FROM EMERGENCY TO DEVELOPMENT

BUILDING RESILIENCE THROUGH LIVESTOCK-BASED INTERVENTIONS

For millions of people worldwide, livestock is a key asset that offers multiple benefits, providing food and income, draft power, manure, economic security and social status. When disaster strikes, the loss of livestock affects the livelihood of livestock-dependent households, and has larger implications for the whole livestock economy and the food security of the population.

Effective emergency responses should be framed around the livelihoods approach, offering a combination of short-term emergency relief and long-term resilience strengthening. Whenever people's livelihoods are largely dependent on animals, the Livestock Emergency Guidelines and Standards (LEGS) offer a valuable set of guiding principles to implement livestock-based interventions that strengthen the recovery capacity and the overall resilience of affected populations.

Successful LEGS implementation requires adjustments depending on the local contexts and the consideration of local knowledge and actors. The NGO members of the VSF International network have long-established experience with livestock interventions, and a deep understanding of the location-specific challenges and opportunities in their areas of operation. That's why these organisations and their local partners are able to apply and adapt LEGS in order to respond to emergencies and to strengthen resilience through livestock-based interventions.

This policy paper describes how disasters affect livestock-based livelihoods, and summarises the types of interventions available for mitigating their impacts and building resilience. It also shows examples of how VSF is putting LEGS into practice and how its principles can be adapted in emergency situations.

INTRODUCTION

Livestock contributes 40% to the global value of agricultural output and supports the livelihoods and food security of almost 1.3 billion people worldwide (FAO 2016a). Half of the 800 million people living below $ 1.9 per day depend on livestock, with both 95% of the extreme poor and 75% of all poor livestock keepers living in sub-Saharan Africa and South Asia (FAO 2016a).

Livestock production systems worldwide range from small to large scale, with varying levels of input use (from intensive to extensive). Examples of low-input livestock farming systems include pastoral and agro-silvo-pastoral systems, backyard farming, and rain-fed mixed production systems. This paper focuses on low-input systems, as they are most common in developing countries that are facing recurrent crises.

Livestock are critical assets of small-scale, low-input systems. They provide food and income, draft power and transport, manure, social status, economic secu-

rity and political power. In pastoral systems livestock give additional value to marginalised lands, such as semi-arid or mountainous areas, which are not suited to other forms of agricultural production. Within these small-scale systems, animals' resistance is also a determinant trait, allowing humans to benefit from the multiple functions of livestock, which is not the case for specialised breeds that are often reared for one single purpose such as milk or meat production, and require high levels of external inputs.

The livestock economy and value chain system includes a vast range of stakeholders, ranging from primary producers, to service and input providers, traders and merchants, whose businesses and livelihoods depend significantly on livestock.

There is a significant gender element to livestock production in the developing world. Small livestock are among the few assets that women in smallholder families own and control, and in many instances women also provide much of the labour, and may control some of the income from the larger animals that they do not own, such as milk cattle. If the importance of livestock to women is not clearly understood when emergency interventions occur, women and children are likely to suffer disproportionately.

Recognition of the roles of livestock in the economies of developing countries is crucial for understanding why their loss in disasters is so damaging to the livelihood systems of livestock keeping communities. When disaster strikes, whether natural or man-made, livestock are as seriously affected as the people depending on them.

Effective emergency responses should be framed around the resilience approach and should consider not only saving human lives but also protecting and re-building livestock assets to strengthen the livelihoods and recovery capacity of affected populations that depend on them.

TYPES OF EMERGENCIES AND THEIR IMPACTS ON LIVESTOCK

Livestock can be affected by disaster in several ways. This paper differentiates between rapid-onset, slow-onset and complex and chronic emergencies. Drought is a common example of a slow-onset emergency, in which the hazard emerges gradually over time. In slow-onset disasters livestock initially deteriorate and over time may die.

Droughts deplete feed and water resources, reduce livestock production (e.g. body condition loss, milk) and reproduction, and later cause death of the animals. Increased migration of livestock in search of water and pastures predisposes them to disease spread and resource-based conflicts.

In rapid-onset disasters (i.e. sudden-onset events such as floods, earthquake, tsunami, etc.), animals can be killed immediately or lost or abandoned by owners in the aftermath of the disaster, and agricultural crops and livestock feed may be destroyed leading to food shortages for humans and animals.

