as a pandemic, with cases reported from 114 countries (WHO, 2020). As more information on COVID-19 became available, marked national and regional variations in human morbidity and mortality were reported, but with a consistently higher risk of severe disease in elderly people and those with certain pre-existing health conditions (Clark et al., 2020). Other risk factors such as gender, ethnicity, socio-economic status and bodyweight were also reported. By September 2020, the pandemic had evolved as a series of national epidemics with different health impacts by country.

By the end of March 2020, many governments had introduced a range of public health and other measures aimed at reducing the transmission of COVID-19. These measures included restrictions on people's movement, cessation of international travel and border closures, closure of markets and social gatherings, and introduction of sanitary measures such as handwashing and use of face masks. There was wide variation in the extent to which these measures were used or enforced across countries, reflecting national political responses to COVID-19, government capacities and local compliance. In many countries it was soon evident that COVID-19 measures were having major economic impacts as businesses shut down, supply chains were disrupted, and markets were closed. Governments were faced with the policy dilemma of ensuring public health while also supporting national economies.

As more information became available on the economic and livelihoods impacts of COVID-19 on livestock keepers in developing regions, LEGS issued a COVID-19 guidance note, in April 2020 (LEGS, 2020), with emphasis on planning responses to assist recovery. Also, in April 2020, FAO released information on the likely impacts of COVID-19 on animal production, product processing, transport, and sales and consumption, and summarized some responses by governments (FAO, 2020). In May 2020 the Food Security Cluster also outlined the main impacts of COVID-19 measures on the livestock sector, and some early responses (FSC, 2020). The following issues were considered: impacts on livestock (product) trade and marketing; access to animal health services; impact on livestock feed access and supplies; provision and access to water; livestock shelter and settlement; provision of livestock in the recovery phase; and advocacy and coordination.

This Discussion Paper for LEGS aims to compile further information on the impacts of COVID-19 on livestock keepers and how they are responding, as well the impacts on humanitarian agencies and other actors, and their responses. The paper draws on literature that was available up to October 2020 and online interviews and notes provided by informants by email during September and early October 2020[1]. In line with LEGS attention to vulnerability (LEGS, 2014), the paper also considers the impacts of COVID-19 on poorer livestock keepers. The paper provides a brief overview of the health impacts of the pandemic, followed by a more detailed account of livelihoods and economic impacts. The paper recognizes that at the time of writing, new information on COVID-19 was becoming available in the scientific literature and networks almost daily; and a complex set of health and economic impacts were evident and constantly changing across countries and regions. The paper does not aim to be comprehensive, and its breadth and content relate to the time available to produce the paper.

1 The contributions from interview and email informants are acknowledged with thanks – see page 21.

1. COVID-19 AND HEALTH: IMPACTS ON LIVESTOCK KEEPERS

In July 2020 it was predicted that health systems in lower income countries would be overwhelmed by COVID-19 epidemics, with substantial excess deaths (e.g., Walker et al., 2020). However, up to early November 2020 these impacts seemed not to have materialized, and human mortality rates were reported to be relatively low in many low- and middle-income countries (JHU, 2020). For example, reported deaths per 100,000 population in Belgium, UK and USA were 113, 73.7 and 72.5 respectively, compared to reports from India with 9.3, Ethiopia with 1.4 and Angola with 0.9 deaths per 100,000 population. To date, the figures across all countries indicate an inverse correlation between national COVID-19 mortality and the Human Development Index. At the same time, comparison of COVID-19 impact statistics between countries is compromised by factors such as a likely under-reporting of incidence and deaths in some countries with weak health systems, and an over-reporting of deaths in other countries e.g., England (CBEM, 2020). The future health impacts of COVID-19 are difficult to predict, and it is possible that mortality rates will rise in lower-income countries as the pandemic evolves further.

The low mortality due to COVID-19 in African countries has prompted some analysts to suggest that the main health impacts of the pandemic will result from a shift of health resources towards COVID-19 responses, and a corresponding decline in the prevention or treatment of other diseases. When reviewing experiences in nine African countries it was concluded that, "*Lockdown has also affected the functioning of the health system by increasing physical and financial barriers to accessing healthcare, diverting attention and resources towards COVID-19, and causing patients to stay away from hospitals for fear of contracting COVID-19*" (Haider et al., 2020). The same study referred to research on the impact of COVID-19 on services to prevent or treat HIV/AIDS, tuberculosis (TB) and malaria in low-income and middle-income countries, which predicted a 10%–36% increase in related deaths over a five-year period (Hogan et al., 2020); "*It was predicted that the greatest impact from HIV would be from interruptions of antiretroviral therapy; reductions in the timely diagnosis and treatment of new TB cases and disruptions to insecticide-treated bed net campaigns for malaria. Another concern is the interruption of vaccine delivery due to overstretched healthcare services, parents not bringing their children to clinics because of COVID-19 and disruptions to vaccine supply chains*" (Nelson, 2020).

Looking specifically at an area where households depend heavily on livestock but also with high levels of poverty and food insecurity, a recent COVID-19 assessment in Karamoja in northeast Uganda covered changes in health care provision (Lotira et al., 2020). It was reported that while the direct health impacts of COVID-19 were very low, agro-pastoralist and pastoralist communities reported increased cases of other diseases, especially malaria and related child deaths. There were also outbreaks of cholera. Declining access to health centres during March and April (2020) due to COVID-19 measures coincided with a seasonal peak in some diseases, especially malaria. In addition to travel restrictions and rising travel costs to access health care, there was reduced availability and increased cost of health services. Issues included a shift of attention of health workers to COVID-19 quarantine centres, and a shortage of medicines e.g. for HIV/AIDS and malaria.

