BUILDING CAPACITY FOR THE AGRICULTURE SECTOR'S RESPONSE TO AIDS

A TRAINING MANUAL FOR AGRICULTURE SECTOR WORKERS

MODULE 6

AIDS and the Livestock Sub-Sector

Table of Contents

AIMS

The aims of this module are the following:

1. To develop a general understanding of AIDS as an issue in the livestock sub-sector in that the epidemic is a threat to production of animal products.
2. To identify the challenges posed by HIV to sedentary farming and herding practices.

OBJECTIVES

Upon completing the module, the learner should be able to:

1. Assess the adequacy of livestock sector policy frameworks in responding to AIDS.
2. Describe how pastoralism has been affected by the epidemic in terms of changes in herd size, movements and health.
3. Propose strategies to bring both veterinary and HIV services to pastoralists.
4. Develop programme strategies of peri-urban livestock and micro-farming appropriate for HIV-affected households.
5. Identify how HIV affects veterinary and livestock extension staff and services.

QUESTIONS FOR REFLECTION

1. What is the perception of HIV among senior and extension staff in the livestock sector in the country where you work?
   - If HIV is not perceived as a problem, why is this the case?
   - If the epidemic *is* perceived as an issue in the sector, what policy or programming measures have been taken to respond to challenges?

2. How has the epidemic impacted the livestock sector in your country in terms of:
   - Functioning of veterinary and extension services;
   - Size and productivity of nomadic herds;
   - Growing poverty among pastoralists and/or a tendency to abandon herding;
   - Impacts on sedentary farmers involved in livestock raising and cultivation among.

3. What is known about bovine tuberculosis and other zoonoses capable of infecting humans in the country where you work?
   - What factors favour the transmission of zoonotic diseases to people?
   - What measures are being taken to prevent such transmission?

4. What coping strategies have emerged in the sub-sector to mitigate the impacts of HIV and AIDS on households of pastoralists and sedentary herders? For example:
   - Adoption of different and easier-to-care-for animals?
   - Adoption of micro-agriculture in rural or peri-urban areas?
   - Other coping strategies?

INTRODUCTORY REMARKS

This module provides an overview of the dynamics of the AIDS epidemic in the livestock sub-sector and highlights how the sector can contribute to efforts to respond to the epidemic. The module covers HIV issues among pastoralist and nomadic populations, as well as in cropping-livestock communities. The epidemic poses challenges to rural livelihoods, including herders and livestock-raising households largely due to loss of labour and specialized skills.

In addition to the loss of labour resulting from HIV-related illness and death, household members set aside time to care for the sick and, in the end, this may lead to neglect of farming, herding and off-farm activities. This can subsequently lead to a loss of income. The situation is aggravated in farming and herding systems with labour peaks during certain times of the year. Gender division of labour also means that with the death of a household member, the work previously undertaken by that household member may be neglected and the inter-generational transfer of knowledge and skills may be affected. According to FAO, "women and men of different ages often have different and quite specific knowledge about, and responsibilities for, various aspects of animal husbandry and livestock production. For example, a woman might be responsible for preventing or treating illness in the household's livestock, the man for milking or marketing, boys for grazing or watering, and girls for providing fodder in zero grazing. Should one or more household members die, critical knowledge and skills may be lost along with them."[1]

The epidemic can also lead to increased poverty among affected households. This largely stems from increased medical and funeral costs and decreased income. Households may subsequently deplete savings or sell assets in order to meet HIV-related expenses. Livestock are particularly vulnerable as they are easily sold and thus can generate income for households to cover medical and funeral costs. Land and crops may be less likely to be sold for these expenditures.

AIDS responses in the livestock sub-sector require partnerships among extension and veterinary services, Ministries of Agriculture (or livestock, depending on the country), the health sector and NGOs working in farming and herding communities. The latter are in a position to organize home-based care and support income-generating activities for households affected by AIDS.

[1] FAO. 2006. Planning livestock interventions with a gender and HIV/AIDS lens. Rome. (http://www.fao.org/ag/againfo/resources/documents/livestockaids0606.pdf)

READINGS: AN OVERVIEW OF HIV ISSUES IN THE LIVESTOCK SUB-SECTOR

1. AIDS and the livestock sub-sector

1.1 The importance of the sub-sector

The livestock sub-sector is an important component of the agriculture sector in many developing countries, contributing significantly to agricultural gross domestic product and playing an important role in the economy of many countries (see Box 1). The predominant production systems in sub-Saharan Africa are small-scale, mixed crop-livestock production and livestock-based pastoral systems.

In addition to being an important source of food and protein (e.g. meat, milk and milk products, eggs), livestock also serve other valuable functions, including draught power, manure for improving soil fertility, building material and fuel, as well as by-products, such as hides, skins, wool, feathers and hair.

In terms of draught power for agricultural production, in developing countries "more than half of arable area [is] cultivated with the help of draught animal power". Also, over 50 percent of fertilizer used for crop cultivation in developing countries comes from animal manure.[2] In addition, various kinds of animals have a high socio-cultural value and may be a "sign of status, [and may be used] for ceremonial slaughter at weddings and funerals, and traditional healers [may] use chicken and goats in various rituals[3].

Livestock is important for the livelihoods of people in rural areas and one of the few assets owned by poorer households that may increase in value. Livestock is therefore a source of livelihood security for households and can be a very important resource and source of income for households. A study carried out in Namibia describes the importance of livestock in supporting livelihoods "cattle are sold in informal markets and are generally very important for cash generation"[4]. Small livestock (e.g. sheep, goats and poultry), are particularly important for women in terms of providing income generating opportunities and as an asset. In terms of household food security, meat, dairy, eggs and other livestock products play an important role and ensure good nutrition in HIV-affected households.

Box 1. The role of livestock in Uganda

"Livestock products account for 17 percent of the agricultural gross domestic product (GDP) in Uganda. West and southwest Uganda are currently the richest areas in livestock, with about two head of cattle per household, compared with one per household in the rest of the country. Cattle are the most important type of livestock, in numbers and in value. The national cattle herd, which once numbered between 5 million and 5.5 million, was decimated during the 15 years of civil war and disruption from 1972 to 1987. Mixed-farming smallholders and pastoralists own over 90 percent of the national cattle herd (World Bank, 1993b).

