Veterinary Services in the Horn of Africa
Where Are We Now?

A review of animal health policies and institutions focussing in pastoral areas

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EXECUTIVE SUMMARY

This report is based on a study of public and private sector veterinary provision, including Community-based Animal Health (CAH), in the Greater Horn of Africa (GHA). Study findings were to inform possibilities for policy and legislative tasks to be supported by CAPE. Findings show that all governments in the GHA are making distinctions between public and private sector provision; all are involved in devolutionary processes; all are concerned to increase livestock exports, and all are under pressure to reduce poverty. Findings also show that specific country histories have shaped different national responses to global trends and internal pressures, with public sector provision predominant in some countries (e.g. Eritrea) while NGO and UN provision is predominant in other regions (e.g. South Sudan). The countries in the study offer variants on these two patterns.

Findings also show that governments have historically regarded livestock as being secondary to crops. This has been reflected in government animal resources’ and veterinary services’ departments having a low status relative to departments concerned with crop production. In some countries this appears to be changing in association with efforts to increase export earnings from livestock and livestock products. Although herds held in pastoral areas are a significant national resource, this is not reflected in the status of pastoralists who have been and continue to be marginalised. In some countries pastoral interests are now beginning to receive attention within the context of poverty reduction strategies.

All governments share a concern to see more animal health providers operating in pastoral areas, in order to deliver more effective services, leading to improved national levels of animal health. In most countries, NGOs took the lead in the 1980s and 90s to provide services to pastoralists by training CAHWs. Progress is being made in standardising approaches to the selection and training of CAHWs among NGOs and between NGOs and government, although professional veterinary bodies have exhibited and continue to exhibit considerable antipathy towards CAH. Issues needing further work and where CAPE could assist include developing curricula and promoting research that are more relevant to CAH in pastoral areas; developing sustainable supervision mechanisms for CAHWs; increasing the availability of quantitative evidence of CAH impact; economic modelling of the viability of private practice in pastoral areas.

Managed privatisation programmes have been modelled on public sector service delivery, and have made fairly halting progress. CAPE needs to work with a variety of veterinary institutions to develop and test out alternative models of practice in different agro-ecological and socio-economic environments, and to create a more supportive environment for private practice. This might include lobbying for further policy and legislative change; providing more support to AHAs, and their representative bodies; assessing the possibilities for and testing out incentives to encourage private practice in less attractive areas.

Pastoral communities have historically had a low priority in the development plans of governments which have often been mainly concerned to promote sedentarisation. Current PRSP processes and commitments to the Millennium Development Goals (MDGs), present new opportunities to support pastoral livelihoods. CAPE could assist livestock departments to make inputs into the PRSP process so that livestock and pastoral interests are adequately represented.
Acknowledgements

This review report and the fieldwork on which it is based could not have been undertaken without the support and involvement of many individuals and institutions. These include staff in the CAPE Unit at AU/IBAR in Nairobi and government officials and staff, the representatives of professional bodies and other individuals and agencies in Eritrea, Ethiopia, Kenya, Sudan, Tanzania and Uganda. They gave unstintingly of their time to answer our many questions, dug out documents on request, arranged appointments for us at short notice and disregarded public holidays in order to meet us. We thank them all.

In the course of distilling an enormous amount of detail on several countries, we have certainly made errors of fact and interpretation. We thank those who commented on the draft report and hope that this final version will assist us all to improve the services available to pastoral peoples.
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AHA</td>
<td>Animal Health Assistant</td>
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<tr>
<td>AHITI</td>
<td>Animal Health and Industry Training Institute</td>
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<td>AHT</td>
<td>Animal Health Technician</td>
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<tr>
<td>AI</td>
<td>Artificial Insemination</td>
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<tr>
<td>ASAL</td>
<td>Arid and Semi-Arid Lands (Kenya)</td>
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<tr>
<td>AU/IBAR</td>
<td>African Union’s Interamerican Bureau of Animal Resources(^1)</td>
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<tr>
<td>BVM</td>
<td>Bachelor of Veterinary Medicine</td>
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<tr>
<td>CAH</td>
<td>Community-based Animal Health</td>
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<tr>
<td>CAHW</td>
<td>Community-based Animal Health Worker</td>
</tr>
<tr>
<td>CAPE</td>
<td>Community-based Animal Health and Epidemiology Unit, PACE</td>
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<tr>
<td>CBPP</td>
<td>Contagious bovine pleuro pneumonia</td>
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<tr>
<td>DALDO</td>
<td>District Agricultural and Livestock Development Officer (Tanzania)</td>
</tr>
<tr>
<td>DFID</td>
<td>Department for International Development</td>
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<tr>
<td>DVO</td>
<td>District Veterinary Officer</td>
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<tr>
<td>DVS</td>
<td>Director(ate) of Veterinary Services</td>
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<tr>
<td>EAC</td>
<td>East African Community</td>
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<tr>
<td>EPLF</td>
<td>Eritrean People’s Liberation Front</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>EVA</td>
<td>Ethiopian Veterinary Association</td>
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<tr>
<td>FAO</td>
<td>Food and Agriculture Organisation of the UN</td>
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<td>FMD</td>
<td>Foot and mouth disease</td>
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<td>FVM</td>
<td>Faculty of Veterinary Medicine</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GHA</td>
<td>Greater Horn of Africa</td>
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<td>GTZ</td>
<td>German Development Organisation</td>
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<td>IGAD</td>
<td>Inter-Governmental Authority on Development</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<tr>
<td>ITDG</td>
<td>Intermediate Technology Development Group</td>
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<tr>
<td>KMC</td>
<td>Kenya Marketing Corporation</td>
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<tr>
<td>KVA</td>
<td>Kenyan Veterinary Association</td>
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<td>KVAPS</td>
<td>Kenyan Veterinary Association Privatisation Scheme</td>
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<td>KVB</td>
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<tr>
<td>LDF</td>
<td>Livestock Development Fund (Tanzania)</td>
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<td>LSP</td>
<td>Livestock Services Project (Uganda)</td>
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<tr>
<td>MAAIF</td>
<td>Ministry of Agriculture, Animal Industries and Fisheries (Uganda)</td>
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<tr>
<td>MoAR</td>
<td>Ministry of Animal Resources (Sudan)</td>
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<tr>
<td>NALERP</td>
<td>National Agriculture and Livestock Extension Rehabilitation Project (Tanzania)</td>
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<tr>
<td>NGO</td>
<td>Non Governmental Organisation</td>
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<tr>
<td>PACE</td>
<td>Pan African Programme for the Control of Epizootics</td>
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<tr>
<td>PARC</td>
<td>Pan African Rinderpest Campaign</td>
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<tr>
<td>PEAP</td>
<td>Poverty Eradication Action Plan (Uganda)</td>
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<tr>
<td>PMA</td>
<td>Plan for the Modernisation of Agriculture (Uganda)</td>
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<tr>
<td>PRSP</td>
<td>Poverty Reduction Strategy Paper</td>
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<tr>
<td>SCF-UK</td>
<td>Save the Children Fund UK</td>
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<tr>
<td>SPLM/A</td>
<td>Sudan People’s Liberation Movement/Army</td>
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<tr>
<td>SPS</td>
<td>Sanitary and Phytosanitary Agreement of the WTO</td>
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<td>SRA</td>
<td>Sudan Relief and Rehabilitation Association</td>
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<tr>
<td>SVA</td>
<td>Sudan Veterinary Association</td>
</tr>
<tr>
<td>SWOC</td>
<td>Strengths, Weaknesses, Opportunities, Challenges</td>
</tr>
<tr>
<td>T&amp;V</td>
<td>Training and Visit</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>UVA</td>
<td>Ugandan Veterinary Association</td>
</tr>
<tr>
<td>VA</td>
<td>Veterinary Assistant</td>
</tr>
<tr>
<td>VO</td>
<td>Veterinary Officer</td>
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<tr>
<td>VPPO</td>
<td>Veterinary Privatization Promotion Office (Ethiopia)</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
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\(^1\) Formerly the Organization of African Unity/Interamerican Bureau for Animal Resources (OAU/IBAR)
I. Introduction

1. Purpose and structure of the report

The purpose of this report is to provide preliminary findings and key conclusions and recommendations from a review of institutions and policies affecting veterinary services in six countries in the Greater Horn of Africa (Eritrea, Ethiopia, Kenya, Sudan, Tanzania and Uganda). The review was carried out by a team of a social scientist and veterinary surgeon, and involved a review of literature and interviews with senior staff in livestock agencies in each of the countries in the study.

The review focuses on institutional and policy reform measures that aim to create an enabling environment for veterinary privatisation and community-based delivery systems. In this respect it is informed by the theories of New Institutional Economics and is essentially asking the question: To what extent are the countries of the Greater Horn using policy and legislative reform to create a level playing field for the delivery of animal health care to poorer livestock-owners and specifically to pastoralists?

Briefly, the main objectives of the review were to:

- describe key policies and events that during the last 50 years or so have shaped the design, application, institutionalisation and scaling up of participatory processes and approaches for community-based veterinary services, and veterinary privatisation. Issues relating to remote pastoral areas were to be highlighted.

- describe the current situation with regards to policy and legislative change to support community-based animal health delivery systems in pastoral areas. This task should include descriptions of the current commitment of government to community-based animal health delivery systems, CAHW recognition and veterinary privatisation and consider animal health policies in relation to national macroeconomic, poverty alleviation, rural development or pastoral development policies.

- make recommendations for further policy and legislative tasks to be supported by the CAPE Unit. To include recommendations for improving regional coordination and cross-country learning, including an assessment of the potential role of interdisciplinary and inter-organisational Local, National and Regional Learning Groups comprising key agency staff, academics, development practitioners, civil society representatives and donors.

This report has the following structure. This introductory chapter provides a working definition of pastoralism and some examples of the different ways in which ‘community-based animal health worker’ has been defined. The following chapter contains the individual country reports. These have been ordered as Kenya, Tanzania, Uganda which have common elements due to their similar colonial experiences and history of cooperation (currently within the framework of the East African Community (EAC)). They are followed by Ethiopia, Eritrea and Sudan which have some similarities to one another, if not to the same extent as the first group, and a different pattern of development from the members of the East African Community. To ease comparison, each country report has the same structure: (i) the history of public sector provision, (ii) community based delivery systems, (iii) privatisation, (iv) current policy and legislation and (v) the broader social and economic events which have shaped livestock development and veterinary services. Key points are listed at the end of each country review. The chapter on Sudan concludes with a discussion of experiences specific to South Sudan. Summary findings from the country reviews are brought together in the following chapter, and the final chapter presents Conclusions and Recommendations for future possible action.

2. Pastoralists and pastoralism

There are many definitions of pastoralists but the most commonly accepted is of people who
depend mainly on livestock for their livelihoods, rather than on crops or other sources of income. Agro-pastoralists grow crops as well as raising livestock, but for them also livestock have more importance. Typically, pastoralists and agro-pastoralists occupy arid and semi-arid lands and follow regular, cyclical patterns of movement in search of pasture and water for their animals. Attempts have been made to quantify the percentage contribution of livestock to pastoral and agro-pastoral livelihoods. This seems to us to be a mechanical approach to assessing their importance, particularly since actual percentages differ between social groups and can even vary for the same social group seasonally and inter-annually, depending on climatic, market and other conditions. We follow Catley et al (RWA/Vetwork, 2000) in simply noting that livestock are more important than other resources, and are important not only for food and income but also for social needs.

A decade ago the pastoral population of the Greater Horn was estimated to be 16.5 million (Bonfiglioli, 1992 cited in RWA/Vetwork, 2000). There are no reliable figures for the present population of pastoralists; average annual population growth of 2 percent has to be set against economic and social changes which are leading significant numbers of pastoralists to quit livestock-rearing. Even with a decline in the numbers of people who follow a pastoral way of life, however, significant numbers of livestock are held by this sector. For selected countries in this review the percentage of the national herd owned by pastoral and agro-pastoral communities is estimated to be: Kenya 60 percent, Eritrea 60 percent, Ethiopia 20 percent and Sudan 85 percent (Appendix 5).

While this means that pastoral livestock are actually or potentially an important national resource, pastoralists themselves have historically suffered various forms of social exclusion. This has been reflected in sedentarisation policies, which have been or still are central to the policies of most governments, and is also seen in poor social indicators. For example, in 1993-4 Eritrea’s national under 5 mortality rate was 116 per 1000 births but in the pastoral lowlands the figure was 254 per 1000 births (World Bank, 1996). Likewise, while in 1994 two thirds of Ugandan children had been to school, in the pastoral districts of Karamoja, the figure was less than 10 percent (RWA/Vetwork, 2000). Similarly, though pastoralists depend on livestock for their livelihoods to a greater extent than other communities, historically they have had the worst veterinary services.

This last factor has assumed increasing importance since the Sanitary and Phytosanitary Agreement (SPS) of the World Trade Organisation (WTO) has required national veterinary services to establish surveillance and monitoring systems and provide animal disease information, if countries wish to export livestock and livestock products. With respect to pastoral areas, national Directorates of Veterinary Services typically lack capacity to comply with these requirements.

3. Community-based animal health workers

In several of the countries in this study, non-professionals employed during the colonial period and after were called ‘guards’ and

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1 The percentages for Tanzania and Uganda were not available at the time of writing.
‘scouts’, a reflection of the fact that they sometimes served under a colonial military administration and also that their activities were viewed as a kind of military campaign against disease. In Eritrea, during the independence struggle, these people were called paravets; elsewhere they have been called ‘barefoot vets’ mirroring the ‘barefoot doctor’ terminology of the Chinese revolution. Today, the term ‘community based animal health worker’ is ubiquitous, sometimes shortened to CAHW and sometimes to CbAHW or CBAHW. For the sake of simplicity we use only the acronym CAHW, and use CAH for community based animal health.

There are various definitions of what a community based animal health worker (CAHW) is. Typically, he or she (usually he) is a herder. CAHWs live and move with their community; they have received short training courses to enable them to treat other people’s animals and they supplement their income from livestock by selling drugs. There is no consensus as to whether they are a short-term ‘stop-gap’ measure, until levels of development improve and allow a fully professional service, or whether they are expected to play a more permanent role. There is also a difference of view between NGOs and governments over definitions. Governments typically define ‘community-based’ largely on the physical location of the worker within the community, while for NGOs community participation is key, including processes such as joint community-vet problem analysis, selection of CAHWs and so on. CAPE shares and supports the NGO perspective on this³.

Some of the specific definitions of or requirements to be a CAHW which we came across in the course of the study are:

³ It should be noted NGOs are not uniform and that in using the term ‘NGOs’ here and throughout the report we are conflating differences in competence and approach. The Concept Note did not require us to reflect on differences between NGOs. At relevant points in the text we indicate how NGO approaches to CAH may vary but do give detailed accounts of those variations.

Young people; able to travel long distances with the animals; livestock owners; honest; healthy; speak the local language (Eritrea during the independence struggle).

Have experience in keeping their own livestock; be respected by their community members; if possible, be relatively young, so that they can provide services for longer and walk further; have another job (farming), so that their income from animal health is supplementary; have formal education i.e. read, write and calculate; if possible, some should be women (Eritrea today).

A CAHW is someone who owns livestock; is a member of and well known to the community he serves; owns livestock; is hard working and self-motivated; is physically fit; is willing to travel with or to the livestock; is well behaved and trusted; has good communication skills; is keen to work and willing to learn; some basic academic knowledge is an advantage. (Ethiopia).

Someone selected by the community according to agreed criteria (mainly personal); has basic training of about two weeks and refresher training; works with communities to provide animal health services; has a basic drugs kit (Kenya)

CAHW is a livestock owner who treats his own animals and those of his clansmen, neighbours and friends. Usually knowledge and skills are passed from parent to child. (Kenya)

CAHWs are farmers given basic level training in order to provide primary animal health care to livestock keepers within walking or cycling distance in a community. They are trained to treat commonly occurring and locality diseases and to recognise symptoms of important notifiable diseases. In addition, they are trained to carry out minor procedures including bloodless castration, hoof trimming and wound treatment (Tanzania)⁴.

⁴ Malewas and Lengisugi, 2001
A CAHW is someone who serves his community. He works in his community; he is not employed by government. He has a short training to provide basic services. He operates in a restricted geographical area. He must be trusted. He must have some basic competence. *(Tanzania)*

Someone from within the community who has been picked and given a mandate to give services to his community. But given a mandate by who? He seems to have no connection to any official service. Living in and trained to work in that community; not allowed to cross into another parish. *(Uganda)*

A non-professional first aid service provider who comes to fill a gap because there is no professional there. Someone regularly available to the community who can answer quick, small problems. *(Uganda)*
II. Country reports

1. Kenya

1.1 The evolution of government veterinary services

Veterinary services in Kenya started in 1902 when the British colonial administration established the Department of Veterinary Services to provide comprehensive public veterinary provision in high potential areas. The large-scale dairy farms and beef ranches in the white settler highlands had the best services, provided by both the public sector and by private foreign vets.

During the 1950s the demand for veterinary services increased as exotic animals were introduced into African small-holdings. The emphasis on de-stocking and compulsory sales of African stock led to the formation of the Kenya Meat Commission (KMC). The purpose of the KMC was to promote Kenya’s meat industry by purchasing and slaughtering livestock and selling on local and international markets. It was also to be a purchaser of last resort in case of droughts. KMC depended on meat from ranches, pastoral areas and from Ukambani drylands but paid best prices to the non-pastoral ranching enterprises. At its height KMC exported corned beef to European markets which earned the country much needed foreign exchange.

At independence in 1963, the new government inherited the veterinary services which had operated during the colonial administration. Most of the private vets who had served the white settlers were non-Kenyan and they left the country, leaving a gap that needed to be filled. Government also needed to respond to the vastly increased demand created by changes in land-holding, livestock-rearing and the extension of services to the mass of the population. Some large-scale farms in the former ‘white highlands’ were bought by the Government through the Settlement Trustee Fund, and subdivided into smaller holdings for resettlement of landless local people. Other farms were bought by co-operative societies and land buying companies, and were similarly subdivided. The new African settlers acquired improved cattle; these exotic breeds and upgraded local breeds required higher levels of management and disease control.

The new government greatly expanded the veterinary service to respond to the demand that was created. During the 1960s and 1970s, the government was able to support a high level of public sector delivery due to the prevailing healthy economy and the generosity of various donors. Government set up new veterinary centres, the first of which was commissioned in 1974 and built with donor funds. By 1992, the number of centres had risen to 297 but fell back slightly to 284 by 1995. The centres were staffed by government vets and/or Animal Health Assistants (AHAs), and were mainly located in the high potential areas of the Rift Valley. The centres provided services either free of charge or at highly subsidised levels, with farmers paying for the drugs but not for the consultation. The government provided free attended dip services, and also artificial insemination (AI).

As elsewhere, during the late 1970s and early 1980s, there was a shift in thinking away from the concept of free public services as of right and towards ideas of cost recovery within the public sector and an increased role for the market in service delivery. These ideas went along with the arrival of Structural Adjustment Programmes (SAPs) which were introduced in Kenya during the 1980s on the insistence of donors but out of necessity because of economic mismanagement and decline during the previous decade. With respect to animal health, an obvious option was for government to divest itself of clinical services and, as a first step, the government ceased automatic employment of veterinary graduates in 1988, as a means of forcing the more than 60 annual graduates from the University of Nairobi to enter private practice (Hubl et al, 1998).

Under Civil Service Reform at the end of the 1980s, retirement and voluntary retrenchment were intended to further reduce the burden on

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5 District Veterinary Offices were reported as being like drug stores with herders waiting outside and plenty of transactions involving drugs and cash.
the public purse. This had no impact on the vets as the Directorate of Veterinary Services (DVS) did not even have enough staff to maintain its remaining public sector responsibilities. It was therefore mainly diploma- and certificate-holders and other lower cadres of veterinary staff who were able to take advantage of the retrenchment packages. Some of these went illegally into private practice.

Civil Service Reform was followed, in 1991-2, by the liberalisation of the meat and dairy sectors. Under liberalisation, farmers were expected to manage their own production and marketing and to be able to pay for veterinary services. In 1991, dip services were transferred to community management, and two years later payment was introduced for clinical and AI services (Kajume and Muthee 1997). Farmers were resistant to being charged, and the experience of community-managed dips was generally not positive, possibly because the new system was introduced too quickly. Some farmers responded to the resulting breakdown in dip services by spraying at home, but the breakdown also led to an outbreak of tick-borne diseases in 1992. This was as an election year and government intervened to provide free acaricides.

The performance of the centres deteriorated overtime. Problems arose because of inadequate funding of the DVS, and in particular because of the imbalance between financial allocations for staffing and for operation and maintenance. By the early to mid 1990s, the proportion of the already reduced recurrent budget consumed by staff costs was between 70-80 percent, leaving a mere 20-30 percent for the other costs of running the service (Hubl et al, 1998).

The KMC also did not survive the economic downturn of the 1980s. With the conversion of most settler ranches into subsistence cropping plots, the KMC became much more dependent on pastoralist production for meat. The USAID- and FAO-financed Kenya Livestock Development Project led to the creation of a system of grazing blocks in the north and group ranches in the south under which immature stock were to be bought from the north and sold for fattening and finishing off in the better watered south. However, northerners did not supply immature stock to the extent expected, and in 1987 the KMC was closed down.

