



**African Union / Inter African Bureau for Animal Resources (AU-IBAR)
Pan-African Programme for the Control of Epizootics (PACE)**

AN ASSESSMENT OF VETERINARY SERVICE DELIVERY SYSTEMS IN THE SOMALI ECO-SYSTEM



FINAL REPORT

**Report Compiled for Somali Eco-system Rinderpest Eradication
Coordination Unit (SERECU)**

**Walter Masiga
Julius Kajume
Chris Daborn**

Nairobi, August 2006



ACKNOWLEDGMENTS

The team of consultants for the Assessment of Veterinary Delivery Services in the Somali Eco-system would like to express their appreciation for the full support they received in carrying out their mission from all the staff at AU-IBAR. In particular the team would like to thank the Director AU-IBAR for encouragement and counsel, the PACE / SERECU Team for technical guidance and input and the EU for the financing of the mission.

The team is also indebted to Francis Chabari the GTZ-IS Coordinator for his clear and comprehensive introduction and excellent arrangements that enabled us to concentrate fully on the job in hand without any impediment.

Finally the team is grateful to all the Government Veterinary Staff, Professional Associations, NGO's, Institutions, Livestock Keepers and other Stakeholders within the countries we visited whose time and information freely provided made the writing of this report possible

TABLE OF CONTENTS

ACKNOWLEDGMENTS	2
TABLE OF CONTENTS	3
ACRONYMS	4
EXECUTIVE SUMMARY	6
1. INTRODUCTION	11
2. STUDY OBJECTIVES AND TERMS OF REFERENCE (SUMMARY)	12
3. METHODOLOGY	13
4. FINDINGS	14
4.1. CURRENT STATUS OF AHSD IN THE SES	14
4.2. NETWORKS SUPERVISED BY VETERINARIANS	31
4.3. ROLES AND LINKAGES BETWEEN DIFFERENT PLAYERS	32
4.4. INFORMATION NEEDED FOR RP ERADICATION INTERVENTIONS	36
4.5. IMPORTANCE OF DISEASE SURVEILLANCE FOR WILDLIFE	50
4.6. COMMUNITY ANIMAL HEALTH DELIVERY SYSTEM	51
5. DISCUSSIONS	52
5.1. COMPARISON OF AHDS BETWEEN THE THREE COUNTRIES IN SES	53
5.2. COMPARISON OF AHDS IN THE THREE COUNTRIES BY SWOT ANALYSIS	56
6. CONCLUSION	59
7. RECOMMENDATIONS	60
8. APPENDICES	65
8.1. FULL TERMS OF REFERENCE	65
8.2. BIBLIOGRAPHY	71
8.3. LIVESTOCK DEVELOPMENT PLAN FOR SES	83
8.4. ETHIOPIA	85
8.5. KENYA	88
8.6. SOMALIA	92
8.7. CONSULTANTS PROFILES	100
<i>Dr. Walter Masiga</i>	100
<i>Dr. Julius K Kajume</i>	100
<i>Dr. Chris Daborn</i>	101

ACRONYMS

AAHTR	Annual Animal Health Technical Report
ACF	Action Contre la Faim (Action against Hunger)
AHDS	Animal Health Delivery System
AHSD	Animal Health Service Delivery System
AHT	Animal Health Technician
ARO	Agricultural Research Organisation
AU-IBAR	African Union-InterAfrican Bureau for Animal Resources
CACC	Central Agricultural Census Commission
CAHWs	Community Animal Health Workers
CAPE	Community Animal Health and Participatory Epidemiology
CBOs	Community Based Organisations
CERELPA	Central Regional Livestock Professional Association
COOPI	Cooperazione Internazionale
CVO	Chief Veterinary Office
DVO	District Veterinary Officer
DVS	Director of Veterinary Services
EDMU	Epidemiology and Data Management Unit
EU	European Union
EVA	Ethiopia Veterinary Association
FAO	Food and Agriculture Organization
FARM-Africa	Food Agricultural Research Management Africa
GDP	Gross Domestic Product
GREP	Global Rinderpest Eradication Programme
GTZ – IS	GTZ - International Services
GTZ	Deutsche Gessellschaft fur Technische Zusammenarbeit GmbH
Gvt	Government
HCS	Harar Catholic Secretariat
HMPA	High and Medium Potential Area
ICRC	International Crescent of Red Cross
ILRI	International Livestock Research Institute
JAHA	Junior Animal Health Assistant
KS	Kenyan Component of the SES
KVA	Kenya Veterinary Association
KVAPS	Kenya Veterinary Association Privatisation Scheme
KVB	Kenya Veterinary Board
LO	Livestock Officer
M & E	Monitoring and Evaluation
MoLFD	Ministry of Livestock and Fisheries Development
NE	North Eastern
NGO	Non Governmental Organization
NVA	National Veterinary Authority
OUA	Organisation of African Unity
OIE	Office Internationale des Epizooties
OWDA	Ogaden Welfare and Development Association
PACE	Pan African Programme for the Control of Epizootics
PADP	Pastoral Association Development Programme
PARC	Pan African Rinderpest Campaign
PCAE	Pastoralist Concern Association Ethiopia
PCDP	Pastoral Commission Development Programme
PDS	Participatory Disease Search
PDVS	Provincial Director of Veterinary Services
PLI	Pastoral Livelihoods Initiative
PPR	Peste des Petits Ruminants
PULPA	Puntland Livestock Professional Association
Pvt	Private
RP	Rinderpest
RSLTC	Red Sea Livestock Trade Commission
RVF	Rift Valley Fever
SADVS	Senior Assistant Director of Veterinary Services
SAHSP	Somali Animal Health Service Project

SCAHP	Somali Community Animal Health Project
SCF-UK	Save the Children Fund-United Kingdom
SCIU	Somali Component Implementation Unit
SC-USA	Save the Children – United States of America
SERECU	Somali Eco-system Rinderpest Eradication Coordination Unit
SES	Somali Eco System
SLPAs	Somali Livestock Professionals Associations
SOWELPA	South Western Livestock Professional Association
SVO	Senior Veterinary Officer
TA	Technical Assistant
TFG	Transitional Federal Government
TOT	Trainer of Trainers
ULPA	United Livestock Professional Association
UNA	Una Organisation
VO	Veterinary Office
VPPO	Veterinary Privatisation and Promotion Office
VSF – CH	Veterinaries Sans Frontiere – Switzerland

EXECUTIVE SUMMARY

Preamble

Rinderpest eradication is a global objective and the African Union / Inter African Bureau for Animal Resources (AU / IBAR), through the Pan African Programme for the Control of Epizootics (PACE), is spearheading the eradication campaign in the African continent. The region termed the “Somali Eco-system” [SES] is presumed to harbour the last foci of Rinderpest in the world. Apart from the disease risk posed by these foci there is also a considerable negative economic impact on the market value of livestock with consequent adverse effect on the livelihoods of the pastoralist communities.

The African Union / Inter African Bureau for Animal Resources / Somali Ecosystem Rinderpest Eradication Coordination Unit (AU/IBAR/SERECU) operating under the PACE programme is seeking to develop a harmonized and coordinated surveillance and Rinderpest eradication strategy to achieve “freedom from Rinderpest” in the SES in line with OIE guidelines. However there are perceived gaps in the current AHDS within the SES, which may be impairing disease surveillance and consequently Rinderpest eradication capability. The AU/IBAR/SERECU has therefore commissioned an independent and expert assessment team to advise on the remedial needs of the existing veterinary service delivery systems in SES.

A three-man mission was recruited with each consultant responsible for one of the three countries in the Somali Ecosystem (SES). The consultants undertook field visits to conduct a census of the Animal health Service Deliverers; assess the networks of vet-paraprofessionals supervised by private and public veterinarians in the area; assess the roles and linkages between the different players in veterinary services on the ground and identify gaps in service delivery - suggesting ways these can be remedied.

Results / Observations

A finding common to all three countries is the existence of gaps and deficiencies in AHDS for which substantial resources, manpower and a review of policy will be required to make good. It is considered that creating a sustainable Animal Health Delivery System (AHDS) in the SES, which is expressly designed to supply the quality and quantity of livestock services as required by the pastoralist livestock keeping communities, will be the most cost-effective way to achieve AU/IBAR/SERECU disease surveillance and Rinderpest eradication aims. The approaches to strengthening the delivery of AHDS in the SES will have some elements in common but there will also need to be some country specific approaches in recognition of the differences in Veterinary Delivery systems existing on the ground in each of the three countries.

The delivery of animal health services in the whole of the SES is under-resourced, often requiring staffing and transport reinforcements when specific delivery tasks are to be implemented. In Ethiopia and Kenya, the delivery of veterinary services, including vaccination and disease surveillance, is mainly undertaken by the Government, with

some assistance from Non-Governmental Organizations (NGOs), Community Animal Health Workers (CAHWs) and the livestock keepers themselves. Private sector involvement is extremely limited. In Somalia, by contrast, the delivery of animal health services is dependent on the private sector; there is no Government service at all. The service provision is mainly by Veterinarians, Animal Health Assistants (AHAs), CAHWs, NGOs and Livestock Keepers.

Quality controlled animal health service delivery requires that veterinarians, either private or public, are the principal agents in directing the service delivery system and providing a lead role in technical guidance, coordination, supervision and monitoring. In all three countries, veterinarian-supervised networks of para-professionals are few, generally weak and poorly resourced. Strengthening and extending these networks to serve the entire livestock owning community needs to be undertaken as a priority action.

The roles of the various players in animal health service delivery in SES (Government, NGOs, Associations, CAHWs, drug suppliers and livestock keepers) are defined to a large extent, but in practice some players do not adhere to their roles due to inadequate coordination and control.

Disease reporting systems in SES is clearly defined but mechanisms to ensure adherence are weak. Community animal health workers provide a useful link between the livestock keepers / community and the District Veterinary Authorities in terms of disease reporting and surveillance but as a whole, there is no motivation for them to submit reports, nor is there any tangible compelling mechanism in place to make them accountable.

The valuable role that CAHWs can play in the frontline delivery of Animal Health Services in the SES is well recognised, but there is concern at the apparent lack of supervision, regulation and prospects for sustainability.

In recognition of the importance of wildlife as sentinels for Rinderpest, disease surveillance capacity requires strengthening in Ethiopia and Somalia, whilst in Kenya better linkages at District level are required.

In all the three countries, the main service delivery gaps include deficiencies in skilled manpower; weak district veterinary services with insufficient equipment, facilities and incentives; low level of community participation; underdeveloped private sector (except in case of Somalia); weak linkages; poor drugs supply system; and limited knowledge of CAHWs on surveillance and diagnosis of mild Rinderpest. Recommended interventions centre on resolving these deficiencies.

In Kenya and Ethiopia, the priority point of intervention is at the District level, focusing on the Government Veterinary Service, the Private Sector, Community Animal Health Service delivery system and the Community. In Somalia, the priority point of intervention is the establishment of Central Veterinary Authority, along side strengthening of Professional Associations and training of more service providers.

SERECU is expected to play a greater coordination and facilitation role in Rinderpest surveillance and eradication process, as well as in strengthening Animal Health Service delivery in SES. This crucial role demands that the Unit be re-structured to meet the challenge. Its future linkage with the Veterinary Authorities in the three SES countries is considered a major determining factor.

This assessment report outlines what needs to be done to strengthen AHDS in the SES. SERECU has the opportunity to achieve a truly sustainable solution by addressing the innovative and strategically adaptive approaches that have been recommended. Such an approach will be in the best interests of supporting the pastoralist livestock keeping community and materially contribute to raising the value of the livestock sector in general.

Recommendations Common to SES

The AU/IBAR/SERECU should:-

1. Address identified deficiencies in field staffing, resources and performance incentives that will have a positive impact on the delivery of animal health services.
2. Collaborate with the relevant country authorities to facilitate the development and implementation of applied training courses, targeting Veterinarians, Animal Health Assistants and Animal Health Technicians.
3. In partnership with other stakeholders promote and support the establishment and strengthening of communication centres / structures and information sharing forums that permit public-private sector linkages and collaboration and community participation.
4. In collaboration with its partners, facilitate a forum to review the implementation of privatisation policies and their impact on animal health service delivery in the SES.
5. Design Country specific packages in support of privatized veterinary service delivery that take into account the different operating environments.
6. Facilitate the Veterinary Authorities, with other players; establish specific Units or mechanisms to monitor the implementation and enforcement of policies and regulations.
7. Promote recognition of Community Animal Health Workers as an integral part of the animal health service delivery system in the SES region, lobby for their incorporation into Animal Health Strategic Plans and make provision for supporting their activities.
8. Encourage effective participation of livestock keeping communities in disease surveillance, reporting and extension by supporting representative associations and targeting animal health service delivery at livestock disease problems viewed and determined as important for the community themselves.
9. Improve Rinderpest surveillance and reporting systems by enhancing ownership of information / data management through effective sharing with field staff, motivating CAHWs participation in passive reporting by appropriate remuneration and strengthening wildlife surveillance capacity in Ethiopia and Somalia

10. As a matter of some urgency, prepare to assemble the resources, financial, human and material, to mount a vaccination campaign should the Rinderpest sero-surveys and disease searches confirm the presence of Rinderpest in the SES.
11. Recognising that the Rinderpest surveillance task ahead requires to be adequately prepared for in terms of providing financial and human resources, and noting the important role of SERECU, it is imperative that the Unit (SERECU) be strengthened accordingly. In particular, the linkages with ground players need to be enhanced. This can be achieved by relocating liaison officers to their respective country's Veterinary HQ and by reinforcing the coordinating team with the additional post of an epidemiologist.
12. Note that any intervention with the intention of improving the Animal Health Delivery Service will have a greater impact, and better chance of sustainability, if embedded into a broader rangelands resource management and pastoralist livelihood support initiative.

Recommendations Specific to Ethiopia

1. Organise a consultative forum for the two levels of Veterinary Service (Federal and Regional) to re-define the chain of command in matters related to notifiable diseases, ensuring that the District Veterinary Services are held more accountable in disease reporting.
2. Lobby the Government to allocate more resources for privatisation promotion, and also to strengthen the existing Veterinary Privatisation and Promotion Unit.
3. Establish a Regulatory Unit within the Veterinary Service, either at Regional or District levels, to regulate animal health service providers including NGOs and CAHWs.
4. Reinforce Government staffing at the District level so that each District has a minimum of one veterinarian, Two Animal Health Assistants and two Animal Health Technicians. This intervention should be reinforced with matching provision of equipment, facilities and incentives.

Recommendations Specific to Kenya

1. Critically review policy and responsibilities concerning the delivery of all services supporting the livestock sector in the KS with view to maximising their effectiveness.
2. Support a review of the policy of barring Government Veterinary Services from delivering private good veterinary services in the KS consider a new policy of combining "Private Good" and "Public Good" AHDS functions under the immediate control and co-ordination of the DVOs?
3. Reinforce Government staffing so that there is one Veterinarian specifically responsible for directing the AHDS at District level and one Animal Health Assistant at Divisional level effectively supervising a universal network of CAHWs.
4. Design and fund an AHDS programme that will enable effective and continuous disease surveillance on all livestock from Ethiopia and Somalia moving into and through the NE Province of Kenya. The programme design should embrace novel and strategically adaptive approaches to create a sustainable AHDS as sought by the pastoralists.

Recommendations Specific to Somalia

1. Facilitate the creation of a Veterinary Service, both field and laboratory, and the subsequent appointment of a DVS and supporting staff at Regional and District levels.
2. When the Transitional Federal Government is fully established, it should be facilitated to put in place a policy and legal framework for disease control.
3. Take all necessary steps, including the appointment of a DVS, to enable Somalia to declare provisional freedom from Rinderpest on a zonal basis in accordance with OIE guidelines.

1. INTRODUCTION

When Rinderpest was introduced to Africa in the late 19th Century, the pandemic killed up to 90% of cattle and other susceptible wildlife species. The disease has plagued the African continent since then due to the presence of large numbers of domestic and wild animals, the inadequacy of veterinary services, nomadic husbandry practices and insecurity. Concerted action to eradicate the disease, commencing with the “Joint Project 15”, implemented by the OAU/IBAR in the 1960s and 1970s followed by the Pan African Rinderpest Campaign (PARC) in the mid 1980s and the Pan African Control of Epizootics (PACE) in the late 1990s, succeeded in eradicating Rinderpest from most of Africa with the exception of the so called mild strain of the virus in the “Somali Eco-system”, an area of land that encompass South East Ethiopia, North East Kenya and Southern Somalia.