The wider literature on poverty, poverty traps and pathways out of poverty highlights the importance of household-level, individual (idiosyncratic) shocks such as the loss of a family member from disease, accident or permanent out-migration. Any disease that causes loss of human life will clearly affect households psychologically, and in the case of livestock keepers, will affect their capacity to manage livestock or engage in other livelihood activities. However, in areas with stringently applied lockdown measures or diversion of health resources away from routine services to COVID-19 responses, morbidity and mortality from COVID-19 could be overshadowed by the impacts of other diseases. Taking the case of Ethiopia – with the highest livestock population in Africa, and the second highest human population in Africa (at just over 114 million people in 2020, according to the UN) – COVID-19 mortality was 1.4/100,000 population in November 2020 (JHU, 2020). In contrast, in 2016 the annual mortality due to malaria was 4.7/100,000 (Girum et al., 2019), HIV/AIDS 24.2/100,000 (Deribew et al., 2019a), tuberculosis 100/100,000 (Deribew et al., 2019b), and diarrhoea 50-99/100,000 (GBD 2016 Diarrhoeal Disease Collaborators, 2018). These figures indicate that a small diversion of resources or effort away from tuberculosis control, for example, could lead to an increase in tuberculosis mortality that would exceed COVID-19 mortality. As indicated above, the full health impacts of COVID-19 relative to other diseases will only be known retrospectively.

2. IMPACTS OF COVID-19 MEASURES

2.1 Livelihoods impacts of COVID-19 measures on livestock keepers

In general, poorer livestock keepers in low- and middle-income countries rely on a mix of livelihood activities. Although livestock are often a main financial asset, animal production is combined with other types of agriculture, and income from labour, sale of natural products, remittances, petty trade and so on. Labour can be seasonal and can involve substantial internal migration or travel to neighbouring countries. Even among pastoralists, who are typically viewed as livestock-dependent, poorer households pursue diversified livelihoods.

An important aspect of the COVID-19 pandemic was its broad impact across virtually all economic sectors. For livestock keepers, multiple sources of income could be lessened or lost simultaneously as markets were closed and workers were sent home. Similarly, reduced livestock production because of less access to feed or veterinary care might compromise a household's own consumption of products such as milk or eggs. At the same time, households could also be faced with more meals to provide e.g., if migrant workers returned home or if schools were closed. However, between countries there were marked differences in COVID-19 measures, implying different impacts of these measures by country. There were also differences within countries and people in more remote areas could have far less contact with government health authorities or police, and so could be less affected by COVID-19 directly as a disease, or by the corresponding restrictive measures. For example, in Isiolo District in northern Kenya the impacts of COVID-19 partly depended on proximity to main towns (Simula et al., 2020):

"Pastoralists in remote areas are living a normal life despite curfews and lockdown but are facing challenges caused by transport disruption. There is decreased access to foodstuffs and vegetables from Isiolo town which is about 230 km away." Gurba Abduba, explained: Due to hiked transport cost we are not getting daily vegetables and other food from Isiolo. We used to buy two pieces of 'Nyanya' (tomatoes) for KSHs 20 (0.2 USD), but now one piece of 'Nyanya' costs KSHs 30 (0.3 USD). People have lost livelihood and it is very difficult to cope … the poor are not getting 'deni' (loan) from the shops because the few shops that are here are no longer bringing any food items and some are closed …. the road condition has got worse due to the rain and no transporter wants to risk to bring just food items all the way from Isiolo.

Pastoralists living in proximity to town by contrast do have access to foodstuffs, but their livelihood is affected by strict policing from security forces who are using the pandemic to extract fines from people. Abba Hoori said: Supervising your livestock at 'galchuum' (evening when livestock returns) and discussing issues of concerns such as the types of pasture they ate, the sick among them and water requirements are essential and part of mala mari hoori (livestock management talk). I usually stay at the camp up to about 9 pm and only then go home. But now I have to be back before evening since the police will take away your motorbike and you don't get it back until you pay a fine of Ksh 5000 (50 USD). Our lifestyle does not work well with the curfew; at least I have a motorbike, but those who walk to town have to face police wrath or leave early without proper supervision of the herds."

Although COVID-19 impacts could be limited in more remote communities, many poorer or vulnerable livestock rearing households were chronically food insecure and might already be receiving food or cash assistance. For example, in northern Kenya the Hunger Safety Net Programme covers four predominantly pastoralist counties and at least 25% of households receive regular cash transfers. In Ethiopia, the Productive Safety Net Programme includes the pastoralist areas of Afar, Oromia and Somali Regions. Between 2008 and 2012 it aimed to cover more than 2.5 million people in these areas with regular food distributions (Sabates-Wheeler et al., 2013). At the same time, these areas are still characterised by very high levels of child malnutrition, with global acute malnutrition (GAM) in children under five often exceeding 10% and reaching levels as high as 20% (FAO, 2018). WHO categorises a GAM of 15% or higher as an emergency. Therefore, in terms of human nutrition indicators some areas were in an almost constant emergency situation even in "normal" periods before COVID-19.

The case study below from the Karamoja region of Uganda describes how COVID-19 has affected a livestock-owning population that was already food insecure and malnourished. The case study shows the wide-ranging impacts of COVID-19 restrictions on livelihoods, especially financial, human and social capital, and some of the specific impacts on livestock production.

Case study 1: COVID-19 impacts on agro-pastoralists in Karamoja, Uganda (Lotira et al., 2020)

Livelihoods

- Mainly agropastoralism and pastoralism
- Marked seasonality of livestock and crop production
- Poorer households use diverse livelihoods activities – livestock production, cropping, casual labour, brewing, mining, and charcoal production and sale.
- Localized conflicts and livestock raiding
- Important cross-border economies, especially with Kenya.

Pre-COVID 19 indicators

- 82% of the population lives in absolute poverty, compared to a national average of 31%
- 50% of the population were food insecure and 12% were severely food insecure
- High levels of chronic child malnutrition (stunting) and acute child malnutrition (wasting); trend in prevalence of global acute malnutrition in children between 2010 and 2017 showed a gradual increase from 9.8-11.5% to 10.4-13.8%, depending on the timing of the survey.