[2] Fresco, L.O. and Steinfeld, H. 1998. A food security perspective to livestock and the environment. *In* A. J. Nell, ed. *Livestock and the environment: proceedings of the International Conference on Livestock and the Environment.* Wageningen International Agricultural Centre. (http://www.fao.org/WAIRDOCS/LEAD/X6131E/X6131E00.HTM)
[3] Engh, I., Stloukal, L., du Guerny, J. 2000. HIV/AIDS in Namibia: The impact on the livestock sector. Rome, FAO. (http://www.fao.org/sd/wpdirect/wpan0046.htm)
[4] Ibid.

Indigenous zebu cattle total some 70 percent of the cattle population, followed by indigenous Sanga (Ankole) with 15 percent and the intermediates - crosses between these two breeds - with 13 percent. Indigenous sheep and goat breeds predominate, as well as indigenous poultry in the traditional sector."

"In Rakai district specifically, approximately 20 percent of the farmers, mostly the richer ones, own some cattle, either Ankole or zebu. Cattle keepers follow the transhumant system: the animals graze and stay in the flat lowlands during the dry season and are driven back to the foothills and common grazing uplands in the wet season, when the lowlands are too wet and often flooded. Cow dung is transported to the fields, particularly to the banana plantations. Villagers also keep goats and occasionally sheep and for some years now small-scale pig rearing has entered the community. Poultry is kept for home consumption to enrich the diet with protein, but it is also sold. Although livestock keeping is not a predominant occupation, the sale of animals and animal products contributes considerably to the generation of extra income for regular and extraordinary expenses, including education and medical care."

(*Source*: Haslwimmer, 1994)

1.2 The role of AIDS in the sub-sector

Though the extent of the impact of AIDS on the livestock sub-sector is not fully understood, it is clear that the epidemic is affecting the sector. Based on the literature, an FAO workshop on HIV and livestock linkages in sub-Saharan Africa reported impacts at household level. For example, "once family savings are exhausted, animals are the main household resource sold to cover medical expenses or funeral costs"[5]. Little, however, is know about changes in livestock production systems and pastoral systems resulting from the impacts of HIV and AIDS. The proceedings report from the workshop outlines some of the AIDS impacts on the sub-sector:

- Herd sizes may shrink as increasing numbers of animals are slaughtered for funerals or are sold to cover medical expenses. This leads to diminished availability of livestock products for consumption or sale.
- Cropping activities may be negatively affected when draught animals are sold and manure supplies diminish.
- Poor management and limited feed supplies for livestock (e.g. due to reduced crop yields), stemming from labour shortages, can negatively affect livestock production.
- Poorly functioning animal husbandry and veterinary services resulting from HIV-related absenteeism means that animal production and health may be undermined.
- Skills and knowledge about livestock management and production may be lost when adults become ill and die before passing on the information on to their children.
- Certain property inheritance systems can mean that household members (in particular women and children) lose livestock if family members grab assets following the death of the spouse or parent. This resultantly threatens household food and livelihood security.

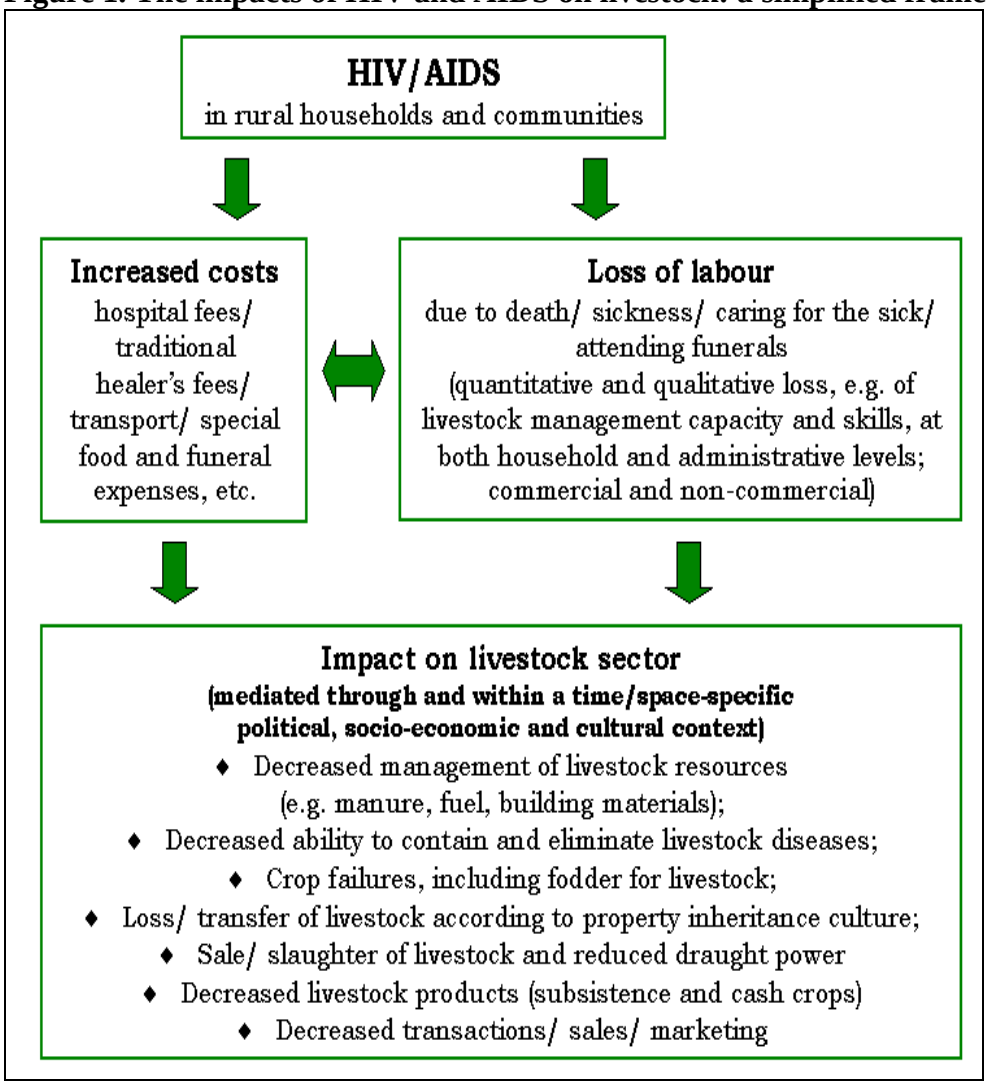
Figure one gives a schematic overview of the impacts of the epidemic on the livestock sub-sector. In addition to the impacts highlighted, another issue is the fact that HIV can impact herd populations and thus diminish available breeding stock. This poses concerns for animal genetic resources (AnGR) in the long term. For example, an FAO study on livestock