Finally, complex and chronic disasters, such as in the case of South Sudan, Somalia, DRC or Yemen, are usually the result of prolonged crisis or war. This has a negative impact on livestock in terms of lack of veterinary services, displacement, restricted grazing and/or lack of access to markets (LEGS, 2014).

The devastating impacts of disasters on livestock-

Table 1. **DIRECT AND INDIRECT EFFECTS OF LOSING LIVESTOCK IN DISASTER**

Direct Impacts	Indirect Impacts
• Loss of animal-sourced food (meat, milk)	• Loss of food security and malnutrition
• Loss of manure, loss of draft power, increased demand for human labour	• Reduced labour availability, reduced agricultural productivity
• Loss of savings and investments	• Inability to cover sudden expenses such as medical bills and school fees
• Loss of social capital, kinship ties/support	• Loss of pride and cultural / political power influence
	• Migration, conflict…

based economies and livelihoods can be direct or indirect. Direct impacts relate to the loss of livestock and their economic value, while indirect impacts refer to the loss of the other livestock functions in terms of nutrition, improved agricultural output, financial and social functions, mobility, etc.

Although direct impacts might be more visible than indirect ones, in order to understand the true consequences of a disaster, it is actually more important to estimate the latter (Hallegatte and Przyluski, 2010), which is often under-recognised and undervalued (Campbell, 2011). Furthermore, the calculation of the cost of livestock losses should also take into account both the short and long-term impacts of a disaster. The loss of livestock causes indeed a short-term loss of direct financial assets as well as a long-term loss from decreased productivity.

LIVESTOCK-BASED INTERVENTIONS IN EMERGENCY

The Livestock Emergency Guidelines and Standards (LEGS) offer guidance and a set of operational principles on the main types of interventions targeting livestock in emergency contexts. LEGS is based on a livelihood approach which places the resilience of affected communities at the centre, and establishes strong links between short-term humanitarian interventions and long-term development goals.

LEGS interventions can be grouped into six categories: provision of feed, provision of water, provision of veterinary services, destocking, restocking, and livestock shelter and settlement interventions.

Table 2. **EMERGENCY INTERVENTIONS TARGETING LIVESTOCK**

Type of Intervention	Impacts/Implications
PROVISION OF FEED: • Emergency feeding in situ • Feed camps	• Protects remaining livestock assets or core breeding stock during and after emergency, to rebuild herds when conditions improve • Requires available storage facilities and pasture sources at affordable prices
PROVISION OF WATER: • Rehabilitation / construction of water points • Water trucking	• Protects remaining livestock assets or core breeding stock • May be very capital intensive • The quality of the water is important
PROVISION OF VETERINARY SERVICES: • Clinical veterinary services • Support to public sector veterinary functions	• Can include preparedness measures such as vaccination and preventive treatment • Can be conducted in conjunction with other activities (feed, water, provision of livestock) • Important role of livestock keepers and community-based animal health workers (CAHWs) in monitoring and controlling disease spread
DESTOCKING: • Commercial destocking • Slaughter destocking	• Can provide cash income or food • Needs to be done in good time • Requires conducive policy environment and involvement of different stakeholders (traders, functional markets) • Requires adequate slaughterhouse facilities and meat inspection services • May involve environmental concerns (e.g. safe disposal of condemned carcases and offal)
RESTOCKING: • Replacing livestock assets • Rebuilding livestock assets	• Appropriate in recovery phase once aftermath is over • Success highly dependent on appropriate targeting of beneficiaries and correct estimation of number and species of animals provided • Must be done in a holistic manner to assure sustainability (e.g. include improvements in feed availability, livelihoods diversification, etc.)
SHELTER AND SETTLEMENT: • Livestock settlement interventions • Temporary and longer-lasting livestock shelter	• Can involve preventive measures (e.g. earthquake resistant livestock shelters) as well as those designed to protect livestock assets after emergency.

Source: Adapted from LEGS, 2014.

LEGS

The **Livestock Emergency Guidelines and Standards (LEGS)** Project aims to increase the quality of emergency response by promoting minimum standards for livestock-based interventions. The Standards follow the format of the Sphere handbook, including minimum standards, key actions and guidance notes. They cover a range of livestock-based interventions – destocking, feed, water, veterinary services and restocking – as well as support and guidance on livelihoods-based needs assessment and identification of appropriate, timely and feasible emergency responses. As with SPHERE, LEGS was developed using a broad consultation process involving practitioners and policy makers from around the world.