Rinderpest virus, detected in Somali Eco-system in 1996, caused mild disease in cattle and a severe syndrome in African buffaloes, lesser kudu, and other bovine antelopes e.g. the eland. History suggests that this virus could revert to its virulent form and cause a renewed outbreak of cattle plague. It is therefore imperative that this mild virus infection be eradicated from the Somali Eco-system.

The potential for livestock production in the Somali Eco-system, that has more than seven million cattle, is huge but is generally underexploited and the sector is also seriously undervalued due to various factors of which livestock diseases including Rinderpest have a major impact. Other factors affecting productivity include poor livestock husbandry practice and management, poor nutrition both in quantity and quality and poor marketing infrastructures. The importance of the livestock sub-sector and its potential contribution towards eradication of poverty and food security of households constitute a legitimate case for more attention in terms of resource allocation and investment.

In recognition of the importance of livestock disease control in poverty reduction and for maintaining functioning, community based disease surveillance networks in the final stages of the fight against Rinderpest, AU-IBAR / SERECU commissioned a three man consultancy team to evaluate the current and assess the required capacity of the veterinary service delivery systems in the Somali Eco-system. A primary purpose of the mission's work is to support the AU/IBAR/SERECU in their endeavour to finally eradicate Rinderpest from the African Continent and to leave in place sustainable livestock disease control and surveillance systems.

The goal of the study is to provide the necessary information for strengthening the animal health service delivery systems within SES and consequently upgrade disease surveillance to a high enough standard appropriate for the eradication of Rinderpest, and other economically important trans-boundary diseases, from the region. It is intended that this study will provide critical input for the creation of a coordinated and sustainable animal health service as sought by the livestock keepers and thereby solicit their

necessary and willing participation in the final stages of the global Rinderpest eradication programme.

2. STUDY OBJECTIVES AND TERMS OF REFERENCE (SUMMARY)

Full terms of reference are appended to this report (*Appendix 8.1*).

The main objective of the study is to evaluate the current and estimate the required capacity of the veterinary service delivery systems in Somali Eco-system.

- Assessment of the current situation of Animal Health Service Delivery Systems in SES.
- Assess the networks (if any) of vet-paraprofessionals that are supervised by private and public veterinarians in the area.
- Assess roles and linkages between the different players in veterinary services currently on ground including the public and private sectors; professional organizations; associations; NGOs; Community Based Organizations; and the communities.
- Identify gaps of service delivery and suggest ways this can be alleviated, particularly how the objectives of SERECU can be achieved in SES.

Expected results

- A report giving a clear picture of the current status of animal health service delivery systems in SES produced.
- A report on the assessment of the networks of vet-paraprofessionals that are supervised by veterinarians in SES produced.
- A report on roles and linkages between the different players in veterinary services currently on ground produced.
- Information that will lead to putting in place specific interventions in the local Veterinary Delivery System that contribute to eradication of Rinderpest in SES, and improve Animal Health Service delivery Systems (AHDS) for sustainable livelihood made available taking into account the following:
 - Identification of the major constraints in the current delivery system/s and the main intervention points.
 - Identifying what institutional support the current delivery system requires.
 - Defining ways and means to strengthen the various delivery systems on the ground.

3. METHODOLOGY

3.1 *Duration of the Assignment*

Three consultants, Dr Walter Masiga, Dr Julius Kajume and Dr Chris Daborn were contracted to carry out the mission over a 4 week period during the month of July to mid August 2006. They were required to carry out the evaluation in the three countries concurrently. Dr Masiga evaluated Somalia, Dr Kajume Ethiopia and Dr Daborn Kenya. The consultants worked together with staff of SERECU, PACE National Coordinators (Kenya and Ethiopia) and Coordinator for SAHSP (Somalia), Government Veterinary Staff and other stakeholders on the ground.

Programme of Activity

Week	Day	Activity
1	0-6	Analysis of documents, preparation and review of a mission plan, meetings with key officials
	7	Presentation of the mission plan and methodology to AU/IBAR/PACE staff during an inception meeting, indicating clearly how the consultants intend to do the work.
2 and 3	8-21	Mission in the field, interviews, draft report
4	22-24	Compile and finalise report
	25 and 26	Circulate report. Review by AU/IBAR/PACE staff
	27	Wrap up meeting
	28	Finalise report to include comments

The detailed itineraries for the mission are shown in the individual country appendices.

3.2 *Collection of Data and Information*

- An exhaustive literature review of existing bibliography on AHDS in SES (*Appendix 8.2*)
- A detailed assessment of the current AHDS situation.
- Interviews of various cadres of AHSDs on the ground (a list of persons and organisations met are shown in the individual country appendices).
- Interviews of other stakeholders.

3.3 *Preparation of the Final Report*

- Took due heed of existing OIE guidelines on the evaluation of Veterinary Services.
- Presentation of 1st draft report during a feedback meeting.
- Preparation & circulation of 2nd Draft Report including feedback meeting comments.
- Preparation of the final report in response to comments received on 2nd Draft.
- Submission of final report.

4. FINDINGS

4.1. Current Status of AHSD in the SES

The delivery of animal health services in the whole of the SES is under-resourced, often requiring staffing and transport reinforcements when specific delivery tasks are to be implemented. The challenging environment that includes long distances between centres, poor infrastructure, prolonged droughts, limited communications, insecurity, high service delivery costs and frequent movement of the community and their livestock is unfavourable for the delivery of conventional veterinary services by either the private or public sector.

In Ethiopia and Kenya, the delivery of veterinary services, including vaccination and disease surveillance, is mainly undertaken by the Government, with some assistance from NGOs, CAHWs and the livestock keepers themselves. Private sector involvement is extremely limited. In Ethiopia the Government Veterinary Service is thin on the ground and in Kenya the majority of Government staff are based at the District Headquarters whilst both services are poorly equipped. The NGOs in collaboration with the Government are supporting the establishment of community animal health service delivery system with limited prospects for sustainability. In Ethiopia, the Government is operating small drugs shops / clinics which are inadequately equipped and stocked. The private sector on the ground mainly consists of small retail drug outlets with weak lines of supply. The livestock keepers, sourcing drugs from various sources including inferior and fake drugs from unqualified persons, are also providing curative services mainly for their own animals. In Kenya the private sector is generally under-developed, and consists principally of retail drugs shops, pharmacies and unlicensed drug vendors. There is only one private veterinary practice, located in Wajir, whose activity is largely limited to the sale of drugs.

In Central and Southern Somalia, by contrast, the delivery of animal health services is dependent on the private sector; there is no Government service at all. The service provision is mainly by Veterinarians, Animal Health Assistants, Community Animal Health Workers, NGOs and Livestock Keepers. The NGOs train and facilitate the work of the professional Associations, support establishment of drug stores and the provision of drugs, and also carry out disease surveillance, treatment and other animal health interventions.

The detailed findings on the current status of animal health service delivery in SES specific to each of the three countries are given below.

4.1.1 Current Status of Animal Health Service in Ethiopia

4.1.1.1 *Overview of Livestock Sub-Sector*

Ethiopia is endowed with large livestock populations comprising of cattle (40,306,796), sheep (25,105,223), goats (22,333,173), horses (1,517,647), asses / donkeys (4,065,852),

mules (319,661), camels (1,713,683) and poultry (30,882,359). The livestock sub-sector is a large source of foreign exchange earner contributing about 33% of the agricultural GDP and 16% of the total GDP. It is the most important source of incomes and livelihoods in the pastoralist areas. The livestock resource provides huge draught power for cultivation, meat and milk for the households and plays a pivotal role in cultural activities. However, the productivity of the sub-sector remains marginal and largely untapped.

The potential in livestock production is huge but is partially exploited due to various constraints, with livestock diseases being one of the major constraining factors. Other related factors include poor livestock husbandry practice and management, poor nutrition both in quantity and quality and poor marketing infrastructures. The importance of the livestock sub-sector and its potential contribution towards eradication of poverty and food security of households constitute a legitimate case for more attention in terms of resource allocation and investment.

4.1.1.2 *The Impact of PACE*

The Pan African Programme for the Control of Epizootics (PACE) in Ethiopia is highly conspicuous in the national effort to alleviate livestock disease problem. Its focus on Rinderpest eradication and control of other epizootics is of particular importance in the overall strategy to combat diseases. The programme is the main drive in Rinderpest eradication process including surveillance and disease reporting.

4.1.1.3 *The Structure of Veterinary Services*

The structure of the Veterinary Service follows the political set up, comprising of Federal and Regional layers. The Federal Department of Veterinary Services, also referred to as Department of Animal Health Services, falls within the Ministry of Agriculture and Rural Development while the regional veterinary services are administered through the Regional Agricultural office.

At the federal level, the Animal Health Department has two main divisions or teams:

- Epidemiology and disease control team.
- Quarantine inspection and veterinary public health.

The regional veterinary services extend downwards to the community via zonal and district levels. The zonal and district veterinary services operate within the umbrella and control of zonal and district agricultural bureaus respectively.

The Federal Department of Veterinary Services has indirect linkages with the National Veterinary Institute (NVI) and the National Animal Health Research Centre, which are critical support institutions to the Department and animal health service delivery in general but are not under the authority of the Department. The National Animal Health Research Centre is within the administration of an autonomous body, the Agriculture Research Organization (ARO), while NVI is an autonomous institute.

Main Observations

- Inadequate skilled manpower at the Federal level: Being the central coordination level of veterinary services in the country, and with particular reference to control of epizootics / transboundary diseases, the Department should be more visible nationally, with skilled manpower commensurate with its mandate. The existing capacity is less than 50% of the estimated requirement.
- Weak linkage between the Federal and Regional veterinary services: This is reflected by the fact that only 35% of the Districts (Woredas) in the country report disease outbreaks to the Federal Veterinary Services, an indication of low accountability in disease reporting. It is important for the Federal Veterinary Services to have direct link with Regional and District Veterinary Services to facilitate faster exchange of information and effective National Animal Health Information System.

4.1.1.4 The Livestock Resource in the SES

The Somali Eco-system is within the Somali region, one of the largest regions of the country constituting nearly one third of the country's total area. The livestock populations in the region comprise of cattle (922,518), sheep (6,202,846), goats (5,326,984), horses (49), asses / donkeys (118,045), mules (254), camels (1,104,081) and poultry (154,669). The livestock data tend to differ depending on the source as shown below.

Livestock Species	Source of Information		
	IPS 2000	CACC 2003, 2004	AAHTR, 2004-2005
Cattle	3,746,000	1,291,710	922,518
Sheep	9,053,000	7,080,589	6,202,846
Goats	8,547,000	6,196,796	5,326,984
Camel	2,032,000	1,229,367	1,104,081
Donkeys / asses	213,000	137,919	118,045
Horses and mules	-	-	303
Poultry	-	-	154,669

The main production system is pastoralism, with livestock moving long distances within the Somali region state of Ethiopia and across the borders with Kenya and Somalia.

Despite the importance of livestock in the region, the animal health services are relatively weak. The community animal health workers, supported by Non-Governmental Organizations, constitute the majority number of the service providers on the ground.

4.1.1.5 Livestock Disease Picture

The main livestock diseases prevalent in the region are Sheep and Goat Pox, Foot and Mouth, *Peste des Petits Ruminants*, Contagious Bovine Pleuropneumonia, Contagious Caprine Pleuropneumonia, Trypanosomosis, Pasteurellosis, Anthrax, Blackleg, tick borne diseases (Anaplasmosis and Babesiosis), internal and external parasites. The diseases are impacting heavily on family livelihoods and livestock development in the region. Because of the uncontrolled livestock movement across the borders, the focus on

transboundary diseases is justified. There is need to give more attention and priority to control and preventive strategies, ensuring that communities are fully involved.

4.1.1.6 Focus on Rinderpest Eradication

Through PACE, there is focus on Rinderpest eradication and control of other transboundary diseases. Rinderpest surveillance systems are in place and functional, mainly with the support of PACE. There is sufficient linkage between the PACE Coordination Office at the federal level and the regional laboratories including the reference laboratory, the National Animal Health Research Centre. Overall capacity for Rinderpest eradication is fair, but requires strengthening for optimal performance. The training and establishment of wildlife surveillance team / unit (already initiated) will boost the capacity for surveillance work. Constraints in surveillance work include vastness of the area, lack of communication equipment, limited accessibility in some areas (security concerns) and inadequate infrastructure.

4.1.1.7 Awareness about the Current Rinderpest Status

Though the region is presumed to constitute the last foci of Rinderpest in the world, there is no much concern about the disease among the livestock keepers –they consider it a historical event.

The awareness of the livestock keepers and community in general about the status of Rinderpest is low, hence the need for more awareness creation at the community level. This would go along way to enhance their participation in surveillance and the eradication process as a whole.

4.1.1.8 Human Resources Available

The current manpower strength in the Somali Eco-system in comparison with total manpower in all the regions is shown below:

Cadres of Service Providers in the Somali Region	Number	Total in all 10 Regions
1. Veterinarians	19	379
2. Animal Health Assistants (Vet's Assistants)	66	832
3. Animal Health Technicians	290	1983
4. Lab Technicians	4	216
5. Meat Inspectors	2	245
6. Community Animal Health Workers	1402	2390
• Active	• 871 (62%)	• 1567 (65.6%)
• Not active	• 531 (38%)	• 823 (34.4%)

Considering the vastness, poor infrastructure, communication barriers and other challenges in the operating environment, the staffing levels are inadequate in terms of numbers and skills. This is clearly illustrated by the situation in the two of the three districts visited.

Manpower Distribution in the Two Districts Visited

District	Livestock Population	Service Providers	Numbers
Filtu	Cattle – 250,000	Vets	0
	Camels – 350,000	Vet's Assistants	2 (Gvt-1 and NGO-1)
	Sheep and goats – 600,000	Animal Health Technicians	1
	Donkeys – 60,000	CAHWs	62
		NGOs	1
Dollo Ado	Cattle – 159,944	Vets	1
	Camels – 201,322	Vet's Assistants	3 (Gvt-2 and NGO-1)
	Sheep – 380,030	Animal Health Technicians	4
	Goats – 436,099	CAHWs	26
	Donkeys – 16,000	NGOs	1

According to the Department of Animal Health, the estimated requirement for Veterinarians and Animal Health Assistants in the country is 1,620 and 6,320 respectively against the in-post of 483 and 800 respectively (Veterinary Services Delivery System, 2004-Draft). This is a clear indication of skilled manpower deficit in the country, and more so in the SES.

4.1.1.9 Distribution of Private Veterinary Practices in the Region

An effective and viable private sector plays a lead role in the provision of animal health delivery services in an environment conducive for profitable business transactions. The table below shows a clear lack of private sector participation in animal health service provision, an indication of unfavourable environment.

Type of Practice	Number in the Region	Total in all Regions
1. Clinics and sub-Woreda clinics	nil	62
2. Drug rural shops	9	239
3. Pharmacy	nil	149
4. Drug traders	9	416

The above figures illustrate that the animal health private sector in the Somali Eco-system is lacking, and with thinly spread Government veterinary services, the use of CAHWs in animal health service delivery becomes highly relevant and justifiable.

4.1.1.10 Distribution of Infrastructure in the Region

Effective animal health service delivery systems require support of adequate veterinary infrastructure. As reflected in the table below, there is total under provision of veterinary infrastructure in the Somali region.

Type of Infrastructure	Number in the Region	Total in all Regions
1. Sub-Woreda and Woreda clinics	92	1873
2. Bigger town abattoirs	0	32
3. Medium town abattoirs	1	69
4. Rural abattoirs	1	73
5. Export abattoirs	0	6
6. Check post	2	2

7. Export check post	0	3
8. Quarantine stations	0	4
9. Reference diagnostic labs	0	1
10. Regional diagnostic labs	1	13

The shortage of veterinary infrastructure is a further indication of the inadequacy of animal health services in the region. With only one laboratory in the region, the disease diagnostic support is inadequate.

Observation: The current animal health situation in the Somali Eco-system calls for strengthening of community animal health worker service delivery system, the empowerment of district veterinary services and promotion of privatisation initiatives.

4.1.1.11 Status of Animal Health Service Delivery Systems

The service delivery systems in the Somali Eco-system include the following:

- Community Animal Health Service Delivery System.
- Government Veterinary Services through Regional and District Veterinary establishments.
- Private sector service delivery, mainly drugs (inputs) supply systems through private enterprises such as rural drugs shops and vendors.
- Community participation.
- Support services such as laboratory diagnostic services, vaccine production and research.