[5] FAO. 2005. Linkages between HIV/AIDS and the livestock sector in east and southern Africa, compiled by M.R. Goe and S. Mack. Technical workshop proceedings, Addis Ababa, 8 – 10 March. Rome. (http://www.fao.org/docs/eims/upload/207140/hivlivestocksector.pdf)

production and HIV in sub-Saharan Africa points to the fact that "animals from affected households are likely to be sold to traders and not to other livestock owners who might be more likely to adhere to sound breeding practices. Such sales to traders are likely to result in animals being slaughtered or bred indiscriminately, thereby contributing to the threat of a breed/strain"[6].

Another important impact of AIDS is the loss of specialized knowledge of indigenous practices and medicinal herbs for treating diseases. Also, since the number of veterinary extension workers is limited, AIDS-related mortality among workers can have negative implications for livestock and subsequently the livelihoods of households and communities.

Figure 1. The impacts of HIV and AIDS on livestock: a simplified framework



(*Source*: Engh, Stloukal and du Guerny, 2000)

[6] Goe, M. 2005a. Livestock production and HIV/AIDS in East and Southern Africa. Rome, FAO. (http://www.fao.org/docs/eims/upload/207138/livestockprodhiv.pdf)

2. Vulnerabilities to HIV and its impacts in the sub-sector

2.3 Vulnerabilities of pastoralists

Despite the wide geographic distribution of pastoralist societies in Africa and in Asia, there are few estimates of their numbers and limited information on HIV prevalence among pastoralists. Pastoralists, similar to crop-livestock farmers, are generally categorized with farmers and therefore there is a lack of data specific to them. There are few published papers on the issue of AIDS and livestock, let alone specific to pastoralists, and much of the information is theoretical and conjectural rather than empirical.

Pastoralists tend to be marginalized populations in generally harsh environments and their low status and remoteness often means that they are not included in government programmes and may not benefit from or be able to access services, including health services. Health services are often not found in very remote areas as it is very costly for governments to establish health care in remote and sparsely populated areas. Nomadic populations are difficult to service due to their mobility as well as due to communication and cultural barriers[7].

As livestock are the basis upon which pastoral societies survive, the necessary slaughter or sale of animals by HIV-affected households can further erode household assets and endanger future livelihoods. HIV-related illness or death can also affect the management of herds and can have negative repercussions for animal production. This can create further food and livelihood insecurity and could lead to behaviours that increase vulnerability to HIV exposure.

Cultural traditions can also play a role in pastoralists vulnerability to HIV, similar to vulnerabilities faced by farmers. For example, pastoralists in the Rakai District of Uganda, engage in cultural traditions such as several brothers sharing one wife[8]. This can increase exposure to HIV.

Pastoralists are extremely vulnerable to drought and thus a large part of their time is spent searching for grazing land and watering holes for their herds. Mobility may also stem from pastoralists going to markets to sell livestock products or may be related to labour migration. Mobility of people and herds is fundamental to pastoralists, however, this mobility may lead to situations of increased vulnerability to exposure to HIV.

Because of the strict gender division of labour in pastoralism, when a husband dies, the widow and orphans may face difficulties in taking over traditionally male tasks, particularly where indigenous knowledge and experience play a role. In cases where animals are "grabbed" by relatives, women and children lose an important livelihood source and may be forced to look for alternative livelihood options. In extreme cases when widows or orphans

[7] For HIV these factors complicate access to voluntary counselling and testing, as well as ART for pastoral communities.

[8] Haslwimmer, M. 1994. Is HIV/AIDS a threat to livestock production? The example of Rakai, Uganda. World Animal Review, 80/81(3-4): 92-97. (http://www.fao.org/docrep/t4650t/t4650T17.htm#is%20hivaids%20a%20threat%20to%20livestock%20production%20the%20example%20of%20rakai,%20uganda)

are destitute they may resort to transactional sex or sex work to support their livelihoods and resultantly face increased vulnerability to HIV[9].

2.2 Vulnerabilities of mixed crop-livestock systems

Sedentary farming and livestock raising face somewhat different HIV-related challenges from those affecting nomadic pastoralism. Sedentary farmers are less mobile than pastoralists but animals play an important role in crop production and their loss can lead to food insecurity and poverty:

- The slaughter of animals to cover medical costs or their sale to cover funeral costs can deplete herds and jeopardize food security because animals contribute significantly to household food security.
- Cropping activities can be severely affected due to the sale and slaughter of animals used for draught power or manure.
- Reduced crop yields in turn results in declines in herds due to lack of feed for animals.
- Lack of management skills and knowledge of livestock raising by surviving household members can undermine household livelihood and food security.

Because livestock is a convertible asset, animals are often the first resources to be sold by HIV-affected households facing livelihood and food insecurity and struggling to meet expenses. This is often exacerbated when crop yields are negatively affected by labour shortages or other factors, such as climate change (e.g. during periods of drought, flooding) or when new crops prove to be problematic. Households may respond to these challenges and hardships by members re-locating in search of income sources and alternative livelihood options. Individuals (mostly young men) may, for example, move to fish landing sites for employment, where they may face the risk of exposure to STIs and HIV[10].