COVID-19 measures

In January 2020 the Government of Uganda introduced border controls and self-quarantine for people entering Uganda, and internal travel restrictions and social distancing. Markets and many businesses were closed.

General impacts

- Lower household purchasing power because of loss of income, set against increases in food prices that exceeded typical seasonal increases; food price increase reached 116% in some areas.
- Increased cost of local public transport e.g., on motorbikes or in minibuses, partly because of bribes to police or payments to recover vehicles that were falsely impounded by police.
- Income lost from multiple activities, including business and employment, and sale of livestock and agricultural produce due to market closure; the average loss of income from livestock and crop-based activities was 60% and the average loss of income from other activities was 51%.
- Closure of schools, more children to feed at home and fears that older girls would not return to school e.g., due to marriage or pregnancy; increased marriage of girls to secure bride wealth as a coping strategy.
- Increase gender-based domestic violence.
- Increased livestock theft and raiding.

Case study 1: COVID-19 impacts on agro-pastoralists in Karamoja, Uganda (Lotira et al., 2020) continued

Impacts on agropastoralism

- COVID-19 measures coincided with onset of rains and therefore increased livestock milk supply and less mobility. Availability of livestock milk acted as a temporary buffer against loss of income and increasing food prices.
- However, livestock health, production and prices were affected:
  - A net decrease in livestock prices of 32% taking account of seasonal changes in a normal year.
  - Losses of livestock due to a resurgence of raids (thefts) leading to reduced milk availability and fewer animals for sale.
  - Losses of livestock due to increased mortality from disease, associated with reduced availability of veterinary medicines and government veterinary services; difficult access to veterinary medicines and services due to the movement restrictions and increased prices of veterinary medicines and services combined with low purchasing power; some medicines reported to be out of stock.
- The effects on livestock outlined above were compounded by impacts on crop production:
  - Strong likelihood of a poor harvest this year, in late August to October, due to the impact of COVID-19 restrictions on farming activities and a marked decrease in the area of land cultivated. On average, the cost of agriculture inputs increased by 26% and there was a net decrease in the area of cultivated land of 45% across selected assessment sites. Other constraints included the desert locust invasion and poor rains at the beginning of the season.
  - In March 2020, most communities had only 25% to 50% cereal stocks remaining from the previous harvest in 2019, with household cereal stocks expected to reach zero by end of August 2020.

The net result of COVID-19 measures was a substantial increase in hunger and food insecurity, with a major food security crisis predicted after the harvest due to the combination of a poor harvest and a seasonal decline in the availability of livestock milk. The impacts were compounded by reduced availability and access to human healthcare for problems such as malaria and diarrhoea (see section 1).

In the Karamoja case, COVID-19 impacts on livestock owners were due mainly to market closures, a decline in public and private veterinary services, and localized increases in insecurity and livestock raiding. As COVID-19 measures started at the onset of the rains, livestock mobility and access to pasture was not affected, but this situation was very different from other pastoralist and agro-pastoralist areas of Africa, where disrupted mobility was a major issue. For example, seasonal mobility is a critical aspect of livestock herding in West Africa. However, in mid-March 2020 movement restrictions internally in Mauritania as well as closure of the border with Mali and Senegal left pastoralists stranded at a time when they needed to move animals for grazing or to access markets (FAO, 2020). Similarly, across 12 countries in West Africa substantial livestock losses were predicted due to reduced mobility and limited access to grazing and water, with related impacts on food security and hunger (APESS, 2020). Over time, more detailed information on the impacts of COVID-19 measures in West Africa became available, notably through the pastoral monitoring system covering nine countries, set up by Reseau Billital Maroobe and Action Contre la Faim, as illustrated in the case study below.

Case study 2: Impacts of COVID-19 on pastoralist and agro-pastoralists in West Africa (RBM and ACF, 2020)

By May 2020 COVID-19 measures in West Africa were having major impacts on pastoralists and agro-pastoralists.

Reduced livestock mobility and abnormal concentrations of livestock

Internal restrictions on movements and cross-border restrictions were causing less movement of herds and concentrations of livestock, and this situation was exacerbated by people moving to certain areas to avoid conflict. One outcome was a shortage of livestock feed and water in areas with abnormally high numbers of animals. Substantial reductions in livestock movements were reported in Togo, Mali, Mauritania, Nigeria, Burkina Faso and Cote D'Ivoire. For example, "Togo had planned to receive 50,000 cattle but because of the COVID19 pandemic, about 10,370 head were registered at the entry points. With the closure of borders, transhumant herders are forced to take new transhumance routes to avoid controls, leading to increased tensions with indigenous populations."

Livestock market impacts

Different livestock market impacts were evident in different countries. In Burkina Faso, Mali, Niger, Togo and Nigeria, markets remained open whereas in Senegal and Mauritania, markets were closed. Market-based effects were very variable. Some areas saw a reduction in livestock exports whereas all areas saw higher livestock sales; some areas saw stable livestock prices whereas other areas saw prices increase or decrease. Higher livestock sales were explained by the need for households to acquire cash to buy food and to manage the problems associated with higher concentrations of livestock in specific areas.

Shortage of livestock feed

COVID-19 measures had disrupted the commercial production and distribution of livestock feed, which in some cases, was linked to reduced imports of soybean meal and wheat bran. Feed shortages were reported in Mali, Niger, Senegal, Mauritania, Burkina Faso and Nigeria, and these shortages were reported to have relative higher impacts on pastoralist compared to agro-pastoralist producers.

Conflicts

Abnormal concentrations of livestock placed increasing pressure on water points, and in some areas, abnormal movements led to tensions between pastoralists and settled farmers. These factors increased the level of conflicts in a region that was already affected by multiple conflicts and with a particular problem of herder-farmer conflict.