4.1.1 11.1 Community Animal Health Service Delivery Systems

Animal health service delivery in the Somali Eco-system region is largely dependant on Non-Governmental organizations and other facilitating agents. The community animal health worker system, supported by NGOs in collaboration with the Government, is the main mode of service delivery; with poor prospects for sustainability should the support by the facilitating agents come to an end. A full list of supporting organizations and NGOs is appended to this report.

Selection of CAHWs Trainees

The facilitating agents introduce the concept to the district administration, followed by discussions with community / peasants associations' leaders who eventually take the lead role in selecting the trainees. The facilitating organizations provide the necessary guidance. Selection criteria include trust, respect, hard working, ability to read and write, and community member owning livestock.

Women are rarely considered nor do they participate in the selection process. In some other instances, the wider community participation in the selection process is minimal.

Training of CAHWs

Training is normally conducted by resource persons from the Government and the facilitating organizations. Training guidelines have been developed – minimum standards and guideline for Design and Establishment of Community-Based Animal Health Workers System (2004). More recently (2006), a trainer’s manual for Design and Establishment of Community-Based Animal Health Workers Course in Ethiopia has been drafted. The training guidelines and the manual are meant to harmonize the training for CAHWs. However, there is no mechanism in place to ensure adherence to these guidelines. After the end of training, the CAHWs are given kits containing essential drugs and basic equipment. They are expected to replenish the kits as and when necessary. In some districts, the CAHWs operate a revolving fund managed by the District Veterinary Officers.

Number of CAHWs Trained

As indicated above, a total of 1402 CAHWs have been trained by different organizations in the Somali region, out of which 871 are active, reflecting a drop out of 38%. The reasons for drop out include:

- Lack of interest and self-drive.
- Other opportunities.
- Inability to replenish drugs kits.
- Inadequate follow up.
- Wrongly selected.

Roles and Responsibilities of CAHWs

- Basic animal health care / treatment.
- Sale of drugs to livestock keepers.
- Report disease incidences to district animal health services.
- Community mobilisation during vaccination campaigns.
- Participate in vaccination activities.
- Generate information needed for disease surveillance and investigation.
- Advice to livestock keepers.

Constraints Concerning CAHWs

- Heavily dependent on facilitating agents.
- Lack of or weak supportive drugs supply system.
- No clear exit plans by the facilitating agents - sustainability hangs on the balance.
- Knowledge gaps –limited knowledge on drugs and drugs administration; and sampling especially collection of blood samples.
- Limited knowledge of mild Rinderpest.
- No harmonized or systematic approach to refresher courses; they are conducted on ad hoc basis.

- Limited or lack of opportunities for sharing information and experiences.
- Lack of sustained supervision and monitoring.
- Weak linkage with district veterinary office.
- Livestock owners keeping own drugs or using traditional medication.
- Drug peddlers who supply cheaper but low quality drugs.
- Lack of motivation or obligation to report diseases.
- Low volumes of operating inputs / drugs.
- Drought with free drugs intervention by various organizations.

Observation: The community animal health service delivery system is filling a major service delivery gap occasioned by lean Government veterinary service and lack of significant participation by the private sector. However, there is need to strengthen the system with a view to making it more responsive to animal health needs including disease surveillance and on sustainable basis.

4.1.1.11.2 *Community Participation in Animal Health Service Delivery*

Community participation in animal health service delivery is deemed critical, hence the need to involve them in planning, implementation and monitoring. The major weaknesses noted are:

- Low awareness and therefore low level of participation.
- Knowledge gap due to lack of appropriate extension service
- Rinderpest is not a felt problem at the moment, it is a historical event, hence no motivation for their participation.
- Have no capacity (e.g. in form of association or cooperative) to articulate issues affecting them.

4.1.1.11.3 *District Veterinary Services*

The District Veterinary Services (public sector) are weak and thin on the ground. In most cases they rely on support by NGOs. The support from the regional Government is inadequate.

Main Constraints

- Shortage of professionals and para-professionals.
- Limited facilities and equipment.
- Inadequate resource allocation for operations / budgetary constraint.
- Low staff morale / lack of incentives.
- Weak coordination and monitoring {NGOs are to a large extent taking the coordination role}.
- No proper linkage with Federal Animal Health Department.
- Inadequate records keeping and data management.

4.1.1.11.4 Private Sector Service Delivery

- Privatisation policy is pronounced, but no significant support to carry it forward.
- Government is still providing services meant for privatisation, e.g. clinical services.
- Few drugs shops / vendors at the district level, but no linkage with mainstream service providers.
- Generally, there is no significant privatisation of veterinary services on the ground.
- The privatisation initiatives (apart from community animal worker service delivery system) are lacking. The region does not attract private practices due to numerous challenges and constraints including poor infrastructure, vastness of the region, communication barriers, low cash economy and low community awareness among others.

4.1.1.11.5 Laboratory Support Services

Disease control and surveillance activities in the region are linked and well supported by:

- National veterinary institute – vaccine production and related research.
- National Animal Health Research Centre – zero-monitoring, diagnostic and investigation services.

However, for routine diagnostic work, the region is under-provided.

4.1.2 Current Status of Animal Health Service Delivery in Kenya

4.1.2.1 Estimated Livestock Population in the Kenyan SES

District	Mandera	Wajir	Garissa	Ijara	Moyale	Total
Cattle	215,300	308,000	283,000	350,000	60,000	1,216,300
Camels	187,700	28,300	102,000	0	21,000	339,000
Sheep	239,600	335,000	420,010	18,000	19,000	1,031,610
Goats	359,400	171,000	650,000	75,100	56,000	1,311,500
Donkeys	8,500	13,000	20,000	10,600	3,500	55,600
Poultry	46,300	23,000	321,800	35,100	15,000	441,200

The above figures can only be taken as very rough estimates of the actual livestock population. The recent and prolonged drought dramatically reduced the numbers of animals in the each of the Districts, through drought related deaths and movement out of the Districts in search of water and pastures. Field staff estimate that in some Districts livestock populations have been reduced by more than 50%. The fluctuation in population size and the frequent movement of stock, inherent to the pastoralist system of livestock management, must be accommodated by the AHDS. There are remote sensing approaches, utilising satellite imagery, that could give updated information on livestock population distribution, density and rangeland condition.

4.1.2.2

District Land Area, Livestock Units & AHDS Providers

District	Area in Km ²	Livestock Units*	LUs per Km ²	Number of Vets	No. of AHTs	No. of CAHWs
1. Mandera	27,500	467,613	17.0	2	9 [2 pvt]	30
2. Wajir	57,000	648,330	11.4	5 [1 pvt]	7 [4 pvt]	112
3. Garissa	33,600	505,219	15.0	4	10 [4 pvt]	20
4. Ijara	11,000	364,961	33.2	3	4	32
5. Moyale	9,300	90,400	9.72	3 [1* pvt]	11 [4 pvt]	62

*Livestock Unit = 1 cow, 1 camel, 2 horses, 2 donkeys, 10 small ruminants, or 100 fowl

*The one private vet in Moyale is out of the District on contract to an NGO.

There is only one retired Government Veterinarian delivering an AHDS in the North Eastern Province. No newly qualified Veterinarians have established practices here. Most of the private Animal Health Assistants are unemployed. The data given in table 4.1.2 above is relatively unhelpful in terms of assessing practice viability. The nature of the arid lands environment, cyclic droughts and inadequate investment in the sector results in a low input low output system of livestock production that cannot afford to pay for privatised services. Famine relief programmes that are periodically deployed often contain free or heavily subsidised AHDS elements that undermine private sector initiatives.

4.1.2.3

Level of Training and the Number Trained at Each Level

Cadre	District	Prov HQ	RVIL	Mandera		Wajir		Garissa		Ijara		Moyale	
	Sector	Gvt	Gvt	Gvt	Pvt	Gvt	Pvt	Gvt	Pvt	Gvt	Pvt	Gvt	Pvt
Vets	First Degree	3	2	2		4	1	2		3		2	1
	Epidemiology		1					1		1			
	Post graduates	1								1			
AHTs	Basic training	1		6	3	5	5	2		1		5	1
	Lab technician		3										
	HSO	1		1				1		1		1	
Others	LO [Dipl]			1				2				1	
	JAHA							2		2			
Total	AHT/LO/JAHA	2	3	8		5	5	7		4		7	
CAHW	Initial training				49		300		43		66		77
	Re - training				30		112		20		32		62
	Active now				15		20		10		10		40

There has been very little opportunity for veterinary professionals or Animal Health Assistants to undergo further training after having received their basic training. Although a reasonable number of CAHWs have received initial and refresher training the actual number active in each District is much lower. The activity of CAHWs is directly related to the capacity of the AHAs to provide logistical support and on going supervision. With overall more than 60% of the divisions unmanned by AHAs and the general lack of transport at Divisional level, many CAHWs receive no immediate supervision or support and consequently over time drop out from providing AHDS.

4.1.2.4 *Staffing of Divisions by AHAs*

District	Number of Divisions	Number of Divisions fully Staffed by AHAs	Number of Divisions not AHA Staffed	Percentage of Divisions without AHA Staff
Mandera	18	4	14	78%
Wajir	14	8*	4	29%
Garissa	11	2	9	82%
Ijara	5	1	4	80%
Moyale	4	3	1	20%
Totals	52	18	32	62%

Wajir * - 5 of the 8 staffed Divisions are by private AHAs

Although a small number of the existing AHAs could be redeployed to staff more Divisions there would still be more than 50% un-staffed. It can be estimated that at least 30 new AHA staff need to be recruited if all Divisions are to be manned.

4.1.2.5 *Recap of the Existing service delivery systems*

- Government Veterinary Service Delivery, consisting of few veterinarians located at District Headquarters, few animal health assistants and some support staff,
- Community animal health worker system, supported by NGOs / CBOs. CAHWs are initially trained, provided with drugs kits as a kick-start, and given some refresher training later. Refresher training is erratic.
- Private Sector Service Delivery, consisting mainly of drugs suppliers (both formal and informal), including small retail outlets and direct hawking, especially in market places. Private veterinary practices are patchy and take a very small proportion of service delivery.
- Pastoral Associations (Wajir), sourcing drugs from suppliers in Nairobi and supplying them to Community Animal Health Workers who on the other end link with livestock keepers.

- Service Delivery by Livestock Owners, who access drugs from various supply points without due regard to the quality of the drugs or reputation of the supplier.

4.1.2.6 *Major constraints*

Identified constraints include:

- Drought:
 - Resulting in livestock migration, which is a challenge to the few animal health service providers in the region.
 - Livestock keepers' ability to pay for services depressed
 - Provision of relief in terms of free or subsidized drugs that tend to undermine private initiatives in animal health service delivery
- Under-developed animal health private sector, characterized by few animal health service providers. Private veterinary practices are patchy, providing limited services – mainly sale of drugs.
- Government Veterinary Service is inadequately equipped, with un-functional district laboratories, low budgetary provisions, poor transport provision, limited communication facilities and understaffing especially at AHA level.
- Some of the concerns of livestock keepers (disease challenges) are not addressed due to limited diagnostic capacity at the district level
- Insecurity in some areas, limiting accessibility in the affected areas.
- High drop out of CAHWs:
 - Of the total (535) CAHWs trained in Mandera, Wajir, Garissa, Ijara and Moyale, only 95 (18%), are active representing a dropout rate of 82%.
 - High dropout rate is attributed to lack of proper supervision and monitoring, lack of self-motivation and interest, other opportunities, poor selection in some cases, and inadequate support among others.
 - Livestock keepers buy drugs and treat their own animals.
- Weak regulatory control of veterinary drugs, resulting in low quality drugs being sold to unsuspecting livestock keepers.
- Weak linkages between private and public sector
- Low empowerment of communities, limiting their participation in animal health service delivery:
 - Inadequate and inappropriate provision of extension service (resulting in knowledge gap and low awareness)
 - Community structures (e.g. associations or groups) are weak
- Disease surveillance and vaccination capacities exist but require up scaling in terms of skills and facilitation to attain the required level of performance.

4.1.3 Current Status of Animal Health Service Delivery in Somalia

4.1.3.1 Livestock Sector in Somalia

It is estimated that 35% of the population of Somalia or 2.2 million people are agro-pastoralists, relying largely on crop production, while 42% or 2.6 million are pastoralists. A massive 75% of the population therefore depends on livestock for a living.

Estimated Livestock Numbers (millions)

Species	Source		
	FAO 1992	GTZ 1990	FAO 1989
Cattle	3.8	5	5.2
Sheep	12	31	13.8
Goats	18	31	20.3
Camels	6	6	6.7
Equines	NR	NR	NR
Chickens	NR	NR	NR

NR: Not Reported

As a whole, Somalia is considered to be highly dependent on livestock. Levels of dependence, ownership, and management differ from region to region. Out of a possible 29 food economy zones, 15 are pastoral, 6 are agro-pastoral, while the rest comprise riverine farming, fishing, or urban living. It is estimated that livestock bring in 80% of the foreign exchange earned by the country. In 1993, despite the fact that livestock numbers were reported to have dropped by 25% in comparison to pre-war available figures, animal exports nonetheless reached a record 1.8 million. Indeed, cattle losses were especially high in the South where one half of the cattle population was lost. Thus, the economic importance of livestock actually increased during the war and post-war period, financing most of the country's food imports. It can be summarized therefore that nomadic pastoralism remains one of the best land-use systems especially in the remote arid rangelands of the country.

The OAU/Pan African Rinderpest Campaign Project (PARC) in Somalia was launched in 1989, but collapsed in 1991 with the fall of the Somali Government after limited vaccination and sero-surveillance for Rinderpest. The AU/IBAR Pan African Programme for the Control of Epizootic diseases (PACE) Somali component established offices in four zones (Hargeisa, Garowe, Belet Weyne and Baidoa) in the year 2001 and aimed to boost, control and survey for major livestock diseases including Rinderpest. This programme specifically supported the public and private sector by training animal health service providers including Community Animal Health Workers (CAHWs), networking, and carrying out sero-surveillance. AU/IBAR also supported the Red Sea Livestock Trade Commission, which was charged with improving confidence, trust and dialogue with the Arabian Peninsula Countries, in order to promote the appropriate delivery of quality and quantity livestock to the Arabian markets. In the absence of a recognised central Government since 1991, the delivery of veterinary services has been carried out by the private sector and non-Governmental organisations (NGOs). This report draws attention to the prevailing situation in Southern Somalia. This is the area that must be addressed for the successful eradication of rinderpest from Somalia.

1. Cooperazione Internazionale (COOPI)

COOPI operates in the Quansax Dheere and Dinsor Districts of the Bay Region, and the Saco-Uein and Buale and Jilib Districts in Middle Juba Region and Jamame in lower Juba region. COOPI works with professional livestock associations and has established 19 teams in collaboration with Vétérinaires Sans Frontières Suisse (VSF-CH), the membership comprises a team leader, who is either a veterinarian or veterinary assistant, two veterinary assistants, and one junior animal health assistant. Where available, the teams are supervised by a veterinarian. COOPI also conducts refresher courses of up to five days each, and has trained forty CAHWs and equipped three drug stores. The stores are owned by livestock associations and supplied by traders in Mogadishu who source the drugs in Nairobi. The stores provide drugs, equipment and kits to the CAHWs, and also follow them up and provide backstopping. The chain is as follows:

COOPI ➡ Vet Professional Associations ➡ Drug Stores ➡ CAHWs ➡ Pastoralists

COOPI also sensitises the communities regarding veterinary interventions, and carries out treatment such as de-worming and ectoparasite control. COOPI has established networks among veterinarians, veterinary assistants, Animal Health Assistants and Junior Animal Health Assistants, which seem to be functioning adequately. It is also involved in emergency interventions e.g. during the recent drought it was involved in the provision of treatment and feeds to alleviate the suffering of pastoralists and their animals.

2. Terra Nuova

Terra Nuova is an NGO of Italian origin that has been working in the livestock sector in Somalia since 1994. The NGO has carried out disease surveillance and vaccination, marketing and support for the professional associations. Together with UNA it has established a new Veterinary Assistant Training School in Sheikh, Somaliland, to train meat inspectors and veterinary assistants from the entire SES for the certification of export animals and their products. The school offers a three-year diploma course that is linked with the Universities of Nairobi and Bolognae. The best performing students maybe admitted to either of the Universities for degree studies.

Terra Nuova in partnership with UNA, VSF-CH and AU/IBAR Community Animal Health and Participatory Epidemiology Project (CAPE) implementwed the Somali PACE project from October 2001 to March 2005. The NGO is currently working in partnership with UNA and COOPI to implement the Somali Animal Health Services Project (SAHSP). Which continues to search for clinical rinderpest and carries out sero-surveillance to confirm the presence or absence of the disease. In addition, the organization promotes diversification of livestock marketing and trade.