EXPERIENCES FROM THE VSF INTERNATIONAL NETWORK

The members of VSF International are following LEGS and ensure that staff members and other collaborating partners in the livestock sector are regularly trained. LEGS offers a valuable set of guiding principles and provides the overall framework for VSF interventions in emergencies. For the implementation of concrete project activities, the general LEGS principles need to be adapted to the situation on the ground. For instance, when working with nomadic pastoralists in arid and semi-arid areas, mobility needs to be taken into account and services offered that meet specific needs. Examples of these 'mobile' services include mobile veterinary support and training of community-based animal health workers (CAHWs).

In countries where they operate, the VSF International members have long-established experience with livestock interventions, and a deep understanding of the location-specific challenges and opportunities. In this way, VSF is able to develop specific tools for the implementation of LEGS, which are adapted to the different contexts and needs.

FEED SUPPLY

Supplementary feeding of livestock aims to preserve key livestock assets by focusing on core breeding stock (often indigenous breeds), which would likely perish due to the crisis-induced scarcity of feed, water and grazing pasture. Core breeding stock allows the rebuilding of herds when conditions improve. If livestock keepers lose core breeding stock that possess key genetic material it can take many years for their herds to recover, and there is a danger that poorer households may never be able to rebuild their herds and as a consequence fall out of livestock production and into a poverty deprivation trap.

Feed supply may also target key milking animals to improve households' milk availability for better nutrition. Whenever possible, this kind of intervention should be accompanied by fodder production and conservation efforts, in order to speed up recovery and improve resilience.

VSF projects in 2017 targeted 120,460 animals for emergency feed distribution in Somalia, Burkina Faso, Ethiopia, Kenya and Mali. This type of interven-

VSF Belgium has been supporting livestock feed banks (wheat bran, cottonseeds) **in Niger** since 2003 and contributed to control price fluctuations in the intervention areas.

In the Gedo region of Somalia, which has been devastated by drought, VSF Suisse is distributing locally procured hay and concentrates (ranch cubes) to 3000 households in order to keep their core breeding stocks of goats alive (5 goats per household). Goats are provided with hay for a period of 8 weeks, and milking goats also receive some concentrates in order to increase milk availability for vulnerable households. Besides emergency feed distribution, the project is also distributing assorted seeds and equipment to 600 farmers with the aim of enhancing fodder production and increasing the sustainability of the intervention.

tion is usually short-term (on average covering ten consecutive weeks) and targets the most vulnerable households. Depending on the availability in the local market and local production capacity, feed can be either concentrate (pellets), cereal-based, or hay. Besides feed distribution (or sale of feed at discounted prices), the establishment of feed banks can be successful in preventing further feed shortages and contribute to regulating internal markets in a long-term perspective.

PROVISION OF WATER

Water availability can be limited by a number of factors, including the effects of drought, poor water infrastructure conditions or impediments to access existing water points (for instance due to conflicts, natural catastrophes, or poor management agreements that prevent some users accessing water). In those cases, provision of water becomes a priority for the survival of people and their livestock.

VSF adapts the intervention to the specific situation. In some cases, water supply is assured through the rehabilitation or construction of water points, boreholes, or water catchments. Food-for-work or cash-for work schemes are often implemented in water source rehabilitation efforts. In some more extreme situations, when there is urgent need and no other cost-effective options available, water may be delivered by truck – i.e. the provision of chlorinated water from external sources.

It is important to ensure that water is free of specific water-borne diseases, parasites, or vectors and is not contaminated with toxic chemicals. Water quality for livestock is generally much less of a critical issue than for human consumption (for example, there is no livestock equivalent to a water-borne disease such as cholera, which presents a key water quality challenge for human water supplies). Storage, and in particular enclosed storage, flocculation using local products such as *Moringa*, sedimentation, and settlement are all cheap and simple forms of treatment that can be applied to water for livestock.

The need to provide emergency water supplies to livestock, particularly during drought, is indicative of the inadequate long-term development and management of water resources in pastoralist areas. Water development policy needs to take into account the need for better conservation and use of water resources while also recognizing the advantages of mobile pastoral livestock production systems, and the environmental damage caused by inappropriate provision of water. It is increasingly recognized

that inappropriate construction of boreholes, both in terms of location and number, disrupts livestock movements and grazing management.