In the time of the British, the Kabete outstation of the Veterinary School at Makerere in Uganda trained diploma level Veterinary Assistants (VA) to act as assistants to the foreign vets. In 1962, just before independence, the Veterinary Training School at Makerere was upgraded to a Faculty of Veterinary Medicine (FVM) and transferred to Kabete. This marked the beginning of training vets at degree level in Kenya. In the early years, the Faculty had small classes but by the late 1980s it was producing 100 vets a year and was planning to increase this number in expectation that many would go into private practice. In fact, because of the cessation of automatic government employment, the numbers of students actually declined and were no more than 40-50 a year by 1992-3. For reasons that are not well understood, the student intake increased to 80 and 97 in 2000-1 and 2001-2 respectively. In response to recent changes, the FVM now includes modules on setting up in private practice, however, in common with other vet schools in East Africa, the curriculum focuses on high potential livestock production systems and health problems, rather than on the livestock types and diseases which are found in pastoral areas.

AHAs are trained in three Animal Health and Industry Training Institutes (AHITI) in Kabete, Ndoba in Kirinyaga district and Nyahururu in Nyanduuru district. The two-year course aims to produce staff for the DVS to act as extension agents and to help professional staff in disease diagnosis, treatment of simple conditions and disease control. The three institutions have an annual intake of 230 students. Since 1978 Egerton University has been running a three-year diploma course in Animal Health and Production, producing around 25-30 graduates a year. By 1998, the course had produced 400 diploma holders (Hubl et al, 1998). Some of
these were employed as public sector livestock officers, mainly as extensionists and also treating minor animal health problems. Others went into the private sector, as sales representatives in the pharmaceutical and animal feed industries or into business. A few engaged in private practice, an activity which is illegal as the Veterinary Surgeons’ Act only allows diploma holders to practice under the supervision of a vet. As with other public sector employees, government stopped automatic employment of diploma holders in 1989.

The cessation of government employment has left the veterinary service seriously understaffed. It has compromised the DVS’s capacity to comply with the WTO SPS Agreement, although District Veterinary Officers (DVOs) are still centrally employed and controlled. The problems of compliance are a particular difficulty in Arid and Semi-Arid Lands (ASALs) where veterinary services are often reliant on donor and NGO assistance.

1.2 The development of community-based delivery systems

In Kenya, the ASALs cover an area of more than 70,000 Km², are very thinly populated and generally lack economic and social infrastructure. High levels of insecurity result from the deterioration of cattle rustling from its traditional forms to heavily armed and criminal activity. Under Ministry of Agriculture guidelines, each district should be staffed with a DVO supported by a couple of Veterinary Officers (VO) and AHAs, though this is not enough, given the distances and the difficulties of the terrain. Even these levels of provision are rarely met, however. Most government veterinary staff originate from non-ASAL areas and are unwilling to work under the physical and security hardships prevalent there. Persistent staff shortages were exacerbated as insecurity increased, and government staff left and were not replaced (Hubl et al, 1998).

A number of government-donor projects, many prompted by drought, addressed this deficit in public sector provision and, despite the droughts, animal health status remained satisfactory. The Turkana Rehabilitation Project was set up in response to the drought of 1979-80 and in later years concentrated on livestock and the training of sons of pastoralists as CAHWs. In 1996 the World Bank funded Arid Lands Resource Management Project, a multi-sector response to the 1991-2 drought, supported a system of grassroots-level private veterinary drug users associations. The GTZ-supported Marsabit Development Programme combined static veterinary centres with a network of trained CAHWs. The centres were staffed by AHAs supplied with a wide range of drugs purchased through a revolving fund and provided with basic equipment and sometimes a simple diagnostic laboratory (Hubl et al, 1998).

In 1998, a joint Government of Kenya/donors Agricultural Sector Investment Programme appraisal mission noted that public sector veterinary services needed to take into account the different operating conditions in high potential and in ASAL areas. As far as ASALs were concerned, the mission noted that the most appropriate approach would be for private vets to work with a network of CAHWs and possibly AHAs. Recognising the difficulty of finding private vets to work in ASAL districts, the mission also recommended that some support should be provided to the public sector to enable it to perform its duties in areas where private vets were not available.

NGOs have been particularly active in developing CAH in Kenya, motivated by the absence of government services in these areas regarded as such by many government staff, even if was not an actual policy.

6 In common with other countries, Kenya has decentralised governance in other respects.
7 To encourage staff to work in ASALs, hardship allowances are awarded. In the past, a government posting in an ASAL district could also be used informally as a ‘punishment’ – it was certainly

8 OAU/IBAR played a key role in helping to maintain satisfactory animal health status, particularly in the control and surveillance of cross-border movements of livestock.
and facilitated by a somewhat *laissez-faire* attitude by government towards their activities. The Intermediate Technology Development Group (ITDG) is a leading player in CAH or – in their terms – decentralised animal health services. Their first project in 1986 provided participatory training of ‘barefoot vets’ based on discussions of common diseases (building on existing ethnoveterinary knowledge) and teaching the use of simple drugs to treat common conditions such as helminthiasis, wounds, mange and ticks. The success of this project, led to ITDG being requested to establish similar programmes by other organisations. During the 1990s, ITDG started to convene annual meetings of NGOs involved in CAH to compare experiences, share problems and develop common methodologies. These meetings made considerable progress in harmonising approaches. Government officials and the professional veterinary bodies were not invited to these meetings, however, and a somewhat adversarial relationship developed between NGOs on the one hand and the government veterinary services and the professional veterinary bodies, on the other.

In 1999 in Meru, ITDG convened an Annual Veterinary Workshop in partnership with the PARC-VAC project of OAU/IBAR and SNV. This proved to be a turning point in ensuring a more general acceptance of CAH and therefore of pushing forward in terms of policy. With the encouragement of some sympathetic professionals in the DVS, ITDG invited a broader than usual cross-section of stakeholders to plan the meeting and to give presentations. Participants included representatives from the KVA, the KVB, and the DVS, as well as NGOs and livestock-owners from ASAL areas. The Meru meeting was the first at which key policy issues were discussed by all parties together. It was thus possible to agree on the main policy changes that needed to be made and to set in train a process for doing this. Common guidelines for training have been developed and approved by the KVB and are now being piloted (Kajume, personal communication).

The debate between NGOs and the professional bodies was conflictive. It was not helped by the fact that NGOs sometimes demonstrated a casual attitude towards legislation and official procedures. For example, NGOs did not always employ qualified animal health care staff on their programmes or collaborate with the DVOs who had overall responsibility for animal health in the districts where the NGOs worked. Initially, the DVS kept aloof from the debate because they did not want to antagonise their fellow professionals. Nevertheless, they knew that, for ASAL areas in particular, professionals were unable to provide an effective service, either through the public or private sectors. District and Provincial Veterinary Officers in the field experienced on a day to day basis the problems of delivering services in pastoral areas and the benefits of using CAHWs to solve these problems. They could also see that the NGO-supported programmes were greatly appreciated by livestock-owners.

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9 With the liberalisation of the pharmaceutical industry in the 1990s veterinary drug stores had sprung up all across Kenya, so that it was possible for livestock-owners to acquire drugs. The supply included black market drugs of poor or unreliable quality, though the extent of this problem was never thoroughly assessed.
1.3 The privatisation of professional practice

Private veterinary services had always been available in the ‘white highlands’ and after independence, private practice continued to be permitted if not actively encouraged. However, during the 1960s and 1970s, competition from free government services discouraged all but a few highly entrepreneurial individuals in the towns from becoming private vets. This ended with the economic changes of the 1980s and the termination of automatic public sector employment for vets.

In 1994, the Kenya Veterinary Association Privatisation Scheme (KVAPS) was officially launched, funded by the European Union (EU) PARC-Kenya Programme. KVAPS was intended to spearhead privatisation, its main objective being to provide loans to assist vets into private practice. By 1998, out of the 1,800 vets working in Kenya, 250 were in private practice, of whom 60 had gone into practice under the KVAPS scheme; around 1,000 vets were working with government, in teaching, or research, and about a further 300 were working in the pharmaceutical industry. Initially, KVAPS did not assist vets to set up agrovet shops, but people then realised that in most cases clinical practice alone was not viable. Among the services now provided by private vets are clinical services, agrovet shops, AI, contract vaccination and consultancy.

A second phase of the Kenya programme is being negotiated with the EU. Reviewing the first phase, those involved have concluded that there was too great a focus on individual loans and too little on creating an enabling environment for private practice to flourish. Consequently, during the second phase KVAPS plans to give more attention to lobbying for legislative change, to creating opportunities for vets to refresh their professional education, to carrying out relevant research and studies (developing livestock strategy papers, studies on internal and external markets) and to looking at issues of ethical practice.

KVAPS is also interested in working with other bodies to test out different models of private practice, to test which are most viable in different contexts. Most practices are in high potential areas, the majority in Central Province. It is much more difficult to encourage private professional practice in ASAL areas. The major obstacles to privatisation of veterinary services in ASALs are seen as being:

- Unconducive physical environment
- High delivery costs due to poor infrastructure
- Lack of appropriate support structures e.g. credit
- Too many illegal operators
- Difficult communication and long distances covered by pastoralists
- Low cash economy
- Lack of efficient control on drug supply and drug application
- General insecurity

Up to now, where vets have been helped to set up a private practice in an ASAL area, this has mainly involved some form of subsidy from NGOs. There is now an interest in privatised delivery systems similar to the GTZ model described above, where a vet or AHA will work through a network of CAHWs, both supplying them with drugs and providing supervision. A recent study of the economic viability of different types of private practice in ASALs suggested that the AHA/CAHW model of private practice with supervision provided by DVOs was likely to be the most financially feasible model in the short run (Okwiri et al, 2001). KVAPs is also interested in testing out models in ‘medium potential’ pastoral areas, like Samburu.

1.4 Creating an enabling environment for privatised service delivery

In 1994, government started to withdraw from providing clinical services in areas where private veterinary practices had been established. During 1996-7 several workshops were convened to clarify public/private distinctions, and these discussions are
ongoing. Decisions about where the line falls between public and private are not seen as final but rather as emerging from a continuous debate in which there are possibilities for further elaboration. The situation has been described as one where “there are no brick walls dividing functions” and where room needs to be left for new emerging challenges, such as the contracting out of public goods services to the private sector.

Animal health services operate under a number of Acts which until recently had not been reviewed or amended in the light of new challenges and changes; enforcement of the Acts was also a major problem as, for example, in efforts to control illegal practice by AHAs. A task force on legal matters has now been formed within the Ministry of Agriculture charged with reviewing the laws and harmonising them with agriculture sector policies. The two key pieces of legislation for revision are the Veterinary Surgeons Act (Cap 366) and the Pharmacy and Poisons Act (Cap 244).

The Veterinary Surgeons Act specified that only qualified vets were allowed to engage in private practice and must be registered with the KVB, which had authority to discipline vets and ensure adherence to a professional code of ethics. The legislation made no provision for diploma- or certificate-holders or other types of animal health workers, who could only work privately if they were employed by a private vet. The draft revised Veterinary Surgeons Act will include these animal health cadres and make provision for veterinary-supervised CAHWs.

Under the Pharmacy and Poisons Act the pharmacy profession acquired control of trade in all drugs and poisons. The Act is implemented by a Pharmacy and Poisons Board chaired by a medical doctor and with only one vet out of a board membership of seven. Vets are not allowed to stock large quantities of drugs unless a registered pharmacist controls the premises (although conversely pharmacists can stock and sell veterinary drugs without employing a vet).

Vets were not included in the drug inspectorate.

1.5 Livestock development in its social and economic context

Pastoralists and agro-pastoralists occupy three quarters of the land mass of Kenya. They comprise 25 percent of Kenya’s human population, hold 60 percent of the national herd and supply much of the meat marketed in Kenya. They thus represent a significant social and economic resource but, like pastoral groups throughout the Greater Horn, they retain a marginal status in Kenyan society.

The land tenure system applied throughout Kenya undermines the communal system traditionally practised in pastoral areas. The dominant form of tenure is Trustland under which County Councils hold land on behalf of residents. Although the Council is a locally elected body and should be locally accountable, the Local Government Act makes it subordinate to central government authority, and this has resulted in many legal conflicts. Under the Trustland Act, the rights and interests of residents under customary law are superceded by the application of statutory law. No provision is made in the Act for tribal, clan or other access rights to grazing and water, and no attempt is made to cater for cultural values which may be vested in land. Furthermore, Trustland in pastoral areas has been continuously encroached on as parcels of land have been allocated to individuals and government institutions for ranches and other purposes. In this process, traditional clan boundaries have often been ignored, with the effect that land is sometimes forcibly possessed by other groups, giving rise to conflict and over-grazing.

Pastoral areas of Kenya also suffer from chronic insecurity provoked by ‘traditional’ cattle-raiding and tribal disputes, for example, between the Turkana and the Karimojong (from Uganda), the Pokot and Turkana, and the Borana and the Somali. These disputes have escalated and become more dangerous following the flood of small arms into the area as a result of the civil and international wars.
that have been endemic in the Greater Horn in recent years. Cattle raiding has now also become a profitable commercial activity which is controlled by big business interests. Consequently, cattle raiding is carried out on a larger scale and with greater loss of life.

The collapse of the livestock marketing services previously offered by the Livestock Marketing Division and the closure of the KMC have undermined the pastoral economy. Whereas Kenya exported live animals to the Middle East in the past, this collapsed because of a lack of support to exporters and more recently because of the outbreak of Rift Valley fever which provoked Saudi Arabia to impose a blanket ban on livestock from the region. Kenya’s inability to comply with the SPS Agreement in ASALs denies livestock producers access to more lucrative markets. During the consultative process for the preparation of Kenya’s Poverty Reduction Strategy Paper (PRSP), the Pastoral Thematic Group proposed creating a national veterinary system consisting of a mix of public/private provision linked to community-based veterinary approaches. The Pastoral Thematic Group’s proposals are reflected in the final PRSP, which recognises that improving livestock productivity will significantly contribute to poverty reduction especially among pastoral groups. To support the livestock sector, government plans to develop a national policy to control and eradicate livestock disease and to promote the establishment of improved marketing infrastructure. It is also recognised that both sedentary and pastoral livestock management systems require extension and veterinary services. Government will provide some of these services and facilitate the private sector and communities in providing other services.

A first draft of a new policy for veterinary services and animal welfare has now been presented to the Parliamentary Committee on Agriculture. It has resulted in livestock policy achieving a much higher priority on the Committee’s agenda and it is believed that delivery of the final draft will further improve the status of livestock and veterinary services (MARD 2001).

Key points

- The veterinary services provided under colonial rule were greatly expanded by the independent government. Together with marketing services, this led to a mini-boom for pastoralists before and in the early years after independence.
- A large imbalance between staff and other operational costs means that this could not be sustained, especially following global recession in the 1970s.
- A generally poor level of public veterinary provision from the 1970s onwards was even worse in pastoral areas.
- Privatisation was initially modeled on public sector provision. The privatisation programme has given more attention to assisting individual vets and less to creating an enabling environment for privatization; this is due to be addressed in a new privatization programme.
- Privatization has excluded AHAs, many of whom practice privately and illegally.
- The debate on CAH between NGOs and the professional bodies was initially adversarial. There is now far more collaboration and progress is being made in identifying suitable models of animal health care for pastoral areas.
- Pastoralists have historically been marginal in Kenyan society, although their livestock represent an important economic resource. The PRSP consultative process has created opportunities for successful lobbying for their interests.

2. Tanzania

2.1 The evolution of government veterinary services

Veterinary services in Tanzania began when the German colonial government established a 3-person Veterinary Department in 1904. In 1905, a Livestock Research Station was established at Mpwapwa for diagnosis and surveillance of livestock diseases and two years later the first dip was constructed. By
In 1915 the number of vets in the government service had increased to 21, and the first nine Native Veterinary Guards had been appointed. These were illiterate people trained on the job to assist foreign vets; their appointment marked the first extension of services into rural areas.

In 1937, the Veterinary Department started training Veterinary Assistants at Mpwapwa and Ukiriguru. The first Tanzanian was awarded a Diploma of Veterinary Science from Makerere College in Uganda in 1942. In 1952 the Natural Resources School at Tengeru started training assistant pastoralists (FAO, 1994; Mosha et al., 1997; Malewas and Lengisugi, 2001). At independence in 1961 there were only eight Tanzanian diploma graduates (Maeda, 1988)\(^{11}\). In 1965, the Morogoro College of Agriculture was established to run diploma courses, and eight farmer-training centres were also operating at this time (FAO, 1994). In 1976, Tanzania began to grant veterinary degrees, first as a Division of Veterinary Science within the Faculty of Agriculture and Forestry of the University of Dar es Salaam, Morogoro. The purpose of the course was to produce competent vets who were also knowledgeable in animal production, farm economics, rural sociology and veterinary extension (Mosha, 1997). In 1985, the Division of Veterinary Science was elevated to a Faculty status with the establishment of the Sokoine University of Agriculture. As in Kenya, pastoral production systems and diseases have never been given much prominence in the curriculum of the Faculty or in research priorities.

The independent government set up 594 veterinary centres, run by diploma and/or certificate holders. They were used as reporting points for farmers, as drug distribution points, and as bull centres as well as for pasture development. Especially in high potential areas where white settlers had dairy farms and companion animals, government veterinary clinics were very active. The aim of the government was for “one village, one extension worker” and the reach of the government services expanded significantly, with diploma and certificate holders being posted even at village level. Government veterinary officers were also allowed to engage in some private practice. They charged the full cost of private goods like medicines and operations, and mileage for visits to private farms, and retained one third of the service fee for work carried out during office hours. Vets bought their own drugs and vaccines but used equipment belonging to the government (Mpelumbe, 1997).

From the mid 1970s onwards Tanzania faced severe economic difficulties. External factors were seriously undermining the economy, particularly low world market prices for export commodities and the oil price shocks of 1973 and 1979. Internally, nationalisation under the ujamaa system, the Kagera war, the collapse of the first phase of the East African Community and successive droughts all hastened a decline in agricultural productivity and the national economy (FAO, 1994). Structural Adjustment was therefore inevitable and, in 1987, the government launched the First Economic Recovery Programme (ERP I).

ERPI abolished subsidies on the purchase price of heifers from livestock multiplication units, which resulted in high prices for in-calf heifers. Government ceased to provide free dipping services in 1983, abolished government veterinary stores and liberalised drug sales in 1994, and abolished government veterinary clinics in 1997 (Malewas and Lengisugi, 2001). In 1989, the government launched the National Agriculture and Livestock Extension Rehabilitation Project (NALERP). This followed World Bank guidelines which advised that Unified Extension should be adopted, under which veterinary staff were required to provide advice on crops and livestock. Unified Extension also went along with the Training and Visit (T&V) approach to extension. These new approaches were ill-adapted to the delivery of veterinary services and they were

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\(^{11}\) Staff shortages meant that the government veterinary clinic in Dar es Salaam was briefly run by private vets who also carried out meat inspection duties at the Tanganyika Packers export abattoir. The only other private veterinary practice was run by a retired vet.
disliked by livestock-keepers and veterinary staff. NALERP started in three districts and by 1994 was operating in 57 districts in 13 regions (FAO, 1994).

During the 1990s government employment of professional veterinary staff was frozen and many of those in government employment were retrenched. Staffing levels in the public veterinary sector fell from 15,000 to 5,000, the majority of redundancies being Livestock Field Assistants and Livestock Field Auxiliaries who had played an important role in delivering veterinary services at ward level (Malewas and Lengisugi, 2001). By 1994, the number of unemployed certificate and diploma holders stood at 516 and the Ministry of Agriculture ceased enrolling students in any of the Livestock Training Institutes (LITIs). A 1994 Livestock Manpower Assessment recommended that the government should continue to provide training but should also carry out an employment study to determine the demand of the private sector for trained agricultural manpower (FAO, 1994).

Between independence and 1994, the Ministry of Agriculture underwent 13 changes in its structure. This is seen by government veterinary staff as having greatly compromised its status and competence. At independence, livestock was located in the Ministry together with crops, forestry, fisheries and wildlife. In the 1970s livestock was in the Ministry of Agriculture with crops. In the early 1980s there was briefly an autonomous Ministry of Livestock Development before Agriculture and Livestock were again merged in 1984. In 1991, Cooperatives were added to the structure. The livestock sub-sector is now located in a relatively new Ministry of Water and Livestock Development where it falls under both the social sector (because of water) and the economic sector (because of livestock). Veterinary services were further weakened by decentralisation policies which broke the link between the DVS and field staff, so that the DVS has no authority to enforce adequate disease reporting. This issue is particularly relevant to pastoral areas where epizootic diseases are believed to persist, and where decentralisation has reduced the DVS’s capacity to be informed about the disease situation and to implement effective disease control.

2.2 The development of community based delivery systems

The traditional livestock sector is poorly endowed with veterinary services. Retrenchment has left many areas without any service providers at all, although some local government employees, officially stationed in these areas for regulatory/control purposes, may supplement their income by providing private clinical services. Other government policies – for example, no longer supplying veterinary drugs to the public and introducing unified extension services – have also curtailed services. As a result, many livestock owners have started to medicate their animals themselves.

One solution to poor public sector provision has been to train CAHWs for pastoral areas. Since 1994, 1,455 CAHWs have been trained, mainly by NGOs. The content, length of training and methods of training vary between different agencies, though all use participatory techniques and aim at building on livestock-owners’ existing knowledge. CAHWs are monitored and supervised by government extension staff under the District Agricultural and Livestock Development Officer (DALDO) or DVO, who also own the veterinary drugs shops where the CAHWs purchase their requirements. Diploma holders are said to find CAHWs useful because they are constantly available and are diligent in reporting health problems (Malewas and Lengisugi, 2001).