3. Veterinairies Sans Frontieres – Switzerland (VSF-CH)

VSF-CH has operated in Lower Juba, Afmadow, and Badhaadhe since the year 2003. They carry out vaccinations against CCPP anthrax and black quarter, sheep and goat pox, lumpy skin disease, and in 2003 to 2004, vaccinated cattle against Rinderpest as directed by PACE Somalia (50,000 doses). VSF-CH operates through livestock professional associations, para veterinarians and CAHWs. They also use national animal health auxiliaries ensuring that quality drugs are used. They have organised teams comprising a team leader, veterinary assistant, three animal health assistants, a recorder and cook, and sensitise pastoralists to appreciate the need of veterinary interventions. They also carry out residential training of CAHWs who are selected by the communities. The training period is for 7 days followed by 2 months fieldwork, and a 7-day refresher course. They have an expatriate veterinary supervisor and also use regional veterinary associations to deliver veterinary services. VSF-CH have set up or improved existing drug stores and provided loans to Somali Livestock Societies. Their overall objective is to contribute to the mitigation of the chronic vulnerability of pastoral and agro-pastoral communities through interventions in livestock health, production and nutrition, improvement of livestock watering facilities, and setting up of a marketing information network. VSF-CH works in six districts in the Gedo region – Dollow, Luuq, Bulla-Hawa, El Wak, Garbaharey, Burdubo and Bardhere.

4.1.3.3 Private Sector

It should be emphasized that the private sector is capable and efficient to deliver livestock services in Somalia. However, there are economic, political and environmental challenges and constraints limiting their effectiveness (see 4.4.3.1)

Zonal Livestock Professional Associations

Somali Livestock Professional Forum (SLPF) is the umbrella organization that has established all the Zonal Livestock Professional Associations in Somalia.

The Zonal Livestock Professional Associations organise their members to deliver veterinary services including vaccinations, clinical service, disease surveys and reporting and networking of veterinary drugs supply and use, as supported by NGOs and international organisations. The Zonal Associations are:

- Puntland Livestock Professional Association (PULPA);
- Central Regions Livestock Professional Association (CERELPA);
- Benadir Region Livestock Professional Association; (BENALPA)
- South Western Livestock Professional Association (SOWELPA); and
- United Livestock Professional Association (ULPA) in Somaliland.

Of these zonal professional associations, SOWELPA operates in Southern Somalia. The association enforces ethics among professionals, oversees activities of the entire animal health service delivery system, and harmonizes activities of NGOs involved in the animal sector of the region.

Private Animal Health Service Providers in Somalia

Service providers are veterinarians, veterinary assistants and drug stores. Most are to be found in the Dinsoor, Sakow and Qansadhere districts. Drug store owners were interviewed in Dinsoor and Afmadow towns. In many instances, open-air market dealers known as 'warato' sell all forms of drugs, the majority of which must be sub-standard as they are exposed to adverse environmental conditions. They intimated that they sell drugs to veterinarians, veterinary assistants, CAHWs, and pastoralists without due regard to ethical provisions. In any case, it would be difficult to impose ethical or prescription requirements as there is no public authority to enforce laws, rules and regulations.

Pastoralists and livestock owners in urban and peri-urban areas access veterinary services from veterinarians, veterinary assistants and drug stores. Not all pastoralists in remote areas access veterinary drugs.

Private practitioners can diagnose clinical Rinderpest; they have different names in the Somali language for the different forms of the disease. The local name for Rinderpest is 'Shiifow'; the mild disease is called 'Ilsar' and the acute form is 'Madobeeye.' Once pastoralists observe sudden deaths in large numbers of warthogs, they know 'Madobeeye' is in the area. When they observe blindness in kudus, they know that 'Ilsar' is about to occur. They are aware of the importance of Rinderpest eradication because they are involved in cross sectional surveys and participatory disease search as implemented by SAHSP.

Rinderpest Status in Southern Somalia

While carrying out the audit, there were rumors of the presence of Rinderpest in Southern Somalia. A Rinderpest-like syndrome was observed in two separate incidences in Kulibiyow and Badhadhe, in areas of Lower Juba along the Kenya-Somalia border. Arrangements were made to collect specimens from the affected animal herds for submission to KARI Muguga for confirmation.

The available serological results from Somalia pinpoint three regions of southern Somalia (Gedo, Lower Juba and Middle Juba) as the potential areas of Rinderpest maintenance in the country. These regions neighbor Kenya to the West and Ethiopia to the North. In these regions antibody positive herds have been persistently detected since 1998, whereas the remaining areas of the country appear to be free from disease. However, the Rinderpest sero-prevalence in the Trans-Juba regions has been progressively decreasing over the years (2003 to date). This indicates a net reduction of Rinderpest virus circulation in the cattle population. This could be attributed to the spontaneous disappearance of the virus or to the fact that we are facing an inter-epidemic period whereby little circulation of the virus is expected.

The cyclical behavior of mild Rinderpest has been well described by Mariner et al. (2005), whereby a Rinderpest epidemic is followed by a period of "dormancy" (inter-epidemic period) of about 3 to 5 years. During this period decreased incidence is

observed and it is postulated that the infection is maintained by a few herds at very low and almost undetectable levels.

Due to the nomadic nature of the husbandry system practiced in Somalia whereby herds are constantly moved (even across borders) in search of water and better pastures, the neighboring countries (e.g. Kenya and Ethiopia) might be infected as well. This situation calls for a coordinated Rinderpest surveillance and control effort among Ethiopia, Kenya and Somalia in order to guarantee a synergistic eradication intervention.

At present a large-scale cross-sectional sero-survey is being implemented in central and southern Somalia and the Somali inhabited areas of Kenya and Ethiopia. The survey is coordinated by the SERECU Unit of AU-IBAR (AU/IBAR, 2005). The results of this survey will help to determine whether Rinderpest virus is still circulating in the SES.

4.1.3.4 *Status of Animal Health Service Delivery Systems*

Census of Animal Health Service Deliverers

There are no public veterinarians or paraprofessionals in Southern Somalia. Private veterinary professionals organized under the association called SOWELPA provide services. Most of the veterinarians and veterinary assistants operating in Southern Somalia graduated before 1989. Therefore the workforce has been aging and decreasing over the years. Although aging, the professional and paraprofessionals are able to carry out disease reporting, monitoring and surveillance. Their numbers are, however, inadequate.

In addition, due to the absence of Government structure, it is not possible to set up emergency preparedness and response plans. Currently, random clinical, serological surveys and participatory disease searches are facilitated by the Somali Animal Health Service Project (SAHSP). But, the actual fieldwork is carried out by SLPAs on contract basis. The sustainability of these activities is questionable after the SAHSP project ends unless the Government establishes a service delivery to continue the activities.

The communication network between stakeholders in Somalia is operational and effective. This is a big advantage in disease reporting. Although local capacity for large-scale interventions is limited support from NGOs has enabled large-scale vaccinations and sero-surveillance activities to be undertaken adequately. For example the Somali PACE project was able to mobilise professionals to vaccinate 50,000 head of cattle, carry out large scale surveys in a short period while COOPI were able to vaccinate up to two million head of cattle in six months.

Appendix 8.6.2 shows the numbers of veterinarians and veterinary assistants presently operating in Southern Somalia. Appendix 8.6.3 shows a list of CAHWs in active delivery of animal health service in Somalia by Region, District and Location. The table below summarises the number of CAHWs trained in Southern Somalia

The Number of CAHWs Trained in Southern Somalia

Region	District	No. of CAHWs Trained
Bay	Dinsor	28
	B/hakab	4
	Qansadhere	10
Bakool	Hudur	8
	Elberde	9
	Rabdure	3
Gedo	El wak	29
	Buulo-hawo	18
	Dolow	15
	Luuq	17
	Bardere	27
Middle Juba	Sakow	15
	Buale	10
Lower Juba	Afmadow	161
	Badhadhe	37
	Jamame	10
Total		415

4.2. Networks Supervised by Veterinarians

Quality controlled animal health service delivery requires that veterinarians, either private or public, are the principal agents in directing the service delivery system and providing a lead role in technical guidance, coordination, supervision and monitoring. In the SES, Government vets are adequate in number in Kenya, few in Ethiopia and totally absent in Somalia. Private vets are absent in Ethiopia, only one in Kenya and a few (less than 20) are to be found in Somalia. Ideally to provide quality veterinary services in the SES, veterinarians should supervise para-veterinarians who in turn should supervise community animal health workers - the front line service providers. In all the three countries, the veterinarian-supervised networks of para-professionals are few, generally weak and poorly resourced. Strengthening and extending these networks to serve the entire livestock owning community needs to be undertaken as a priority action.

4.2.1 Ethiopia

In the absence of private veterinarians in the Somali Eco-system, there are no networks of vet para-professionals supervised by Vets. However, there are CAHWs associations in some Woredas but they are generally weak and are not linked to private practitioners. The linkage with Government Vets in the District is also weak.

4.2.2 Kenya

The only consistently active and operating network of Veterinary Paraprofessionals supervised by Vets in North East Kenya is that which is found within the Government Service. Each District has a complement of VOs and AHA's operating within a well defined hierarchy. There are some NGO operated networks but these tend to be very

patchy in distribution and time limited. There is only one small privately operated network in the Province. Each District has a list of CAHWs for which a theoretical network of supervision from VO through the AHAs exists but this in reality only occurs in the rare instances where NGO funds and resources allow.

4.2.3 Somalia

The Somali Animal Health Services Project (SAHSP) has established a network of Veterinary Professionals and Paraprofessionals who carry out surveillance and disease reporting. Under this system each District has one disease reporting focal point to supervise networks of Veterinary Assistants and CAHWs, who record and report diseases occurring in their areas. The veterinary assistants and CAHWs submit monthly disease returns using a standard format. In the event of an outbreak of disease, veterinarians carry out investigations and report to the Epidemiology and Data Management Unit (EDMU) of SAHSP.

For effective implementation of control measures and compliance, the pastoralists, veterinarians, and para-veterinarians and CAHWs work in close collaboration with clan elders. These clan elders have the authority to impose penalties on any pastoralist contravening disease control measures. Discussions are on going with other stakeholders (NGOs) involved in livestock matters to submit disease information to SOWELPA who in turn will submit the information to SAHSP for storage in the data base at SAHSP offices in Dinsor.

4.3. Roles and Linkages between Different Players

The roles of the various players in animal health service delivery in SES (Government, NGOs, Associations, CAHWs, drug suppliers and livestock keepers) are defined to a large extent, but in practice some players do not adhere to their roles due to inadequate coordination and control. The weak control and coordination of the players is a major contributing factor to poor service delivery, especially in drug supply and distribution where unlicensed drug sellers and quacks in general have no regard for quality service provision, nor do they respect the rules and regulations.

Disease reporting is an important tool, providing a linkage between the livestock owners and service providers; between CAHWs, district veterinary authorities and the supporting NGOs; and between district veterinary authorities and higher levels of authority (e.g. regional and federal levels in case of Ethiopia, provincial and headquarters in case of Kenya and SAHSP in case of Somalia). In all cases, disease reporting systems are clearly defined but mechanisms to ensure adherence are weak. In Ethiopia, disease reporting to the federal level is erratic, with no enforceable mechanism to ensure compliance, thus reflecting insufficient linkage. In Kenya, there is clearer chain of command and therefore the reporting rate from districts to higher levels is relatively better. In Somalia, there is a clearly defined disease reporting system, starting from the pastoralists and CAHWS through district focal points and SOWELPA, and finally to the Epidemiology and Data Management Unit at SAHSP. This should be an efficiently organized reporting system

within the limits of the operating environment. However, it has only been recently established and will require assessment after 5-6 months of operation to determine its value in combating livestock diseases.

Community animal health workers provide a useful link between the livestock keepers / community and the district veterinary authorities in terms of disease reporting and surveillance but as a whole, there is no motivation for them to submit reports, nor is there any tangible compelling mechanism in force to make them accountable. The linkage with the livestock keepers is also weak due to low community awareness and literacy levels.

Regular coordination, consultative and information sharing forums are absent in many districts in the SES region, and where they exist they are held on ad hoc basis.

The roles and linkages between the various service providers in each country are elaborated below.

4.3.1 *Ethiopia - Roles & Linkages between Different Players on the Ground*

Service Provider	Main Roles	Linkages
1. Livestock keepers / community	<ul style="list-style-type: none"> • Report diseases • Selection of CAHWs trainees • Pay for services • Participate in monitoring of CAHWs work 	<ul style="list-style-type: none"> • Link with service providers at points of service provision, e.g. during treatment, vaccination, surveillance, awareness creation or training.
2. CAHWs	<ul style="list-style-type: none"> • Basic animal health care /treatment • Participate in disease control activities, e.g. vaccination • Participate in disease surveillance • Disease reporting on regular basis • Community mobilisation • Serve as extension agents 	<ul style="list-style-type: none"> • Disease reporting to the facilitating agent and Woreda veterinary services • Training including refresher courses provide a linking point • Replenishment of drugs kits provide some linkage with drugs suppliers
3. NGOs / CBOs	<ul style="list-style-type: none"> • Support and facilitate CAHWs training and operations • Promotion of privatisation • Facilitate and participate in disease control and surveillance • Development of infrastructure 	<ul style="list-style-type: none"> • Liaison and consultation with Government veterinary service on training and monitoring of CAHWs, provision of logistical support to Woreda vet service • Regional coordination meetings
4. Government veterinary service (vets, vets assistants and animal health technicians)	<ul style="list-style-type: none"> • Coordination of animal health service providers in the district • Management of clinics(clinical services) • Supervision and monitoring of CAHWs • Disease reporting, control and surveillance • Participate in training of CAHWs • Keeping and management of data at the district level 	<ul style="list-style-type: none"> • Liaison and consultation with NGOs / CBOs supporting CAHWs system • Some linkage with Federal Veterinary Service in the context of Rinderpest surveillance • Livestock policy forum at the federal level that incorporates various stakeholders

5. Drugs shop and vendors	• Supply of drugs	• no significant linkage with mainstream service providers
---------------------------	-------------------	--

The linkages among the service providers on the ground are noticeably weak; hence coordination forums and other information / experience sharing platforms need to be promoted. Strengthening of linkages can be achieved through:-

- A legal or an accountability framework that allows faster information flow from the Regions, Districts, and Regional Laboratories to the Federal Veterinary Service, with a supplementary provision of regular consultative forum between the Regional and Federal Veterinary Services.
- Better control and monitoring of CAHWs by the District / Woreda Veterinary Officers, through MOUs with facilitating NGOs, regular CAHWs experience sharing workshops facilitated by NGOs and District / Woreda Veterinary Officers and licensing / registration of CAHWs by the District Veterinary Authorities. An updated register for CAHWs to be maintained by the District Veterinary Authority.
- Private veterinary services, where established, should be integrated in disease reporting and surveillance systems. An enforceable legal provision requiring them to report diseases and submit regular reports to the District Veterinary Authorities will strengthen the private-public sector linkages.
- Establishment of Animal Health Service Providers' Forum at the District level, with the Woreda Veterinary Officer playing the coordination role. This will provide a useful linkage amongst the service providers and enable them operate in a more coordinated manner.
- CAHWs associations for better interaction with Veterinary Authorities and other stakeholders
- Community structures (e.g. associations, groups or committees) that will provide more avenues for interaction with animal health service providers and other stakeholders.
- More accountability of CAHWs and other service providers to the community – regular feedback, more public education on livestock diseases and livestock marketing, and regular consultation with community leaders.

4.3.2 Kenya - Roles and Linkages between Different Players on the Ground

In broad terms, and in accordance with policy, the role of the Government staff is to supply public good services, and private / NGO sector to provide private good services. In the ASAL, the lack of privatised veterinary services puts the onus to supply private good services on the Government for which they are neither mandated nor equipped to provide. In response to this vacuum, a community based AHDS has been developed

which, when properly supported and supervised, has proven its capacity to provide primary healthcare services for the rural livestock owning community.

The DVO's in each District are occupied almost exclusively with the regulatory and administrative functions of their office whilst the Deputy and Assistant DVOs do much of the same with opportunities for mass vaccinations and treatments on the occasions when funds allow. These occasions tend to occur sporadically when droughts or other calamities result in the release of emergency funds and rarely occur on a seasonal or epidemiologically favourable basis. The exception to this is the PACE supported activities, where the control of Rinderpest and other economically important diseases has given District staff a role in vaccination and subsequently disease surveillance work.