3. Impacts of HIV and AIDS on the livestock sub-sector

3.1 Impact on livestock management and production

An immediate impact of death and illness is the loss of labour. For the livestock sub-sector this means a reduction in available labour for livestock production, management and related activities, such as production of crops and fodder. Time spent mourning and attending funerals also undermines available labour for livestock activities and work may be reduced or postponed. For example, a study in Namibia found that in Oshana and Caprivi districts, "mourning time for relatives was reported to range from four to eight days, and for immediate neighbours it is estimated that they sympathize and console the bereaved family for about half the mourning period. The rest of the community has to stop work on the funeral day"[11].

In addition to declines in available household labour (when adults fall ill or die), the remaining household members may lack the skills or capacity to sustain livestock

[9] Men who have lost their livestock may also be destitute and face the same livelihood insecurities that increase vulnerability to HIV exposure.
[10] Kashaija, I. 2007. Understanding biosecurity risks and threats along the Uganda-Tanzania border region. Presentation prepared for the Understanding and Responding to Biosecurity Threats and Risks Workshop, 6-8 June 2007. Rome. (http://km.fao.org/biosecwiki/images/e/e7/Microsoft_PowerPoint_-_IMELDA.pdf)
[11] Engh, I., Stloukal, L., du Guerny, J. 2000. HIV/AIDS in Namibia: The impact on the livestock sector. Rome, FAO. (http://www.fao.org/sd/wpdirect/wpan0046.htm)

management and production as pastoral communities are dependant to a high degree on specialized knowledge, skills and experience as well as collective activities, rather than just networks. Child-headed households or those headed by older people may be most impacted. According to a study in Uganda "the remaining family members often do not have the management skills or knowledge to care for the livestock. This was observed especially where the head of the family, usually the man, had died. The wife and children did not have the time nor the knowledge and financial resources to care adequately for the cattle. The wife often did not have the same access to extension services and other ways of acquiring knowledge as her late husband did"[12].

In addition to reduced labour availability due to HIV, impacts include diminished capacity to make future plans and investments with regard to agricultural and livestock production.

3.2 Impact on herd sizes

HIV can negatively impact herd sizes in pastoral farming as households sell livestock as a coping mechanism. Due to increased medical expenses stemming from HIV-related illness, as well as funeral costs, pastoralists may be forced to sell their animals in order to obtain cash. This has the immediate impact of diminishing herd sizes, and can also have the long-term impact of undermining a future livelihood and food security in pastoralist households.

Box 2. Impacts of HIV and AIDS on livestock herds in Rakai District, Uganda

According to a land utilization survey carried out in Rakai and Masaka in 1991, "over the last four years cattle have decreased by 32 percent, goats by 13 and poultry by 11 percent. The reasons for this [were] a decline in grazing land because of the resurgence of large ranches and the consequent reduction in size of landholdings. Moreover, animals [were] devastated by tick, pest and worm infestations because farmers can no longer afford acaricides and drugs to combat them."

"The decline [however has] been worsened by AIDS, especially for the rich cattle owners, who were among the first AIDS victims. People who fall sick usually sell off their cows to meet the costs of medical care and drugs. One farmer reported that […] five of his children contracted AIDS and eventually died. Cattle had to be sold to take care of them and then to pay for their funerals. Now there is not a single cow in the family. …In another farming household that had owned 15 head of cattle [...] when the parents fell sick, five animals were sold. After the deaths of both parents the children were forced to sell the remaining cattle, one by one, in order to survive."

"Even if cattle are not sold during the sickness or after the death of a household member, the remaining family members often do not have the management skills or knowledge to care for the livestock. […] As a result, numerous cases were found […] where cattle had died soon after the death of the head of family."

(*Source*: Haslwimmer, 1994)

3.3 Impact on crop-livestock farming households

Livestock may be kept by both mixed-farm smallholders and pastoralists. In Rakai district, Uganda, for example, farmers grow a range of crops for household consumption, as well as for commercial purposes. Several farmers also own some cattle, as well as goats and some sheep. Poultry is kept by some households for consumption and sale, and some households

[12] Haslwimmer, 1994.

are involved in pig rearing as an income generating activity. [13] Though livestock keeping is not the predominant activity for mixed crop-livestock households, the sale of animals and animal products contributes to household income and can support households in meeting expenses, including education and medical care.

Reduced labour due to HIV can, however, negatively impact livestock activities in crop-livestock households. In response, some households may shift to less labour intensive animals, however, studies have shown that even the keeping of small livestock faces challenges due to HIV. For example, the study in Rakai, Uganda found that many plantations and fields were becoming bush as labour declines meant that they were not property taken care of. As a result, the number of wild cats (a predator of chickens) in the area increased, posing a threat to households that keep this animal.[14] The has had the resultant impact of undermining this source of household food and income.

The following text illustrates how HIV and AIDS can upset the balance between herding and farming, with a negative effect on household food security and income.

Box 3. AIDS in a crop-livestock community: The story of Joseph and his family

"Joseph, aged 35, and his wife Vincentia, 33, had four girls and one boy. The current ages of these children are 4 to 12. Joseph had married a second wife who left him when he became sick in 1989. Prior to his illness and death, farm work was mainly done by his first wife.

Joseph was a farmer and a successful petty consumer goods trader in a fishing village, about ten miles away from his home village. He had approximately one acre of land, where he had his new house and banana plantation. The family used to borrow land and plant cassava, sweet potatoes and groundnuts. They owned five cows and it was Joseph's responsibility to transfer the cow dung from the cattle kraal to the banana plantation to maintain soil fertility. Joseph's plans were to buy and cultivate more land.

However, these plans were abandoned when Joseph started having multiple illnesses in 1989 and was bedridden for several months in 1991. During this time, his wife had to abandon the field she had ploughed for groundnuts so as to be able to look after her sick husband. Joseph was no longer able to transport the cow dung. Therefore the yield of the banana plantation started slowly to decline because of lost fertility. Joseph finally died of AIDS in 1991.