Experiences of water development for livestock indicate that pastoralists should be involved in the initial analysis of water issues, including predicting the positive and negative impacts of new water sources, and how new facilities will be sustained and managed in the long-term. Part of this participatory analysis relates to broader natural resource management issues such as dry season grazing practices and areas which are traditionally preserved for dry season use.

ANIMAL HEALTH SERVICES

The provision of veterinary services during a drought or normal times helps livestock keepers to protect their primary productive assets against endemic and/or zoonotic livestock diseases. Veterinary care can help prevent sudden loss of livestock due to emergency-related diseases. Loss of livestock has direct implications for people whose livelihoods depend on the health of their animals. High livestock mortality can destabilize communities, and it can take many years for affected families to rebuild their assets, while some families may be pushed into a poverty trap.

Veterinary care can also reduce the impact of diseases that may affect animal reproduction and production (meat and milk), which is crucial for household consumption and incomes. When implemented properly, provision of proximity veterinary services, livestock vaccination and deworming campaigns, training of Community-based Animal Health Workers (CAHWs) with involvement of the public and private animal health service providers, and provision of good quality drugs and support to the cold chain infrastructure are highly cost-effective interventions for protecting the livestock assets of vulnerable households.

All emergency projects implemented by members of VSF International include veterinary support. The 25 projects that were running in 2017 provided treatment to over 5 million animals, benefitting 1.5 million households in Burkina Faso, Ethiopia, Kenya, Mali, Somalia, South Sudan and Sudan. In many of VSF's interventions, CAHWs are heavily involved. When they are well trained, equipped, motivated and supervised, CAHWs ensure improved service accessibility, availability, affordability and acceptance and they play a fundamental role in disease surveillance. CAHWs are especially important for reaching agro-pastoralists who live in remote, hard to reach (and sometimes insecure) areas or who are highly mobile.

Whether for mass vaccinations or for examination and treatment of individual herds, VSF adapts the intervention model (i.e. with or without recovery of the medical costs) depending on the national regulatory framework and the financial capacities of the beneficiaries. Some projects make use of voucher-based support while others apply a cost recovery mechanism to deliver emergency services. Vouchers are usually provided for each household in order to access veterinary services from local private veterinary service providers and/or from CAHWs. However, use of vouchers is not recommended in areas where quality, safe handling and transportation of the pharmaceuticals cannot be guaranteed.

In Ethiopia's Afar Region, following a destocking operation, VSF Germany distributed fresh camel, sheep and goat meat to 1,200 households for 11 consecutive weeks between January and August 2017. Each household received 5kg of fresh meat per week.

VSF projects also have an additional veterinary public health or *One Health* component, focusing on prevention and control of zoonotic diseases and the promotion of meat and milk hygiene, delivered through information, education and communication strategies.

DESTOCKING

Destocking is a common response to drought. It allows the removal of affected animals before they become so weak as to lose their value, die and/or pose a risk to public health. The aims of the destocking program are therefore to recover value from weak animals that would likely die; provide protein-rich food to drought-affected people; and inject cash into vulnerable households, which has been shown to strengthen asset protection and fulfilment of basic needs.

For commercial destocking, animals are purchased from vulnerable households in order to increase their incomes. This usually involves private livestock traders who receive incentives to buy the animals. In other cases, animals are bought and slaughtered for meat distribution.

Destocking interventions require the existence of functional markets, the presence of adequate slaughterhouse facilities and the involvement of different stakeholders (traders, meat inspection services, etc.). Disposal of carcasses and offal need to be controlled, in order to mitigate environmental concerns.

VSF Suisse distributed fresh meat from 1,500 goats and sheep (approx 15,000 kg) to 1,000 IDP households twice a week **in Gedo Region, Somalia** for 6 weeks between September and November 2017. Each household received ¼ of a goat or sheep carcass (approx 2.5 kg) per week.