AHAs function in a much more versatile role, both in supporting the public good functions of the Government Veterinary Service as well as delivering private good services. The proportion of time spent on each varies according to the responsibilities of the AHA, his competence, and the level of local demand. The AHAs providing clinical services tend to operate from a base in the District centres and provide largely an advisory and occasionally hands on clinical service. This service generally only extends as far as the urban and peri-urban centres where the AHAs are based.

The role of the CAHWs is recognised at District level for its potential to provide valuable primary health care assistance to the rural livestock owning community. It is accepted that this potential can only be sustainably maintained when the CAHWs receive effective logistical support and professionally directed supervision. In recent times there has been an increasing recognition of the value of the CAHW network for disease surveillance and reporting. Supervision and support is equally important if this function is to be maintained.

Linkages between Government Professional Veterinary and Paraprofessional AHA staff are strong but linkages between this core and all other AHDS providers is patchy at best and very weak to confrontational at worst. Where the one Private Veterinary Practice is operating there is a serious ongoing conflict with the Government staff. This is largely due to the competing rather than complimentary nature of the two AHDS providers. There are no functional linkages between Government and private AHAs. This cadre is regrettably bereft of support or opportunity to apply the valuable training it has received. Linkage between Government and Community Based AHDS is very weak in most instances. This is due largely to lack of resources or transport to offer this cadre the required level of supervision and support. Where NGO programmes are in operation the level of supervision is often much improved. The linkage between Government and the NGO sector has improved in recent times with the requirement that NGOs have to sign MOUs with the DVO who often functions as an advisor for the NGO and in some cases his office is facilitated to provide services on behalf of the NGO. However there is a risk that in some cases the linkage is NGO dominated where the offer of resources and support leads to the Government Veterinary Service accepting donor driven agendas that may not always be in the best interests of sustainable and professional AHDS.

The roles of various players in Animal Health Delivery in Somalia are generally defined but overlapping of roles and responsibilities occurs between NGOs. The majority of NGOs undertake disease surveillance, reporting, livestock treatments and training of CAHWs. NGOs work generally through the Somali Livestock Professional Associations. SAHSP, the main active NGO in animal health service provision, develops capacity of private veterinary professionals to deliver quality services, trains professionals in business management and undertakes disease surveillance and reporting. In Southern Somalia, SOWELPA enforces ethics among its members, oversees the activities of the entire animal health service delivery and harmonizes the activities of all NGOs operating in Southern Somalia.

There is a clearly defined disease reporting system starting from pastoralists and CAHWs through District focal points to SOWELPA and finally to the Epidemiology Data Unit at the SAHSP. It should be emphasised that CAHWs work closely with the pastoralists and therefore provide a useful link between the communities, NGOs and SOWELPA. It should also be noted that the participation of pastoralists in this linkage is weak owing to their lack of knowledge and low literacy levels.

Under normal circumstances, the pastoralists report disease outbreaks to the nearest agencies involved in livestock development, which include SAHSP, NGOs and Somali veterinary professionals.

In the event of an outbreak of suspected notifiable diseases, the professional will contact any of the above agencies. All suspicions of Rinderpest are usually reported to SAHSP which is involved in RP surveillance. This role of SAHSP is wellknown to all the professionals.

Regarding other diseases e.g. RVF and PPR, interventions have been undertaken by COOPI, which has an emergency component in its set up.

4.4. Information Needed for RP Eradication Interventions

In this section, constraints, intervention points, institutional support requirements and ways and means of strengthening animal health service delivery in the SES have been identified, thus constituting the framework for the proposed interventions. In all the three countries, the main service delivery gaps include deficiencies in skilled manpower; weak district veterinary services with insufficient equipment, facilities and incentives; low level of community participation; underdeveloped private sector (except in case of Somalia where, in the absence of Government, private sector is the only option); weak linkages; poor drugs supply system; and limited knowledge of CAHWs on surveillance and diagnosis of mild Rinderpest. In Somalia, the absence of central veterinary authority that takes national responsibility and mandate for Rinderpest eradication process constitutes a big service delivery gap. According to OIE eradication pathway, it is the Central Veterinary Authority that has the mandate to declare provisional Rinderpest free-

status. Other service delivery gaps for Somalia include lack of policy / legal framework and emergency preparedness.

Intervention points may vary in terms of priority and according to each country, but they centre around staffing reinforcement; training; strengthening of linkages; private sector promotion; awareness creation / training of livestock keepers; promotion and strengthening of professional associations; sufficient resourcing to support district veterinary services; provision of incentives at appropriate levels; strengthening of disease reporting and surveillance systems; and in the case of Somalia, facilitation of the establishment of a Government veterinary service. The detailed information as identified in each country is shown below.

4.4.1 Ethiopia - Information Leading to Interventions for RP Eradication

4.4.1.1 Major Constraints/Service Delivery Gaps

- Inadequate skilled manpower, especially at the district level.
- Data management systems including submission of reports and analysis are weak.
- Weak linkage between the Federal Regional Veterinary Authorities.
- Inadequate support of the district veterinary services from the Regional Government, possibly due to lack of resources.
- Low level of community participation and awareness.
- Inadequate promotion of privatisation (weak support to privatisation policy).
- Inadequate capacity for district veterinary service to coordinate, supervise and monitor CAHWs system and other animal health activities.
- Weak linkages among the stakeholders on the ground.
- Inadequate drugs supply, rendering the CAHW system vulnerable to attrition.
- CAHWs: limited knowledge on drugs / drugs administration and diagnosis of mild Rinderpest.
- Surveillance gap after PACE comes to an end.

4.4.1.2 Intervention Points

- Training, with tailor-made packages to meet specific target group needs.
- Policy implementation to allow a direct link between the Federal Veterinary Services and the District Veterinary Services for purposes of disease reporting and faster flow of information.
- Enhancement of the capacity of District Veterinary Services to monitor, supervise and coordinate CAHWs work.
- Private sector promotion / support to privatisation policy.
- Awareness creation at the community level.
- Improved coordination and linkages among the players.
- Strengthening of community animal health service delivery system.

- Filling the gap after PACE comes to an end, to avoid vacuum in disease surveillance and Rinderpest eradication process.

4.4.1.3 Institutional Support Required

As a whole, Ethiopia has well established institutions that are fundamental to effective animal health service delivery. They include Department of Animal Health Services, National Veterinary Institute at Debre Zeit, National Animal Health Research Centre, Regional Laboratories, Training Institutions including universities, Professional and Para-Professional Associations (e.g. Ethiopia Veterinary Association, Animal Production Society of Ethiopia, Association of Animal Health Assistants, etc.), other organizations such as Oromia Pastoralist Area Development Commission, International Institutions such as FAO, and ILRI, and NGOs among others. However, attention is required in the following areas:

- Strengthening of the Department of Veterinary Services at all levels.
- Provision of more skilled manpower.
- Provision of equipment and facilities to the veterinary laboratories.
- Improved coordination, linkages and collaboration among the institutions involved in animal health service delivery.
- Strengthening of associations (e.g. livestock producers associations, CAHWs associations, etc.) at the district level.

4.4.1.4 Ways and Means of strengthening various Service Delivery Systems

- Strengthening of District Veterinary Services through training and provision of equipment and facilities.
- Provision of incentives to professionals and para-professionals venturing into private practices, with appropriate and attractive packages for those wishing to operate in the arid areas such as Somali region.
- Sustained refresher training for CAHWs, based on training needs assessment (continuing education) with provision for up-grading to animal health technicians
- Improvement / development of infrastructures.
- Facilitating forums for exchange of information and sharing of experiences among the various service providers, especially at the district level.
- Training of CAHWs based on participatory training needs assessment.
- Harmonization of approaches in the establishment of community animal health service delivery system.
- Development of code of conduct for all animal health service providers.
- Enforceable legislation to curb the widespread illegal trade in livestock drugs.
- Livestock movement control through an appropriate legislation and enforcement.
- Improvement of livestock farmers training, awareness creation and participation.

- **Recognition of potential Rinderpest risk:** - the perceived risk associated with the possibility that the current mild form of Rinderpest can transform into a virulent form is a real cause for concern. This presents a good opportunity for strengthening Rinderpest surveillance systems and for pushing eradication process along OIE pathway.
- The gains and achievements of the immediate past initiatives in Rinderpest eradication (e.g. PARC and PACE) are too costly to abandon. They are an opportunity for SERECU and the development partners to continue their support to the eradication process.
- The existence of Rinderpest surveillance systems and infrastructures in the country provides an opportunity for support and continuation – it is an ongoing ‘vehicle requiring only acceleration’.
- Based on previous performance, the countries within the Somali Ecosystem, and even donor community, have confidence in AU-IBAR as far as Rinderpest eradication is concerned. SERECU has a good opportunity to utilize this goodwill to get support in its effort to coordinate Rinderpest eradication in the SES.
- The willingness of the community to participate in animal health service delivery, their recognition of the importance of controlling trans-border diseases and the fact that livestock is their main source of livelihoods, constitute an opportunity to mobilize them to form groups or associations that have a greater role and impact in animal health services and surveillance.
- The established Veterinary Privatisation and Promotion Unit at the Federal level reflects good will to take the privatisation process forward, thus providing a window of opportunity for willing development partners to support.
- The recognition of the roles and importance of CAHWs in animal health service delivery by all players including the Government Department of Animal Health and the Veterinary Professional Association (EVA) provides an opportunity to strengthen the CAHWs service delivery system without teething problems.
- The Department of Animal Health has drafted a ‘Veterinary Service Delivery System’. The document defines responsibilities and roles of various levels of Government veterinary service and provides a way forward for improving veterinary service delivery in the country. The document opens an opportunity to re-negotiate the linkages between Federal and Regional Veterinary Services with a view to strengthening disease reporting systems from the Districts to the Federal level.

Specific Steps towards Rinderpest Eradication

- Carry out in-country sensitization and awareness creation on current status of Rinderpest, with clear emphasis on the eradication process and free-status certification.
- Define specific roles and responsibilities expected of the various players in the Rinderpest eradication process. It is necessary for all the relevant players to understand the current Rinderpest status and their specific roles in the eradication process.

- Conduct training courses, focusing on disease surveillance, risk assessment, participatory disease search, early warning systems, etc.
- Strengthen laboratory capacity through provision of required materials and equipment, in addition to training / updating of diagnostic skills. Attention should also be given to general maintenance of laboratories and equipment.
- Improve harmonization of surveillance activities within the Somali Ecosystem by incorporating other key players including the NGOs.
- Strengthening and re-energizing of District Veterinary Services for effective and greater participation in coordination and monitoring of animal health services, and disease surveillance – through training, provision of equipment and facilities (e.g. communication equipment, computers, vehicles, etc.) and enhanced field allowance as an incentive. The provision of communication facilities, e.g. faxes, telephones, e-mail, radio communication, etc., is essential in improving disease reporting and information flow.
- Refresher training of CAHWs, with particular emphasis on disease surveillance, reporting and community mobilisation.
- Provision of incentives to motivate CAHWs to improve their participation and efficiency in disease reporting and submission of reports.
- Ensure that emergency preparedness remains in place, and ready for application should the need arise.
- Provide for review meetings / forums, every six months within each country, and annually for the three countries.

4.4.2 Kenya - Information Leading to Interventions for RP Eradication

4.4.2.1 Major Constraints in Current AHDS

The universal complaint from each and every veterinary office visited is that of “a lack of reliable transport” and “the inadequacy of operating funds”. The concern was raised on criteria used to allocate “ten times the operating budget to Agricultural Department” yet livestock are many times more important than crops in the region. The undervaluing of the livestock sector may be considered as a primary constraint leading to under-resourcing but other factors also come into play.

The following are some of the key constraints seen or reported in the KS.

- Non-viability of private practice in ASAL and consequent lack of private practitioners.
- Policy inhibiting Government personnel from delivering private good services.
- Low economic value attributed to the livestock sector in ASAL.
- Lack of resources including transport.
- Non-functional District Vet Laboratories.
- Undermanning at Divisional level.
- Lack of a ASAL tailored policy guidelines to promote AHDS.
- Isolation and lack of support for CAHWs.

- Lack of specialist training at Veterinarian and AHA level for AHDS in ASAL.
- Lack of recognition by way of adequate incentives for ASAL Vet staff.
- No access to Internet for data flow or information browsing.

4.4.2.2 Major Intervention Points

- Revised operational policy.
- Sufficient resourcing to support required level of operations.
- Staffing reinforcement.
- Training for Veterinarians, ParaVets and CAHWs.
- Production of appropriate extension materials.
- General support to make the livestock sector more profitable.

4.4.2.3 Institutional Support Requirement

- Production of clear and supportive policy guidelines for AHDS in the KS.
- Incentives and special remuneration for KS based staff.
- Training for Veterinarians and Paraprofessionals to produce ASAL specialists.
- Resource and operationalise District Veterinary Laboratories.
- Support existing and formation of new ASAL relevant associations.

4.4.2.4 Ways and Means to Strengthen AHDS

Approaches include:

- Supporting the mix of Government, NGO and Private Sector AHDS by improved linkages, providing resources and better supervision of CAHWs.
- Financing the private sector to operate by providing financially sustaining contracts for the delivery of private and selected public good services.
- Delegating the delivery of AHDS to the NGO sector and encouraging their community based approach.
- Strengthening existing mandates to ensure effective coordination by Government of both public and private good AHDS and revising policy to allow Government staff to deliver private good services until such future time when the economy of the livestock sector in the ASAL improves to the point where it can sustainably support an independent privatised service.

The first three approaches have been tried at one time or another in the past 20 years following the World Bank induced withdrawal by the Government Veterinary Service from delivering private good services. Whilst funding was provided the approaches worked but they never achieved the degree of geographical cover that would be necessary for the purposes of SERECU and as soon as funding was withdrawn the services collapsed.

Because it is imperative that a working model is deployed that does answer the needs of SERECU there is only one certain approach and that is to revert to the tried and tested model of AHDS by Government Veterinary Services. In terms of funding this will be the most cost effective approach to take as much of the infrastructure and staff are in place albeit a “little dusty”. The vision is to operate the AHDS as a commercial entity from within the District and Divisional Veterinary Offices. There will a need for innovative and adaptive strategies to deliver as many income earning services as possible targeted at raising livestock productivity. These are likely to be predominately investigatory and exploratory to begin with and should therefore be largely financed by the AHDS programme. Once an informed technical competence has been acquired there will be the prospect of progressively shifting the cost to the Livestock Sector. This should be further supported by the improved profitability of that sector as a consequence of the quality of AHDS being received.

Developing a culture and competence in privatised Veterinary Services from within the Government Veterinary Service should be viewed as a first step towards building capacity to operate an independent privatised service. The extremely challenging and specialised nature of the ASAL necessitates a significantly different approach to veterinary service privatisation as adopted for the HMPA. Herein is the challenge and opportunity for SERECU - to adopt and demonstrate a working AHDS model that would be the answer to the long sort solution to the sustainable supply of veterinary services to ASALs within all of East Africa.

4.4.3 *Somalia - Information Leading to Interventions for RP Eradication*

4.4.3.1 *Major Constraints*

The livestock sector experiences the following constraints, which impact negatively on animal health service delivery:

- Inadequate/lack of veterinary services. This is mainly due to lack of qualified service providers.
- Poor terms of livestock trade resulting in low returns
- Loss of export market
- Overgrazing and soil erosion
- Destruction of boreholes
- No grazing rights
- Shortage of water
- Remoteness of grazing lands from the water provided by the Juba River
- Environmental challenges - Much of Somalia is arid and hyper-arid; conversely some areas experience seasonal flooding. This makes for a fragile and hostile environment which hampers service delivery.
- Economic issues:
 - The infrastructure has virtually collapsed and the rural road network is extremely poor.

- The economy has come to depend on a single commodity with the resultant lack of product diversification, which has led to poverty, and an inability to pay for services.
- Successful private practitioners prefer to deal with pharmaceuticals and ignore other interventions;
- Political climate - A tightly centralized pre-war Government resulted in the neglect of rural areas, economic and political mismanagement which has led to poor service delivery.

4.4.3.3 *Service Delivery Gaps*

- The absence of a Central Veterinary Authority and infrastructure.
- There is a lack of emergency preparedness.
- There is a lack of public animal health services and the costs of private veterinary services are high especially in remote areas.
- There is insufficient rural service provision due to lack of Government and private infrastructures.
- Credibility question resulting from the absence of quality certification.
- There is a lack of modern management technological inputs.
- There is an absence of legislation.
- There is an absence of policy.
- There is an absence of transport for professionals.
- There is a lack of capital.
- Pastoralists are inaccessible due to the poor infrastructure and lack of transport.
- The professional cadres are ageing with no replacements due to the absence of training institutions since 1989. Those who train abroad prefer not to return.
- There is a lack of on-the-job updating of professional skills.
- There are few formal employment opportunities due to the absence of institutions.