In June 1992, Vincentia fell seriously ill and was bedridden for three months. During her sickness the banana plantation and cassava/sweet potato fields gradually turned from weeds to bush. By the time of her death in October 1992, all fields and the plantation were covered and the children had to eat the leftover cassava and sweet potatoes. Nobody cared for the cows and when they became sick, there was no money to buy drugs. All the cattle died.

Currently, Joseph's 27-year-old brother is trying to reclaim the former banana plantation from the bush and weeds. He has also started to keep pigs and chickens on his late brother's land. He also would like to keep cattle, but lacks the capital to start. Joseph's two eldest children are staying with him, while the three younger ones are cared for by their maternal grandmother, who is herself of advanced age and suffers ill health."

(*Source*: Haslwimmer, 1994)

[13] Poultry keeping and pig rearing have increased, particularly among HIV-affected households, as a coping mechanism against the impacts of HIV. Both animals are not very labour demanding (see Haslwimmer, 1994).
[14] Haslwimmer, 1994.

3.4 Impact on livestock and veterinary services

Pastoralists and farmer-herders are not the only groups affected by HIV in the livestock sub-sector. The staff of livestock and veterinary services are also vulnerable to infection[15], mainly because of their mobility and access to personal resources that could be used for sexual networking[16]. Livestock extensionists and veterinarians may spend considerable time away from their homes and may engage in transactional sex during their journeys among pastoralist and crop-livestock communities. HIV-related illness and mortality can undermine the capacity of extension and veterinary services, thus negatively affecting livestock production in affected areas.

The effectiveness of extension and veterinary services is further compromised by high HIV-related mortality in livestock-raising communities. For example, a study in Namibia found that extension staff spend an estimated 10 percent of their time attending funerals[17]. If a meeting between extensionists and farmers or herders should coincide with a funeral, the meeting has to be re-scheduled. If there are several deaths a month, particularly in highly-affected communities, such meetings can be difficult to organize.

3.5 An emerging risk: zoonoses and people living with HIV (PLHIV)

Tuberculosis (TB) is one of the most common secondary infections associated with HIV and is widespread in developing countries. There are different strains of TB and *Mycobacterium bovis* (bovine TB) is one of them. Research on the linkages between zoonoses and HIV remains largely unexplored, and little research exists on the threat of bovine TB to people in general and PLHIV in particular. Nevertheless, since bovine TB can be transmitted through the air from person to person (causing lung infection), as well as from infected livestock to people, it poses a potential problem for people with weakened immune systems, such as PLHIV involved in livestock raising.

Bovine TB can be transmitted to humans by drinking unpasteurized cow or goat milk. Another possible route of infection is by eating infected organs of slaughtered animals. Since bovine TB can also spread through the air, cattle herders may face high risks of infection through airborne transmission from cow to human.[18] Due to the important role of cattle in many countries (particularly in sub-Saharan Africa), both for food and in cultural practices, there are many situations in which people could be vulnerable to bovine TB transmission. For example, "some traditional ceremonial events involve the slaughter of a goat or cow. It is this close cultural and physical link with cattle that puts rural communities at risk of infection."[19]

Poverty, poor nutrition and unhygienic living conditions are some of the factors favoring the spread of TB. Therefore, improving the living conditions of pastoralists and mixed crop-livestock herders is an important goal for the development sector in general, and the agriculture sector in particular, in order to curb the spread of TB in rural areas. These efforts

[15] Unfortunately, data are not available about HIV prevalence or mortality among livestock extension workers.
[16] Haslwimmer, 1994.
[17] Engh, Stloukal and du Guerny, 2000.
[18] Bolognesi, N. 2007. TB or not TB: The Threat of Bovine Tuberculosis. SciDevNet – Science and Development Network (accessed 10 August 2009). (http://www.scidev.net/en/features/tb-or-not-tb-the-threat-of-bovine-tuberculosis.html)
[19] Ibid.

must link with those to detect and eliminate bovine TB among animals[20], which is an important role of veterinary services. It is also important to increase awareness about the importance of having animals tested in order to reduce risk of spread from cattle to people.

4. Coping mechanisms in livestock keeping communities

4.1 Community cooperation

Several strategies have been developed by communities and households as they adapt and cope with the impacts of HIV and AIDS. Coping strategies that have shown to be effective have the potential to further mitigate impacts beyond individual households and communities. Such strategies should be documented and shared so that they can me adopted by other households and communities as appropriate. This process can be facilitated by awareness raising initiatives in communities, as well as through extension services in affected areas.

An important element of coping strategies of households and communities is the formation of groups and cooperation among households. In Rakai district, Uganda, for example, "some self-help groups have been formed spontaneously and some under the aegis of a non-governmental organization. The members pool their knowledge and give each other confidence and support in undertaking on-farm as well as off-farm income-generating activities."[21] In the same district it was found that in particular, widows and youths were very willing to engage in group activities.

Some potential coping strategies include:

- Pooling labour for driving herds
- Transferring of labour and livestock to assist households in difficulty
- Collective management of water points and rangeland, including networks to collect and exchange information on rainfall and pasture conditions
- Group marketing by households/communities

4.2 Changing of stock and management style

In response to HIV-related labour declines, households may adapt their livestock activities by changing to smaller and less labour intensive animals. In Rakai, for example, several farmers have switched to poultry keeping. A study in the district found that "poultry keeping has increased in AIDS-afflicted households, especially those with orphans [with] chickens and eggs […] usually not kept for home consumption, but […] sold to raise some income."[22]

Some households also switch to pig rearing as an income-generating activity. Similar to poultry, pigs demand less labour input and therefore are more suitable for HIV-affected households facing reduced available household labour. Beekeeping is another possible income-generating activity requiring low labour input.

[20] In some areas cattle are tested for infection and infected cattle are then slaughtered, with farmers usually receiving compensation.
[21] Haslwimmer, 1994.
[22] Ibid.

LEARNING REINFORCEMENT ACTIVITIES

Activity 1: Incorporating AIDS responses in projects in the livestock sub-sector

1. Examine some recent activities or projects in the livestock sector of the country where you work:

   a) How has HIV affected the herders or the mixed crop farmer-livestock raisers in the area?
   b) Do the livestock activities and projects have an HIV component? If so, please describe.
   c) If not, how could they have been designed differently to be more HIV-sensitive?
   d) How could these activities or projects be more sustainable or effective with a concern for HIV?