Reports from other countries further illustrate the diversity of contexts and COVID-19 impacts on pastoralists and agro-pastoralists, and the importance of seasonality. For example, Somalia is well known as a major livestock exporter, with pastoralists in Somalia and Ethiopia providing most of the supply for the export market. To illustrate the importance of this trade, in 2014 nearly 5 million animals were exported valued at $360 million, representing about 40% of Somalia's Gross Domestic Product (FSNAU, 2015). However, the trade is also highly seasonal and supplies livestock for the Eid al-Adha festival and Haj pilgrimage in the Gulf States in July each year. Due to COVID-19 measures in importing countries, the Haj was cancelled and so demand for livestock was dramatically reduced, leading to a corresponding fall in income for pastoralists (Interview 1). Another important aspect of the Somali economy is international remittances; in 2014 annual remittances were estimated at $1.4 billion (World Bank, 2016). However, the COVID-19 related economic downturn in North America and Europe led to far lower levels of remittances to Somalia. The Somalia case reflects an economy that depends heavily on international trade and networks, and where the impacts of COVID-19 were due mainly to events in other countries rather than in Somalia itself. Within Somalia at the time, COVID-19 measures such as market closures or travel restrictions were limited.

Despite also being in the Horn of Africa region, the situation in South Sudan was very different from both Karamoja in Uganda, and Somalia. In South Sudan COVID-19 measures were introduced when the country was experiencing a protracted complex emergency due to civil conflict, with 2.3 million refugees in Uganda and Kenya, 1.7 million people displaced internally, and very high levels of food insecurity and human malnutrition. Initial COVID-19 restrictions included the closure of international air space, borders, markets and schools, but at a time when the country was not only experiencing conflict but also floods and substantial devaluation of the South Sudanese Pound. About 600,000 people were affected by flooding and many were forced into abnormal movements with their livestock, leading to further tensions and conflict. As South Sudan is highly dependent on imported goods from Uganda, the border closure led to a general decrease in the availability of food. Humanitarian access was restricted for aid workers. Of particular relevance to livestock was a breakdown in the supply of animal vaccines at the time of year when vaccination programmes had been planned (Interviews 2 and 3). The impact of COVID-19 on livestock vaccination is discussed further in section 2.2.

As in much of West Africa, the effects of COVID-19 measures on pastoralist mobility and access to grazing were a concern in other parts of the world. India has about 35 million pastoralists and reports from civil society groups in Uttarakhand, Himachal Pradesh, Rajasthan, Gujarat, Maharashtra, Madhya Pradesh and Telangana included challenges to access to grazing in wildlife sanctuaries, national parks and tiger reserves, and the impact of lockdown on seasonal migrations and for example, a delayed start to moving to summer grazing meadows in the Himalayas (Centre for Pastoralism et al., 2020). Heavy mortality of livestock was predicted if migrations were further delayed. For pastoralists who used fodder, there were also localized problems with accessing fodder in markets.

The impacts of COVID-19 measures were also evident among other types of livestock keepers, with market closures, less availability of livestock feed and veterinary medicines, and disrupted supply chains reported among owners of cattle, small ruminants, pigs and poultry in rural areas of Nepal (Interview 4). Nepal introduced a national lockdown on 24th March 2020 although this was later eased in June to allow local travel. In some areas the general economic problems were compounded when labour migrants returned from India (due to India's lockdown) with less cash than normal and placing a burden on household food needs. The net impacts of COVID-19 on livestock were rising mortality, reduced production and when markets were closed, producers "spilling milk on the road" because there was nowhere to sell it.

In northern Thailand poultry are of considerable importance to the livelihoods of smallholder and village farmers, where poultry represents an important source of protein and cash income. There is a well-established trade in poultry in Chiang Rai province, with important cross-border trade into Laos. COVID-19 measures included the closure of all border checkpoints and people were not allowed to cross the international border; only the freight trucks could cross the border (Dr. Suvicha Panjakhan, email notes). The border flea market and other markets were closed along with the live-bird markets that supplied the border market. The cessation of the live-bird trade led to a loss of income for small-scale producers and market "middlemen" in terms of the cross-border trade, but birds could still be traded internally to Thai buyers. Many producers also had other sources of income such as growing rice or fruit, or fish farming, and so the overall impact of the cross-border trade disruption on livelihoods was limited.

In India, small-scale dairy farmers were badly affected by COVID-19 measures, especially in March and April 2020 when a sudden nationwide lockdown caused major problems with feed supply (Interview 5). The sale of milk was particularly affected because milk is highly perishable and people "couldn't buy anything or sell anything". The livestock sector more generally was also affected as early as January 2020 when rumours appeared online that COVID-19 was present in poultry, and people were advised not to eat chicken meat. At the same time, government veterinarians were not working, and livestock diseases continued to cause problems. For example, an epidemic of African swine fever was reported in north east India in May 2020, and an alert for Crimean-Congo haemorrhagic fever was issued in September 2020. Typically, the summer monsoon from June to September is associated with outbreaks of certain diseases, and vaccination is practiced before the monsoon season. COVID-19 restrictions reduced the level of vaccination. Small-scale dairy production in Bangladesh was also seriously affected by COVID-19 restrictions, as shown in the case study below.

Case study 3: COVID-19 impacts on small-scale dairy production in Bangladesh (LPIN, 2020)

The Livestock Production for Improved Nutrition Activity (LPIN) supports small-scale dairy farmers in rural Bangladesh to improve milk production and sales, and human nutrition. In May 2020 the project conducted a rapid survey to understand the impact of the COVID-19 crisis on households and enterprises, and their responses.

Cow milk production - the average milk production for farmers that reported producing milk before the pandemic was 4.04 litres per cow per day and after the introduction of COVID-19 measures, 2.78 litres per cow per day, representing a 31% loss of production.