4.4.3.4 *Major Intervention Points*

Establishment of Government Veterinary Services and Appointment of CVO

It should be emphasized that no single Government has controlled the whole of Somalia since 1991, when the Government collapsed. Delivery of veterinary services has therefore been haphazard and dependent on private enterprises. In the transitional Government, the Ministry of Livestock, Forestry and Range has no staff. An urgent need exists, therefore, to establish a veterinary service with field and laboratory services. Of crucial importance is the appointment of a Chief Veterinary Officer and support staff able to mobilize awareness campaigns and support for a countrywide animal disease control.

Development of Private Sector for Service Delivery

Livestock Professional Associations should form the nucleus for privatisation. The Government policy should facilitate this process and identify mechanism for the support structures for the private sector delivery of services.

When the Government establishes the Department of Veterinary Services, the Government delivery systems should not compete with the private enterprise and should instead create a conducive environment for the private enterprises to perform.

NGOs should be engaged in the short-term delivery of veterinary services. They should be involved in:

- Building of capacity for the livestock sector (Terra Nuova, Save the Children (UK), and VSF – CH, COOPI)
- Emergency interventions (vaccinations and treatments) (VSF – Suisse, ICRC and COOPI).
- Mix of long term and emergency interventions (VSF – Germany and GTZ).

The Government should support these NGOs in order to enhance service delivery and capacity building. It should be emphasised however, that there is a need for a centre of coordination and harmonisation by the Ministry of Livestock, Forestry and Range to synchronise NGO approaches in line with Government policy. In this case, there should be clear policy guidelines by the Ministry to focus interventions by NGOs.

The NGOs should forge clear partnerships with local Somali institutions to build capacity in order to assure sustainability of interventions.

Short term & medium term interventions

Somalia is a special case that is not comparable to either Kenya or Ethiopia. Interventions will be unique for Somalia. These will include strengthening of the public-private Veterinary delivery systems with a focus on Rinderpest eradication through the following:

- AU/IBAR should urgently facilitate the creation of a Central Veterinary Authority and a Veterinary Service Delivery System in Somalia which should encompass both public and private sectors.
- AU/IBAR/PACE/SERECU should facilitate capacity building; creation and strengthening of public/private linkages for sustainability.
- The allocation of adequate funding for establishment of a functional public veterinary service, which will include immediate recruitment of a Chief Veterinary Officer and his/her staff; aggressive veterinary training of staff including professionals, para-professionals, animal health assistants, junior animal health assistants and CAHWs.
- The provision of technical assistance.

- Identifying donors that are ready to support the establishment of a functional veterinary service.
- The identification of roles and chains of command for different cadres of staff (professionals and para-professionals) in the delivery of animal health services.
- Establishment of a minimum service delivery structure, including the appointment of a DVS, that will be acceptable internationally especially by the OIE, FAO/GREP and trading partners. This minimum service delivery structure should include the provision of adequate funds to facilitate operational performance of professional associations and private professionals.
- The facilitation of the provision of means of transport for most professionals including cars, cycles etc. It should be noted that nomadic pastoralists are not easy to access given lack of infrastructure and means of transport.
- The establishment of an institution to provide refresher courses for aging professionals with no recent education since 1989. The professionals who trained abroad generally do not return; there should therefore be a formal updating of skills and knowledge for existing professionals and creation of a favourable environment for the return of professionals who trained abroad.
- The creation of formal employment opportunities within Government for graduate veterinarians and veterinary assistants.

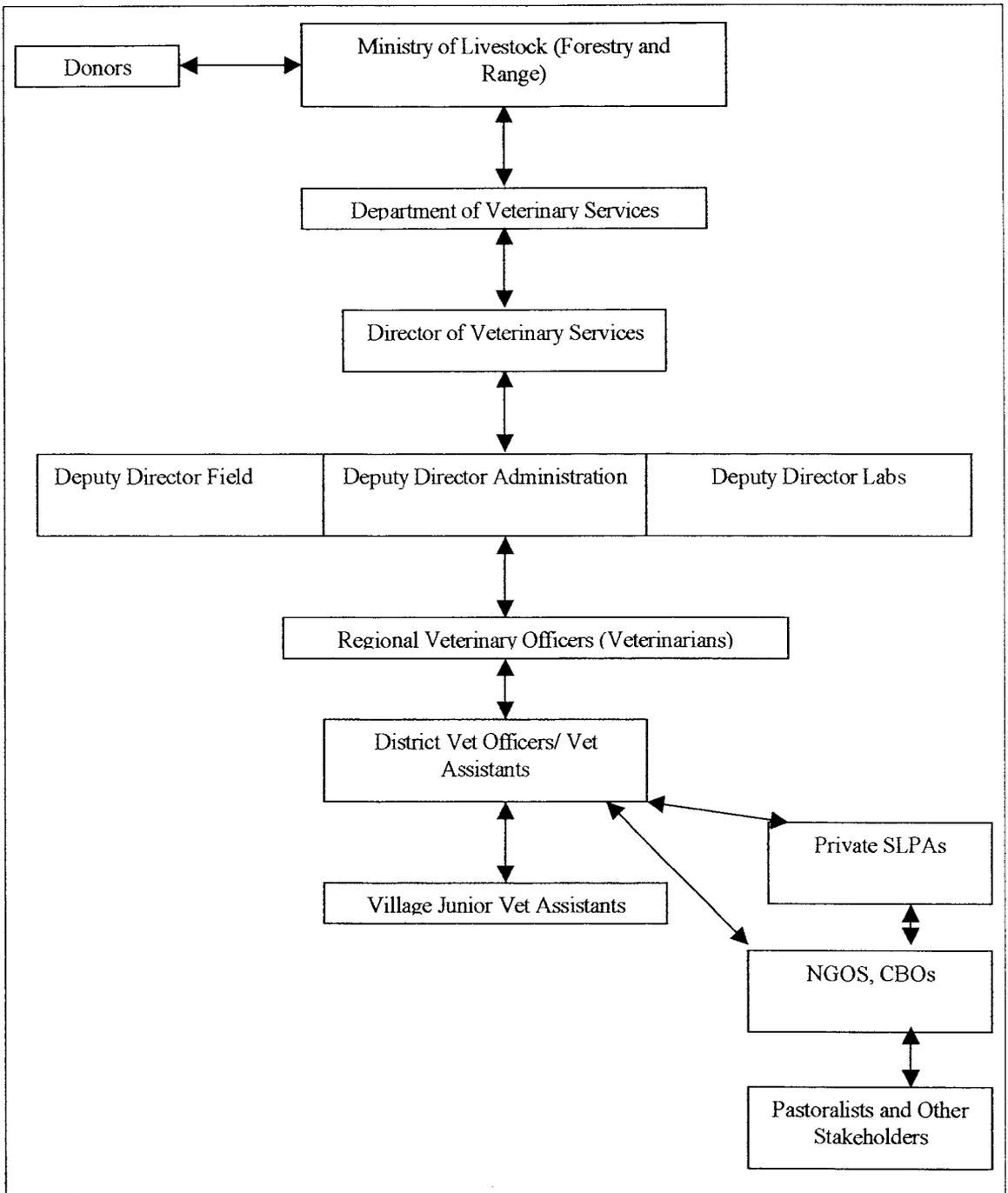
Long term interventions

For effective delivery of veterinary services, strong emphasis should be placed on the establishment of a Central Veterinary Authority under the Transitional Federal Government (TFG). Immediately, the Chief Veterinary Officer (CVO) should be appointed. Also supporting staff at regional and district levels should also be appointed. This structure is essential for the establishment of veterinary services at both field and Laboratory level. The responsibility of the CVO should be as follows:

- To establish policy, formulate legislation, regulation and coordinate national veterinary delivery systems.
- To initiate mid and long term plans for the veterinary Service.
- To be responsible for disease control and disease reporting to Regional and National Organisations (AU/IBAR, OIE, FAO/GREP).
- To initiate the setting up of a Veterinary Laboratory Service and oversee the equipping of the laboratories.
- To coordinate and harmonize the activities of public and private veterinary professionals and paraprofessionals, professional associations and NGOs.

The appointment of the CVO will result in the smooth implementation of international requirements in animal health, including declaration of disease status in the country. The application for recognition of freedom from Rinderpest will be possible because of the presence of a credible veterinary authority.

Proposed Organogram for a Central Veterinary Authority in Somalia



This organogram has budget implications that should be determined

4.4.3.5 Institutional Support Requirements

- Develop an organogram for the Department of Veterinary Services including creating linkages with other departments and stakeholders.
- Support development of policies, draft legislation and regulations.
- Financial support by Government, NGOs, and donors for strengthening operations of livestock professional associations and private animal health service providers.
- Supporting networking and exchange of information between different animal health service providers with the Ministry as the pivotal point for coordination of various players.
- Technical and financial support to enable disease reporting.
- Development of laboratory diagnostic and investigative capacity to support disease surveillance and control.
- Institutionalise livestock disease surveillance and response systems including emergency preparedness and contingency planning.
- Coordination and harmonisation of the involvement of veterinary professionals in animal health services delivery including disease reporting, treatment and vaccinations.
- Coordination of stakeholders in Animal Health Delivery Services.

4.4.3.6 Ways & Means to Strengthen Various Delivery Systems

Public Sector

- Recruitment of the Chief Veterinary Officer and his staff and creation of a veterinary service infrastructure.
- Funding for institutional buildings and operations.
- Wider donor support to the Government for physical infrastructural development;
- Socio-political changes for peace and definition of political status of Somaliland vis-à-vis the rest of Somalia to facilitate technical representation at OIE.
- Definition, agreement and implementation of minimum structure acceptable to the international community for Somalia to regain credibility of its original animal health services delivery systems.
- Establishment of basic laboratory capacity (creation/revitalisation of key laboratory institutions).
- Provision of basic equipment for laboratories.
- Short term, crash training programmes for personnel of all cadres, training could be in refurbished/built local institution or abroad.
- If necessary establish 40 vaccination teams made up as follows: One veterinarian team leader, three veterinary assistants, one cook and one storeman/ logistician.

Private Sector

- Financial support to meet operational costs of zonal livestock professional associations (office, rent, car, hire etc).

- Financial and technical support for private animal health service providers to access equipment, quality drugs and updated information for improved animal health service delivery.
- Establish a liaison office within the Department of Veterinary Services to address privatisation issues.
- Integration of private animal health service providers into a public sector coordinated livestock disease surveillance and reporting system.

NGOs

The Government to:

- Provide clear policy guidelines on priority areas for interventions.
- Monitor the activities of NGOs to ensure coordination.
- Enforce proper registration of NGOs so that their numbers and mandates are on record.

4.4.3.7 Capacities to Handle Rinderpest Eradication

SWOT analysis of the Private Veterinarians and Para-veterinarians

	Private Vets	Para -Vets
Strengths	<ul style="list-style-type: none"> • Welcome and accepted by pastoralists because of the nature of their profession in relation to livelihoods of pastoralists 	<ul style="list-style-type: none"> • Present in the region in large numbers. • Willingness to access remote areas where vets do not venture.
Weakness	<ul style="list-style-type: none"> • Vets are few in numbers • Lack of funding for business. • Lack of continuous education and current knowledge. • They do not generally apply tools of business management despite training. 	<ul style="list-style-type: none"> • Lack of continuous education and current knowledge.
Opportunities	<ul style="list-style-type: none"> • Presence of NGO and support institutions to offer basic training and support • Presence of the market for their business • Absence of public veterinary service , creating an opportunity for private sector entry. 	<ul style="list-style-type: none"> • Presence of NGO and support institutions to offer basic training and support • Presence of the market for their business • Presence of Vets willing to partner with them for business.
Threats	<ul style="list-style-type: none"> • Competition from “Waratos,” para-vets and CAHWS • Absence of a central Government and insecurity in the country that scares off general investment • Lack of skills upgrading • Absence of legal and regulatory frameworks 	<ul style="list-style-type: none"> • Competition from “Waratos” and CAHWS • Absence of a central Government and insecurity in the country that scares off general investment • Lack of skills upgrading • Absence of legal and regulatory frameworks

Observations made during this exercise shows that the private veterinarians and para-veterinarians have the ability to carry out clinical and serological surveys for Rinderpest and communicate with pastoralists, NGOs and local administration. In addition, there are very good linkages between the professional associations and local administration. However, there is professional conflict and competition between veterinarians, para-veterinarians and CAHWs. This has led to the unclear demarcation of roles.

4.4.3.8 *The Way Forward To Eradicate Rinderpest*

1. *Vaccination*

At present it appears that, in Somalia, the highly suspected areas for RP maintenance are located in the Trans-Juba regions of the country (e.g. Gedo, Lower & Middle Juba). If the presence of RP is confirmed by the results of the ongoing survey, then immunisation of the susceptible population must be achieved through at least two rounds of vaccination. In Somalia an estimated cattle population of about 2 - 2.5 million head should be targeted for vaccination in the Trans-Juba regions.

To be able to carry out two vaccinations in a year forty vaccination teams are needed to cover the estimated 2 - 2.5 million head of cattle in Southern Somalia. This hypothesis assumes that one team will vaccinate 800 head in a day. To achieve Rinderpest eradication, the exercise has to be repeated twice a year for three years. This will result in a cover of 80-90% of the population. After each round of vaccination, sero-monitoring should be carried out to assess the effectiveness of this exercise. The proposed budget for this exercise is as shown below.

Suggested Budget for Vaccination for Two Rounds per Year

Item	Cost per item (\$)	Number of units	Total (\$)
Vaccine	3 US cents	2 million	69,000
Transport	Lump sum		144,000
Salary/allowances	Lump sum		240,000
Sero-monitoring	Lump sum		200,000
Consumables	Lump sum		100,000
Total			753,000
Contingency " 10%			75,300
Grand total per year			828,300
Total for three years			2,484,900

2. Training

Also, advantage should be taken of the current training programs by support institutions in Central Somalia such as Save the Children Fund (UK) currently undertaking Training of Trainers (ToT) so as to train CAHWs to increase the efficiency of animal health service delivery. However, in the long run, this approach is not enough. Training of Veterinarians and para-veterinarians should be urgently addressed to build the necessary numbers in these categories in order to meet the demand. In the meantime, there is a need to support the Private Vets as focal points and equip them with the necessary tools and skills to respond to rumors and containment of Rinderpest and other notifiable diseases.

3. Declaration of Freedom from Rinderpest

The results of the Rinderpest surveys undertaken in Somalia have been used to delineate the country into three zones as follows:-

1. Infected Zone in Southern Somalia [Middle and Lower Juba regions, parts of Gedo, Bay and Lower Shabelle regions]
2. Surveillance Zone
 - High risk areas [most of Bay, parts of Gedo, parts of Middle Shabelle, Hiran and Bakool regions].
 - Low risk areas [Galgadud, Mudug south of Galkaiyo, part of Hiran and Bakool regions]
3. Free Zone [Somaliland and Puntland]

The delineation was carried out using identified and quantified risk factors for Rinderpest.

With the foregoing delineation Somalia should declare provisional freedom from Rinderpest on a zonal basis following the appointment of the Director of Veterinary Services.

4.5. Importance of Disease Surveillance for Wildlife

Wildlife known to be susceptible to Rinderpest are buffalo, kudu, warthogs and the majority of antelopes. These animals die from infections of both lineage 1 and lineage 2 Rinderpest viruses. Outbreaks of the disease in wildlife have been recorded over the last two centuries, but more recently large numbers of buffalo and kudu have died from the mild form of Rinderpest in Kenyan national parks.

Wildlife predominantly found in the Somali Ecosystem includes buffaloes, warthogs and kudus and all of them suffer from the mild form of the disease. With the foregoing background

knowledge, it is important to carry out a coordinated survey of Rinderpest antibodies or disease in the wildlife populations in the SES to establish the status of the disease. This will support the eradication process and lead to the final elimination of the virus from the SES

The importance of wildlife as sentinels for Rinderpest disease is well recognised. What is less clear is the role of wildlife in the maintenance of infection. The sum of the various informed comments on this matter suggest that provided the cattle population are free of disease Rinderpest does not maintain itself in the wildlife population - ie control Rinderpest in domestic stock and you control the disease in wildlife. Vaccination or de-population of wildlife would not be strategies of any great benefit but the capacity to survey for the disease in wildlife is highly necessary.