2. Think of a district or community you know well. How have livestock and health policies and practices had an impact on the following forms of capital, in context of HIV?

   a) Human capital (reducing HIV vulnerabilities of individuals, households and communities and mitigating impacts, education and training, etc.);
   b) Social capital (networks and community groups, HIV support groups, etc.,);
   c) Physical capital (homestead, land, productive resources; protection of widows and orphans from asset "grabbling"; etc.);
   d) Other types of capital.

3. If there have been no organized activities or policies to reduce vulnerabilities or mitigate impacts of HIV among households and communities, what measures would you recommend?

Write down your answers on paper. If in a group, prepare a flip-chart page to present your observations to the group.

Activity 2: Designing a livestock and gardening project for HIV-affected households in urban or peri-urban areas

You are asked to design a project to help ensure household food security among HIV-affected households in urban or peri-urban areas. Remember that some households will be headed by women, the elderly or children. Many such households will have more than one sick adult requiring care, meaning that there will be time and labour constraints for productive activities.

Read the text about urban livestock and micro-farming in Annex 1. Identify a city or a large town that you know well. If possible, draw a map of it, showing the following:

- Areas where large animals like cattle could be raised and areas where small stock such as goats, pigs and chickens could be raised. Estimate the square metres required.
- Areas where vegetables, flowers or tree crops could be cultivated. Estimate the approximate square metres required.

Planning the project:

1. Identify what animals will be raised and what crops planted, as appropriate to the area you have chosen and the available labour.

2. Which authorities, including municipalities or private landlords, need to donate or give access to plots of land for a minimum number of years or growing seasons?

3. What requirements will there be for water, animal pens, tools, tool and feed sheds, fencing and security? How will dung be used as a fertiliser? How will hygiene be maintained if dwellings are close by?

Managed the project:

1. Will the project operate as a cooperative?

2. Identify an appropriate NGO, school or other partner that can manage financial resources and logistics.

3. Briefly describe how project beneficiaries will be sensitised and trained to care for the livestock and crops.

4. Describe the type of veterinary and extension services that will be provided and by whom.

5. Discuss how the project will provide food and/or income for HIV-affected households.

6. State how medical and home-based care could be provided for PLHIV (the role of the health sector or specialised NGOs).

Funding and sustainability:

1. Detail an approximate budget for the project. 1. How could the project be funded? Discuss different funding options.

2. Could the project become self-sustaining? How?

3. What risk factors (including HIV, pesticides or zoonoses) should be considered?

Write down your answers on paper. If in a group, prepare a flip-chart page to present your observations to the group.

Activity 3: Assessing the need for veterinary and HIV-related services for pastoralists

Think of a district or community that you know where there is a significant pastoralist population. As far as you know, what is the HIV prevalence in this area?

Mapping exercise:

1. Using a sheet of paper or a flip chart page, identify patterns of mobility and grazing:

a) Sketch the "corridors" of herd movements. Identify any international boundaries that are crossed.
b) Locate areas where herds eat stubble in fields after harvests or congregate at salt licks.
c) Locate towns or rural markets where animals are bought and sold. Mention seasons when the livestock markets are active.

2. What are the vulnerabilities to HIV infection – e.g. the presence of a transportation hub, migrant labour and sex workers in the market towns or areas where pastoralists congregate?

3. What cultural practices among the herders increase vulnerability to HIV – e.g. "widow cleansing" or sharing wives?

Identifying human and livestock health services:

1. Mark the veterinary and livestock extension services on your map. Is there testing for bovine TB? (You may need to find this information from other documentation).

2. Mark clinics and health centres on your map. Circle the towns that have both livestock and human health services. (You may need to find this information from other documentation).

3. List the NGOs working on livestock and human health in the area and indicate on the map where they are based and/or the communities in which they work.

Proposing HIV and zoonosis-control services to pastoralists:

1. Make a list of veterinary and HIV-related services (including VCT and ART) that would be appropriate in the locations where livestock and human health services exist. If you find that there is a veterinary centre in the livestock corridor but not a human health-care centre, note this on a list of needs.

2. Note the seasons when human and animal services may be needed more, as a mobile or temporary health service might be required for a specific season when pastoralists and their herds congregate around salt licks, seasonal pastures or market towns.

If participating in a workshop, prepare flip chart pages or a PowerPoint presentation and present it to the group for discussion.

Activity 4: Developing alternative sources of income and food for rural farming-livestock households affected by HIV

Think of an HIV-affected district or community you know well, where farming households have lost much or all of their large livestock:

1. Make a list of alternative animals that could be raised that require less labour or specialized skills.

2. Make a list of possible income-generating activities for farming-livestock households, in particular households affected by HIV.

3. How can the animals support crop production or vice versa (e.g. manure for the crops; crop debris or cultivated fodder for the animals)?

4. Which organizations could provide baby animals or funds to buy adult animals?

5. How could veterinary and extension services support the strategy?

Write down your answers on paper. If in a group, prepare a flip-chart page to present your observations to the group.

SUMMARY REMARKS AND LESSONS LEARNED

Players in the livestock sub-sector:

- Producers: nomadic pastoralists, sedentary herders, ranchers, zero grazers and small-scale producers.
- Herders: veterinary officers, livestock rangers, disease and pest surveillance teams and auxiliary service providers.

The livestock sector faces a number of factors that can increase HIV vulnerability:

- Pastoralists are mobile and have become even more so due to climate change and drought and flooding.
- Herders often migrate to urban areas for seasonal work, in order to earn additional income.
- Zoonoses are a small but potentially important risk factor for contracting secondary infections among PLHIV.
- Poverty and unhygienic conditions weaken resistance to HIV and opportunistic infections, such as TB.
- There is a high prevalence of STIs among pastoral communities and a general lack of knowledge about HIV and other health concerns.