Challenges to production – "*Almost 70 percent of households reported at least one challenge in accessing cattle feed, and for many there were several barriers indicated. A lack of feed supply was cited by 44.9 percent of households, and closed shops and not being able to cultivate land were cited by 15.3 percent or reporting households, respectively. Affordability of grass or fodder, inability to graze cattle on public lands closed for quarantine, not being able to go outside and get to the market, and a lack of mobile grass/fodder suppliers were also mentioned as barriers to providing food for cattle. A quarter of respondents indicated that the lack of veterinary services because of COVID-19 resulted in reduced milk productivity because sick animals could not be treated.*"

Incomes from milk sales – before COVID-19 farmers sold an average 3.13 litres of milk per day whereas after COVID-19 they sold an average of 1.86 litres of milk per day; this represents a 40.6% decline in the volume of milk sold. The average sale price of milk before COVID-19 was approximately 0.52 USD /litre, falling to 0.49 USD /litre following COVID-19.

Food security – the proportion of households worried about having enough food increased from 10% pre-COVID to 90% post-COVID. Among households worried about food, 93.3 % reported that their food stocks were running low, 82.2 % said their production was not sufficient to meet household food needs, 52.2 % noted they do not have money to purchase food, and 45.6 % reported that they can't go to the market to purchase food due to local travel restrictions.

2.2 Impacts of COVID-19 measures on livestock services and programmes

Across all countries covered in this discussion paper and where COVID-19 lockdown measures were used, providers of livestock services and programmes had limited physical access to communities. This hindered both direct consultation with livestock keepers, especially in more remote areas, and restricted or stopped the provision of some livestock services such as veterinary care, especially when service delivery depended on higher-level professionals or paraprofessionals. However, for community-based service providers and local private sector suppliers, the challenges were less about physical access to people and livestock, and more to do with the availability of inputs. The two main inputs affected were veterinary medicines and livestock feed, and in general, the longer the supply chain, the more serious the disruption. Problems with livestock feed were especially apparent in smallholder dairy production as described in section 2.1 whereas problems with livestock vaccination and more general access to veterinary care were reported across different countries and livestock production systems.

Some examples are provided below:

- In South Sudan and some years before COVID-19, the government, FAO and NGOs had developed a livestock vaccination calendar, with wet season vaccination in May to July for diseases such as anthrax, haemorrhagic septicaemia, blackleg, contagious bovine pleuropneumonia (CBPP), and sheep and goat pox. Not only were field staff struggling to access communities because of local COVID-19 restrictions, the FAO vaccine procurement and tendering process meant that vaccines might be procured in Jordan or India, and so vaccines became unavailable. The net result was that the wet season vaccination of livestock did not take place in 2020 (Interviews 2 and 3), despite South Sudan's extensive network of community-based animal health workers. In some areas, vaccine cold chain facilities continued to be destroyed during armed conflicts that occurred at the same time as COVID-19 measures.

- In Karamoja, Uganda during COVID-19 measures, the availability of veterinary medicines through the private sector in major towns decreased by

between 29% and 80%, and in village shops by 75%; where medicines were available, there were price increases of up to 62% (Lotira et al., 2020). The availability of government veterinary services at village level, especially for vaccination, decreased by between 43% and 100%. Although veterinary medicines were available in some private outlets in towns, travel to towns was difficult because of the reduced availability and increased cost of public transport. For example, the cost of motorbike transport increased by up to 100%. These changes coincided with livestock market closures and so livestock could not be sold to acquire cash. The increased cost of veterinary care was a particular problem for poorer households.

- In the north of Cameroon and the Central African Republic, vaccination campaigns against peste des petits ruminants, CBPP and Newcastle disease planned in May and June 2020 were disrupted due to the COVID-19 measures and restrictions, with important consequences for livestock owners (FSC, 2020).

Mobilizing staff was a notable challenge for some larger, international organizations with centralized bureaucracies, and because information on the spread of COVID-19 and containing measures was constantly changing. For these organizations, a blanket ban on travel was common even when conditions on the ground varied considerably between and within countries. In contrast, national and sub-national organizations were more likely to have a better understanding of local risks and could be more flexible by allowing travel that followed any local guidelines. This was a general finding across the livestock sector – localized systems were more responsive and adaptive in terms of service provision and market adaptations.

For livestock development projects with an emphasis on private sector business development, there was a concern that project achievements had been set back. For example, Bangladeshi households under the Livestock Production for Improved Nutrition project had previously experienced substantial improvements in milk production and sales, with related impacts on incomes and nutrition. However, in a survey conducted during COVID-19, 63% of households felt that they could not cope for more than 30 days in the current COVID-19 environment, and for many, they could cope for only one to two weeks (LPIN, 2020). The most frequently requested types of assistance were financial aid (66% of households) and food aid (29% of households), indicating how development gains had been affected.

3. RESPONSES

3.1 Responses of livestock keepers

As COVID-19 measures led to reduced physical access to communities by government/aid workers and researchers, information on the responses of livestock keepers to these measures was relatively limited. However, in general it seems that the responses of poorer livestock keepers to COVID-19 restrictions were influenced by factors such as:

- The type of COVID-19 measures and restrictions in place.

- The general economic situation and the capacity of households to respond to the rising cost and availability of food, commodities, services and transport despite lower incomes and own production.

- A household's dependency on livestock relative to other livelihoods activities, and the extent to which declines in livestock-related consumption or income could be offset by other activities.

- The functioning of social networks and the capacity to access assistance from relatives and neighbours.

- The capacity of households to adapt their livestock management or sales of livestock products to take account of COVID-19 pressures on production, trade and services.

- The seasonality of livelihoods and food security, as the impact of COVID-19 restrictions partly depends on when the restrictions occur and for how long.

- For pastoralists and agro-pastoralists, the trade-offs between protecting livestock by accessing pasture and water, the risks of conflict, and exposure to livestock diseases in congested areas.