What is needed is an arrangement in each country where all opportunistic actions to collect samples from game ie from road kills, should be actively encouraged, with carcasses being delivered to the nearest DVO for post mortem and extraction of appropriate samples for forwarding to the appropriate laboratories. In addition a line of communication needs to be established with the wildlife authority where any report of diseased wildlife is rapidly followed up, ideally by a combined Wildlife/DVO team and, where necessary, capture and sampling are conducted.

4.6. Community Animal Health Delivery System

The Consultants' recognise the valuable role that Community Animal Health Workers [CAHWs] can play in the frontline delivery of Animal Health Services in the Somali Ecosystem but there is a concern at the apparent lack of their supervision and regulation in many instances. To address these concerns the following concepts may be of value.

- All CAHWs that are or are intending to deliver Animal Health Services must be registered at their District Vet Office or equivalent Government approved Veterinary Office [DVO/VO] and are issued by that office with a licence, renewable annually.
- All CAHWs should be trained to a minimum standard as decreed by the National Veterinary Authority [NVA]. The DVO/VO will maintain a register of those trainers in the District who have approved NVA qualifications to undertake the training of CAHWs.
- No CAHW should deliver Animal Health Services unless he or she is under the immediate supervision of a certificate or Diploma holding Veterinary Para-professional who in turn is directed by a Veterinary Professional.
- The DVO/VO is the overall authority for all Animal Health Services delivered in a District and has the powers to require all Animal Health Service Providers, including those in the NGO and private sector, to conform to required standards and practices.
- The ideal linkage is that one Veterinary Professional, normally stationed at a District headquarter, directs a number of certificate or diploma holding Veterinary Para-professionals, normally stationed at Sub-District / Divisional / Area level who in turn each supervise a number of CAHWs based at Community / Village Level.
- The Veterinary Professional directing the Para-professional / CAHW Animal Health Service must provide brief monthly reports to the DVO/VO that conforms to a NVA standard.

- Reliable transport with adequate running costs is essential for the proper supervision and delivery of Animal Health Services, a 4 Wheel Drive vehicle for the directing Veterinary Professional, a motorcycle for the supervising Veterinary Para-professional and a bicycle for CAHW.
- Any CAHW found by the DVO/VO to be delivering Animal Health Services without Para-professional supervision and Professional Veterinary direction should, by District By-law, be subject to a penalty of sufficient size to deter such non-supervised practice.
- Certificate or Diploma holding Veterinary Para-professionals and Veterinary Professional who are delivering Animal Health Services through CAHWs should have an obligation to provide the CAHWs under their control with adequate supervision, support and regular refresher training. The DVO/VO is responsible for ensuring that this obligation is being met.
- The term Veterinary Para-professional should be reserved for non-professional Veterinary Staff who are Certificate Holders and above. Lower categories including CAHWs should be termed “Veterinary Auxiliaries”.

5. DISCUSSIONS

The above findings show many similarities in service delivery gaps between Kenya and Ethiopia, but with wider variations when compared with Somalia. A reflection of these variations and similarities are captured below (5.1) and further elaborated through SWOT analysis (5.2).

5.1. Comparison of AHDS between the Three Countries in SES

ToR	Ethiopia	Kenya	Somalia
1. Current status of animal health service delivery systems	<ul style="list-style-type: none"> • Existing service delivery systems include CAHW system, Government vet services, private sector (mainly small drugs outlets) and participation of livestock keepers. • Low staffing levels of Gvt district vet services • Absence of private vet services • CAHWs supported by NGOs are the dominant animal health service deliverers • Livestock keepers also treat their livestock • Low wildlife surveillance capacity • Drugs supply is mainly through rural drugs shops, vendors and illegal operatives • Participation of community in animal health service delivery is weak due to knowledge gap • Disease surveillance systems and infrastructures are in place (support of PACE) 	<ul style="list-style-type: none"> • The AHDS is fragmented, under-resourced and patchy • Government is under-resourced and undermanned. • NGO's are too thin on the ground and subject to the vagaries of donor funding. • The private sector cannot make enough money to cover the extremely high costs of delivering services, let alone generate a profit. 	<ul style="list-style-type: none"> • No Government vets or para vets • Private Service delivery by SLAs. • 16 vets, 51 vet assistants and 175 CAHWs.
2. Networks of vet-paraprofessionals that are supervised by veterinarians	<ul style="list-style-type: none"> • CAHWs are providing services, and in some areas they have formed associations. • There are few Gvt vets but no private vets • No veterinarian-supervised networks of para-professionals 	<ul style="list-style-type: none"> • Each District has a complement of Government VOs and AHA's operating within a well defined hierarchy. • NGO operated networks exist but are patchy in distribution and time limited. • There is only one small privately operated network in the Province. • Each District has a list of CAHWs but only a small proportion are part of a formal network 	<ul style="list-style-type: none"> • SAHSP networks of SLAs, private vets, CAHWs, clans and pastoralists.

<p>3. Roles and linkages between the different players in veterinary services currently on ground</p>	<ul style="list-style-type: none"> • Main players are Gvt vet service, NGOs / CBOs, CAHWs, few drug sellers / vendors and livestock keepers • Roles for the various players are stated • CAHWs are linked to DVOs and supporting NGO in terms of disease reporting and training support. • Livestock keepers participate in the selection of CAHWs trainees and disease reporting. • No strong drug suppliers linking with service providers on the ground. • Generally the linkages are weak 	<ul style="list-style-type: none"> • The DVO's in each District are occupied almost exclusively with the regulatory and administrative functions of their Office • Deputy and Assistant DVOs undertake a mix of administration and AHDS when funds allow • AHA's deliver both public and private good services. • There are very good linkages between Government VOs and AHAs • The CAHWS have the capacity to provide valuable primary health care assistance to the rural livestock owning community but only a few are effectively supervised by VOs through the AHAs • NGOs tend to be primarily concerned with emergency and relief programmes. The linkage with Government defined by MOU. • There are no effective linkages between Government and private • sector AHDS providers 	<ul style="list-style-type: none"> • Pastoralists report disease outbreaks to SLAs and NGOs.
<p>4. Major constraints in the current delivery system</p>	<ul style="list-style-type: none"> • Inadequate skilled manpower • Low rate of reports submission to federal vet service • Weak linkage between federal and regional vet services • Low support to district vet services contributing to inadequate capacity • Inadequate support to privatisation policy • Weak linkages among service providers • Poor drug supply system • Low level of community participation and awareness • CAHWs have limited knowledge on drugs and drugs administration, and diagnosis of mild Rinderpest • Possible gap after PACE 	<ul style="list-style-type: none"> • Lack of resources including transport • Inadequate operating budgets • Non functional District Vet Laboratories • Undermanning at Divisional level • Isolation and lack of support for CAHWs • Non-viability of pvt practice in ASAL and consequent lack of pvt practitioners • Policy inhibiting Government personnel from delivering private good services • Low economic value attributed to the livestock sector in ASAL 	<ul style="list-style-type: none"> • Absence of Government vet services, • Poor terms of trade, • Poor infrastructure, • Destruction of boreholes, • Economic, political and environmental constraints.

<p>5. Main intervention points</p>	<ul style="list-style-type: none"> • Training • Policy implementation & enforcement to allow better information flow between the federal and district veterinary services • Enhancement of the district veterinary capacities • Private sector promotion / support to privatisation policy. • Awareness creation at the community level. • Improved coordination and linkages. • Strengthening of CAHWs • Filling gap after PACE ends 	<ul style="list-style-type: none"> • Policy • Operational • Staffing • Training • Extension • Sectoral 	<ul style="list-style-type: none"> • Creation of vet service, • DVS appointment, • Training of vets and para vets, • Funds, • Support of SLPAs.
<p>6. Institutional support required for the current delivery system</p>	<ul style="list-style-type: none"> • Strengthening of Government vet services at the district level • Training support to laboratory services • Institutional collaboration and linkages • Development and or strengthening of CAHWs associations and community structures 	<ul style="list-style-type: none"> • Production of clear and supportive policy guidelines for AHDS in KS • Incentives and special remuneration for KS based staff • Training for Veterinarians and Paraprofessionals to produce ASAL specialists • Resource and operationalise District Veterinary Laboratories • Support existing and formation of new KS relevant associations 	<ul style="list-style-type: none"> • Funds, • Policy, • Legislation / regulation, • Creation of field and lab vet service • Coordination of stakeholders.
<p>7. Ways and means to strengthen the various delivery systems on the ground.</p>	<ul style="list-style-type: none"> • Support to district vet services – training and provision of facilities and equipment • Incentives to attract private practices in the SES • Structured and sustained continuing education for CAHWs • Forums at the district level for exchange and sharing of information and experience among service providers • Harmonize approaches for establishment of CAHW system within countries • Code of conduct for animal health service providers • Legislation to curb widespread illegal trade in vet drugs • Livestock movement control through legislation • Public education and awareness creation. 	<ul style="list-style-type: none"> • Strengthening existing mandates to ensure effective coordination by Government of both public and private good AHDS • Revising policy to allow Government to deliver private good services until such future time when the economy of the livestock sector in the ASAL improves to the point where it can sustainably support an independent privatised service. • Resourcing Government District and Divisional AHDS capacity to effectively support and supervise a CAHW network serving all communities in KS 	<ul style="list-style-type: none"> • DVS appointment, • Funds, • Donor support, political stabilization, • Training, • Improvement of infrastructure, • Integration of private and public services

8. Status of Disease surveillance capacity	<p>Active surveillance</p> <ul style="list-style-type: none"> • Ability to raise surveillance teams • Support structures (labs) are in place • Strengthening required in terms of training support to enhance surveillance skills at all levels • Weak capacity for wildlife surveillance <p>Passive surveillance</p> <ul style="list-style-type: none"> • Inadequate capacity at district level 	<ul style="list-style-type: none"> • The capacity for purposive disease surveillance exists within the Government if all Divisions are staffed and resourced to deploy and supervise properly a comprehensive CAHW network. • In the absence of a full staff complement and with current inadequate resources disease surveillance capacity is 50% at best. • The establishment of a well resourced AHDS serving the the needs of the livestock owning community on a continuous and comprehensive basis is the best way to achieve the required capacity. 	<ul style="list-style-type: none"> • Apart from NGOs, capacity inadequate.
9. Capacity to mount a vaccination campaign	<ul style="list-style-type: none"> • Capacity is adequate so long as supportive operational funds are available. • Past experience in mounting vaccination campaigns is an asset. 	<ul style="list-style-type: none"> • The capacity to rapidly mount a KS wide vaccination campaign can only be achieved by reinforcing existing in-District Government Veterinary Staff from other Districts and to co-opt CAHWS on an ad hoc basis. • It would be advantageous if each District had its own rapid deployment capacity to mount District wide vaccination campaigns • Establishing a well resourced and comprehensive AHDS would be the most cost-effective way to achieve the required vaccination capability 	<ul style="list-style-type: none"> • Local Vaccination capacity inadequate and needs external inputs (human resources and finances)

5.2. Comparison of AHDS in the Three Countries by SWOT Analysis

SWOT	Ethiopia	Kenya	Somalia
Strengths	<ul style="list-style-type: none"> • Huge livestock resource contributing 16% of GDP • Existence of the structure of veterinary services • Existence of surveillance system and the supportive infrastructures such as labs • Operational veterinary delivery systems 	<ul style="list-style-type: none"> • A dedicated and informed complement of Government Veterinary Staff • An innovative and participatory NGO sector • Examples of excellence and 	<p>Private Vets</p> <ul style="list-style-type: none"> • welcomed and accepted by pastoralists because of the nature of their profession in relation to livelihoods of pastoralists

		<p>capacity building by PARC and PACE</p> <ul style="list-style-type: none"> • Comprehensive disease reporting system using good computing equipment • Willingness to adopt new practices seen to improve the quality of services 	<p>CAHWs</p> <ul style="list-style-type: none"> • Present in the region in large numbers and willingness to access remote areas where vets do not venture.
Weakness	<ul style="list-style-type: none"> • Low capacity of district vet services (Gvt) • Inadequate information flow between federal and regional vet services • Inadequate number of vet professionals and para-professionals in the SES • Undeveloped private sector in animal health service delivery • Inadequate operational budgets • Lack of adequate capacity in disease surveillance in wildlife • Inadequate animal health infrastructures in the SES • Heavy reliance on NGOs for the support to CAHW system • Inadequate strategies for sustainability of CAHW system • Poor drugs supply in the SES, thus weakening CAHW system • vastness and rough terrain and roads • Low literacy level • Insecurity in some areas • Low cash economy 	<ul style="list-style-type: none"> • Inadequate operating budgets, logistics and remuneration • Shortage of Animal Health Technical Staff with at least 60% of the divisions unmanned • Non-functioning District Laboratories limiting disease control capacity • Inconsistent linkages between Government, NGO, Private Sector and Community based AH staff • No internet connectivity 	<p>Private Vets:</p> <ul style="list-style-type: none"> • Few in numbers • Lack of funding for business. • Lack of continuous education and current knowledge. • Do not generally apply tools of business management despite training. <p>CAHWs:</p> <ul style="list-style-type: none"> • Lack of continuous education and current knowledge.
Opportunities	<ul style="list-style-type: none"> • The perceived risk associated with Rinderpest is a good opportunity for strengthening surveillance systems and other eradication strategies. • The gains and achievements of the immediate past initiatives in Rinderpest eradication (e.g. PARC and PACE) are too costly to abandon. It is an opportunity for SERECU and the development partners to continue their support to the eradication process. • The existence of Rinderpest surveillance systems and infrastructures in the country provides an opportunity for support and continuation 	<ul style="list-style-type: none"> • To develop a model Arid and Semi Arid Lands specific Animal Health Delivery Service through the creation of an enabling policy environment and the adoption of innovative and adaptive livestock services strategies • To add value to internal and open up external markets by protecting them from the ravages of uncontrolled 	<p>Private Vets:</p> <ul style="list-style-type: none"> • Presence of NGO and support institutions to offer basic training and support • Presence of the market for their business <p>CAHWs</p> <ul style="list-style-type: none"> • Presence of NGO and support institutions to offer basic training and support • Presence of the market for their business

	<p>support and continuation</p> <ul style="list-style-type: none"> • The willingness of the community to participate in animal health service delivery, their recognition of the importance of controlling trans-border diseases and the fact that livestock is their main source of livelihoods, constitute an opportunity to mobilize them to form groups or associations that have a greater role and impact in service delivery, disease control and surveillance. • The Veterinary Service Delivery System Draft provides a good opportunity to re-negotiate the linkages between the federal and the regional vet services • Recognition of the roles and importance of CAHWS in animal health service delivery by all players including the Government department of animal health and the veterinary professional association (EVA) provides an opportunity to strengthen the CAHWS service delivery system without teething problems. 	<p>epizootic disease outbreaks and meeting OIE freedom from specified disease standards</p>	<p>business</p> <ul style="list-style-type: none"> • Presence of Vets willing to partner with them for business
<p>Threats / Challenge</p>	<ul style="list-style-type: none"> • >Lack of PACE successor • possible escalation of insecurity in the Somali Eco-system • withdraw of NGOs' support to community animal health service delivery system 	<ul style="list-style-type: none"> • Re-introduction of Rinderpest and failure to control other epizootic diseases • Achieving consensus concerning the deployment of CAHWS 	<p>Private Vets</p> <ul style="list-style-type: none"> • Competition from "Waratos," para-vets and CAHWS • Absence of a central Government and insecurity in the country that scares off general investment <p>CAHWS</p> <ul style="list-style-type: none"> • Competition from "Waratos" and CAHWS • Absence of a central Government and insecurity in the country that scares off general investment

From the above Analysis, it can be observed

1. In Kenya and Ethiopia, the priority point of intervention is at the District level, focusing on Government veterinary service, the private sector, community animal health service delivery system and the community. The capacity at the district level is a major determining factor in creating sustainable animal health service delivery, and more importantly in carrying out passive disease surveillance.
2. In Ethiopia, the two levels of Government (federal and regional) are a limiting factor in disease reporting and management of disease related information. Whereas policy, legal and directive provisions exist to facilitate disease information flow between the two levels, there is no enforceable monitoring mechanism to ensure compliance.
3. In Somalia, the priority point of intervention is the establishment of central veterinary authority, along side strengthening of professional associations and training of more service providers.

6. CONCLUSION

Global Rinderpest eradication is of “International Public Good”, a goal for which the FAO GREP has targeted for completion by 2010.