As in Kenya, the development of CAH approaches by NGOs has provoked strong negative reactions among the veterinary profession. Like Kenya, this was due partly to professed concerns about a lowering of

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12 The government also had conflicting policy with regard to extension. On the one hand, government documents stood firm on the “one village, one extension officer” policy. On the other hand, Civil Service Reform prevented the employment of an additional 4,300 village extension officers (VEO) needed to implement this policy (FAO, 1994).
standards and partly to the large number of unemployed professional providers in the country, including diploma and certificate-holders. In Tanzania, the debate has a slightly different hue because general educational levels are relatively high (see Appendix 5) and consequently staff at Ministry HQ and vets in the professional bodies support a policy of training 12th graders as CAHWs. They also believe that the *ujamaa* experience has created a national consciousness where people regard themselves first as Tanzanians and only secondly as from a particular region, district or village, and that this means that there is potentially much more mobility among Tanzanian CAHWs than there is in other countries. Field vets in both the public sector and NGOs are less confident. They are concerned that there are simply not enough literate pastoralists to provide adequate coverage in pastoral areas where, in common with other countries in the study, literacy levels are much lower than the national average.

Recently, a DFID-funded project in Mwanza has been training CAHWs under government auspices. Apart from training and support components for CAHWs, the project has also enabled the Ministry to review relevant legislation and propose revisions that are required to accommodate para-professional providers like CAHWs. These changes are now in hand, and have received the Ministerial seal of approval. It appears therefore that CAHWs will be legally recognised in Tanzania. Legal recognition will be the mandate of the Tanzanian Veterinary Board (TVB) which although currently within the Ministry, is seeking independence. As suggested above, the entry qualifications and manner of deployment of Tanzanian CAHWs may be somewhat different from the ‘classic’ NGO model operating in other countries.

2.3 The privatisation of professional practice

The Veterinary Surgeons Ordinance (Cap 376) and Animal Diseases Ordinance (Cap 156) make no provision for private veterinary practice (Mpelumbe et al, 1997), although private practice has never been forbidden. A few private vets operated after independence and, as noted, government vets are able to offer services on a fee-paying basis. As in other East African countries, Tanzania has had an EU-funded PARC privatisation scheme. Launched in 1994, the project had a target of assisting 60 vets into private practice. However, loans were given to only 15, most of them in urban centres, and of these only 3-4 are still operating. The scheme was closed in 1998 due to poor performance, blamed on the failure of vets to get collateral and to unfair competition from the public sector.

Altogether it is estimated that there are 115 private veterinary practitioners in the country but by 1997 only five of these were traditional private veterinary practices providing clinical services. Most so-called practices are in fact veterinary shops selling drugs and other pharmaceuticals, as well as agricultural inputs, and sometimes offering a rudimentary curative service as well. These shops engage in over the counter sales, including of Part I poisons, without prescription. The TVA and Pharmacy Boards intend to develop strategies to combat this (Legal Framework Working Group, 2001; Msolla and Shayo, 1997; Mpelumbe et al, 1997).

In general, private veterinary practitioners and paravets complain of unfair competition from government staff who offer a cheaper service. They further complain that government tends to favour private practitioners in Dar es Salaam and to forget vets who have set up practice in remote areas. Similarly, there are fears that, as CAHW provision is being institutionalised by government, it will undermine the potential to establish private professional practice, even in higher potential areas such as in the commercial dairy sector. This is of great concern to the Faculty of Veterinary Medicine, the TVA and the TVB (Mpelumbe et al, 1997; Msolla and Shayo, 1997; Malewas et al, 2001).
2.4 Creating an enabling environment for privatised service delivery

The Directorate of Veterinary Services has now embarked on revisions to the Veterinary Surgeons Ordinance which will accommodate both private veterinary practice and the activities of para-professionals. With respect to veterinary drugs, a new Food and Drugs Bill catering for both human and veterinary drugs has passed through its first reading in Parliament. The Animal Diseases Act as well as 14 other livestock related acts are also due to be reviewed.

In part, the success of the Mwanza-based Animal Health Services Project has been recognised by the Ministry’s proposal to establish a central Delivery Coordination Programme (DCP) within the Ministry. The terms of reference for the DCP are still being developed but improved quality, monitoring and harmonisation of CAHW programmes with links to the private sector will probably become part of the unit’s role. The emergence of the DCP indicates that government is beginning to seriously support CAHWs.

2.5 Livestock development in its social and economic context

Paradoxically, livestock is not recognised as a component of food security in government structures as the Food Security Department is located with crops and not with livestock. Nevertheless, it is recognised that rural poverty can be reduced by improving productivity in the smallholder and pastoralist sectors. The Rural Development Strategy (2001), for example, recommends supporting veterinary privatisation, especially in pastoral areas, so that livestock keepers can improve the productivity of their livestock and increase their incomes. Greater availability of more appropriate veterinary services is also expected to improve the productivity and quality of livestock for domestic and export markets. The Strategy also recognises that in the past most pastoralists have been left to solve their own problems, though the main thrust of its response is to provide infrastructure so as to encourage pastoralists to settle.

Tanzania is unusual in having a system for generating funds at local level for investment in livestock. In 2000, the Ministry of Regional Administration and Local Government directed all local authorities to establish a local Livestock Development Fund (LDF) using revenue from meat inspection, livestock market inspection, livestock sales and other livestock related services. The account was to be directly administered by a special committee under the DALDO. By June 2001 a few LDFs were up and running while most were in the process of being set up (Malewas and Lengisugi, 2001).

Key points

- The veterinary services provided under colonial rule were greatly expanded by the independent government. Under the ujamaa system, government aimed to have a service provider in every village.
- This was unsustainable, especially with global recession in the 1970s. Staffing reductions were particularly felt at village level, compromising government intentions to have extension staff in every village.
- The livestock department has been subjected to repeated government restructuring, reflecting its rather low status relative to crop production.
- Privatisation is slowly taking off, but with much competition from the public sector. The process is highly skewed against pastoral areas. The EU-funded privatization programme is no longer functioning.
- There are large numbers of unemployed diploma and certificate holders.
- The debate on CAH between NGOs and the TVA continues to be highly adversarial.
- Government and the TVB is more positive and draft legislation to allow veterinary-supervised CAHWs is under review.

13 This was initially set at 35 percent of revenue and reduced to 10-15 percent in 2001.
3. Uganda

3.1 The evolution of government veterinary services

Veterinary services in Uganda date back to 1908 when the first British vet arrived to serve in the protectorate. Before this, urgent disease problems were dealt with by the Chief Veterinary Officer in Kenya who took three days to travel from Nairobi to Kampala. By 1912, there were five foreign animal health specialists in the country and, in 1921, the Veterinary Department was formally made responsible for the animal industry. The first concerns of the Ugandan veterinary services were the control of rinderpest and CBPP, two diseases which continue to be priorities for the veterinary services today. In 1920 an Inter-Territorial Veterinary Conference on rinderpest control and eradication was held in Nairobi. This was the first effort towards a closer union of the three countries of East Africa (Kenya, Tanganyika and Uganda).14

Professional training for Ugandan veterinary staff started in the late 1930s at Makerere College, where three classes of veterinary assistants were trained:

- Assistant Veterinary Officers who trained for two years plus three years at Entebbe Laboratory and were awarded a Diploma in Veterinary Science.
- Veterinary Assistants, who were school leavers from mission schools who were trained for 12-18 months.
- Veterinary Scouts, who were from Mission Farm Schools and whose training was geared toward improving farming methods.

By 1953, all the top veterinary posts in the country were still occupied by British vets who prevented the colonial government from promoting Africans without British qualifications to be Veterinary Officers or Heads of Department. The African diploma holders of the time encouraged one of their number to pursue further training in the UK and he returned in 1962 as the first veterinary graduate in East Africa, with Membership of the Royal College of Veterinary Surgeons.

The establishment of the East African Community (EAC) meant that training shifted between the different campuses of the member states. In 1959 the Veterinary School moved from Makerere in Uganda to Kabete in Kenya where, in 1962, it was incorporated into the University of Nairobi awarding the Bachelor of Veterinary Science degree (Mosha et al, 1997). In 1962, the Assistant Veterinary Officer course in Makerere was abolished and all serving diploma holders were sent to Kabete for a one year up-grading to Bachelors of Veterinary Science. In 1962, a Veterinary Training Institute in Entebbe began training Animal Husbandry Officers on a 2-3 year course in milk and meat production, to work alongside the Veterinary Assistants who were concentrating on animal health.15 In 1971, the Faculty returned to the Makerere campus, and now turns out 30–35 veterinary graduates a year. As in Kenya and Tanzania, the curriculum gives little attention to training on pastoral systems and problems.

In the early 1960s, the newly independent government was widely promoting

14 Forty-eight years later in 1968 the OAU sponsored a rinderpest vaccination campaign in Ethiopia, Kenya, Somalia, Sudan, Tanzania and Uganda.

15 In the late 80s when Unified Extension was introduced (see below) the Entebbe Institute was merged with an Agricultural College and started producing a cadre of extension workers knowledgeable in both animal health and crops. This was not very popular within the veterinary profession as it was felt that the graduates were less competent in handling animal health issues than the earlier specialised Animal Husbandry Officers.
commercial farming and this generated increased demand for clinical services from farmers who had acquired new breeding stock from government stock farms. All services, including AI, were provided by the public sector. Government staffing included vets, diploma and certificate holders and non-professionals such as Vet Scouts, Field Assistants, and Field Officers. The last of these were ‘elite’ young boys picked from localities and mainly trained on the job. As more graduates became available, the non-professionals were pushed out so that by 1971 vets were posted down to county level.

Between 1971 and 1985, Uganda experienced waves of political turmoil and civil strife, with serious consequences for the economy. Veterinary services deteriorated and animal health and disease control programmes broke down. The national budget could no longer meet the requirements of expanding staff numbers and vets were unable to perform their functions effectively. Economic mismanagement led to a lack of foreign exchange resulting in intermittent supplies of all classes of veterinary drugs and the creation of a black market. (Kasirye, 1998). In 1976, the Ministry of Agriculture liberalised the veterinary drugs supply, and drug dispensing and administration became open to all. Farmers gained access to classified veterinary drugs and began to treat their animals themselves.

By the end of the 1970s, high inflation, unmanageable balance of payments and fiscal deficits, high internal debt and negative GDP led the IMF, World Bank and other donors to offer loans on condition that a programme of Structural Adjustment (SAP) was adopted. Relevant changes were made throughout the eighties but the SAP commenced formally only in 1987, after the National Resistance Movement (NRM) came to power. After 1989, the government introduced macro economic and political reforms embracing economic liberalisation, privatisation, civil service reform, decentralisation and democratisation. Government divested itself of services of a private good nature, which included clinical veterinary services.

In 1989 the Ministry of Animal Industry and Fisheries was merged with Agriculture to form the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) with three Directorates including the Directorate of Animal Resources under which Veterinary Services fall. MAAIF was restructured in 1997 as part of a wider government restructuring, in line with the 1995 Constitution, the 1997 Local Government Act, and with new management and budgeting procedures. In 1998, the Ministry was again restructured to conform with the divesting of functions to the private sector and the rationalisation of functions between Ministries. In the process, ministry staffing was reduced from 1,431 posts to 281.

Successive restructuring is held by government veterinary staff to have damaged their ability to fulfil their public sector responsibilities. After 1998, there was no clear functional demarcation between the Director of Animal Resources and the Commissioner of Veterinary Services. The new structure assumed that major epidemic diseases were under control, that private veterinary practice was in place and that Unified Extension workers had been trained in all aspects of agriculture, veterinary and fisheries production. These assumptions led districts to lay-off many of the existing staff, especially diploma and certificate holders and lower cadres. The skeletal staff remaining could not combine extension services and disease control and consequently, diseases escalated. In addition, the new T&V approach associated with Unified Extension left veterinary staff with little time to concentrate on animal diseases and other veterinary activities. Furthermore, the reporting system under the decentralised system was not fast enough for prompt intervention in order to control diseases.

The Decentralisation Statute of 1993 devolved to districts many of the functions that had been performed by sector ministries. MAAIF retained regulatory and policy-making functions, and responsibility for disease control, surveillance and monitoring but vets and para-vets were employed by local government. The resulting dual accountability
of veterinary staff to districts and to MAAIF creates many problems. It means, for example, that field-level veterinary staff have few options for promotion and this contributes to demoralisation and poor performance. Moreover, as district authorities are not accountable to central government, they may choose to ignore advice from MAAIF to give priority to livestock disease control in their planning and budgeting. The lack of authority of the DVS over locally-employed vets also means that animal disease reports are often not forthcoming. In common with the situation in Tanzania, this greatly compromises MAAIF’s ability to comply with the SPS Agreement.

3.2 The development of community based delivery systems

Most experience with CAHWs in Uganda is drawn from Karamoja, a remote pastoralist region in the north east of the country (see section 3.5). It is a region where people depend on livestock and it has been known to harbour a wide range of livestock diseases since colonial times. Disease patterns in the area also affect and are affected by cattle movements across the borders with Sudan and Kenya. The Karimojong recall that an effective service operated during the colonial period and immediately after independence (Obote II and Tito regimes). They report that vets used to consult with livestock keepers, take samples and make diagnoses; that post mortems were carried out; and that drugs and vaccines were available and effective. Subsequently the service deteriorated. Livestock-keepers complained that vaccination campaigns were badly organized and ineffective, and they were concerned at the apparent lack of efficacy of drugs and vaccines used by vet scouts (Iles, 1998)). If Ugandan vets generally are demoralized by their poor pay and lack of promotion prospects, those in Karamoja certainly feel even more isolated and neglected.

In response to many of these problems, PARC-Uganda established a CAH programme in 1993. Following a pilot ethnoveterinary survey, PARC trained 42 CAHWs to vaccinate against rinderpest with heat-stable vaccine (Thermovax®) and to recognise and treat other diseases of major concern to the Karimojong (PARC, 1993c). By 1997, there were at least seven NGOs operating CAH programmes in Karamoja and there was considerable variation in practice. A study carried out in that year identified the following issues which needed to be addressed (Iles, 1998). There was variability in competence between NGOs, some of which were specialised in animal health and some not; some were training CAHWs while others trained all herders; there was inadequate monitoring of CAHWs; and there were problems in the supply of safe, affordable vet drugs. No NGOs appeared to directly subsidise the production cost of the drugs, but they organised procurement and distribution which was itself a form of subsidy. Efforts to harmonise CAHW training were under way at this time, and have continued since (CAPE, 2002). Currently, common training guidelines are in preparation.

As in Kenya and Tanzania, training and deployment of CAHWs has encountered considerable opposition from the professional veterinary bodies. This is particularly the case, given the large number of unemployed AHAs who the Ugandan Veterinary Association (UVA) believes could provide services in pastoral areas. If AHAs were willing to work in Karamoja’s relatively insecure and isolated conditions, this could be an opportunity to pilot the private AHA-CAHWs model predicted by Okwiri et al in Kenya as having the best chances of financial viability. Professional vets base their opposition to CAHWs in concerns about the reported increasing levels of antibiotics found in milk products. As milk from pastoral areas is not used in commercial dairy production, it is highly unlikely that this is a result of CAHW practice and much more likely that it results from drug administration regimes in the peri-urban dairy industry.

3.3 The privatisation of professional practice

Privatisation began after 1989 with the liberalisation of veterinary drugs and pharmaceutical supplies. In view of the
meagre government resources available, procurement and distribution of veterinary drugs, chemicals and biologicals was divested to the private sector, except for trypanocides and vaccines against rinderpest, CBPP, FMD and rabies.

In 1991, in a first effort to promote privatised service delivery, the Ugandan government secured a World Bank loan for a Livestock Services Project (LSP) with three major objectives:

- to reverse the decline in livestock numbers through improvement of disease control and other productivity measures
- to improve the quality and cost effectiveness of livestock services
- to support government’s policy of encouraging the development of private veterinary practices for curative services and the distribution of veterinary drugs.

The UVA was given the mandate to administer the loans programme to assist qualified registered vets into private veterinary practice. The scheme excluded other veterinary professionals as it was assumed that only veterinary surgeons were capable of private practice and that, in any event, they would employ other veterinary cadres. The LSP put aside US$1 million for credit for at least 60 vets, but this had failed to take off by the time that the project closed in 1998, mainly because no commercial bank was willing to take up the lending protocol. On the other hand, spontaneous private practices proliferated, with vets starting in a small way using personal savings and family loans. By 1998, there were 80 such practices scattered in the high potential areas of the country (Kasirye 1998).

Uganda also benefited from the EU-funded PARC Privatisation Programme. The UVA had the option of accessing money for making loans to vets from this project at the same time as the LSP was negotiated. However, the UVA preferred to pursue the World Bank funds and put a hold on the PARC (EU) funds until the late 1990s. The latter project is now going ahead with 12 vets having received loans and set up in practice. The 12 are urban based but distributed in all four regions of the country.

3.4 Creating an enabling environment for privatised service delivery

Since 1999, Uganda has had a well-articulated policy statement on the delivery of veterinary services. This outlines strategies for: (a) the provision of veterinary services in remote areas (b) the establishment of a viable private sector and (c) the effective delivery of public good services. It recommends public and private sector roles in service delivery and proposes a review of veterinary legislation. Under the policy formulation process, public and private responsibilities were delineated as follows:

Public sector responsibilities:
- Policy formulation
- Strategic national planning
- Technical guidance
- Setting standards and regulations
- Inspection
- Coordination
- Monitoring and evaluation

Private sector responsibilities:
- Clinical services
- Provision of veterinary drugs and other supplies
- Food processing
- Tick control
- Livestock monitoring and AI
- Animal disease diagnosis
- Some aspects of training

Some public goods services can also be contracted out to the private sector. The policy has been approved by Cabinet and the process of legislative review has started with the Veterinary Surgeons Act, a first draft of which is in circulation for stakeholder comment. The proposed Act seeks to minimise or eliminate the inadequacies of the existing Veterinary Surgeons Act (Cap. 265) by among other things extending the scope of legislation to cover para-professionals and establishing a Uganda Veterinary Council as the new regulatory body for the profession.
Private veterinary practice is currently held back by legislation on the control of drugs. In 1993, an Act of Parliament established the National Drug Authority to cover the whole drug industry in Uganda. The Act does not allow vets to operate veterinary pharmacies and does not recognise veterinary paraprofessionals. MAAIF has drafted a new veterinary drugs policy which will contribute to the impending revision of the Act and assist in promoting private practice, by giving vets the authority to store and sell veterinary drugs.

3.5 Livestock development in its social and economic context

Karamoja is a remote, semi-arid region in north-east Uganda where the economy and culture is based on the ownership of livestock. In recent years the region has been characterised by drought, famine, insecurity and political isolation. The Karamoja region remains heavily marginalised with the worst quality of life indices in the whole of Uganda (Barton and Waima, 1995). Both colonial and postcolonial governments considered the pastoral lifestyle of the Karimojong to be primitive, environmentally destructive and of little relevance to the national economy. In many respects, these attitudes still prevail and despite the creation of a Ministry of Karamoja Affairs the region has very poor infrastructure and services, with no asphalt roads or telecommunications.¹⁶

Pastoral land has been continuously alienated, with large parcels of grazing lands being gazetted as game parks, game reserves, wild life corridors and forest reserves. Consequently, many Karimojong find themselves confined to dry infertile land which is unable to support them and their livestock. This has disrupted traditional migratory patterns, provoked rustling by the Karimojong in agro-pastoral areas further south, and led to increased conflict over livestock, water and pasture. ‘Traditional’ patterns of rustling between the Karimojong and their neighbours have escalated in recent years due to the flow of small arms into the area from Uganda’s earlier conflicts and from current war in South Sudan. Insecurity persists despite, or because of, recent government efforts to disarm the Karimojong.

More recently, potentially rich deposits of gold and minerals have been identified in the area and prospecting licenses have been issued to national and international mining companies. If these deposits turn out to be significant, mining development is likely to further encroach on the grazing lands of the Karimojong, but they are unlikely to share in the new source of wealth.

The Poverty Eradication Action Plan (PEAP), Uganda’s equivalent of the PRSP, has been hailed as a model by the international donor body. Although Participatory Poverty Assessments (PPAs) associated with the PEAP have been conducted in pastoral districts (for example, Kotido), the PEAP itself gives little attention to livestock or pastoral concerns and does not mention livestock health. Measures to improve market access for agricultural producers, to decentralize agricultural research and extension services and to make these more demand-driven are included and could be relevant to livestock-keepers, but in the current PEAP they refer only to crops. Livestock are given more attention in the Plan for Modernization of Agriculture (PMA), one of the pillars of the PEAP. The PMA is a multi-sector policy framework which aims to transform subsistence farming into commercial farming through further decentralization, promoting private sector activity, supporting the adoption of new technologies, and enhancing access to food supplies through the market. PMA priorities include provision of stocking materials and control of livestock diseases and pests.

The vision for the livestock sub-sector as stated in several government documents is to increase production and livestock productivity on a sustainable basis within the framework of the PMA and of sound environmental management. This is to be achieved through:

¹⁶ Telephones were introduced on a limited scale in 2001-2.
• Development and maintenance of a viable livestock industry through cost effective control of animal diseases
• Promotion of sustainable animal genetic improvement through appropriate breeding strategies
• Establishing cost effective and sustainable animal health services delivery systems
• Reducing production costs through farmer training programmes and extension services in conformity with the principles of the National Agricultural Advisory Service (NAADS)
• Preservation and development of natural resources in conformity with the National Environmental Action Plan (NEAP) 1994.