Typically during crises, poorer rural households use strategies such as eating fewer meals and changing their diet towards less expensive foods, consuming and depleting stores of home-produced foods, especially cereals, selling assets such as livestock, taking out informal loans (and often adding to their debts), and drawing on social networks for support. However, an important aspect of COVID-19 measures was often a decline in livestock prices at the same time as increases in food

and transport costs. For poorer households, there may be no option but to sell animals when prices are low. The coping strategies of households were reflected in a survey of small-scale dairy producers in Bangladesh during COVID-19, in which 14.1% reported selling cattle or property, 11.1% reported borrowing or taking out loans, and 17.2 % mentioned reducing their expenses or food intake (LPIN, 2020).

Although COVID-19 in lower-income countries is currently framed mainly as an economic and food security crisis, in major humanitarian crises the most important factor affecting survival is often the presence and function of social networks and the extent to which people in need can receive assistance from relatives or neighbours (e.g. De Waal, 1989; Maxwell et al., 2016). This assistance can be local and could involve gifts of food or cash, or help with looking after livestock. It can also involve remittances from relatives in towns or cities, including relatives living abroad. The importance of local, self-initiated responses was evident from research in northern Kenya during the COVID-19 lockdown:

> *"Pastoral responses to the pandemic are seen at two different levels. The first involves ways of engaging with the virus through the establishment of local community 'emergency' teams, which include health volunteers, chiefs, youth, women and village elders. Although they do not have medical training, they meet every Friday and engage in community sensitisation and screening at the entry borders of the district. Secondly, there is an emerging structured network of community solidarities and mutual help: a new pastoral moral economy. Examples include a group of youth in Merti who have initiated a 'corona food drive' so as to feed vulnerable families. In addition, some women are helping milk traders by purchasing excess milk and transforming it into butter so that market disruption will not lead to complete loss" (Sumali et al., 2020).*

This research illustrates the importance of social resilience and adaptation during COVID-19 lockdowns, and there are probably a myriad of similar but unreported initiatives across other livestock-keeping communities in different countries.

Among pastoralists and agro-pastoralists, a key strategy during crises is to protect core breeding animals and this can involve moving livestock to areas with better grazing and water. To enable herd movements during COVID-19 there were accounts of pastoralists in West Africa, South Sudan and India lobbying government or seeking assistance from pastoral associations or NGOs to enable safe movements. Similarly, in West Africa there were accounts of herders following abnormal routes to avoid COVID-19 restrictions at official border points. In some areas of South Sudan, movements of people and animals were driven by the need to avoid floods and conflict, while also securing grazing for livestock; 600,000 people were affected by flooding during COVID-19 restrictions. In this situation, a strict enforcement of COVID-19 movement restrictions was probably neither possible nor justified.

Across countries, livestock keepers adapted to formal market closures in various ways. For example, in India alternative methods were used for selling sheep and goat meat, focusing on local sales, and some sale of milk "direct to doorstep"; some online marketing was also used. Notably, there was no decrease in the price of goat meat in India while COVID-19 measures were in place (Interview 5). In northern Thailand, COVID-19 resulted in the closure of the cross-border poultry trade with Laos and so more birds were sold to internal markets, which were still open. In Somalia, when the export of livestock fell due to the cancellation of the Haj, more animals were diverted to domestic markets which remained open (also see case study 4). In southern Ethiopia, pastoralists tried to divert livestock to Kenya markets (Sumali et al., 2020) and in Karamoja, Uganda, all livestock markets were closed under COVID-19 measures but there were reports of informal sales, with high livestock prices (Lotira et al., 2020).

Due to problems with veterinary services, some livestock keepers also relied more on traditional practices and treatments (ethnoveterinary medicine), as reported in India (Interview 5) and Nepal (Interview 4). Ethnoveterinary treatments tend to be low cost and locally available, and so are particularly relevant to poorer households or households experiencing a temporary loss of income.

In Karamoja, Uganda there was a notable increase in livestock raids (thefts) during COVID-19 measures, and it seems likely that these raids were carried out by other livestock keepers. Livestock raiding is a chronic problem in this area, and during COVID-19 measures there was less pursuit of raiders by security forces, and so less likelihood of raided animals being recovered (Lotira et al., 2020). Livestock thefts were also reported in India during COVID-19 restrictions.

Across countries with pastoralist populations, the limitations of some COVID-19 measures were clear. Of these, guidance on frequent hand washing did not fit the

realities of clean water supply in many pastoralist areas, especially during the dry season.

3.2 Responses of agencies and programmes

During the COVID-19 pandemic to date, efforts to assist poorer livestock keepers included general food security assistance by relevant agencies, and more livestock-specific assistance by agencies with specialised knowledge of livestock programming. Early responses included the release of guidance from international organizations and coordination groups, notably FAO (2020a), LEGS (2020) and the Food Security Cluster (FSC, 2020) on support to livestock and livestock owners. Considering that many countries introduced lockdowns in March 2020, the release of livestock guidance in April 2020 (FAO; LEGS) and May 2020 (FSC) from these organizations was rapid and timely. At the time of writing this Discussion Paper six months later, the guidance remains very relevant in terms of livestock-related support.

At regional, national and sub-national levels, responses have taken account of local livelihoods contexts, the role of livestock in livelihoods and national economics, and the level and type of COVID-19 measures in place. Due to the wide variation in contexts, livelihoods and COVID-19 measures, livestock-related responses have also been varied. Some of the main responses described in the literature and mentioned during interviews are summarized below.

Information, coordination, networks and lobbying

There were various examples of coordination bodies, civil society networks and groups, and local and international NGOs gathering and sharing information on COVID-19 impacts and providing guidance. At the international level the documents by FAO, LEGS and FSC mentioned above are examples, but nationally and more locally there were also cases of this type of response.

- In South Sudan, the Livestock Technical Working Group under the Food Security Cluster was a well-established multi-agency coordination group and it responded quickly to COVID-19 measures. In April 2020 it produced specific guidance for partners to assist them to re-programme in the context of COVID-19, but which also took account of South Sudan's other major problems such as conflict, floods and localized desert locust damage to crops (FSC South Sudan, 2020).