HIV issues in the livestock sub-sector:

- Because AIDS reduces the available labour in the household, there is lower productivity of animals and crops.
- Livestock are fungible assets and are often sold to pay for medical services and medicine or slaughtered for funerals. The depletion of household livestock upsets the balance between herding and agriculture by reducing the supply of manure and draught animals. Resultant deepening poverty can lead to household members seeking cash employment elsewhere.
- As a result if lower productivity and the sale or slaughter of animals, there is diminished food security at the household and community levels.
- There is an inter-generational loss of livestock management skills due to HIV-related mortality. The gender division of labour in this sector adds another dimension to this issue. For example, if a man dies, his widow may lack the skills to take over his role in animal husbandry.
- Due to their mobility and income, staff of extension and veterinary services may engage in risky behaviour that increases their vulnerability to HV exposure.
- Animal husbandry and veterinary services may not function properly as staff members may be absent due to HIV-related reasons.
- The large number of funerals and extended periods of mourning in herding communities makes it difficult for veterinary and extension services to meet with the herders.

Lessons learned[23]

1. Lack of awareness of HIV issues in the livestock sector needs to be addressed. This can be achieved through training programmes and awareness raising programmes – for example, general training for politicians and departmental heads on HIV issues in the sub-sector.

2. Extension services should be used to address HIV concerns in communities. Education programmes could also be used to sensitize communities about HIV vulnerabilities and impacts of the epidemic on the livestock sector.

3. Organizations working in the livestock sector need to consider certain measures to mitigate HIV impacts. For example, labour-saving strategies should be developed and promoted (with the active participation of rural communities) through extension services, research institutions and NGOs.

4. Further research needs to be conducted on HIV in the livestock sub-sector in order to have a better understanding of issues and to guide responses.

5. Alternative livestock keeping options, as well as income-generating opportunities should be promoted among HIV-affected households and communities so that they can better cope with the impacts of the epidemic. This is particularly relevant for widow and child-headed households.

[23] This section is largely extracted from Haslwimmer, 1994.

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
AnGR	Animal genetic resources
ART	Antiretroviral therapy
ARV	Antiretroviral [medicines]
FAO	Food and Agriculture Organization of the United Nations
GTZ	Gesellschaft für Technische Zusammenarbeit
HIV	Human immunodeficiency virus
NGO	Non-governmental organization
PLHIV	People living with HIV
STI	Sexually transmitted infection
TB	Tuberculosis
VCT	Voluntary counselling and testing

REFERENCES AND FURTHER READING

FAO HIV and livestock references

- FAO. 2004. HIV infections and zoonoses, by P. Pasquali. Rome. (ftp://ftp.fao.org/docrep/fao/007/y5516e/y5516e00.pdf)
  FAO. 2007. Infections au VIH et zoonoses, by P. Pasquali. Rome. (ftp://ftp.fao.org/docrep/fao/010/y5516f/y5516f00.pdf)
- FAO. 2005. SEAGA livestock guide: Planning with a gender and HIV/AIDS lens. Rome (http://www.fao.org/sd/dim_pe1/docs/pe1_050901d1_en.pdf)
- FAO. 2005. Linkages between HIV/AIDS and the livestock sector in East and Southern Africa. Technical workshop report, Addis Ababa, 8-10 march 2005. Rome. (http://193.43.36.103/AG/AGAInfo/resources/documents/hivlivestocksector.pdf)
- FAO. 2005. *Linkages between HIV/AIDS and the livestock sector in east and southern Africa*, compiled by M.R. Goe and S. Mack. Technical workshop proceedings, Addis Ababa, 8 – 10 March. Rome. (http://www.fao.org/docs/eims/upload/207140/hivlivestocksector.pdf)
- FAO. 2006. Planning livestock interventions with a gender and HIV/AIDS lens. Rome. (http://193.43.36.103/AG/AGAInfo/resources/documents/livestockaids0606.pdf)
  FAO. 2006. La planification dans une perspective sensible au genre et aux questions liées au VIH/Sida. Rome. (http://193.43.36.103/AG/AGAInfo/resources/documents/livestockaids0606_fr.pdf)
- FAO. HIV/AIDS extension factsheets – HIV/AIDS and the livestock sector (ftp://ftp.fao.org/docrep/fao/007/ae502e/ae502e07.pdf)

Barnett, T. and Haslwimmer, M. 1995. The effects of HIV/AIDS on farming systems in eastern Africa. Rome, FAO. (http://www.fao.org/docrep/v4710e/v4710e00.htm)

Bolognesi, N. 2007. TB or not TB: The Threat of Bovine Tuberculosis. *SciDevNet – Science and Development Network* (accessed 10 August 2009). (http://www.scidev.net/en/features/tb-or-not-tb-the-threat-of-bovine-tuberculosis.html)

Cosivi, O., Grange, J.M., Daborn, C.J., Raviglione, M.C., Fujikura, T., Cousins, D., Robinson, R.A., Huchzermeyer, H.F.A.K., de Kantor, I. and Meslin, F.X. 1998. Zoonotic tuberculosis due to *Mycobacterium bovis* in developing countries. *Emerging Infectious Diseases*, 4(1). (http://www.cdc.gov/ncidod/eid/vol4no1/cosivi.htm)

Engh, I., Stloukal, L., du Guerny, J. 2000. HIV/AIDS in Namibia: The impact on the livestock sector. Rome, FAO. (http://www.fao.org/sd/wpdirect/wpan0046.htm)

Fresco, L.O. and Steinfeld, H. 1998. A food security perspective to livestock and the environment. *In* A. J. Nell, ed. *Livestock and the environment: proceedings of the International Conference on Livestock and the Environment.* Wageningen International Agricultural Centre. (http://www.fao.org/WAIRDOCS/LEAD/X6131E/X6131E00.HTM)

Goe, M. 2005a. Livestock production and HIV/AIDS in East and Southern Africa. Rome, FAO. (http://www.fao.org/docs/eims/upload/207138/livestockprodhiv.pdf)

Goe, M. 2005b. *The role of livestock in mitigating the effects of HIV/AIDS: poor health, food insecurity and poverty - how to break the vicious circle?* Symposium on the occasion of World Food Day, 13 October 2005. Bern, Switzerland. (http://www.infoagrar.ch/symposium2005/pdf/presentation_goe.pdf)

Haslwimmer, M. 1994. Is HIV/AIDS a threat to livestock production? The example of Rakai, Uganda. *World Animal Review*, 80/81(3-4): 92-97. (http://www.fao.org/docrep/t4650t/t4650T17.htm#is%20hivaids%20a%20threat%20to%20livestock%20production%20the%20example%20of%20rakai,%20uganda)

Hunter, S., Bulirwa, E. and Kisseka, E. 1993. AIDS and agricultural production: report of a land utilization survey, Masaka and Rakai Districts of Uganda. *Land use policy.* 10(3): 241-258.