Key points

• The veterinary services provided under colonial rule were greatly expanded by the independent government. This was unsustainable, especially with global recession in the 1970s, and ministry staffing was reduced by four fifths.
• A large number and type of non-professional providers in the early years of government service were subsequently superseded by the development of professional cadres.
• A generally poor level of public veterinary provision from the 1970s onwards was even worse in pastoral areas.
• Under decentralisation there has been a loss of central control on disease surveillance and prevention.
• At the same time, the presence of government vets at county level has inhibited the development of private practice.
• The UVA is generally hostile to the activities of CAHWs, particularly given large numbers of unemployed diploma and certificate holders, who it is argued, could be deployed to work in pastoral areas.
• The availability of this pool of labour could be an opportunity for testing out models of AHA supervised CAH delivery systems.
• Progress is being made towards developing a standard syllabus for training CAHWs.
• Pastoralists are marginal in Ugandan society, particularly since Karamoja is a highly insecure area. Pastoral interests are not represented in the PEAP but the PMA provides opportunities for livestock and pastoral interests to be presented.

4. **Ethiopia**

4.1 **The evolution of government veterinary services**

Compared with other countries in the region, veterinary services developed late in Ethiopia. It is a moot point whether they began at the end of the 19th century, when the Italians carried out a rinderpest survey in Eritrea, or in 1908 when Emperor Menelik II set up the Imperial Veterinary Services in Addis Ababa. Whichever, animal health services really got under way in the 1940s and 50s when Ethiopia started to produce vaccine, and newly trained vaccinators were sent around the country to vaccinate against rinderpest. These people are regarded as the pioneers of the service (Admassu and Nega, 2001). Locally-trained vaccinators were also used effectively in the JP15 rinderpest campaign in the 1970s.

In the 1960s and 1970s, a professional veterinary career structure emerged. In the 1960s, a two-year course was set up to train 12th graders as AHAs. Their tasks were to organise vaccination campaigns and provide training for vaccinators, and to treat animals. A cadre of vets was formed from this first cohort of AHAs, the most experienced of whom were sent overseas to obtain their BVM. As a new cadre of professional vets was formed, the Ethiopian Veterinary Association (EVA) was set up with a membership of around 60 in the 1970s. In 1984, a Faculty of Veterinary Medicine was opened in Ethiopia and from then on most vets were trained at home and the profession divided, with people being trained either as AHAs or as vets. The FVM curriculum gives attention to rural practice but not specifically to pastoral disease problems.

Service provision in Ethiopia has always been dominated by the public sector, and veterinary
services have been no exception. This was the case even under imperial rule when services were initially provided through invited foreign veterinary teams. However, the reach of government was significantly extended after 1974 when the Emperor was replaced by the Derg, a self-proclaimed Marxist-Leninist regime which set up a hegemonic state. The Derg was supported by the Soviet bloc and shunned by other donors, and so escaped donor pressure during the 1980s to introduce structural adjustment policies, to liberalise the economy and to scale down public sector provision. Consequently, in 1991, when the Derg was replaced by a government which embraced free market principles, the new administration inherited a state in which most of the economy and much of service provision was in government hands. This is still the case today and, even now, more than 90 percent of veterinary staff are in government service. In 1992 Ethiopia was restructured as a Federal state and most public sector staff, including veterinary staff, are employed by Regional Governments which are defined along ethno-linguistic lines (see more below).

Under this restructuring, the Federal level has retained policy-making and regulatory functions and has relinquished service delivery to the Regions. This division of labour gives the Federal level overall responsibility for ensuring compliance with the WTO SPS Agreement. Formally, it has limited capacity to do this since the vets who are employed by Regional Governments have no accountability to the centre. Reportedly, however, a sense of professional fellowship and a shared concern for Ethiopia’s disease-free status mean that in practice these vets are willing to fulfil their monthly reporting requirements to the Ministry at Federal level. Where they fall short the problem is due more to lack of capacity than to lack of will. When this happens – and it does happen quite regularly – the Federal level has no authority to enforce Regional staff to comply.

Regional services are provided through clinics and animal health posts. Ministry of Agriculture guidelines direct that clinics should be staffed by vets, AHAs and AHTs and that health posts should be staffed by AHTs. These staffing levels are far from being met, however: Ministry of Agriculture records show that there are almost twice the number of clinics as there are vets and with severe shortages also in the other staff categories. In response to this, and in line with a Poverty Reduction Strategy which has capacity-building as one of its four pillars (MEDaC, 1999), the present government plans to increase the number of graduate vets from the present total of 50 a year to 350 a year starting in 2002. The number of diploma holders is similarly being increased from around 80 to 500 a year.

Given the current staffing shortfall, the proposed increases are understandable, but factors other than staffing account for what is acknowledged to be a very inadequate level of public sector provision. First, the dearth of facilities in rural areas has led successive governments to give priority to building physical infrastructure, including veterinary clinics and health posts, but without making adequate provision for their running costs apart from a budget for salaries and related personnel costs. The result has been that even where facilities are adequately staffed the other resources necessary for providing an effective service are missing. An already poor level of provision has been made worse because social sector budgets have regularly been cut to accommodate increases in military spending. This was glaringly obvious during the 1980s civil wars in the north of Ethiopia when the Derg operated a policy of ‘everything to the war front’. But it was also seen more recently in the 1998-2000 war with Eritrea which forced cuts in social sector spending, despite government efforts to prevent this happening. The easiest and therefore the first items to be cut are those for the non-salary costs of running the service, since cuts in salaries involve laying-off staff. The net result of this pattern of budgetary allocations is that in animal health public sector provision is said to meet less than 30 percent of demand (Moorhouse et al, 1997; Kloos, 1998; World Bank, 2000).
4.2 The development of community-based delivery systems

Predictably, provision is worst in pastoral areas and has remained so despite a series of donor funded livestock initiatives since the 1960s (Pastoral Extension Team, 2001). Provision deteriorated further after 1992 when the recasting of the state along ethno-linguistic lines meant the return of professionals to their places of origin, and a net loss of professional veterinary staff from Regions with significant pastoral populations. Increasingly, this shortfall is being substituted by CAHWs.

In Ethiopia, CAH programmes began as NGO initiatives in the 1980s, at first in relatively small numbers but more significantly after the droughts of the mid-90s17. Crucially, in 1994 PARC Ethiopia trained CAHWs in the Afar region using the participatory approaches of NGOs. At this time, Afar was considered to be the last remaining focus of rinderpest in Ethiopia, but difficulties of physical access meant that the problem could not be solved using conventional vaccination approaches. However, with government support, the CAHWs in Afar achieved dramatic vaccination coverage and efficiency (Mariner, 1996). These successes raised the profile of CAHWs in Ethiopia though they did not entirely remove opposition. Although, as we have mentioned, using non-professional veterinary staff was not new to Ethiopia, NGO programmes were innovatory in training them to provide treatments and administer modern veterinary drugs. This has provoked a heated debate within the Ethiopian veterinary profession, as elsewhere. This debate has not ended but the profession has demonstrated that it is open to some of the changes which will allow CAH delivery systems to be scaled up. In the mid-1990s, the EVA passed a formal recommendation supporting the use of CAHWs in pastoral areas, and CAHWs are now being trained by Regional Bureaus of Agriculture as well as by NGOs. Today, some 1500 government- and NGO-trained CAHWs are reported as working in different parts of the country (Hadgu, 2002).

This number of CAHWs has the potential to significantly improve animal health in areas where professional providers are thinly spread. In 2002, a workshop convened by government and the FAO brought stakeholders together to consider how this potential could be realised. Several issues were identified as needing attention. First, contact between CAHWs and professional providers needs to be strengthened. Supervision mostly works where CAHWs are under NGO auspices, but where CAHWs are independent only a minority are supervised by a government or private vet or AHA. A good example of how to ensure that supervision can happen is provided by an SCF-UK project which has successfully lobbied the Amhara Regional Bureau of Agriculture to include supervision costs for CAHWs in annual budgets. Second, all agencies involved in CAHW training need to work towards standardising the selection, training, equipping and remuneration of CAHWs. In particular, there is considerable variability in how cost recovery schemes operate, and the extent to which costs are in practice subsidised by NGOs. Finally, more attention needs to be given to systematic monitoring to provide quantitative data on the impact that CAHWs are having on mortality and morbidity rates of livestock (PACE/Ministry of Agriculture, 2002).

The Ethiopian government is unusual – though not unique – in linking the development of a cadre of CAHWs with the privatisation of veterinary services. This is reflected in the organisational set-up in the Federal Ministry of Agriculture where both privatisation and CAHWs are handled by the same unit. The 2002 workshop mentioned above not only discussed standardising approaches towards CAH but also discussed how better to promote private veterinary practice.

4.3 The privatisation of professional practice

Despite its espousal of a free market ideology, the present government has been slow to
reverse the effects of decades of state monopolisation. Accordingly, it has made little progress in delineating public and private responsibilities in animal health service delivery, and in promoting private practice. Moreover, Regional Governments are actively undermining private sector initiatives by providing clinical services and subsidised drugs (Moorhouse et al, 1997; Pastoral Extension Team, 2001).

As elsewhere, private veterinary practice has been promoted under the EU-funded PARC programme, which in Ethiopia includes AHAs and AHTs as well as vets. In 1993, a condition of continued funding was that the programme should show greater progress and the most recent report from the Veterinary Privatization Promotion Office (VPPO) shows that, compared with other countries, considerable advances have indeed been made: 57 vets, 58 AHAs and 102 AHTs have received loans, representing around 12 percent, 6.8 percent and 3.3 percent respectively of total numbers in these categories. The reports also show that between 1995 and 2001 the percentage of private clinics rose from 6 percent to 14.7 percent of the total, and the percentage of private health posts from 1 percent to 6.5 percent.

While the report shows that there has been steady growth in private veterinary practice since 1993, discussions in the 2002 workshop identified a number of problems with privatisation and obstacles to further expansion, including:

- No official policy for animal health services and consequently no policy defining public/private responsibilities.
- Unfair competition to private practitioners deriving from:
  - Continued government involvement in clinical treatments, prophylaxis, and drug supply.
  - No cost recovery in public sector provision.
  - Inadequate mechanisms for control of illegal practitioners and vendors, especially in the Regions, zones and districts (the three levels of local government).
  - Inadequate control of the import and distribution of veterinary drugs and equipment by NGOs

- The need for an independent body to manage the veterinary privatisation scheme and to renegotiate credit arrangements.
- Shortages of financial and physical capital and of entrepreneurial skills on the part of potential private practitioners (Nega 2002a, Kitaw 2002).

These constraints need to be removed but are unlikely to have a major impact in pastoral areas. It remains the case that most licensed private practices are set up in the more profitable high potential areas, mostly in and around Addis Ababa where there is intensive dairy production. There are almost no private veterinary practices in pastoral Regions, apart from a few vets in Somali region whose incomes are subsidised by NGOs. Similarly, privatisation in Ethiopia, as elsewhere, has propelled more practitioners into the lucrative pharmaceutical industry rather than into the much more risky clinical practice. By 2001 there were 127 private veterinary pharmaceutical importers and 274 private drugs shops selling veterinary products, as against 77 clinics and animal health posts, 24 of which also sold drugs. Again, the majority of retail outlets are in high potential areas though SCF UK has worked with the Somali Regional Bureau of Agriculture to develop six private veterinary pharmacies which reportedly are working well.

4.4 Creating an enabling environment for privatised service delivery

Livestock services have historically been accorded a low priority in government, reflected in the frequent reorganisation of the veterinary service and its comparatively low
ranking within ministry structures. Today it is organised as a team, the lowest level in the ministry structure and, with a staff of only seven, it struggles to shoulder its policy-making and regulatory functions (Admassu and Nega, 2001). It is perhaps not surprising that Ethiopia still has not issued written policies for veterinary services. Until recently, Ethiopia has also had no Veterinary Surgeons Ordinance, and no system for formal registration and regulation of practitioners. Under the old Animal Disease Control Act (1961), a veterinary practitioner simply had to present his or her qualifications to the Veterinary Services Department which then gave approval for the Ministry of Trade to grant a licence.

Current relevant revisions being undertaken to the legislation include:

- **Animal Disease Control Proclamation No. 267/2002**
  
  This revision to the 1961 Act came into force at the beginning of 2002. It provides for a Veterinary Council to register animal health professionals. CAHWs are covered as ‘Animal Health Representatives’. The Proclamation requires the Ministry to define public and private responsibilities in veterinary services and to create a conducive environment for private practice.

- **A 2000 Proclamation to establish a Drugs Administration and Regulation Authority**
  
  This replaces registration by veterinary services in the Ministry of Agriculture and becomes operational in 2002. The authority will cover both human and animal health drugs and will include representation from the Ministry of Agriculture.

4.5 Livestock development in its social and economic context

Twenty percent of the national herd is said to be held in the pastoral and agro-pastoral sectors, representing a significant national resource (see Appendix 5; NLDP, 1999 cited in Nega, 2002). Pastoral grazing lands have formally been designated as property of the state since early in the last century, and governments have adopted policies ranging from explicit promotion of settlement to a more ambiguous stance. One of the first changes implemented under the Derg was to introduce a ‘land to the tiller’ policy of land reform which had positive effects in many of the agricultural areas in the south. With respect to pastoral areas, however, the policy had an overt agenda to promote sedentarisation, and it led to an increase in agro-pastoralism where it was aggressively introduced. The present government is more cautious: the 1995 Constitution confirms rangelands as state property but prevents pastoralists from being moved against their will. The government’s attitude towards pastoralism can at best be described as ambivalent. The Second Five Year Plan describes pastoralism as a problem to be “alleviated”, while other major policy documents, such as the Food Security Strategy and the Interim PRSP, hardly mention pastoralism or the problems faced by pastoral communities.

Potentially, however, the PRSP process represents an opportunity for the Animal Resources Department and the Veterinary Services Team to make the case for an increased level of resources to be directed towards animal health and other services for pastoral areas. Recently, a new Ministry of Agriculture Pastoral Extension Team was invited to make an input into the preparation of the final PRSP, which suggests that government is seeking guidance in developing a policy agenda for pastoralism. In addition,
the subject of the 2002 EVA conference is the contribution of CAH delivery systems to poverty reduction.

The government’s decentralisation policies offer both opportunities and threats to pastoralism. As noted, ethnic Federalism has meant the return of qualified professionals from pastoral Regions to their places of origin with a net loss of skills from pastoral areas. The mainly pastoral Regions, such as Afar and Somali, are by far the most underdeveloped in Ethiopia, and contain few professionals able to replace those who have left. While current decentralisation arrangements create opportunities for the pastoral Regions to give greater attention to the needs of pastoralism and pastoralists, these Regions typically lack personnel skilled in planning who could do this effectively. As a further stage of the PRSP process it is anticipated that Regional PRSPs will be developed which would have the added merit of enabling governments of Regions with large pastoral populations to direct public expenditure towards supporting pastoral needs. Again, however, there is no capacity within the pastoral Regions to do this.

Ethiopia has been at war during much of the past four decades. This has included civil conflict in the north, largely resolved at the beginning of the 1990s, international wars with Somalia in 1977-78 and with Eritrea in 1998-2000, and continuing insurrection in pastoral areas where the Oromo Liberation Front (OLF) is active, and across the border with Somalia. Ethiopia also suffers from an escalation in armed cattle-raiding across its boundaries with Kenya and Somalia. These conflicts have mainly been located in and affect pastoral regions.

Key points

- Provision has been worst in pastoral areas with first NGO-trained CAHWs and then government-trained CAHWs being brought in to fill the gap.
- Some progress has been made in aligning NGO and government approaches, creating potential for a scaling up of CAH delivery systems. Serious difficulties remain, particularly the lack of supervision for CAHWs.
- The development of CAH delivery systems and the promotion of privatisation are seen as connected.
- Though some progress has been made in promoting private veterinary practice, most private operators are in the pharmaceutical industry. Few private operators of any kind are in pastoral areas.
- CAHWs are implicitly covered by revised legislation; otherwise only limited progress has been achieved in creating an enabling environment for privatisation.
- Pastoralism has historically been marginal to government concerns. Decentralisation and the PRSP process create opportunities for pastoralists’ concerns to be articulated. However, weak capacity in the pastoral Regions limit the extent to which these opportunities can be realised.
- Pastoral areas have been and continue to be sites of civil conflict.

5. Eritrea

5.1 The evolution of government veterinary services

The first initiative in veterinary development in Eritrea was made by the Italian colonial authorities. In 1903, they established a veterinary laboratory and clinic on the outskirts of the newly established capital of Asmara. This facility was principally to treat African horse sickness which was afflicting the horses and mules used as pack animals by the Italian army. More recently, public sector provision has been shaped both by Ethiopia’s annexation of Eritrea in 1962 and by the services established by the Eritrean People’s Liberation Front (EPLF) during the 1961-1991 independence struggle against Ethiopia. From the 1970s, in particular, the provision and
shape of veterinary services tended to follow the ebb and flow of the military campaigns, and the advances and retreats of the two armies.

In the first decade or so after annexation, veterinary services were delivered by the Ethiopian Ministry of Agriculture along lines similar to those operating in the rest of Ethiopia. The service was staffed by vets and AHAs who had graduated in Ethiopia. They were supported by locally-recruited AHTs who had been given on-the-job training. Reportedly, the service worked well during the 1960s and the early 1970s, but the intensification of the conflict led to shortages and a general deterioration in provision during the 1980s. By 1989, Ethiopian forces were confined to a small enclave, and clinics were supplied by military convoy and subject to chronic interruptions in service. In 1991, when the EPLF took power in Eritrea, all the Ethiopian veterinary staff returned to Addis Ababa.

The EPLF’s veterinary services were shaped by the fact that, because the front needed to establish a base in areas which were comparatively easy to defend, it had a strong presence in the more remote pastoral areas. Given the value that pastoralists place on livestock health, veterinary services emerged as an important component of the EPLF’s social programmes, with paravets as the main service providers. Providing animal health services is said to have been second only in importance to providing human health services (Pool, 2001). Paravets were mainly illiterate herders chosen by their communities and trained by the EPLF Veterinary Department to vaccinate, to pass on information to livestock-keepers and to carry out simple treatments. They were better placed to provide a service to pastoral communities than the members of the EPLF because, as pastoralists themselves, they could move with their herds and, as civilians, they could pass unremarked by Ethiopian soldiers. Between 1983 and 1992, the Veterinary Department trained 180 paravets who were paid through a 20 percent mark-up on drugs and through food-for-work, both of which were supplied by the EPLF. They were also assisted through labour contributed by other members of the community. The start-up costs of the revolving fund for the programme were provided by the EPLF, and between 1983 and 1995 the continuing costs of running veterinary services were met by international NGOs.

The end of the war led to independence and to the formation of an EPLF government. The Veterinary Department now had a national remit and responsibility for a more complex livestock infrastructure, including abattoirs, meat inspection and quarantine facilities. The shape and focus of the service changed accordingly. With a post-war emphasis on re-instituting a national veterinary infrastructure there was a shift away from mobile paravets and towards building, staffing and supplying 55 stationary clinics, one for each sub-Region. Under this structure, vets are posted at national and at six Regional headquarters, and AHAs and AHTs are posted at sub-Regional clinics. In 1991, Eritrea had 15 vets, 12 AHAs and 204 AHTs (Cullis et al, 1994). Under decentralisation, these staff will eventually be employed by Regional governments, but this has not happened yet. There is still strong central management of all aspects of service delivery, and of disease surveillance and control.

Given the veterinary department’s relatively small staffing, the period since independence has seen efforts to create a larger professional cadre, though on a more modest scale than in some of Eritrea’s neighbours. Undergraduate and postgraduate training is done in other African universities, as Eritrea has no FVM and no plans to build one since the Veterinary Department estimates that the country needs only around 5 new vets a year. At independence, the country had no agricultural training institutes of any kind and the Ministry of Agriculture has now built a centre which runs courses for upgrading AHTs to AHAs. This can create around 30 new Diploma-holders a year, with a further 13 being trained in a private agricultural training school. These courses are not run every year, but only when a new group of AHAs is needed.
5.2 The development of CAH, post independence

As noted, paravet or CAHW training and support were key EPLF programmes during the independence struggle, but were overshadowed post-independence by the desire to build up the veterinary infrastructure. In 1997, as part of a larger donor-funded agricultural programme, a new pilot scheme to set up a network of CAHWs was started in She’eb, an area inhabited mainly by transhumant pastoralists. Training was provided by Regional Ministry of Agriculture staff and tailored to local conditions. This new phase of CAHW training after a lull of several years was prompted in part by evidence that the focus on stationary clinics had reduced the service for some livestock-keepers. In She’eb, particular problems arose when pastoralists made their annual migrations into the mountains and away from government clinics. The need to rethink the place of paravets in the service was given added impetus by the 1998-2000 border war with Ethiopia, when around half the Veterinary Department’s staff were conscripted, with the effect that half of sub-Regional clinics were either closed or operating below capacity.

Increases in school attendance since independence, mean that it is possible today to find trainees who are literate, and the Veterinary Department prefers trainees who have 5th-8th grade education. The final decision about who is to be trained remains with communities, however, and the typically poorer social indicators in pastoral areas mean that illiterate herders are not ruled out (Cliffe et al, 1992, World Bank, 1996) The latest round of training has created a further 124 CAHWs, who are paid through a 20 percent mark-up on drugs as before.