- In West Africa, Reseau Billital Maroobe and Action Contre la Faim began to produce monthly online COVID-19 bulletins from their pastoralist monitoring system. Based on reports from nine countries – Benin, Burkina Faso, Mali, Mauritania, Nigeria, Niger, Senegal, Chad and Togo - these bulletins focused on the impact of COVID-19 measures on pastoralists and agro-pastoralists, and made policy and programming recommendations (e.g. RBM and ACF, 2020). Also in West Africa, the Association pour la Promotion de l'Élevage au Sahel et en Savane produced online reports on COVID-19 issues in 12 West African countries, again focusing on agro-pastoralist and pastoralist producers (APESS, 2020). In West Africa, the key issues were the need to maintain herd mobility and manage conflict.

- In India the Center for Pastoralism and civil society organizations in seven States jointly produced a report on the impact of COVID-19 on pastoralists and made recommendations to support pastoralist systems. Local NGOs were active in lobbying local government to enable pastoralist movements within States and contributed to local media to raise awareness of issues affecting pastoralists (Interview 5). NGOs such as ANTHRA assisted pastoralists to charge phones or get SIM cards.

Context-specific programming responses

As indicated above, specific programming responses tended to be based on local analysis of COVID-19 impacts. While implementing agencies reported following COVID-19 practices such as social distancing, they also used interactions with local partners and communities to provide information on COVID-19 in addition to discussing programme activities. Activities such as training courses were adapted e.g. in South Sudan trainings involved fewer than 10 people, and face masks and social distancing were used. In general, there was far more use of cell phones and online meetings, to replace direct face-to-face meetings.

A good example of a project shifting emphasis was in Nepal where "Quick Income Return" projects were developed under a four-year earthquake recovery/ livelihoods project implemented by SAPPROS, a local NGO. Due to COVID-19 impacts, some re-programming took place including support to poultry production with feed and veterinary care. Livestock insurance and vaccination was also used in project areas, supported by food relief to the very poor by local government, and cash for work. In Somalia another development project was able to re-programme as summarized in the case study below.

Case study 4: The Growth, Enterprise, Employment and Livelihoods Project (GEEL) in Somalia (Interview 1)

The Growth, Enterprise, Employment and Livelihoods Project (GEEL) provides support to livestock and agriculture markets and trade, and renewable energy in Somalia, focusing on the private sector, business development and related financial services, investment and certification systems. It is a five-year development project. The project aims to build the capacity of internal investors as well as the Somali diaspora to invest in business opportunities, and prioritizes opportunities in industries likely to attract women and youth who have been marginalized from pursuing economic opportunities.

Early in the COVID-19 crisis GEEL conducted an analysis of the impact of the crisis and designed interventions specifically in response to these impacts. For the livestock sector, key strategies were to support the domestic livestock and meat trade during the cessation of the export trade and explore export opportunities to countries where the local COVID-19 context made such exports possible. The overall aim was to help to maintain livestock businesses and employment in Somalia during the COVID-19 crisis and enable livestock producers to sell animals and earn income. The project rapidly reallocated resources and provided support to various private sector partners. By mid-September 2020, some early results were as follows:

- Juba Livestock Quarantine and Fisheries exported 3,800 bulls to Oman and Yemen at an average price of $520 per bull resulting in sales totalling to $1,976,000
- Hilibsan and Someat meat suppliers provided COVID-19 prevention and awareness training. Due to building customer confidence in these measures, the companies' sales increased by 25% and they established a meat delivery network in Hargeisa and Mogadishu through youth-owned delivery service providers
- SOMEAT (Somalia's leading meat exporter) created 213 new jobs as a result of the expanded domestic meat outlets, distribution networks and introduction of new deboning facility at its Daresalaam abattoir in Mogadishu
- Over 65 metric tons of cold storage capacity, made up of various portable insulated ice boxes, was provided to grassroots fishermen and women, and GEEL partner companies in Mogadishu, Puntland and Jubaland. This saved 200 jobs and helped to create more than 50 new jobs
- GEEL partner commercial camel dairy farmers such as Beder Camel Dairy, Ramad Galool, Som Milk and Roob Daay introduced home-based milk delivery networks and solar powered cold chain facilities in strategic locations in Mogadishu and Hargeisa
- Oog Dairy Factory and Malab Dairy Factory expanded their cold chain capacities and contracted women and youth-owned milk bars with the introduction of new dairy products with longer shelf life e.g. cheese, ghee and butter
- The Almanar abattoir in Berbera exported 14,525kg of frozen meat to Oman, with plans to export to Bahrain and United Arab Emirates
- All dairy and fodder farmers adhered to the WHO COVID19 prevention guidelines through social distancing at workplaces, provision of handwashing points, distribution of business branded facemasks and awareness creation

The GEEL case is an example of flexible and effective project leadership and management, allowing a development project to shift emphasis during the COVID-19 crisis in Somalia.

The Nepal and Somalia examples illustrate the value of development projects during crises and when a project's technical leadership and funding arrangements are responsive to a changing situation on the ground (Interviews 1 and 6).

There were also two examples of livestock projects adapting to support COVID-19 public health responses. In South Sudan there is a long history of community-based animal health workers (CAHWs) supporting human health programmes, dating back to the 1990s when CAHWs assisted with Guinea worm and HIV/AIDS messaging (Catley et al., 2005). In Afghanistan from 2013, community-based Veterinary Field Units delivered training on zoonotic diseases to farmers under the coordination of the Ministry of Public Health (Schreuder et al., 2015). In South Sudan and Afghanistan these community-based systems were used for COVID-19 messaging, and in Afghanistan, they also assisted with the provision of disinfectants, personal protective equipment (PPE) and other inputs to communities (FSC, 2020). Notably, in both cases the community-based workers were recognized by their respective governments. In countries where this recognition is not present, the official use of CAHWs or equivalent workers by health authorities is more problematic.