RESTOCKING

Livestock provision can aim either at replacing livestock assets that have been lost, or at building livestock assets as a new livelihood activity. Where possible, restocking programmes should draw on indigenous restocking practices, to reflect local interests and objectives. Small ruminants and poultry will often be the first choice for restocking initiatives, at least in the early stages of recovery. They are less affected by limited feed quality and availability, are relatively easy to get to market and reproduce rapidly, facilitating further rebuilding of viable flocks. This should not, however, rule out the possibility of restocking with large ruminants whenever there is a strong demand expressed by the community and there are adequate

In northern Mali, AVSF determines the number of goats to be provided during restocking based on a number of factors: the financial needs of the household to cover their basic needs, the size and composition of the existing flock, the availability of access to other sources of income, and some zoo-technical parameters in the intervention area. If insufficient animals are provided, the animals are quickly sold to generate cash for the household, meaning that the intervention has a very short-term impact with no possibility of herd reproduction.

resources available (for instance in flood and conflict areas, where pasture availability is not a major concern). On the other hand, in areas where continued droughts are putting the livelihood of agro-pastoralists at stake, a shift from small ruminants and cattle to camel can be a successful climate change adaptation strategy. Provision of pack or draft animals might also be considered in response to a request from the community. Pastoral families, when offered the choice, will generally tend to opt for combinations of sheep and goats.

Determining the appropriate number, species, sex and age of animals to be distributed and the selection of the target beneficiaries is an important part of any restocking programme. Whilst the options here will be limited, to some extent, by what is available in the market, making the right choices can have a large impact on the ultimate success or failure of the programme. The LEGS handbook does not indicate specific numbers of animals needed for restocking, nor does it provide a tool for use in the estimations, as the calculations are very context-specific. In several countries, VSF has been developing tools for estimating the number of animals to be distributed, based on the livelihood possibilities of the vulnerable groups.

In most emergency projects, the number of animals distributed is fixed in advance, without taking into account the level of livelihoods and needs of the beneficiaries. If the number of distributed animals is underestimated, beneficiaries may find it unprofitable to handle them and are more likely to sell the animals. Likewise, if the number of animals is excessive, they may create management, social, or environmental problems. In some cases, the number of animals distributed may be appropriate but they may be too young, and beneficiaries may not be able to support the animals for the length of time it takes them to begin reproducing. As a result, they may just sell them. Therefore, other measures such as livelihood diversification may have to be implemented also to support the beneficiaries in the initial stages.

Other factors to consider in restocking programmes include post-distribution access to animal health services through linkages with local veterinary systems, complementary support packages such as food distribution through collaboration with relevant partners, and training in basic animal husbandry practices for the beneficiaries, especially when they were not originally pastoralists with indigenous knowledge in animal husbandry. It is always important to consider feed availability for all restocking project. Wherever feasible, fodder production and conservation should be incorporated in restocking projects.

In 2017, 7920 households benefitted from distribution of either small ruminants or poultry by the VSF network in Burkina Faso, Mali, South Sudan and Sudan.

SHELTER AND OTHER KEY LIVESTOCK INFRASTRUCTURE

The contexts in which VSF emergency projects occur (mainly arid and semi-arid areas affected by droughts and/or complex emergencies) do not suggest that livestock shelters are a priority need.

VSF contributes to the construction or rehabilitation and equipment of some key livestock infrastructure, such as livestock markets, in underserved areas.

In northern Mali, since 2010, AVSF have been contributing to the construction of five livestock markets in Timbuktu and Gao regions. Within just 12 months of its establishment, the cattle market in Tishift, north of Timbuktu, has achieved a turnover of more than €1 million, with more than 12,000 small ruminants and 2,000 camels sold.

CONCLUSIONS AND RECOMMENDATIONS

Livestock is a key asset that offers multiple benefits (providing food and income, draft power, manure, social status, economic security and political power). As a result, the loss of livestock is multi-dimensional. It has a severe impact upon the livelihoods of people dependent on them, and also upon the different actors who depend on the livestock economy and its value chains.

Humanitarian actors should:

- Recognize the role and value of livestock in recovering from disasters and in strengthening the resilience capacity of livestock-dependent communities;
- Adopt a livelihood approach that places the resilience of affected communities at the centre and establishes strong links between short-term humanitarian interventions and long-term development goals;
- Promote the adoption of Livestock Emergency Guidelines and Standards (LEGS) to protect and re-build livestock assets, whenever the existence of the people is largely based upon animals; and understand that applying LEGS well requires experience and local knowledge;
- Recognize the technical expertise, the understanding of local contexts, and long-term relations with livestock keepers of organizations such as VSF, and their experience in applying LEGS in emergency interventions and strengthening the livelihood and resilience capacity of vulnerable livestock keepers.

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VSF International is a network of 13 non-profit organizations working all over the world to support small-scale farmers and livestock keepers. As a whole, VSF International members are active in more than 30 countries in Africa, Asia and Latin America.