Uniquely in the region, NGOs have had almost no influence on CAH provision in Eritrea. As noted above, EPLF-trained paravets were the main service providers during the independence struggle and since independence the Eritrean government has kept firm control over both policy-formulation and implementation. Having run development programmes under arguably more difficult conditions during the independence struggle, the new government is unwilling to cede control over the post-war development process to either donors or NGOs. NGOs have had a presence in Eritrea to monitor their funding of government programmes, and more recently to support the emergency occasioned by the 1998-2000 war with Ethiopia, but almost none has been allowed to run a programme. The main exceptions have been an animal health project run by a Belgian NGO, which lasted less than two years, and a Church-related organisation running the Diploma courses for AHAs mentioned above.

5.3 Privatisation initiatives

There are no private vets in the country at present, and private practice is not seen as a realistic option yet for a number of reasons. First, the total number of professional Eritrean vets is small and their departure is seen as likely to seriously weaken public sector provision. Secondly, Eritrea inherited a similar pattern of nationalisation as Ethiopia and, like its Ethiopian counterpart, the Eritrean government has appeared reluctant to privatise. Finally, people’s purchasing power is considered to be too low to generate significant income to support private practice, especially compared with the relatively good salary that vets receive in public service since government was restructured in 1997. The observation that in other countries privatisation has often encouraged vets to go into the pharmaceutical industry, rather than into clinical practice, has also discouraged government from pursuing the privatisation option. The only private animal health operators at present are CAHWs and drug dispensaries, both of whom depend for their supplies on government. The pilot CAH project described above is expected to help government develop a privatisation policy, with CAHWs being seen as possibly the only category where private operations are viable (Teame, 2002).
5.4 Creating an enabling environment for privatised service delivery

There is no policy document for livestock or veterinary services. In 1994, FAO assisted the Ministry of Agriculture to conduct an agriculture sector review which, amongst other things, made recommendations for building up the infrastructure of the veterinary services along lines that the Ministry of Agriculture subsequently adopted. With World Bank assistance, the Ministry of Agriculture is updating that review and developing an agricultural policy paper which will include detailed strategies for livestock. These are likely to include strategies that support the role of livestock in promoting household food security and increasing export earnings.

With respect to legislation, Eritrea was covered by the Ethiopian laws until independence and now needs to develop her own. New laws relating to animal disease and health are in draft and ready to be presented for approval by the Council of Ministers during 2002. They include:

- Animal Diseases Act
- Veterinary Surgeons Act which allows for private veterinary practice and caters for all cadres; it establishes a Veterinary Board under the Ministry of Agriculture
- CAHWs are explicitly mentioned in the Veterinary Surgeons Act. They are defined as having been selected by their communities for short courses in basic animal health care, and as performing well-defined and simple procedures in their communities and under veterinary supervision.
- By-laws for an Eritrean Veterinary Association.

The professional associations set up under the Derg were abolished by the incoming government in 1991. So far, a new vets association has not been set up. The draft law provides for a single association with separate sections for vets and for AHAs.

- Quarantine Law
- Veterinary Drugs Proclamation which allows for regulation of a private market in veterinary pharmaceutical products

5.5 Livestock development in its social and economic context

The Italian colonial authorities’ main agricultural interest in Eritrea was in crop development for domestic needs and for export (Tseggai, 1987). With respect to livestock, the Italians had some interest in intensive dairy production and meat processing around the main towns, but they viewed pastoral grazing areas as ‘virgin lands’ to be put under the plough for commercial crop production. In 1911, the Italians declared all land lying below 600 metres above sea level to be property of the state. This allowed large tracts of dry season grazing to be alienated for farming by Italian settlers.

By a government proclamation of 1994, the present Eritrean government made all land property of the state, with citizens being granted usufruct rights of various types. As in other countries, pastoralists’ grazing and water rights are not well enshrined in the legislation, though the government is sensitive to pastoral concerns, given the EPLF’s history in pastoral areas. Since independence, lowland areas have also been designated as areas of settlement for returning refugees and demobilised soldiers and this clearly creates risks of both environmental stress and further conflict over land, with detrimental effects on pastoral livelihoods. This may not be given early attention, however, as the Eritrean government inherited many land disputes at independence, and its first priority is to settle the countless conflicting claims over urban and peri-urban land.

Like the Italians, the present government has prioritised crop production over livestock, though unlike earlier administrations they have given attention to improving traditional rainfed
farming as well as to promoting commercial farming. More recently, Ministry of Agriculture staff have come to question the viability of the traditional crop production sector, given increasingly unreliable rainfall and rapidly advancing soil erosion. Accordingly, the ministry is now giving livestock more attention and a new livestock policy paper is in preparation. It is not yet known whether this will mean more support being given to pastoralism and agro-pastoralism, which holds around 60 percent of the national herd, or will aim to re-establish intensive dairy production around the towns and to set up ranches in the lowlands. Government attitudes towards both pastoralism and sedentarisation are ambivalent: while nomadic pastoralism is viewed as unfavourable to social and economic development, it is recognised that forced settlement is both unwise and unlikely to be successful.

Decentralisation, formally introduced in 1996, allows for Regions to elect their own parliaments, determine their own social and economic priorities and directly employ sector staff. Little progress has been made in this regard so far. Regional parliaments have been elected, but most power is held by a centrally-appointed Regional Governor, line ministry staff are still employed centrally, and local autonomy is further constrained because the Regions have few financial resources of their own and are highly dependent on transfers from the centre. It is anticipated that the signing of a peace agreement with Ethiopia in 2000 will encourage further devolution but it is not evident what implications might follow from this. It is conceivable that Regions with larger pastoral populations might choose to direct more resources to livestock and to extensive production systems. However, national resources are severely constrained in the aftermath of the war, and this implies both a continuing financial dependence of the Regions on the centre and continuing centralised control over the direction of economic development. In any event, it is unlikely that Regional employment of veterinary staff will lead to a relinquishing of central control over disease surveillance and prevention.

Eritrea is one of only four governments in Africa which have not yet drafted a PRSP. However, the government is in discussions with the World Bank over transitional lending arrangements and poverty reduction strategies. As in other countries, the PRSP process may be a means through which pastoral interests can be represented but it is too early to judge how the process will evolve.

Key points

- As a new state, Eritrea is at the stage of developing professional public veterinary services.
- It appears that continuing government training and supervision of private CAHWs is likely to be a part of this process, even if on a limited scale. NGOs are unlikely to be involved.
- Draft legislation provides for private veterinary practice but there appears to be little scope for and little interest in pursuing formal privatisation initiatives, beyond creating more CAHWs.
- All categories of animal health workers are covered under draft legislation, including CAHWs.
- New policies towards livestock are being elaborated with World Bank support. It is not known whether these will include support being given to pastoralist production systems; there are few precedents for this in recent Eritrean history.
- Decentralisation processes have started and PRSP process may soon start but are unlikely to result in greater representation of pastoral interests in the near future.

22 The effects of the war are seen in a decline in average GDP growth from 8 percent in 1997 to 3 percent in 1999, and in a fiscal deficit of 35 percent of GNP in 1999 as compared to 5.5 percent in 1997.

23 The other three countries are Liberia, Somalia and Zimbabwe. As the most stable of these and with a track record of tight macro-economic management, it is likely that Eritrea will soon enter the PRSP process.
Eritrea has been at war for more than 30 of the last 40 years.

6. Sudan

6.1 The evolution of government veterinary services

Veterinary staff first came to Sudan with the British army and under the Anglo-Egyptian Condominium at the end of the 19th century. Functioning veterinary services were set up in the first decade of the last century, mainly to combat rinderpest, and this continued to be the main activity of the veterinary services until the 1930s.

Under the Condominium and for many years after independence in 1956, Sudan had at least two categories of non-professionals working in animal health. The most important of these were Stockmen trained as vaccinators and to do simple treatments, many of whom became highly valued members of the veterinary team. The service also had ‘guards’ who were employed to report on disease incidence in pastoral areas, and to settle conflicts over land, and over water and grazing.

Professional veterinary training began in 1938 with the setting up of a training school for AHAs. This was replaced by a FVM in 1958, and no further training of AHAs took place until the 1980s. Although the initial intake into the FVM was small, it has increased in every decade since 1958 so that today a total of 550 undergraduates a year are admitted to five Faculties around the country. The decline in AHA training combined with the expansion in vet training has created an inverted pyramid in which Sudan has over 4,000 vets and less than 400 AHAs. (University of Khartoum, 1988; PACE/MoAR, 2002). The Sudan Veterinary Association (SVA) was set up in the 1960s and now has a large membership.

From the 1960s to the mid-80s veterinary staff were guaranteed government employment. Government was the monopoly supplier of drugs, for which a small fee was levied, and of vaccination and treatment, which were free. In the 1970s, an ‘informal’ private market in drugs emerged, a few vets started to work illegally in private practice and government vets also began to provide paid services, an illegal practice which was nevertheless condoned given low public sector salaries. In the late 1970s and 1980s, Sudan plunged into an economic crisis which led to the running down of all state services. Government ceased automatic employment of veterinary staff in 1985 and introduced a fee-for-service principle in 1992 which also required livestock keepers to pay for vaccination.

In 1991, Sudan was reconstituted along Federal lines, with the Federal level being given policy-making and regulatory functions and with States responsible for service delivery. The Federal level is responsible for disease control and surveillance. Though it has no formal authority over veterinary staff employed in the States, the Federal Ministry of Animal Resources is formally linked to the States through a Federal Coordinator located within State structures. Moreover, the most senior staff at State level are hired and fired with Federal authority. The Ministry believes this system provides some safeguards with regard to capacity for effective disease surveillance and control.

With rare exceptions, the States have found it difficult to finance service delivery, despite substantial financial transfers from the centre and experiments in income generation by some state Ministries of Agriculture. Most veterinary departments have no resources and veterinary staff frequently have to wait months for their salaries. The results have been a poor or non-existent service, demoralisation and low motivation among staff, and a brain-drain of vets to the Gulf.

6.2 The development of community-based delivery systems

Although non-professional animal health workers have long been a well-established part of the veterinary service, CAHWs as we know them today emerged through NGO activities in the 1980s (Egemi, 2001). NGOs’ main involvement in animal health has been to plug gaps in service provision left by the
withdrawal of state services by training, supporting and supplying CAHWs, particularly in more marginal areas, including pastoral areas in the north and west, in South Sudan (see section 6.6) and in the ‘transitional’ zone between north and south. NGOs working in these latter areas, coordinate their activities and collaborate with the Ministry of Animal Resources under the umbrella of Operation Lifeline Sudan (OLS), coordinated by FAO. There are now around 1,500 CAHWs in the country (PACE/MoAR, 2002).

Sudanese vets appear relatively open towards the participation of para-professionals in service delivery, and the professional bodies themselves have had some involvement with CAHWs. The President of the SVA chairs a Dryland Husbandry Project, one of the activities of which is training paravets in eastern Sudan. The Sudan Women’s Veterinary Association has cooperated with OLS in western Sudan, and has encouraged young women vets to involve themselves in community work, including with female CAHWs. This interest in CAH work is explained by some vets as being related to the close working relationships that previously existed between them and earlier generations of para-professionals. It may also reflect a more open acknowledgement of the failure of the public sector to deliver a service. It has been suggested that it is only by collaborating with NGO-supported CAHWs that government vets can obtain any resources to do their work.

6.3 The privatisation of professional practice

Privatisation began in earnest after 1985, and particularly from the 1990s when the pharmaceutical trade was liberalised. Today, though low salaries attract very few vets into government service, there are also very small numbers in private clinical practice: around one-third of all vets – or more than 1,000 – are listed as private practitioners but around 80 percent of these are said to be working for drug companies. Some 35 companies are said to be importing drugs and over 300 are said to be involved in wholesale and retail drug supply.

In 1991, a government working group was established to look at privatisation under PARC Phase II. It identified several constraints, including continuing service delivery by States and a lack of legislation at the State level to allow private practitioners to operate, the low priority attached to livestock, and poor career prospects. Other people have identified difficulties in accessing credit as the main constraint. Most vets in private clinical practice have mobilised capital either through the family or by working for several years in the Gulf states. Even so, few vets can afford a vehicle and consequently they are able to cater for only a small number of livestock-keepers within a narrow radius.

Given this range of difficulties in high potential areas, it is even more difficult for vets to set up practice in pastoral areas where living conditions are harsh and where, though there are large numbers of animals, there are small numbers of people and accordingly low turn-over. The Animal Resources Bank, the main Sudanese investor in the livestock industry, set up 13 rural branches in towns serving the traditional livestock sector, but most of these failed, reportedly because livestock keepers preferred to keep their capital in livestock rather than in the bank.

No further formal initiatives have been taken by government to assist vets into private practice. The SVA is keen to be involved in a new programme to promote privatisation along the lines that have been pursued elsewhere. The Association has had visits from Kenya to explain how the Kenyan privatisation programme (KVAPS) works. The SVA has

24 Until 2000, livestock activities in OLS were coordinated by UNICEF.
25 The project also operates in Ethiopia and Uganda.
26 Women now comprise 60 percent of the intake into the Faculty of Veterinary Medicine in Khartoum.

27 The high number of female vet graduates may add to the difficulties of finding vets who are willing to work in more remote areas.
said that it would expect to start by promoting private practice in the central more densely populated regions and so, even were new initiatives to be taken, privatisation would be unlikely to have great impact in pastoral areas in the near future.

6.4 Creating an enabling environment for privatised service delivery

In 1995, a new Constitution was introduced which annulled all previous laws. This has had the following effects:

- In 1998, a Board of Veterinary Services was formed.

  The Board made proposals for delineating public and private sector responsibilities, retaining regulation, and disease surveillance and control in the public sector and handing over responsibility for clinical services to the private sector. The Board also recommended that trained CAHWs could diagnose, treat and monitor animal diseases under the supervision of a professional vet.

As noted above, States have not kept pace with these legislative changes so that there is inconsistency between Federal and State laws, particularly as regards possibilities for private practitioners to operate.

- In 1998, a public sector Veterinary Supplies Corporation was established to oversee drug quality and registration, and to supervise and coordinate production, import and distribution of drugs\(^{28}\).

- In 1999, the National Assembly approved an update to the 1963 Drugs and Poisons Act which now includes a separate chapter for veterinary drugs and establishes a national committee for veterinary drugs.

- In 2001, the Veterinary Surgeons Ordinance was reviewed

- In 2002, draft laws on the Import and Export of Animals and on Animal Production were submitted for approval by the Council of Ministers.

In 2002, a Presidential Decree made vaccination free as from 2003. Outside government this is seen as directly undermining privatisation initiatives, and there is expected to be some lobbying for it to be repealed.

6.5 Livestock development in its social and economic context

Under British colonial rule, most development took place in the irrigated lands along the Nile valley. In particular, the Gezira scheme, which was started in 1911 to provide raw cotton for the Manchester textile industry, made cotton the mainstay of the country’s economy. Under most post-independent governments, crop production has continued to be seen to underpin the economy with livestock being viewed as of secondary importance. This lower status has been reflected in the regular assimilation of Animal Resources into the Ministry of Agriculture and corresponding low budgetary allocations for livestock: between 1970-1975 and 1977/8-1982/3, livestock received only 4.2 percent and 13 percent, respectively, of the agricultural budget (Egemi, 2001).

In the early 1970s, a favourable investment climate was created by the signing of a peace agreement between the Khartoum government and rebels in the south and by the reversal of earlier nationalisation policies. This coincided with a dramatic increase in oil revenues in the Gulf, and Arab states invested heavily in Sudan in an attempt to transform the country into the ‘bread-basket’ of the Arab world\(^{29}\). Some investment went into dairy and poultry farms around Khartoum, a Livestock and Meat Marketing Corporation was set up, and livestock routes and a disease-free zone were

\(^{28}\) This is seen by private operators as competing unfairly with their activities.

\(^{29}\) This endeavour was supported by the international community through the World Bank and the Arab Bank for Economic Development in Africa (BADEA).
put in place. However, most investment went into the expansion of cotton, sorghum and sugar production, with detrimental effects on pastoralism. Legislation encouraged the expansion of mechanised farming into pastoral lands and, by the mid-1980s, mechanised farming accounted for nearly half of total cultivated area, displacing the traditional farming and pastoral sectors, and forcing many pastoralists into insecure daily labour (Maxwell, 1989; Duffield, 1990).

The main pastoral policy initiatives of the 1960s and 1970s aimed at sedentarisation. Plans for settlement were given support by UN Seminars for Arab Countries in the 1950s where pastoralism was identified as incompatible with modern national development and pastoralists were held responsible for environmental degradation. Sudanese governments had an additional incentive for trying to bring pastoralists more firmly under control, given that 85 percent of the national herd was held in the traditional sector. Sedentarisation was attempted on rainfed and on irrigated lands but was largely a failed experiment, for all the reasons familiar from similar experiments elsewhere (Egemi, 2001).

The oil crisis of the mid-1970s, combined with poor planning and mismanagement, plunged the Sudanese economy into crisis. By the 1980s, Sudan’s arrears to the international financial institutions had risen to around US$9 billion; most factories were operating at less than half their capacity, and agricultural output declined by half compared to the 1960s. In 1986, the IMF declared Sudan bankrupt. After the National Islamic Front (NIF) came to power in 1989, the economy further stagnated, because of the financial burden of intensified war in the south and due to the international isolation which followed from the government’s alleged support for international terrorism.

In the 1990s, livestock began to assume more importance in economic planning and to overtake crops in perceived importance. In political discourse, livestock are now routinely bracketed with oil as the future potential wealth of Sudan. A 10 year Comprehensive National Strategy set ambitious targets in 1992 for livestock development, including tripling herds, greatly increasing livestock exports, eradicating chronic and epidemic animal diseases, reaching self-sufficiency in vaccines and other basic veterinary drugs, improving the status of veterinary research and enhancing the status of veterinary professionals (Egemi, 2001). Reflecting these new priorities and ambitious targets, the Ministry of Animal Resources (MoAR) has had an autonomous status since 1996.

Sudan already exports to the Gulf, Egypt and Jordan and has plans to extend its trade to south-east Asia. Livestock exports have been on a rising trend since 1990-1, and export earnings almost doubled between 1990 and 1999. In 1999, earnings from livestock exports were almost US$143 million representing more than 18 percent of total export earnings compared with just under 12 percent in 1990. These figures compare with US$95.7 million earned from cotton, or just over 16 percent of the total (Egemi, 2001; MoAR, 2002).

The contribution that livestock can make towards household food security is also being given greater official attention. The Sudan government’s continuing international isolation means that it is not formally part of the PRSP process, and this situation is likely to continue until Sudan clears its outstanding arrears to the IMF, makes substantive moves towards peace in South Sudan, and addresses allegations of links to terrorism and of human rights abuses. Nevertheless, in 2001, it convened a stakeholder workshop on poverty reduction, and some donors, including DFID, are involved in low level dialogue aimed at taking this further. Livestock is seen as one of the key poverty alleviation sectors and merited a paper and a discussion in its own right at the workshop. The paper contains general, if important, statements about the need for more differentiated poverty analysis and measurement, for policies aiming at supporting poor people’s livelihoods, and for involving the poor themselves in developing

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30 The Livestock and Meat Marketing Corporation was subsequently privatised as the Animal Resources Bank, mentioned above.
these policies. Specifically how livestock is seen as contributing to household food security, whether this will involve a further review of policies and legislation, and how this may affect the traditional sector remain to be defined.

6.6 Experiences specific to South Sudan

6.6.1 The political background

The political and economic history of South Sudan has been driven by the south’s marginal status in the larger Sudanese polity. In the nineteenth century, northern tribes were involved with Arab traders in plundering South Sudan for slaves. While the Condominium ended this trade, its divide and rule policies confirmed the north’s sense of superiority over the south and the south’s distrust of the north (Salih, 1993).

Since before independence in 1956, South Sudan has been in an almost continuous state of war against government from Khartoum. The first round of conflict ended with the signing of the Addis Ababa Agreement in 1973 which brought in a decade of relative stability before war erupted again when the Khartoum government abrogated the agreement. Since 1983, resistance in the south has been led by the Sudan People’s Liberation Movement/Army (SPLM/A) but has been characterised by a lack of cohesion which has fuelled internal conflict and greatly increased insecurity.

After coming to power in 1989, the NIF government adopted an increasingly hard-line stance, which included imposing shari’a law on the south and encouraging northern tribes to launch raids on those in the south. Repeated efforts to negotiate an end to conflict involved international and regional actors, notably the Inter-Governmental Authority on Development (IGAD), but did not bear fruit. The most recent stage of the IGAD initiative, however, combined with strong pressure from the US, resulted in July 2002 in the signing of a ‘framework protocol’ and a historic meeting between the leader of the SPLM/A and the Sudanese President. Though these events took almost everyone by surprise, they were greeted with widespread enthusiasm and provided considerable grounds for optimism (Harvey et al., 1998; Fox et al, 2001; Justice Africa, 2002).

6.6.2 Public veterinary services

One of the inevitable consequences of persistent conflict was the collapse of such minimal infrastructure and services as had existed. Veterinary services have mostly been defunct since the end of the Condominium, apart from the period between 1973 and 1983 when the peace agreement was being observed. Relative peace in the south at this time allowed a regional structure for veterinary services to function, under which the Ministry of Agriculture in Juba provided services through Provincial Veterinary Departments and, below them, District Veterinary Officers assisted by AHAs. Vaccination campaigns and treatments were organised at district level and carried out by village-based Stockmen and local vaccinators, who were also responsible for disease reporting (Mogga, 1986, cited in Jones et al, 1998). Even at its best, this service suffered from poor management, logistical difficulties and shortages (Blakeway, 1995; Jones et al, 1998; Fox et al, 2001).