4. DISCUSSION

Since the onset of the COVID-19 pandemic a mass of scientific and other information has become available, with modelling studies, other research, and data on impacts appearing almost daily. For example, at the time of finalizing this paper in early November 2020 there were new and positive reports of vaccine trials, which to some degree were offset by outbreaks of COVID-19 in farmed mink in Denmark, and concerns about virus mutation and its potential impact on vaccine efficacy. In lower-income countries the dramatic economic impacts of COVID-19 measures are well reported, as are some of the longer-term impacts. A preliminary assessment by some UN and other agencies suggests that the pandemic may add between 83 and 132 million people to the total number of undernourished people globally by the end of 2020 (FAO et al., 2020). However, far less clear are the health impacts of COVID-19 and how these impacts might change over time. To date, COVID-19 mortality in lower-income countries has been consistently reported as lower than high-income countries (JHU, 2020), and it is not clear whether mortality will remain low as the virus continues to spread in developing regions. A final scenario with low COVID-19 mortality in lower-income countries would mean that with hindsight, other diseases such as malaria, TB, diarrhoea and HIV/AIDS were far more important causes of mortality during the pandemic in these countries. In contrast, if COVID-19 causes widespread and severe disease in lower-income countries during the next six to twelve months, for example, health systems could be overwhelmed and mortality could exceed the levels seen in parts of Europe and the USA. In countries experiencing complex emergencies and with a scenario of low COVID-19 mortality, it is feasible that disruptions to humanitarian assistance could result in more deaths than COVID-19.

A rapid review of the impacts of COVID-19 on livestock keepers produces a predictable finding that the impacts vary widely according to the type and duration of COVID-19 measures that were used. In addition, within countries these measures were not uniformly applied and so had different impacts. For example, more remote pastoralists in northern Kenya were less affected by COVID-19 measures relative to those closer to main towns (Simula et al., 2020). An understanding of the seasonality of livelihoods is also important in relation to COVID-19 impacts. If markets are closed at a time of year when people normally maximize livestock sales, the

loss of income will be relatively high. If livestock mobility is hindered when herds need to reach dry season pastures, impacts on livestock production and survival will be higher than if COVID-19 measures occur in the wet season e.g. compare COVID-19 impacts in West Africa (RM and ACF, 2020) to north east Uganda (Lotira et al., 2020). The high impact of COVID-19 measures on the small-scale dairy sector in India and Bangladesh indicates how livestock production systems that are highly dependent on external inputs and daily sales are particularly at risk when supply chains and markets fail. Regarding responses, far more information was available on how organizations are responding to the COVID-19 crisis relative to local, community-level responses. There were both positive and negative changes in behaviours, with pastoralists in northern Kenya building their social resilience (Simula et al., 2020), while police in Kenya and Uganda used COVID-19 measures to extort bribes and further increase the costs and risk of local travel.

LEGS focuses exclusively on humanitarian contexts and the use of livestock-related support as a form of humanitarian assistance. In lower-income countries, COVID-19 is currently an economic and food security crisis, comparable to economic crises caused by a breakdown of financial systems or hyperinflation. As such, guidance on COVID-19 falls outside the scope of the LEGS Handbook. However, LEGS is far more relevant in situations where COVID-19 is superimposed on a pre-existing emergency, or when a humanitarian crisis occurs in a region or country where COVID-19 measures are in place. In these situations, future editions of LEGS may need to consider how a pandemic affects issues such as emergency preparedness, participatory analysis and identification of livestock interventions, market-based approaches, and the supply of inputs such as livestock feed or veterinary medicines. For example:

- Under Core Standard 1 Participation, LEGS could offer guidance on if and how to conduct participatory assessment when access to communities is restricted. This issue is also relevant to LEGS content on Core Standard 4, Initial assessment and response identification, and Chapter 3, initial assessment, and the use of participatory approaches and methods to analyse problems and identify interventions.

- Under Core Standard 2 Preparedness, LEGS could consider guidance on preparedness with future pandemics in mind, and assuming that COVID-19 type restrictions might be used for other pandemics, drawing on experiences from development projects that have provided livestock support during the pandemic, through flexible funding and management.

- Across technical interventions, LEGS supports market-based approaches and working with the private sector, as well as governments. In decision trees for technical interventions LEGS could consider adding content highlighting which technical options are feasible in pandemic lockdown contexts.

- In terms of COVID-19 and human health, the spread of COVID-19 has depended almost entirely on human-to-human virus transmission and therefore, disease prevention and control are a matter for international and national health organizations and authorities. LEGS recognizes the role of FAO and OIE in developing guidelines for livestock disease control, and might note the role of WHO and other organizations in relation to human disease control.

In terms of developing specific guidance on using LEGS interventions during a pandemic such as COVID-19, this should be done retrospectively when the full health and economic impacts of the pandemic are known. LEGS will also need to examine the livelihoods impacts of livestock interventions during the pandemic and encourage implementing agencies to conduct impact evaluations. For the time being, the guidance notes on livestock and COVID-19 produced by FAO and FSC are highly relevant and provide very useful suggestions for livestock-related programming. Finally, development projects and actors are potential users of LEGS, especially when funding and management arrangements enable a re-orientation of activities in response to a crisis. At present LEGS focusses on the "humanitarian sector" while also supporting livelihoods-based approaches. Making LEGS more relevant to development workers should also be considered in a future edition.

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Interviews

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- Interview 2 – Dr. Michael Otto, Vétérinaires Sans Frontières Germany, Juba, South Sudan, 29/9/20.

- Interview 3 – Dr. Wilson Makuwaza, Dr. Nimaya Mogga, Dr. Khang Chol and Dr. Lewis Kayanga, Food and Agriculture Organization, Juba, South Sudan, 30/9/20.

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- Interview 5 - Dr. Nitya Gotge, ANTHRA, Pune, India, 1/10/20.

- Interview 6 - Diba Wako, USAID Somalia, 14/10/20

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