Kashaija, I. 2007. *Understanding biosecurity risks and threats along the Uganda-Tanzania border region*. Presentation at the Understanding and Responding to Biosecurity Threats and Risks Workshop, 6-8 June 2007. Rome. (http://km.fao.org/biosecwiki/images/e/e7/Microsoft_PowerPoint_-_IMELDA.pdf)

Morton, J. 2006. Conceptualising the links between HIV/AIDS and pastoralist livelihoods. *The European Journal of Development Research*, 18(2): 235–254.

Morton, J. and Meadows, N. 2000. *Pastoralism and sustainable livelihoods: an emerging agenda*. NRI Policy Series 11. Kent, UK, Natural Resources Institute. (http://www.nri.org/publications/policyseries/PolicySeriesNo11.pdf)

Onyatta, J.O. 2005. *Urban agriculture surveys by NCST in Kenya National Council for Science and Technology*. Paper presented at the Workshop on urban micro-farming and HIV/AIDS, 15-26 August 2005. Johannesburg/Cape Town, South Africa.

Prain, G. and de Zeeuw, H. 2007. Enhancing technical, organisational and institutional innovation in urban agriculture. (http://www.future-agricultures.org/farmerfirst/files/Add_Prain_de_Zeeuw.pdf)

Rege J.E.O., ed. 1999. Economic valuation of animal genetic resources. Proceedings of an FAO/ILRI Workshop, Rome, Italy, 15–17 March 1999. Nairobi, International Livestock Research Institute. (http://agtr.ilri.cgiar.org/library/docs/EconValu/Contents.htm#Table%20of%20Contents)

Tipilda, A. and Kristjanson, P. 2009. *Women and livestock development: A review of the literature*. International Livestock Research Institute (ILRI) Innovation Works Discussion Paper. Nairobi, ILRI.

World Bank. 1993**.** *Uganda.* Agricultural Sector Memorandum Vol. II. Washington.

ANNEX 1 – Urban livestock and micro-agriculture

A. "Enhancing technical, organizational and institutional innovation in urban agriculture"[24]

Key challenges for technical innovation in urban livestock systems:

- *"Diversification and adaptation to space constraints*: In the urban setting more attention is needed for technology development regarding small and micro livestock (including guinea pigs, grass cutters, earthworms, snails, fish in small ponds and containers, and rearing young stock) as well as zero grazing dairy units and the inter-relations between urban crop and livestock production."

- *"Enhanced access to feed:* In the urban context access to forage and other feed sources, and their efficient use in livestock nutrition, are important issues for technical innovation. Since forage is often scarce in urban and periurban areas, three responses are common: (a) forage is brought (e.g. Napier grass, fodder legumes, Para grass) from periurban areas into the city for use by livestock keepers in the sub- and intra-urban areas (e.g. in Hyderabad). In this case, frequent problems occur in relation to transport issues and the lack of space for forage markets; (b) more intensive use is made of concentrates to feed the animals (at high cost); (c) large amounts of food residues are collected from restaurants, markets, agro-industries and urban households for the preparation of animal feed. The third option in particular should be given more attention."

- *"Reduction of zoonosis risks:* The increased risk of transferring diseases from animals to humans in urban areas needs to be reduced by working with producers on the adequate management of animal diseases and wastes, preventing scavenging, and maintaining adequate slaughtering procedures, among other issues."

B. "Urban agriculture surveys by NCST in Kenya National Council for Science and Technology"[25]

"In Kenya, farming in cities and towns is increasingly gaining significance. A large amount of food is produced in and around urban areas but this is not properly planned or regulated due to lack of policy on urban and peri-urban agriculture (UPA) (Onyatta and Omoto, 2004). A study carried by Lee-Smith indicated that almost two thirds of urban households grow part of their food, while 29% grew these crops within the urban area in which they live (Lee-Smith et.al., 1987). Due to rapid urbanization and increasing poverty, aggravated by the HIV-AIDS epidemic, urban households are turning to urban and peri-urban agriculture as important means of providing food and income. Farming is conducted in all kinds of open public places, namely; along riverbanks, roads railway lines, under power lines and on reclaimed wetlands. Kales, tomatoes, cabbages and spinach were widely grown crops by farmers in Nairobi through irrigation. Urban livestock farmers in Nairobi preferred poultry followed by goats and then cattle (Ishani et al., 2002)."

[24] Extracted from: Prain, G. and de Zeeuw, H. 2007. Enhancing technical, organisational and institutional innovation in urban agriculture. (http://www.future-agricultures.org/farmerfirst/files/Add_Prain_de_Zeeuw.pdf)
[25] Extracted from: Onyatta, J.O. 2005. Urban agriculture surveys by NCST in Kenya National Council for Science and Technology. Paper presented at the Workshop on urban micro-farming and HIV/AIDS, 15-26 August 2005. Johannesburg/Cape Town, South Africa.

"Livestock farming in Mombasa included poultry, ostrich, quails, dairy cattle and crocodile. Poultry farming is widespread because it has a ready market in hotels and restaurants. In case of dairy farmers, cases of pesticide residues in milk were reported in 1997 indicating a possibility of pesticide use in the urban farming systems. There were cases of intensive use of available backyards where livestock (especially diary cattle or goat) was kept and on one side of the backyard, vegetables were grown. The animals were a source of manure for the crops. The raw milk market witnessed in the urban areas provides a number of poor consumers with affordable nutrition, which would decline if it were not available."