When war broke out again rudimentary veterinary services emerged on either side of the battle lines. In areas controlled by the SPLM, a Chief Veterinary Coordinator of the Sudan Relief and Rehabilitation Association (SRRA) has overall responsibility for livestock, supported at county level by Veterinary Coordinators, usually ex-Government trained AHAs. In areas controlled by the government, the formal state veterinary services structure continues but has little outreach beyond the garrison towns. Neither the rebel nor the government service has resources (Blakeway, 1995; Jones et al, 1998).
6.6.3 Animal health services under Operation Lifeline Sudan Southern Sector (OLS-SS)

South Sudan, in common with other conflict areas, is one of the last remaining foci of rinderpest in East Africa. The regular movement of Sudanese cattle into Kenya and Uganda for water and pasture mean that rinderpest also poses a threat to South Sudan’s neighbours, adding to pressure to control and ultimately eliminate the disease. Rinderpest control has been an objective of the livestock component of Operation Lifeline Sudan Southern Sector (OLS-SS) which was initiated in 1989 to coordinate agencies providing assistance in response to the humanitarian crisis in the south.

Progress in vaccinating against rinderpest has largely been determined by questions of access, and this is related to security and the shifting character of the war. In 1992, for example, the vaccination programme was brought to a complete halt by an upsurge in levels of internal conflict. Vaccination resumed in 1993 with the introduction of CAHWs not only to provide vaccination services but also a service of basic treatments for disease. The region West of the Nile, being generally more secure, has benefited from a more sustained input than other parts of the south. Between 1993 and 1997 the use of thermostable vaccine by CAHWs resulted in a ten-fold increase in vaccination figures. The progress made under OLS has been such as to make the possibility of eradicating rinderpest from South Sudan a ‘realistic aspiration’ if not a certainty, allowing greater emphasis on the control of other endemic diseases (Blakeway, 1995; Jones et al, 1998; Mariner, 2001; Fox et al, 2001)\(^{31}\). In early 2002, a strategy of ‘no vaccination’ and greater focus on disease surveillance was introduced.

Throughout the mid to late 1990s, the OLS-SS livestock programme continued to develop a vet-supervised ‘sustainable, decentralised, community-based animal health service’. By 2001 more than 15 NGOs and other agencies were involved in CAH in the southern sector of OLS (though not all of them under the OLS umbrella). Qualitative information from regular programme evaluations demonstrate that the work of CAHWs is highly valued by livestock-owners who perceive that there has been considerable impact on the health of their animals. The OLS umbrella and its regular coordination meetings have from the start encouraged NGOs to work towards standardised approaches, for example by using standard guidelines for training and follow-up. It is estimated that about 70 percent of South Sudan has access to CAH, which is certainly better access to animal health services than pastoralists have in other countries (Mogga, 1998; Jones et al, 1998; Jones, 2001).

The lack of Sudanese vets working in South Sudan means that these programmes have relied to a great extent on the AHAs and Stockmen trained for work in the public sector before the war. The complete lack of functioning training centres in South Sudan prompted VSF Belgium in 1998 to open an institute to train a new generation of AHAs and Stockmen (Hadrill, 2001).

It is unrealistic to think of a sustainable animal health service in the south at the present time. CAH programmes could not function without external support and the logistical capability made available through OLS. Cost recovery mechanisms are in place but in order to survive CAHWs need the agencies to subsidise drugs. One obstacle to reaching conclusions about whether programmes could be sustainable under peacetime conditions is that there is little consistency in how ‘cost recovery’, and ‘full’ cost recovery, are defined. In most cases the term is something of a misnomer in that it is unusual for profits from the sale of drugs to be used to buy further stocks. There are also issues about whether the profits belong to the CAHW, to the agency or to village committees. In any event, a lack of cash means that costs are often recovered in goods rather than money, involving relatively complex transactions to convert them into

\(^{31}\) The Federal Ministry of Animal Resources is expected to declare provisional freedom from rinderpest on a country-wide basis from January 1\(^{st}\), 2003.

Questions about cost recovery raise further questions about possibilities for privatisation. Current potential is very limited, with no vets working in the region other than those employed by agencies. Efforts have been made to establish private pharmacies but these have a mixed record, and a mainly poor one in the south (Fox et al, 2001) 32. Poor performance in the south is not surprising as trade is typically one of the first casualties of war (de Waal, 1991; Cliffe et al, 1992). High levels of insecurity and difficulties of access, increase the risks and the costs to traders. Given widespread poverty, however, these increased costs can rarely be passed on in prices to consumers, and trade generally declines as a result. South Sudan’s lack of cash and convertible currency is an obvious further hurdle to private traders who want to buy drug supplies in Uganda or Kenya.

A criticism often levelled by opponents of CAH services is that they are field-tested in areas where there is no effective government, and wrong conclusions drawn about their applicability in areas where governments exist. In effect, NGOs are said to ‘do their own thing’ with little regard for local administrations and without giving due attention to whether lessons learned are really transferable to more ‘normal’ conditions. South Sudan and Somalia are mentioned as particular cases in point. Contrary evidence comes from the OLS Southern Sector which works closely with civil authorities and gives priority to local capacity building. Moreover, with respect to animal health, the SPLM has prepared policies for privatising animal health services along the lines that have already been established on the ground (Fox et al, 2001). It is a moot point whether community-based delivery systems will remain the cornerstone of a peace-time animal health service. Whatever government is in power, it will need to juggle conflicting and legitimate demands on resources, and a different agenda is likely to be set.

Key points

- The veterinary profession is an inverted pyramid where vets outnumber AHAs by a factor of more than 10:1.
- Public sector provision is the responsibility of States which are severely under-resourced. In many cases, government veterinary services are non-functional.
- Non-professional animal health workers have for long been respected members of the service. CAHWs came in with NGOs in the 1980s and 90s. Coordination of NGOs with the MoAR is managed under the OLS umbrella.
- There has not been a managed process of privatisation. With spontaneous privatisation, vets have gone into the pharmaceutical industry, rather than into clinical practice.
- Although 85 percent of the national herd is held by the traditional sector, pastoral production systems have been marginalised, particularly through the expansion of mechanised farming.
- Livestock is seen as an increasingly important national resource in terms of foreign exchange earnings and household food security. Livestock is now seen as a key sector for poverty alleviation strategies. It is not yet known how this will impact on pastoral livelihoods.
- South Sudan has had functioning government veterinary services for a period of less than 10 years since the 1970s.
- Over the last decade provision has been managed by NGOs mainly under the OLS umbrella.
- Coordinated and consistent investment over several years has demonstrated that, even in a region where access is difficult, rinderpest can be controlled using community-based approaches.
- Cost recovery mechanisms are in place, but it is unrealistic to expect animal health delivery systems to be sustainable before peace is achieved.

32 More success has been reported in the OLS northern sector, and particularly in better favoured regions such as Western Kordofan (Hogland, personal communication).
- The lack of uniformity in cost recovery mechanisms raises questions about what the term actually means.
- There has been a mixed and mainly poor experience of efforts to develop the private sector.
III. KEY FINDINGS

The challenge of service provision in pastoral areas

1. Typically, pastoral areas in the Greater Horn are physically remote and with poor infrastructure, and pastoral communities are socially marginalized with social indicators well below national averages. Pastoral areas or countries with significant pastoral populations have also been beset by conflict, many of which are ongoing. This configuration of problems presents considerable challenges to service provision in pastoral areas but, as the livestock resources there are significant, governments have incentives to find ways of overcoming them. This becomes more important since countries are aiming to increase their exports of livestock and livestock products and because governments are signed up to the WTO SPS Agreement.

Government veterinary services

2. Veterinary services were initiated by the colonial authorities out of a concern to control epidemic disease, mainly rinderpest. Provision of clinical services typically followed on from this first priority. The period of decolonisation saw an expansion in veterinary services to meet the needs of larger numbers of livestock owners. In some countries expansion of services was also related to plans to upgrade the quality of the national herd through importing exotic breeds which were more susceptible to local diseases.

3. Throughout the 1960s, 1970s and into the 1980s, veterinary services were wholly or mainly provided by governments, which employed almost all veterinary professionals. This period was associated with a high level of investment in veterinary education, rising numbers of degree and diploma holders and the establishment of associations to represent the profession. Veterinary education gave little or no attention to species or diseases found in pastoral areas. Non-professionals also had a place in the service; they carried out a limited range of tasks under the supervision of government vets and played a crucial role in vaccination campaigns. Gradually, these people were eclipsed by the progressively more professional character of the service. This trend has also been reflected in the weaker institutional presence of AHAs compared with vets.

4. From the mid-70s onwards, economic shocks resulting from the global oil crisis, combined with rising demand and economic mismanagement made it impossible to sustain high levels of public sector provision. During the 1990s, internal pressures and conditions imposed by donors (through SAPs) led to efforts to streamline and minimise the role of the state. In Kenya, Tanzania and Uganda this meant that government employment of veterinary graduates was no longer guaranteed. As a blacklisted state Sudan was not subject to donor conditionalities in the same way, but poor planning, mismanagement and financial bankruptcy had the same effect.

5. Public sector provision during the same period in Ethiopia and Eritrea followed a different path. Between 1974 and 1991, Ethiopia had a Marxist-Leninist government ideologically committed to a command economy and a strong state, and immune from external pressure to streamline services or reduce staffing. Consequently, government continued to be the monopoly provider of services, though the diversion of resources to military spending seriously compromised their quality. During Eritrea’s war for independence, the EPLF was the only provider of veterinary services in rebel-held areas, mainly using a network of herders trained as ‘paravets’.

6. During the 1990s, all the countries in this study have followed global trends in restructuring government to create a leaner...
and more efficient civil service and in taking initiatives to promote privatisation and public-private partnerships. Associated with these developments, all governments have pursued decentralisation policies whereby the centre retains regulatory and policy-making functions, and responsibility for service delivery is devolved to local government. Depending on the depth of decentralisation, this is sometimes seen as weakening veterinary departments’ capacity to ensure effective disease surveillance and control (e.g. Tanzania, Uganda, Ethiopia). Within these broad trends, the pattern of change between countries is varied and within countries it is uneven, reflecting the different historical trajectories along which they have passed (and see Appendix 6):

Kenya: no new employment of government vets since 1988; decentralisation has not affected central control of veterinary services, though low staffing levels are said to compromise effectiveness; very active NGO sector and sympathetic professional staff have changed an adversarial relationship over CAH to constructive engagement; some progress in privatisation, though mainly limited to high potential areas; next phase of managed privatisation plans to give more attention to creating an enabling environment; review of legislation will include provision for private practice by AHAs; possibilities for piloting different models of private practice in pastoral areas.

Tanzania: employment of government staff frozen and large-scale retrenchment during the 1990s; large numbers of unemployed AHAs; decentralisation has broken the link between the DVS and field staff; repeated government restructuring held to have weakened capacity of livestock sector; CAHWs promoted by NGOs and under government programme; managed privatisation programme closed because it failed to take off; privatisation said to be undermined by government and NGO service providers; slow progress in policy and legislative change; locally generated funds available for livestock development.

Uganda: decentralisation is seen as seriously comprising the Ministry’s responsibilities in disease surveillance; clear policy statement on public/private functions; posting of government vets down to county level undermines the development of private practice; slow progress in managed privatisation programme; professional vets opposed to CAH development; some legislative and policy reform though current drugs policy inhibits private practice; Uganda well advanced in PRSP process but this gives little attention currently to pastoral concerns.

Ethiopia: reorganisation as a Federal State, with service delivery devolved to Regions; delineation of public/private roles recommended but has not yet taken place; limited progress in privatisation programme; Regional governments are the main employer of veterinary staff and the main supplier of clinical services; expansion in training of professional vets planned, presumably intended for government service; CAHWs by implication included in revised legislation; closer collaboration between government and NGOs in harmonising approaches to CAH

Eritrea: decentralisation on paper but delays in implementation; continuing central control of human and financial resources, and therefore of disease surveillance and control; draft legislation makes provision for private veterinary practice and CAHWs; no plans to promote privatisation other than through CAHWs; relatively good civil service salaries after restructuring expected to limit interest of vets in private practice; no NGO activity

Sudan: reorganisation as a Federal state with delivery devolved to States; delineation of public/private roles at
Federal level also makes provision for CAHWs; no corresponding legislative change by States; no formal privatisation programme; spontaneous privatisation though not into clinical practice; many States have no resources and consequently no effective veterinary service delivery; service delivery through NGO CAH programmes in the ‘transition’ zone coordinated under UN umbrella and in collaboration with MoAR. In South Sudan, public sector severely disrupted; service delivery almost entirely through NGO CAH programmes coordinated under UN umbrella; draft policy towards privatisation exists but no effective government prevents policy and legislative change.

Other veterinary institutions

7. Veterinary Boards and Councils lack autonomy, except in Kenya and Sudan, although even in these two countries they are strongly influenced by government veterinary services. Currently, there is good government support for and legislation being developed for CAHW recognition in Ethiopia, Eritrea and Tanzania. While Boards and Councils are closely aligned to or remain within government structures, however, there is a risk that policy and laws relating to CAHWs will be influenced by political rather than professional considerations, or at least that the balance between these will be inappropriate.

8. The curricula offered by FVMs and other animal health training institutions typically give little attention to the species of animals owned by pastoralists or to their diseases, focusing rather on high potential areas. Academic vets rarely conduct research on livestock diseases found in pastoral areas or on other issues relevant to veterinary services in pastoral areas. The limited educational opportunities in pastoral areas mean that these produce few vets and there is consequently a lack of first-hand information and knowledge about pastoralism in veterinary schools. Undergraduates do not learn about CAH or other issues relevant to service delivery in pastoral areas; for example, while vet schools include modules on setting up in private practice this is limited to practice in high potential areas.

9. Vet associations tend to be dominated by vets based in capital cities or academic institutions, rather than by field vets. This means that, like FVMs, veterinary associations have rather limited first-hand knowledge and experience of pastoralism. In some countries this may also have contributed to a quite overtly hostile attitude towards CAH (for example, Tanzania, Uganda). This outcome is not inevitable, however as is shown by the cases of Ethiopia and Sudan. The former, for example, has both promoted debate on the role of CAHWs and has offered active support to the development of CAH delivery services in pastoral areas.

Privatisation

10. Formal programmes to assist veterinary personnel into private practice have been established in all countries in the study apart from Eritrea; in Sudan and Tanzania these programmes are no longer operative33. In Ethiopia and Tanzania the privatisation promotion agencies are or were located inside the relevant ministries, while in Kenya and Uganda privatisation has been handled outside government by the Veterinary Associations. The overwhelming majority of those who have been assisted into private practice have set up in high potential farming areas and around the main towns, with very few examples of private practice in pastoral areas.

11. The major impetus behind formal privatisation programmes has been a concern to reduce the public expenditure demands of government veterinary services. Accordingly, privatisation has been conceived rather narrowly as

33 In fact, the Sudan programme hardly got going.
assisting professional vets into private practice, and promotion has been limited to providing credit to enable individual practitioners to set up in business. Models of private practice have been based on public sector provision (and to some extent also on European styles of private veterinary practice). Programmes are assessed in terms of outputs (numbers of loans, rates of repayment, numbers still in practice after a given period). Little or no attention has been given to assessing them in terms of outcomes (more effective delivery of clinical services) and impact (improved animal health). In a second phase privatisation programme, Kenya plans to focus more on creating an enabling environment for private practice and less on providing loans to individual vets.

Community-based animal health care

12. Veterinary services – state and private – have a poor record of providing services to pastoral communities. This is mainly due to problems of distance, difficult logistics, physical hardship and negative attitudes towards pastoralists. Notable exceptions have been Eritrea in the 1970s and 80s and South Sudan today where under atypical war-time conditions pastoralists have received relatively high levels of service, from the independence movement and from NGOs respectively. In both cases, services have largely depended on external funding.

13. From the 1980s onwards, in all countries except Eritrea, NGOs began to fill the gap in public sector provision in pastoral areas by training herders to deliver animal health care, coining the term ‘community-based animal health care’ or CAH to describe their work. These programmes varied considerably in terms of their expertise and competence, and there was little uniformity in their methods. Inconsistency was seen in selection and training of CAHWs, and in whether and how costs were recovered and CAHWs supervised. As CAH programmes have become better established, NGOs have began to give more attention to harmonising methodologies and approaches. The OLS umbrella in Sudan is a particularly good example of NGO coordination. Impact assessment has often shown substantial reductions in livestock mortality and morbidity due to CAHW activities, and associated benefits to pastoral livelihoods.

14. Initially, many NGO CAH programmes avoided engagement with national veterinary institutions and, in turn, NGO programmes evoked hostile reactions from the veterinary profession. This hostility had its roots partly in professional protectionism, but also in legitimate concerns about entry qualifications, standards of training, lack of supervision, and possible over-prescribing and incorrect prescribing. In recent years, there has been something of a rapprochement between the non-professional and professional service providers. While there is still heated debate over CAHWs, many members of the veterinary establishment accept that they have a part to play in service delivery. In turn, NGOs are more willing to acknowledge that involving government is an essential element in ensuring sustainability.

15. Growing acceptance of CAHWs is reflected in their legal recognition in Eritrea, Ethiopia and Sudan, whereas in Kenya and Tanzania supportive legislation is being developed. The Eritrean, Ethiopian and Tanzanian governments implement CAHW programmes directly, and the MoAR collaborates closely with NGO CAH programmes under OLS.

16. There is no uniformity with respect to how cost recovery is defined and implemented. There is a lack of clarity about whether net profits from the sale of drugs belong to the CAHW, the community or the NGO providing the drug. Under market conditions they would presumably belong to the CAHW, or to the AHA or vet who employs him.
Linking privatisation and CAH

17. In most countries involved in the study, the privatisation of professional practice and the promotion of CAH are seen as separate and unrelated initiatives. Again, the exceptions are Ethiopia and to some extent Eritrea and Tanzania. In Ethiopia, both are handled within the same unit in the Ministry of Agriculture, and discussions on how to speed up the privatisation process and how to harmonise CAH approaches have been handled together. In Eritrea, CAHWs are seen as the only category of animal health provider which can operate privately at the present time. In Tanzania, the emerging DCP unit in the central Ministry may take on the role of strengthening the links between the private sector and CAHWs.

18. Some agencies concerned with CAH have a practical purpose in wanting to link CAH and the privatisation of professional practice. Some NGOs running CAH programmes have set up pilot schemes to test out the potential for building informal or formal partnerships between private practitioners and CAHWs. The experiment has had mixed results, and the tiny number of vets in private practice in pastoral areas limits possibilities for expanding the experiment. CAHWs’ uncertain legal status in some countries is a further obstacle. Many professional vets are reluctant to take responsibility for supervising CAHWs when they were not involved in selecting them and have no authority to enforce performance standards. Particularly in a more litigious age, they do not want to be held responsible for mistakes that CAHWs might make. There is interest in Kenya, at least, in taking these experiments further and piloting different models of practice.

The future context of livestock development

19. In several of the countries in this study, livestock have historically been regarded as of secondary importance compared with crops. This has typically been reflected in a low status for animal resources departments within government structures, something which in turn may have contributed to slow policy and legislative change. If this is true for livestock in general it is even more the case for pastoralism: in almost every country in the study, where extensive livestock production has been given attention at all, it has been identified at some point as a ‘problem’ which can best be solved through sedentarisation.

20. Two factors suggest that preconditions may now exist for possible changes in government attitudes towards livestock and pastoralism. First, all countries in the study are set to increase livestock production and exports in response to actual and projected rising demand domestically and globally. In particular, the Middle East is seen as being a particularly profitable market. The 2000 ban on livestock imports imposed by Saudi Arabia – whether justified or not – was a salutary reminder to all countries in the Greater Horn of the need to be able to demonstrate disease free status. With decentralisation, many veterinary departments face increasing difficulties in doing this. With significant numbers of livestock held by the traditional sector, governments must find ways of ensuring healthy animals in pastoral areas.

21. Second, all countries in the study either have a well-established PRSP process or are about to embark on one. Evidence from the countries already involved in the process suggests that this provides opportunities to represent the interests of livestock-keepers, and particularly of pastoralists. While Interim PRSPs have without exception failed to address pastoral needs, the process of consultation around preparing final PRSPs has allowed pastoral interests to be given much greater attention.

22. These key findings can be summarised in the SWOC analysis which follows:
## Summary SWOC analysis of possibilities for scaling up CAH approaches

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>Around 15 years experience of a variety of CAH delivery systems, both NGO and government. All governments recognise that CAHWs are needed, at least on a temporary basis.</td>
<td>Limited experience of supervision systems for CAHWs other than through NGOs. Variability in how cost recovery mechanisms are defined and operated. Limited quantitative data on the impact of CAH on livestock health.</td>
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<tr>
<td>An increasing number of examples of good coordination between NGOs and of good collaboration between NGOs and government.</td>
<td>Historically adversarial relations between NGO CAH programmes and professional and official bodies; typically poor integration between government and NGO programmes</td>
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<tr>
<td>Legislative and policy changes in process in all countries to promote private practice. This creates openings for scaling up and institutionalising CAH approaches.</td>
<td>Creating the legislative framework for private practice and CAH is still in process; progress is varied and slow in some countries. Limited experience of alternative models of private practice. Privatisation has hardly penetrated pastoral areas.</td>
</tr>
<tr>
<td>The potential for increasing livestock exports is helping to improve the status of livestock ministries. The consultative process for preparing PRSPs is enabling pastoral interests to be represented.</td>
<td>Livestock typically has a secondary status in government plans and structures, with commensurately lower budgets. Pastoralism is barely reflected in key policy documents, such as PRSPs. Policy towards pastoralism has usually involved sedentarisation.</td>
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<table>
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<tr>
<th>Opportunities</th>
<th>Challenges</th>
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<tbody>
<tr>
<td>External markets are increasingly requiring governments to demonstrate the disease free status of their livestock. Livestock is being given more importance as a national resource. High percentages of the national herd are held in pastoral areas.</td>
<td>No expansion of private practice into pastoral areas unless approaches change. Possibilities for change may be blocked by continued hostility of professionals towards CAH and continued adversarial discourse between professionals and NGOs.</td>
</tr>
<tr>
<td>Global trends in poverty reduction increasingly require governments to demonstrate that their policies and strategies are achieving measurable reductions in poverty on specified groups of the poor and socially excluded.</td>
<td>Pastoralism may continue to be denigrated though pastoral herds will be regarded as a national resource. Emerging policies may aim to capitalise on the resource but through strategies which continue to undermine and marginalise pastoralists.</td>
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IV. CONCLUSIONS AND RECOMMENDATIONS

The Concept Note for this study asked us to take a historical approach towards reviewing individual country experience of public and private sector provision, including CAH delivery systems. This was to be done with a view to identifying possibilities for policy and legislative tasks to be supported by the CAPE Unit. Specifically, we were asked to consider the potential for establishing interdisciplinary and inter-organisational Local, National and Regional Learning Groups comprising key agency staff, academics, development practitioners, civil society representatives and donors. In regard to this last point we need to ask what potential or interest might exist in the region for establishing something along these lines.

The historical case studies show that over the last 30 years, and particularly during the last decade, countries in the region have been influenced by similar global events and trends and similar internal pressures. In terms of similarities, all governments are now making distinctions between what properly falls within the mandate of government and what should be taken on by the market; all are involved in devolutionary processes; all are concerned to take advantage of new possibilities for livestock exports; and all are under pressure to achieve measurable reductions in poverty levels. The studies also show, however, that their specific historical trajectories have shaped different national responses. One pattern of change is exemplified by Eritrea, where CAHWs are trained and supervised by government, and where neither NGOs nor private professional vets are encouraged to operate. South Sudan presents a different picture, with no effective government and animal health services provided almost entirely under NGO and UN auspices. In between, the other countries show a pattern which offers variants on these two themes.

This variation, in itself, seems to restrict possibilities for closer alignment. In addition to this, however, responding effectively to change within one country is already presenting a considerable challenge to governments - thinking how to incorporate a regional dimension into these changes may in some instances be premature. Our discussions with government officials and others show that, while they have an interest in what is happening in neighbouring countries, what motivates them is a very high level of concern to ‘get right’ the changes that are taking place at home. These factors appear to us to limit the potential to set up the rather complex mechanisms for regional coordination suggested in the Concept Note. To the contrary, they underline the need for CAPE to continue to respond to national needs by providing discrete inputs to support national efforts, as they have been doing up to now.

At the same time, CAPE does need to support harmonisation of policies between neighbouring countries, particularly where distinct pastoral ecosystems cross international borders. For example, a Turkana CAHW moving with herds into Karamoja should be recognised as a useful animal health worker by both the Kenyan and Uganda veterinary authorities. This requires bilateral agreement and understanding of CAHW training and registration procedures.

What all the governments (and movements) included in the study appear to share is a concern to see more providers operating in pastoral areas (outputs) in order to deliver more effective services (outcomes) leading to improved national levels of animal health (impact). Within these over-arching objectives are issues which are of concern to more than one veterinary department and/or to more than one group of other service providers and interested parties. We do, therefore, favour periodic, inter-disciplinary and inter-organisational meetings and workshops to encourage more systematic reflection on issues which will enable CAH approaches to be institutionalised and scaled-up. Out of these may come regular meetings of more permanent working groups and activities including: support to piloting of different models of practice; systematic documentation of experience from different models of
practice; and wider dissemination of examples of good practice.

**Community based animal health**

Considerable progress is being made within countries in standardising approaches to the selection and training of CAHWs, though more needs to be done as noted above in harmonisation between neighbouring countries. The progress that has been made is reflected in the now sizeable review literature describing the last 10-15 years experience of CAH programmes. This literature also makes reference to but rarely examines in detail some key issues for the sustainability of CAH as a mechanism for effective and safe delivery of animal health services. Issues which need more systematic work and which would also benefit from shared cross-country experience are finding ways to improve supervision of CAHWs; encouraging FVMs to develop curricula and promote research that are more relevant to CAH in pastoral areas; promoting further studies on the evidence of impact and cost recovery/economic viability (the last is discussed below under Privatisation):

**Supervision**

CAH delivery systems need to establish structures whereby CAHWs are professionally supervised and have access to sources of good quality, reliable drugs. In principle, this is expected to be provided through a new generation of private vets operating in pastoral areas. In practice, these are few and far between, and this situation is unlikely to change quickly. Despite the supposed withdrawal of the public sector, supervision appears to be most effective in areas where government vets are active. A possible agenda for CAPE would include:

- Sharing of experience between different types of service provider on the obstacles to effective supervision by private vets and by government
- Wider dissemination of case studies of existing good practice in this regard (for example a possible case study from Amhara Region in Ethiopia where SCF-UK has encouraged supervision costs to be included in government’s annual budget plans).
- Support to piloting of different models of supervision and supply; private and government; using vets, AHAs, drug dispensaries
- Encouraging systematic detailed monitoring, reporting and dissemination of experience from pilots

**Support to veterinary training and research**

Even where undergraduate vets are interested in CAH and the in the problems of livestock disease in pastoral areas, they have few opportunities for developing their learning or skills in these areas within the training currently offered by FVMs. This is a positive disincentive to newly qualified vets to set up practice in pastoral areas. There is a good case for CAPE to continue to engage with FVMs to assist in developing curricula that are more relevant to practice in pastoral areas and to encourage research on CAH related issues. (Further mention is made below of possible research topics).

**Evidence of impact**

There is now a considerable body of evidence that shows in qualitative terms that CAH programmes and CAHWs are highly valued by livestock-keepers who believe them to have had a beneficial impact on the health of their animals. There are relatively few examples of quantitative data showing the impact the work of CAHWs has had on livestock morbidity and mortality. Similarly, there is limited evidence to challenge the accusation that poor practice

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34 One issue that does not appear to us to need harmonising is that of entry qualifications for CAHW trainees. A great deal of discussion has taken place on whether it is better to train illiterate herders or people with some academic education. We see this as an operational issue and not as an issue of policy. It is conditioned by local circumstances, such as higher levels of education in Tanzania and very poor levels in pastoral areas of Ethiopia, Eritrea and Uganda, and it is better to resolve the issue at national or even at sub-national levels.
by CAHWs is encouraging drug resistance. With illiterate herders and limited record keeping, it is a methodological challenge to build up reliable quantitative evidence on impact and to challenge criticisms of CAHW practice. These are examples of areas where CAPE could usefully commission or sponsor academic research by FVMs and others which would stand the test of peer review by scientists.

Privatisation

The further development of CAH delivery systems is linked in principle and in practice to extending the role of the private sector in service delivery. This is rooted in moves to withdraw the public sector from service delivery and in recognition of the fact that service delivery through NGOs is not sustainable. There are two major areas where CAPE could support further work in examining whether and how private practice can improve delivery in pastoral areas.

Cost recovery/economic viability

Current assessments that private practice can be viable in pastoral areas are based on the costs to and projected earnings from drugs for different categories of service provider. However, these assessments are based on definitions of ‘cost recovery’ and ‘full cost recovery’ which do not always bear close scrutiny. There appears to be considerable variation in how these terms are defined, with apparently direct and indirect subsidies in government and NGO programmes which claim to operate on ‘cost recovery’ principles. One or two studies already exist which examine the economic viability of different forms of private practice with some rigour. However, the small number of private practitioners in pastoral areas and their high failure rate is fairly compelling evidence that pastoral practices continue to be seen as non-viable. There is a need for more economic modelling of the viability of different types of private practice in pastoral areas based on the real costs of providing the service and its affordability to livestock-keepers.

Models of privatisation

The managed privatisation programmes have depended on a single instrument to promote private practice, i.e. to provide loans to individuals to set up a clinic usually in association with a shop. This is largely based on the model of clinical services which have operated in the public sector. The results have been fairly halting progress in the managed programmes and small numbers of vets in private clinical practice. More work needs to be done to develop and test out alternative models of practice in different agro-ecological and socio-economic environments. More investment also needs to be made in creating a supportive environment for private practice, which has often been hindered by continuing public sector provision. CAPE needs to work with a number of veterinary institutions (government, veterinary associations, associations of other professional providers, NGOs and so on) on an agenda which might include:

- considering what support, beyond loans, might be needed for private clinical practice to be successful (for example, looking at what role continuing professional education could play)
- lobbying for further policy and legislative change (for example on drug handling by different categories of provider)
- giving more attention and support to other professional providers, such as AHAs, and to their representative bodies
- assessing the possibilities for and testing out incentives to encourage private practice in less attractive areas.

Poverty reduction

Pastoral communities have had a low priority in the development plans of most governments and, where plans existed, typically they have sought to radically and sometimes forcibly change pastoral livelihoods and values, for example, through sedentarisation. The current global focus on poverty reduction, through the PRSP process and official commitments to the Millennium Development Goals (MDGs), presents new opportunities to support pastoral
livelihoods. Representation in a PRSP is also a way in which line ministries and departments can ensure that they receive appropriate levels of budgetary allocation from Treasury. Control of the PRSP process typically resides with Ministries of Finance, Planning or Economic Development, however, and Ministers and officials from line ministries often have fairly limited involvement in the development and rolling out of the PRSP. There is a role here for CAPE to assist livestock departments (in collaboration with relevant civil society organisations) to make inputs into the PRSP process so that livestock and pastoral interests are adequately represented. In this regard, the cases of Kenya and Ethiopia are useful examples of good practice.

**Recommendations:**

**Cross-country learning**

1. CAPE should consider carefully whether it has the capacity to establish and maintain a relatively complex learning infrastructure in the absence of evidence of significant enthusiasm for the project from governments in the GHA. It does not appear timely to establish interdisciplinary and inter-organisational Local, National and Regional Learning Groups comprising key agency staff, academics, development practitioners, civil society representatives and donors.

2. Instead, CAPE should organise periodic, inter-disciplinary and inter-organisational meetings and workshops which would result in specific and relevant outputs being produced including: piloting of different models of practice; systematic documentation of experience from different models of practice; and wider dissemination of examples of good practice.

3. CAPE should also continue to work for the harmonisation of policies where relevant between neighbouring countries, particularly with regard to CAHW training and registration.

**Community-based animal health**

4. CAPE should encourage ongoing processes for making CAH approaches more sustainable by supporting pilot projects by different service providers, sharing of experience and dissemination of good practice on supervision.

5. CAPE should continue to engage with FVMs to assist in developing curricula that are more relevant to pastoral areas, and to encourage research on CAH related issues.

6. CAPE should encourage ongoing processes for making CAH approaches more widely accepted by sponsoring scientific studies which could, for example, provide quantitative evidence on CAH impact and challenge criticisms of CAHW practice.

**Private practice**

7. CAPE should support further studies that involve economic modelling of the viability of different types of private practice in pastoral areas based on the real costs of providing the service and its affordability to livestock-keepers.

8. CAPE should assist processes and institutions that are working to create a more favourable environment for private practice. This might include lobbying, working with AHAs and their associations, and testing out incentives to encourage private practice in less attractive areas.

**Poverty Reduction**

9. CAPE should assist government livestock departments to make inputs into PRSP processes to ensure that livestock and pastoral interests are adequately represented and receive appropriate budgetary allocations.
Appendix 1

Pan African Campaign for the Control of Epizootics (PACE)
Organization of African Unity/Interafrican Bureau for Animal Resources (OAU/IBAR)

Project Proposal

Community-based Animal Health Policies and Institutions in the Greater Horn of Africa: A Regional Analysis

1. Background

In the 1990s the theories of New Institutional Economics began to influence the development of veterinary services in sub-Saharan Africa. Major donors supported projects aimed at institutional and policy reform, with particular focus on veterinary privatisation and liberalisation, and creating an enabling environment for community-based delivery systems. Consequently, veterinary policies and institutions in East Africa and the Horn of Africa are in transition. In countries such as Uganda and Kenya, change processes are underway and new laws are being drafted to enable the wider application of community-based animal health services. In Tanzania, a DFID-funded project has worked with veterinary authorities to review policies and confirm commitment to more participatory approaches to services delivery. In other countries such as Eritrea and Ethiopia, the reform process is at a very early stage. In parts of southern Sudan and Somalia, lack of formal representative bodies hinders policy development. From a regional perspective, this varied picture reflects a complex political environment, and ongoing or recent long-term conflict in large areas of the Somali ecosystem, southern Sudan, Ethiopia and Eritrea.

The Community-based Animal Health and Participatory Epidemiology (CAPE) Unit of the PACE Programme seeks to support enabling polices and legislation for community-based animal health services in the Greater Horn of Africa region. Many of the poorest livestock-rearing communities inhabit remote, transboundary ecosystems that are not reached by conventional veterinary services. Movement of livestock across borders is a rational livelihood strategy that enables herders to utilise seasonal grazing or water resources, or avoid conflict. Furthermore, these areas are of major strategic importance for the control of epizootic diseases, most notably rinderpest. The international movement of communities and their livestock requires a regional strategy to ensure that CAHWs in transboundary areas are officially accepted on both sides of national borders. Regarding more general service provision in these areas, common approaches to the private delivery of basic services by CAHWs ensures that private operators (including CAHWs) in one area do not face unfair competition from government or NGO-subsidised services in a neighbouring area.

In terms of developing a regional approach to policy revision, there is also considerable potential to share experiences of change processes by collating information on a regional basis and facilitating forums comprising stakeholders from different countries. To date, much of the information concerning policy reform has limited distribution via the grey literature (for example, the references quoted in this document).

The CAPE Unit would like to support a systematic review and analysis of institutions and policies affecting veterinary services in seven countries in the Greater Horn of Africa region (Sudan, Ethiopia, Eritrea, Kenya, Uganda, Tanzania and Somalia). It is proposed that a social scientist/political scientist
with long-term experience in the region is recruited to conduct the review over a three-month period. The review process will include a review of literature and interviews with senior staff in livestock agencies in the region.

2. Specific tasks

The specific tasks of the consultant are to:

2.1 *Historical perspective.* Describe the key national, regional and international policies and events that have shaped and influenced the design, application, institutionalisation and scaling up of participatory processes and approaches for community-based based veterinary services, and veterinary privatisation. Issues relating to remote pastoral areas will be highlighted. This task should result in time-lines of key political, policy and economic events that have determined how policies were formulated and interpreted during the last 50 years or so in each country.

2.2 *The current state of play.* Provide a relative description of the current situation with regards policy and legislative change to support community-based animal health delivery systems in pastoral areas on a regional basis. This task should include description of current commitment of government, with reasons, to community-based animal health delivery systems, CAHW recognition and veterinary privatization and consider animal health policies in relation to national macroeconomic, poverty alleviation, rural development or pastoral development policies.

2.3 *Future needs.* Make recommendations for further regional policy and legislation tasks to be supported by the CAPE Unit. To include recommendations for improving regional coordination and cross-country learning, including an assessment of the potential role of interdisciplinary and inter-organisation Local, National and Regional Learning Groups comprising key agency staff, academics, development practitioners, civil society representatives and donors.

3. Consultant(s)

A consultant(s) is proposed with expertise and experience in:

- Policies, institutions and legislation in the Horn of Africa region, with particular knowledge of pastoral areas.
- Recent donor/aid policies and approaches, with particular knowledge of DFID.
- Knowledge of community-based animal or human health delivery systems in pastoral areas.
- Policy research and analysis, including strong interviewing, writing and presentation skills.

The consultant(s) shall be supported by the CAPE Unit, who will provide introductions to relevant policy makers in each country and international agencies.

4. Time frame

Work would commence from mid-March 2002. The assignment would run for approximately 40 days.

5. Deliverables

5.1 A comprehensive report according to the specific tasks 2.1 to 2.3.
5.2 A draft paper for publication in a peer-reviewed journal such as World Development, Agriculture and Human Values or similar.

6. Reporting

Under the auspices of the PACE Coordinator, the consultant(s) shall report to the Head of the CAPE
References


Appendix 2

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**Tanzania**

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**Appendix 4**

**Country chronologies: historical background and developments in veterinary services**

**KENYA**

<table>
<thead>
<tr>
<th><strong>HISTORICAL BACKGROUND</strong></th>
<th><strong>VETERINARY SERVICES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonial rule</td>
<td>Department of Veterinary Services established to control major epidemic diseases</td>
</tr>
<tr>
<td>Improved cattle introduced into African small-holdings.</td>
<td>Rinderpest vaccine developed and reduced incidence; Veterinary Services expanded into clinical services, diagnosis, breeding</td>
</tr>
<tr>
<td>Kenya Meat Commission established</td>
<td>Central Breeding Institute established.</td>
</tr>
<tr>
<td></td>
<td>Diploma course established in Uganda (Makerere) with out-station in Kenya (Kabete)</td>
</tr>
<tr>
<td></td>
<td>Veterinary school at Makerere upgraded to FVM and transferred to Nairobi to serve Kenya, Tanzania and Uganda</td>
</tr>
<tr>
<td></td>
<td>1st inter-territorial Veterinary Conference held in Nairobi</td>
</tr>
</tbody>
</table>

1963 Independence

| Change in land tenure in “white highlands” | 1st intake into FVM |
|                                           | Many private vets – mainly non-Kenyans – leave the country |

1970s

| Structural adjustment programmes started | 1st public sector veterinary centre built |
|                                        | 3 year Diploma course started in Animal Health and Production |

1980s

| Liberalisation of the economy and Civil Service Reform Programme | Government stops automatic employment of veterinary graduates and diploma holders. EU funded KVAPS founded. |
|                                                           | NGOs start CAH programmes in ASALs. |
| Kenya Meat Commission collapses. Control of animal feed prices ends | |

1990s

<p>| Liberalisation of meat and dairy sectors | Dip services under community management, though government intervenes with support in election year |
|                                         | Charges introduced for drugs; privatization of |</p>
<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reformation of East African Community: policy and legislative harmonization encouraged</td>
</tr>
<tr>
<td></td>
<td>Government withdraws clinical services where PVPs established.</td>
</tr>
<tr>
<td></td>
<td>DVS permitted to retain revenue collected.</td>
</tr>
<tr>
<td></td>
<td>Annual NGO Veterinary Workshop includes government and professional bodies → change of policy direction in favour of CBAH</td>
</tr>
<tr>
<td>2000</td>
<td>New market opportunities and more stringent WTO regulations → greater concern about disease surveillance and control.</td>
</tr>
<tr>
<td></td>
<td>Review of Veterinary Surgeons Ordinance to include diploma and certificate holders.</td>
</tr>
<tr>
<td></td>
<td>PACE to fund KVB to provide enhanced drug inspectorate throughout the country.</td>
</tr>
<tr>
<td></td>
<td>Pastoral Thematic Group proposals include veterinary services.</td>
</tr>
<tr>
<td></td>
<td>NGO &amp; government Pastoral Thematic Group makes input into final PRSP, with proposals for measures to develop pastoral areas.</td>
</tr>
</tbody>
</table>
## TANZANIA

<table>
<thead>
<tr>
<th>Historical Background</th>
<th>Veterinary Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonial rule</td>
<td>German colonial government establishes rudimentary Veterinary Department. Livestock Research Station established at Mpwapwa. 1&lt;sup&gt;st&lt;/sup&gt; dip constructed 1&lt;sup&gt;st&lt;/sup&gt; 9 Native Veterinary Guards for service in rural areas. Vet Assistants trained at Mpwapwa. 1&lt;sup&gt;st&lt;/sup&gt; Tanzanian receives Diploma in Vet Science. Natural Resources School trains assistant pastoralists.</td>
</tr>
<tr>
<td>Independence - 1970</td>
<td>Agricultural extension begins Morogoro College of Agriculture established to offer Diploma courses, now the Sokoine University of Agriculture (SUA)</td>
</tr>
<tr>
<td>1961 Tanzania independent</td>
<td></td>
</tr>
<tr>
<td>1970s</td>
<td>Livestock sector grouped with crops in the Ministry of Agriculture</td>
</tr>
<tr>
<td>University of East Africa divides into 3: Makerere, Dar es Salaam, Nairobi</td>
<td>Veterinary degrees begin to be awarded at Morogoro Faculty of Agriculture, Forestry and Veterinary Science (now SUA) of the University of Dar es Salaam World oil price crisis.</td>
</tr>
<tr>
<td>1980s</td>
<td>Separate Ministry of Livestock Development established; then merged again with Ministry of Agriculture Faculty of Agriculture, Forestry and Veterinary Science at Morogoro becomes a fully fledged university – and FVM established. Subsidies abolished on heifers from Livestock Multiplication Units National Agriculture and Livestock Extension Rehabilitation Project (NALERP) launched</td>
</tr>
<tr>
<td>Tanzania adopts Structural Adjustment policies. 1&lt;sup&gt;st&lt;/sup&gt; and 2&lt;sup&gt;nd&lt;/sup&gt; Economic Recovery Programmes</td>
<td></td>
</tr>
<tr>
<td>1990s</td>
<td>Cooperatives added to Ministry of Agriculture and Livestock Development Government stops automatic employment of veterinary graduates and AHAs. Government veterinary stores abolished. Government clinics abolished Agricultural Sector Management Project (ASMP) begins 1,455 CBAHW trained by various projects</td>
</tr>
<tr>
<td><strong>Livestock becomes part of Ministry of Water and Livestock Development</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Local governments directed to establish Livestock Development Funds</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 4. Country chronologies

#### Uganda

<table>
<thead>
<tr>
<th><strong>Historical Background</strong></th>
<th><strong>Veterinary Services</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Colonial rule</strong></td>
<td>1st Chief Veterinary Officer appointed. Service later comprised 2 vets and 2 Vet Assistants, all foreign. veterinary department incorporated into Agriculture Department. Veterinary Adviser to the Uganda Protectorate arrives from South Africa. Veterinary Department responsible for animal industry. Mandate of Department of Veterinary Services in 5-year development plan. Veterinary school shifts from Makerere to Kenya.</td>
</tr>
<tr>
<td><strong>Independence - 1970</strong></td>
<td>Veterinary school incorporated into University of Nairobi awarding BVSc. OAU supported rinderpest campaign.</td>
</tr>
<tr>
<td>1962 Ugandan independence</td>
<td>Civil war and abolition of Kingdoms. Change in the Uganda Constitution.</td>
</tr>
<tr>
<td></td>
<td>Military overthrow of democratic government. Idi Amin declares “Economic War” and 1000s of Indians expelled. Civil war to overthrow military regime. Ministry of Agriculture liberalized procurement of veterinary drugs through a Ministerial directive.</td>
</tr>
</tbody>
</table>
**ETHIOPIA**

<table>
<thead>
<tr>
<th>HISTORICAL BACKGROUND</th>
<th>VETERINARY SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1900-1960s</strong></td>
<td></td>
</tr>
<tr>
<td>Imperial government in Ethiopia</td>
<td>1908 Ministry of Agriculture established</td>
</tr>
<tr>
<td>Grazing lands declared property of the state</td>
<td>French mission invited to advise the imperial government on veterinary services. Imperial Veterinary Services established at Gulale. 1st two Ethiopian vets train abroad. 1st vaccinators receive on the job training.</td>
</tr>
<tr>
<td><strong>1960s</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diploma course set up for AHAs with UNDP/FAO funding and British teachers. AHA Association established.</td>
</tr>
<tr>
<td></td>
<td>Animal Health Department split functionally and geographically. Provincial agricultural offices opened, and first AHAs posted to provinces.</td>
</tr>
<tr>
<td></td>
<td>National Veterinary Institute established.</td>
</tr>
<tr>
<td></td>
<td>USAID-funded Pilot Rangeland Development Project, aimed to improve grazing land</td>
</tr>
<tr>
<td><strong>Early 1970s</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Different foreign missions supporting veterinary services in different parts of Ethiopia. Some AHAs sent abroad for BVM.</td>
</tr>
<tr>
<td></td>
<td>1st Meat Inspection Proclamation</td>
</tr>
<tr>
<td></td>
<td>Animal Health Department downgraded to a Division.</td>
</tr>
<tr>
<td></td>
<td>Ethiopian Veterinary Association established.</td>
</tr>
<tr>
<td></td>
<td>World Bank-funded 2nd Livestock Development Project establishes Livestock and Meat Board</td>
</tr>
<tr>
<td><strong>mid-late 1970s</strong></td>
<td></td>
</tr>
<tr>
<td>Haile Selassie ousted by Derg which nationalises most important sectors of the economy.</td>
<td>World Bank/IFAD/ADB-funded 3rd Livestock Development Project: infrastructure and vaccination.; increases understanding of pastoralism.</td>
</tr>
<tr>
<td>War with Somalia → destabilisation in south-east rangelands and interruption of development activities</td>
<td>Control of Veterinary Services’ personnel, financing and management passes to Animal and Fisheries Resources Development Authority</td>
</tr>
<tr>
<td>USSR and its allies replace US as Ethiopia’s main international backer.</td>
<td>Faculty of Veterinary Medicine established on same campus as Diploma course. Cuban teachers.</td>
</tr>
<tr>
<td>War in the north intensifies; resources increasingly used for war effort</td>
<td></td>
</tr>
<tr>
<td><strong>Early 1980s</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Historical Background</strong></td>
<td><strong>Veterinary Services</strong></td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Animal health activities decline markedly, including treatments, vaccination, dips. Procurement problems in MoA → chronic shortages of imported drugs</td>
<td>Ministry of Agriculture restructured twice; Veterinary Services downgraded to Team level and then upgraded to Department. National Veterinary Institute detached from Veterinary Services.</td>
</tr>
<tr>
<td>Late-80s</td>
<td></td>
</tr>
<tr>
<td>Severe famine and international relief effort creates international distrust of Derg. Perestroika in USSR; fall of the Berlin Wall increases Derg’s isolation</td>
<td>4th Livestock Development Project includes training of CAHWs to be paid through drug sales; drug shortages → exit of CAHWs.</td>
</tr>
<tr>
<td>1990s</td>
<td></td>
</tr>
<tr>
<td>1991 Derg ousted by Ethiopian Peoples Revolutionary Democratic Front (EPRDF).</td>
<td>4th Livestock Development Project severely disrupted by civil unrest following overthrow of the Derg</td>
</tr>
<tr>
<td>Ethiopia established as a Federal State based on ethno-linguistic Regions (States)</td>
<td>Regionalisation divides responsibilities for animal health between the Federal and Regional levels. Regional services have no formal accountability to the centre</td>
</tr>
<tr>
<td>Prolonged drought in pastoral areas → increasing involvement by international agencies</td>
<td>Veterinary Services Team’s mandate enlarged to include technology and regulation; responsibilities for quarantine and for animal health functionally separated.</td>
</tr>
<tr>
<td>1995 Revised Constitution confirms pastoral lands as property of the state, but provides for pastoralists not to be displaced. Macro-economic policy endorses commitment to economic liberalisation.</td>
<td>Successful campaign with CAHWs in pastoral area using heat stable vaccine. Increasing involvement of NGOs in animal health service delivery in pastoral areas.</td>
</tr>
<tr>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>2nd 5 year plan aims to develop pastoralism through support to animal production and health, and by encouraging settlement</td>
<td>New diploma course training centre opens</td>
</tr>
<tr>
<td>New Ministries of Capacity-building and of Rural Development set up to coordinate development strategy.</td>
<td>Pastoral input into Final Poverty Reduction Strategy Paper</td>
</tr>
<tr>
<td></td>
<td>Restructuring of Ministry of Agriculture within Ministry of Rural Development. Ministry of Capacity-building promotes huge increase in number of veterinary and para-veterinary graduates.</td>
</tr>
</tbody>
</table>
### ERITREA

<table>
<thead>
<tr>
<th><strong>HISTORICAL BACKGROUND</strong></th>
<th><strong>VETERINARY SERVICES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early colonial period</strong></td>
<td></td>
</tr>
<tr>
<td>1885 Italian colonial rule established in Eritrea.</td>
<td>Rinderpest survey by Italian veterinary team. 1st veterinary clinic established by the Italians at Villagio, Asmara</td>
</tr>
<tr>
<td>Italians declare all land below 600 masl property of the state. Allows pastoral lands in south-west to be alienated for commercial farming by Italian settlers.</td>
<td>Agricultural Office established to coordinate agricultural development in the colony. Little/no attention to livestock.</td>
</tr>
<tr>
<td><strong>1940s and 1950s</strong></td>
<td></td>
</tr>
<tr>
<td>Eritrea under British Administration; later federated with Ethiopia; Eritrea to retain control of domestic affairs.</td>
<td>Eritrean Ministry of Agriculture and veterinary services?</td>
</tr>
<tr>
<td><strong>1960s</strong></td>
<td></td>
</tr>
<tr>
<td>Eritrea annexed as a province by Ethiopia.</td>
<td>Eritrea brought under Ethiopian Ministry of Agriculture. Pro vincial Agricultural Office established with responsibilities in animal health.</td>
</tr>
<tr>
<td>Eritrean independence movement begins low level insurgency against Ethiopian forces. Eritrean forces based in remote pastoral areas.</td>
<td>Veterinary service staffed by AHA graduates from Debre Zeit (Ethiopia) and by Animal Health Technicians, trained mainly on-the-job in Eritrea. Eritrea covered by Ethiopia’s 1st Animal Disease Proclamation [???]</td>
</tr>
<tr>
<td><strong>1970s and 1980s</strong></td>
<td></td>
</tr>
<tr>
<td>1974 Haile Selassie overthrown by Provisional Military Administrative Council (Derg) which nationalises most sectors of the economy.</td>
<td>Veterinary services follow ebb and flow of war; same clinics sometimes run by Ethiopian and sometimes by EPLF vets. By 1980s divided veterinary services emerge. EPLF services include paravet training; mainly in pastoral and agro-pastoral areas. By late 1980s, only effective service provided by EPLF as Eritrean military advances confine Ethiopian government to a small enclave and veterinary clinics can only be supplied by air and military convoy.</td>
</tr>
<tr>
<td>War intensifies. EPLF forces gain more territory including major towns. Ethiopian counter-offensives force retreats by independence movement. Independence movement then regains upper hand.</td>
<td></td>
</tr>
<tr>
<td>Insecurity and EPLF policy of self-reliance mean no operational role for NGOs in territory controlled by independence movement.</td>
<td>NGOs fund EPLF veterinary services.</td>
</tr>
<tr>
<td><strong>1990s</strong></td>
<td></td>
</tr>
<tr>
<td><strong>HISTORICAL BACKGROUND</strong></td>
<td><strong>VETERINARY SERVICES</strong></td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Eritrea inherits small veterinary staffing, of mainly AHTs. Staff sent abroad for upgrading training from AHAs to vets and for postgraduate studies. Ministry of Agriculture builds training school which runs courses for AHAs and AHTs.</td>
<td></td>
</tr>
<tr>
<td>FAO Agriculture Sector Review defines priority areas for agricultural investment and encourages bilateral and multilateral donors.</td>
<td>Development of veterinary infrastructure; number of stationary clinics increases; paraveterinary service contracts; NGO funding comes to an end.</td>
</tr>
<tr>
<td>Land Proclamation makes all land property of the state. South west designated as settlement area for returning refugees from Sudan and demobilised soldiers.</td>
<td></td>
</tr>
<tr>
<td>Restructuring reduces size of civil service and increases public sector salaries</td>
<td>No incentive for vets to enter private practice, particularly given low purchasing power of livestock owners. No veterinary privatisation programme exists.</td>
</tr>
<tr>
<td>Investment in primary education leads to higher school enrolments and improved literacy levels</td>
<td>Paravet training resumes on small scale. Most of these trainees have some schooling.</td>
</tr>
<tr>
<td>Proclamation for decentralisation of local government. Should bring all line ministry staff under Regional Governments.</td>
<td>Delays in implementing decentralisation; veterinary service continues to be centrally controlled.</td>
</tr>
<tr>
<td>Border conflict with Ethiopia</td>
<td>Donor funding frozen. Around 50 percent of veterinary staff conscripted into the army. Paravet training continues on larger scale</td>
</tr>
<tr>
<td>2000→</td>
<td></td>
</tr>
<tr>
<td>Peace agreement concluded with Ethiopia. Preparation of PRSP begins</td>
<td>National legislation prepared covering all aspects of disease control, recognition of professional and para-professional staff, drug registration and regulation, etc</td>
</tr>
</tbody>
</table>

Appendix 4. Country chronologies
Page 9
## Sudan

<table>
<thead>
<tr>
<th><strong>Historical Background</strong></th>
<th><strong>Veterinary Services</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonial period</td>
<td></td>
</tr>
<tr>
<td>1899 Anglo Egyptian Condominium</td>
<td>Vets come to Sudan with British army.</td>
</tr>
<tr>
<td></td>
<td>1st veterinary report (on rinderpest). 1st national rinderpest campaign</td>
</tr>
<tr>
<td></td>
<td>Civil Department of Veterinary Services established. 1st vet lab established at Malakal, producing rinderpest vaccine</td>
</tr>
<tr>
<td></td>
<td>1st Livestock and Animal Health Ordinance; 1st Veterinary Quarantine and Livestock Movement Act; 2nd Veterinary Surgeons Ordinance</td>
</tr>
<tr>
<td></td>
<td>Vet school established at Gordon Memorial College to train diploma holders. Diploma course then extended to 5 year B. V. Sc</td>
</tr>
<tr>
<td>Independence-1970</td>
<td>Autonomous Ministry of Animal Resources</td>
</tr>
<tr>
<td>1956 Independence</td>
<td>Pharmacy Act prohibits vets from handling drugs</td>
</tr>
<tr>
<td>1963 Pharmacy and Drugs Act</td>
<td>War in the south begins.</td>
</tr>
<tr>
<td>1969 Numeiry comes to power</td>
<td>1969 Numeiry comes to power</td>
</tr>
<tr>
<td>1970s</td>
<td>Increased demand for vets following increase in intensive livestock production; new Faculties of Veterinary Medicine established</td>
</tr>
<tr>
<td></td>
<td>Disease free zone and livestock routes established; 10 regional labs developed.</td>
</tr>
<tr>
<td></td>
<td>Some private practitioners operating illegally; drugs start to be imported privately, but illegally.</td>
</tr>
<tr>
<td></td>
<td>Veterinary drugs incorporated as a by-law of the Pharmacy Act</td>
</tr>
<tr>
<td></td>
<td>Veterinary services improve in the south.</td>
</tr>
<tr>
<td></td>
<td>Ministry of Animal Resources absorbed into Ministry of Agriculture</td>
</tr>
<tr>
<td></td>
<td>World Bank funded Livestock and Meat Marketing Corporation established</td>
</tr>
<tr>
<td>1980s</td>
<td>Veterinary services in the south deteriorate.</td>
</tr>
<tr>
<td><strong>HISTORICAL BACKGROUND</strong></td>
<td><strong>VETERINARY SERVICES</strong></td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Sharply deteriorating economic conditions. 1986 IMF declares Sudan bankrupt</td>
<td>Government ceases automatic employment of veterinary graduates</td>
</tr>
<tr>
<td>NIF government comes to power. International isolation contributes to worsening economic conditions</td>
<td>Ministry of Animal Resources absorbed into Ministry of Agriculture</td>
</tr>
</tbody>
</table>

1990s

Federal system introduced with 26 States

Economic liberalisation initiated. Fee-for-service principle introduced into the public sector

Spontaneous privatisation encouraged by liberalisation of drug supply. Free veterinary services discontinued. Livestock and Meat Marketing Corporation privatised as Animal Resources Bank. Veterinary Surgeons Ordinance revised to accommodate private practice

Livestock prominent in 10 year Comprehensive National Strategy. Investors encouraged to invest in livestock; enabling tax environment. Livestock makes an increasing contribution to GDP and to earnings from exports.

Autonomous Ministry of Animal Resources

New Constitution abolishes old laws, including veterinary laws

Board of Veterinary Services formed by Ministerial Degree. 1963 Drugs and Poisons Act updated to establish Federal Pharmacy and Drug Council with veterinary representation

2000 →

Poverty Alleviation Workshop; livestock key factor in poverty alleviation. 25 year National Development Strategy – livestock and oil seen as equally important for growth

Major review and revision of Veterinary Surgeons Ordinance; Draft laws on Import and Export of Animals and on Animal Production, with Council of Ministers for approval; Presidential Decree provides for free vaccination
## Appendix 5

### Selected human and livestock data for surveyed countries

<table>
<thead>
<tr>
<th>Social indicators</th>
<th>Eritrea</th>
<th>Ethiopia</th>
<th>Sudan</th>
<th>Kenya</th>
<th>Tanzania</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human population (2000) (millions) (^1)</td>
<td>4.1</td>
<td>64.0</td>
<td>30.1</td>
<td>29.7</td>
<td>33.7</td>
<td>22.0</td>
</tr>
<tr>
<td>% human population in pastoral/agropastoral areas</td>
<td>30(^2)</td>
<td>10(^3)</td>
<td>8.5(^4)</td>
<td>17(^5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDI ranking (2000) (^6)</td>
<td>159</td>
<td>171</td>
<td>143</td>
<td>138</td>
<td>156</td>
<td>158</td>
</tr>
<tr>
<td>Adult literacy rate (1998) (^7)</td>
<td>51.7</td>
<td>36.3</td>
<td>55.7</td>
<td>80.5</td>
<td>73.6</td>
<td>65.0</td>
</tr>
</tbody>
</table>

### Livestock population (millions) (Eritrea\(^7\), Ethiopia\(^8\), Sudan\(^9\))

<table>
<thead>
<tr>
<th>Category</th>
<th>Eritrea</th>
<th>Ethiopia</th>
<th>Sudan</th>
<th>Kenya</th>
<th>Tanzania</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>1.9</td>
<td>30</td>
<td>35.9</td>
<td>12.0</td>
<td>16.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Sheep</td>
<td>2.1</td>
<td>24</td>
<td>44.8</td>
<td>20.0</td>
<td>3.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Goats</td>
<td>4.7</td>
<td>18</td>
<td>37.3</td>
<td>20.0</td>
<td>11.5</td>
<td>6.8</td>
</tr>
<tr>
<td>Camels</td>
<td>0.3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>ns(^{10})</td>
<td></td>
</tr>
<tr>
<td>Equidae</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28.6(^10)</td>
</tr>
<tr>
<td>% livestock population in pastoral/agropastoral areas</td>
<td>60(^{11})</td>
<td>20(^{12})</td>
<td>85(^{13})</td>
<td>60(^8)</td>
<td>98</td>
<td>nk(^{15})</td>
</tr>
</tbody>
</table>

---

\(^1\) World Development Indicators Database (2000) World Bank  
\(^2\) Comprises 5 percent pastoral and 25 percent agropastoral. Cliffe et al (1992)  
\(^3\) Arsano, Y., (2000)  
\(^4\) Personal Communication, Dr Hassan Ibrahim Khattab, Federal Ministry of Animal Resources, Sudan  
\(^7\) ARD Livestock Survey 1997, quoted in Woodford 2001  
\(^8\) Personal communication, Dr Sileshi Zewdie, Federal Ministry of Agriculture, Ethiopia  
\(^9\) Internal documentation provided by Dr Hassan Ibrahim Khattab, Federal Ministry of Animal Resources, Sudan  
\(^10\) Equidae including donkeys, horses and few hundred camels MAAIF 2002.  
\(^11\) FAO (1994)  
\(^12\) Comprises 28 percent of cattle, 26 percent of sheep, 66 percent of goats and 100 percent of camels. NLDP (1999) quoted in Nega (2002).  
\(^13\) Federal Ministry of Animal Resources  
\(^14\) Not significant  
\(^15\) Not known by the authors
Appendix 6

Some indicators of the status of national animal health delivery systems

<table>
<thead>
<tr>
<th>Measure</th>
<th>Eritrea</th>
<th>Ethiopia</th>
<th>Sudan</th>
<th>Kenya</th>
<th>Tanzania</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal health delivery policy statement</td>
<td>Being revised</td>
<td>In draft</td>
<td>Status unknown by reviewers</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Revised Veterinary Surgeons Ordinance</td>
<td>Draft ready for Council of Ministers</td>
<td>None exists</td>
<td>In process</td>
<td>In process</td>
<td>Draft ready for Parliament</td>
<td>To be revised</td>
</tr>
<tr>
<td>Other relevant legislative change</td>
<td>In process</td>
<td>In process</td>
<td>In process</td>
<td>In process</td>
<td>In process</td>
<td>To be reviewed</td>
</tr>
<tr>
<td>Decentralisation of SVS¹</td>
<td>Planned</td>
<td>Yes</td>
<td>Yes</td>
<td>Limited</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Public/private sector roles defined</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Promotion of PVP</td>
<td>No</td>
<td>Little progress</td>
<td>No; mainly spontaneous</td>
<td>Yes</td>
<td>Ongoing</td>
<td>Yes</td>
</tr>
<tr>
<td>Liberalisation of drug supply</td>
<td>Limited</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Veterinary regulatory body independent of government</td>
<td>None exists</td>
<td>To be established</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Veterinary Association</td>
<td>Planned</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Recognition of CAHWs in legislation</td>
<td>Yes</td>
<td>Included in regulations</td>
<td>Status unknown by reviewers</td>
<td>In draft</td>
<td>No (in draft)</td>
<td>No</td>
</tr>
<tr>
<td>No. VLU/vet²</td>
<td>N/a</td>
<td>71,449</td>
<td>8,699</td>
<td>13,831</td>
<td>30,646</td>
<td>12,230</td>
</tr>
<tr>
<td>No. VLU/vet worker (vets &amp; technicians)</td>
<td>N/a</td>
<td>6,528</td>
<td>3,687</td>
<td>4,254</td>
<td>2,414</td>
<td></td>
</tr>
<tr>
<td>Government allocation to livestock sector ($/VLU)</td>
<td>N/a</td>
<td>N/a</td>
<td>0.05</td>
<td>0.70</td>
<td>0.23</td>
<td>0.24</td>
</tr>
<tr>
<td>% contribution livestock sub-sector to GDP</td>
<td>N/a</td>
<td>N/a</td>
<td>26</td>
<td>3</td>
<td>18</td>
<td>17</td>
</tr>
</tbody>
</table>

¹ Very varied picture with respect to impact on centre’s capacity to maintain control over disease surveillance and response

² Equivalent to one bovine or camel, 0.5 pigs and equids, 0.1 small ruminants, 0.01 poultry. These and following figures taken from Catley et al, 1999