The OIE has established guidelines for each country / zone to declare freedom from the disease. The last foci of Rinderpest are presumed to be in the Somali Ecosystem. In order not to jeopardise the gain so far achieved by previous nationally implemented initiatives, JP15, PARC, and PACE, it is crucial that resources – human, financial and technical - be availed by all stakeholders, including the Governments of Ethiopia, Kenya and Somalia, the Donor Community and AU/IBAR, to enable AU/IBAR/SERECU to complete the task of enabling the SES to declare freedom from the disease and thus, at last, rid the World of that greatest scourge of all livestock diseases - Rinderpest.

This study has established that there is real need to strengthen the existing capacity in animal health service delivery and disease surveillance in SES, thus providing the gateway to final eradication of Rinderpest from the region. AU/IBAR/SERECU has the opportunity to provide the overall regional coordination, and to facilitate resource acquisition and mobilisation for the necessary interventions. The interventions may vary within the region, and according to specific requirements of each country, but an overall coordinated and harmonised approach is necessary, and particularly in Rinderpest surveillance, and vaccination should it become necessary.

The coordination role of AU/IBAR calls for re-structuring of SERECU to ensure proper linkages with individual country Epidemiology Units are established, with sufficient provisions for teamwork building through dialogue, regular consultations and free exchange of information.

AU/IBAR/SERECU should rise to the challenge of achieving a truly sustainable solution by addressing the innovative and strategically adaptive approaches as recommended in this assessment report. Such an approach will be in the best interests of supporting the pastoralist livestock keeping community and materially contribute to raising the value of the livestock sector in general.

However, some of the interventions recommended may be outside the scope of AU-IBAR / SERECU, but not outside the scope of the Governments. In making such recommendations, it is envisaged that the respective Governments will be reluctant to address service delivery gaps in SES alone while ignoring other ASAL areas with similar challenges. It is more logical for the Governments to take a broader and more encompassing approach that will benefit more livestock keeping communities. For Rinderpest surveillance and eradication on the other hand, the respective Governments are more likely to move along with AU-IBAR / SERECU and in line with O.I.E guidelines. There is no other escape route.

7. RECOMMENDATIONS

7.1 Recommendations Common to SES

7.1.1 Human and Physical Resources

The AU/IBAR/SERECU should lobby, and if necessary, facilitate the Governments (Ethiopia and Kenya) to deploy adequate technical staff at District and Divisional levels and also avail to all three countries sufficient operational resources for efficient delivery of veterinary services. Additionally the AU/IBAR/SERECU should programme for providing incentives such as in-service training and top-up allowance to boost field staff morale.

7.1.2 Capacity Building

The AU-IBAR in collaboration with the relevant country authorities should facilitate the development and implementation of training courses, targeting mainly the Veterinarians, Animal Health Assistants and Animal Health Technicians. Such training should cover specific areas that the respective countries may identify including the epidemiology and control of economically important disease, data management and analysis, participatory disease search, communication skills, livestock production and animal health economics; surveillance in wildlife, ethics in animal health service delivery and cold chain management among others.

7.1.3 Linkages

AU/IBAR / SERECU, in collaboration with other stakeholders should promote and support the establishment / strengthening of communication centres, information sharing

forums, and coordination of players and stakeholders, especially at the District level. This should take particular note of the need for public-private sector collaborative interaction.

7.1.4 Promotion of Privatisation

Design Country specific packages in support of privatized veterinary service delivery that take into account the different operating environments. Such packages to include support for Professional Associations, licensing of service providers and regulation of drug supply and training on business skills and entrepreneurship

7.1.5 Review of Privatisation Policy

AU/IBAR/SERECU, in collaboration with its partners, should facilitate a forum to review the implementation of privatisation policies and their impact on animal health service delivery in the arid areas where the operating environment is not conducive for profitable private veterinary services

7.1.6 Enforcement of Existing Policies and Regulations

The Veterinary Authorities in the three countries should, in collaboration with other players, establish specific Units or mechanisms to monitor the implementation and enforcement of policies and regulations. In establishing such Units or mechanisms, due consideration should be given to the quality and calibre of the responsible personnel.

7.1.7 Community Based Animal Health Delivery System

Accepting that Community Animal Health Workers are an integral part of the animal health service delivery system in the SES region, member countries should incorporate them into the Animal Health Strategic Plans and make provision for supporting their activities including training, continuing education, supervision, monitoring and technical guidance.

7.1.8 Livestock Keepers and Other Stakeholders

In order to encourage effective participation of livestock keeping communities in disease surveillance and reporting it will be necessary to first of all target animal health service delivery at livestock disease problems viewed as important by the community themselves. Following this it will be easier to raise awareness and support for the aims and objectives of AU/IBAR/SERECU including the promotion and uptake of quality AHDS

7.1.9 Rinderpest Surveillance

The importance of undertaking coordinated surveillance activities has been well adopted by AU/IBAR/SERECU however there is a need to improve reporting systems by enhancing ownership of information / data management through effective sharing with field staff. In addition it is important to motivate the CAHWs to participate in passive

reporting by appropriate remuneration. Wildlife surveillance capacity requires strengthening in Ethiopia and Somalia in recognition of the important role of wildlife as sentinels for Rinderpest.

7.1.10 Rinderpest Vaccination

As a matter of some urgency SERECU should be prepared to assemble the resources, financial, human and material, to mount a vaccination campaign should the ongoing Rinderpest sero-surveys and disease searches confirm the presence of Rinderpest in the SES.

7.1.11 Strengthening of SERECU

The task ahead requires that AU/IBAR/SERECU be adequately provided for in terms of both financial and human resources. One way of strengthening linkages would be by relocating liaison officers to their respective country's Veterinary headquarter to reinforce the presence of AU-IBAR/SERECU at country level. A core co-ordinating team should be retained at the AU-IBAR/SERECU headquarter comprising Coordinator, Veterinary Delivery Systems Specialist and Wildlife Specialist, to which the position of Epidemiologist should be added. However, before re-locating liaison officers, it is advisable to discuss the issue with the respective country veterinary authorities.

7.1.12 SES Tailored Livestock Development

Any intervention with the intention of improving the Animal Health Delivery Service will have a greater impact, and better chance of sustainability, if embedded into a wider and coordinated rangelands resource management and pastoralist livelihood support initiative. An outline of the areas such a programme might address is given in Appendix 8.3

7.2 Recommendations Specific to Ethiopia

7.2.1 Strengthening of Disease Reporting System

In Ethiopia, the two levels of Government (federal and regional) are a limiting factor in disease reporting and management of disease related information. Whereas policy, legal and directive provisions exist to facilitate disease information flow between the two levels, there is no enforceable monitoring mechanism to ensure compliance. In view of this, the AU-IBAR/SERECU should facilitate a consultative forum for the two levels of Veterinary Service to come together to re-define the chain of command in matters related to notifiable diseases, ensuring that the District Veterinary Services are held more accountable in disease reporting. A mechanism must also be established to monitor enforcement of the agreed implementation framework.

7.2.2 Privatisation

The AU-IBAR should lobby the Government of Ethiopia to allocate more resources for privatisation promotion, and also strengthen the existing Veterinary Privatisation and Promotion Unit to enable it develop sound strategies for moving privatisation forward in the SES and other similar areas.

7.2.3 Regulatory Framework

The need to regulate, coordinate and monitor the various animal health service providers on the ground has been identified. Meeting this need will make significant contribution to quality service provision in line with SERECU objectives. In furtherance of this, it is recommended that a Regulatory Unit within the Veterinary Service be established, either at Regional or District levels, to regulate animal health service providers including NGOs and CAHWs. This regulatory Unit should be responsible for working out strategies and modalities of eliminating unethical drugs supply lines.

7.2.4 Staff Reinforcement at the District level

Each District in the SES should have a minimum Government staffing level of one Veterinarian, two Animal Health Assistants and Two Animal Health Technicians. This intervention should be reinforced with matching provision of equipment, facilities and incentives.

7.3 Recommendations Specific to Kenya

7.3.1 Policy Review

A review of policy, responsibilities and effectiveness concerning the delivery of all services supporting the livestock sector in the KS should be undertaken including Animal Health, Meat Inspection, Diagnostic Services, Research and Development, Livestock Production and Marketing, Livestock Industries, Livestock Extension, Education and Training.

7.3.2 Combining Public and Private Good Delivery

The policy of barring Government Veterinary Services from delivering private good animal health and related veterinary services in the KS should be reviewed and a new policy of combining “Private Good” and “Public Good” AHDS functions under the immediate control and co-ordination of the DVOs’ should be considered.

7.3.3 Effective and Continuous Disease Surveillance

An AHDS programme is designed and funded for the SES that will enable Kenya to deploy District Government Veterinary Staff to undertake effective and continuous disease surveillance on all livestock moving into and through the NE Province from Ethiopia and Somalia - to the advantage of the SES as a whole. This programme could

also provide the opportunity to test out novel and strategically adaptive approaches to create a sustainable veterinary service meeting the needs of the pastoralists.

Appendix 8.5.3 outlines some of the elements that might be appropriate for such a programme.

7.4 Recommendations Specific to Somalia

7.4.1 Appointment of a DVS

SERECU to facilitate the creation of a Department of Veterinary Services composed of both field and laboratory services, and the subsequent appointment of a Director of Veterinary Services with supporting staff at Regional and District levels.

7.4.2 Policy/Legal Framework

Facilitate the creation of a legal framework that can operate by consulting with the professional veterinary association, SOWELPA. When the Transitional Federal Government is fully established, it should put in place a policy and legal framework for disease control and related matters,

7.4.3 Declaration Provisional Freedom from Rinderpest on a Zonal Basis

Both Ethiopia and Kenya have declared provisional freedom from Rinderpest on a zonal basis. Using identified and quantified risk factors for Rinderpest surveys so far conducted in Somalia have delineated three zones – Infected, Surveillance and Free. All necessary steps including the appointment of a DVS should be taken to enable Somalia to declare provisional freedom from Rinderpest on a zonal basis in accordance with OIE guidelines.

8. APPENDICES

8.1. Full Terms of Reference

Assessment of Veterinary Delivery Systems in Somali EcoSystem

A Background

The Pan African programme for the Control of Epizootics (PACE) is coordinated by African Union-Inter African Bureau for Animal Resources (AU-IBAR), and funded mainly by the European Commission (EC), that aims at strengthening and establishing sustainable animal disease surveillance in sub-Saharan Africa. The overall objective of the programme is to contribute to the goal of reducing poverty among those involved in stock-farming by improving productivity, thereby improving their livelihood and enhancing food security.

Currently, PACE is at an extension phase whose over-all objective is reduction of poverty and hence food security amongst rural communities through sustainable improvements in animal production and increased trade in livestock and livestock products. The general purpose of PACE extension programme is to enable the achievement of sustainable results in the field of epidemio-surveillance networks, eradication of major epizootics and sustainable improvement of veterinary and livestock services.

The specific objectives are:

- Eradication of Rinderpest from Africa and control of other epizootics.
- Strengthening surveillance of other major epizootics to provide required information for policy formulation of their control as prerequisite for access to global livestock markets.

In order to coordinate all Rinderpest surveillance activities in SES leading to the final Rinderpest eradication, a coordination unit called "Somali Eco-system Rinderpest Eradication Coordination Unit" (SERECU) was established within the PACE programme of AU-IBAR. The purpose for SERECU is development and implementation of a harmonized and coordinated strategy for Rinderpest eradication from the SES.

The expected outputs for SERECU are:

- Somali Eco-system Rinderpest Eradication Coordination Unit established and functioning for technical and logistic supports to National disease surveillance and control systems;
- Rinderpest surveillance systems in the Somali Eco-system coordinated and areas of Rinderpest infection or freedom delineated based on risk assessment approaches as agreed with concerned countries;
- Harmonized Rinderpest eradication approach applied by veterinary delivery systems in the SES.

- Final Rinderpest eradication strategies prepared, endorsed, and coordinated.

One major activity under harmonized Rinderpest approach, which will require much attention, and input is the Strengthening of delivery systems involving private and public veterinarians and veterinary para-professionals. This will require the establishment of a network of veterinary para-professionals that are supervised by private and public veterinarians. The veterinary service delivery system should have the capacity to perform vaccination of the respective areas against Rinderpest and perform the required surveillance and monitoring activities. In addition, and on a continuous basis, the veterinary delivery system will be required to provide its services to meet the needs of the pastoralists, in order to obtain their support for Rinderpest eradication activities.

As a pre-requisite in achieving harmonized Rinderpest eradication approach, there is a need to assess the current and estimate the required capacity of the veterinary services delivery systems in SES. The norm being that the delivery system should be able to perform an area-wide vaccination campaign while at the same time is able to deliver the veterinary services required by the pastoralists on a continuous basis.

Other activities will include:

- Harmonize roles and activities of various actors in the SES through meetings.
- Facilitate policy initiatives to strengthen veterinary service delivery in support of Rinderpest eradication.

Characteristics of the Current Situation

The Somali Eco-system (SES) is a zone occupied by the Somali ethnic community and their livestock and adjacent areas into which these animals are moved for pasture or trade purposes. The Eco-system is presumed to constitute the last foci of Rinderpest in the world and thereby puts the rest of Africa immediately vulnerable to another pandemic. Being so close to global Rinderpest eradication, this threat is the prime reason for eradication of this virus once and for all from Africa and the Globe. In accordance with the epidemiological situation, the SES consists of 27 Woredas of Ethiopia, the surveillance and infected zones of Kenya, and Southern Somalia. The three concerned countries will conduct epidemiological surveillance in the area.

B Description of the Task

❖ Beneficiaries

The primary target group is the livestock owners, mainly pastoralists, inhabiting the SES Eco-system. They will benefit from improved veterinary service delivery. Private sector professionals and para-professionals involved in disease surveillance, delivering animal health care and participating in disease control will also benefit.

❖ Objective

The objective of this study is to evaluate the current and estimate the required capacity of the veterinary services delivery systems in SES.

❖ Requested Services

The consultant will implement the study according to the following guidelines:

Assessment of the Current Situation

The objective is to evaluate the current and estimate the required capacity of the veterinary service delivery systems in Somali Eco-System.

1.1 Technical audit of delivery systems currently in place in SES.

1.1.1 Conduct a census of the Animal health Service Deliverers including:

- Veterinarians (both public, and private).
- Para-professionals in each area of study.
 - Considering their numbers, and geographical distribution.

1.1.2 Evaluate the service providers' in 1.1.1 above abilities to carry out Rinderpest surveillance (both passive and active) within SERECU mandate

- Disease reporting and monitoring.
- Communication to stakeholders.
- Random clinical, serological surveys, and Participatory Disease Search.

1.1.3 In case of veterinary paraprofessionals, determine the following:

- Their numbers.
- Geographical distribution.
- The current status:
 - Number trained (by who and when);
 - Level of training;
 - Number of refresher courses attended since last training;
 - Criteria for selection before training;
 - Literacy levels; duration of training course;
 - Number still active and number not active;
 - Ability to keep records; basic extension and communication skills;
 - Recording keeping and report writing;
 - Identification and reporting of notifiable diseases;
 - Nature of daily work they are involved in;
 - Reasons for being inactive where applicable;

- Number of years they have been working;
- General constraints faced while delivering veterinary services;
- Capacity to perform specified activities related to surveillance under SERECU; and
- Relationship between para-professionals and other Animal Health Service Deliverers.

1.2 Assess the networks (if any) of vet-paraprofessionals that are supervised by private and public veterinarians in the area.

1.3 Assess roles and linkages between the different players in veterinary services currently on ground including the public and private sectors; professional organizations; associations; NGOs; Community Based Organizations; and the communities.

1.4 Identify gaps of service delivery and suggest ways this can be alleviated, particularly how the objectives of SERECU can be achieved in SES

❖ **Expected Results**

The overall expected results are:

- 1 A report giving a clear picture of the current status of animal health service delivery systems in SES produced.
- 2 A report on the assessment of the networks of vet-paraprofessionals that are supervised by veterinarians in SES produced.
- 3 A report on roles and linkages between the different players in veterinary services currently on ground produced.
- 4 Information that will lead to putting in place specific interventions in the local Veterinary Delivery System that contribute to eradication of Rinderpest in SES, and improve Animal Health Service delivery Systems (AHDS) for sustainable livelihood made available taking into account the following:
 - Identification of the major constraints in the current delivery system/s and identification of the main intervention points.
 - Identifying what institutional support the current delivery system requires.
 - Defining ways and means to strengthen the various delivery systems on the ground.
- 5 The final findings will be disseminated to stakeholders during stakeholder's workshops.

Methodology

Three consultants will be contracted. They will be required to carry out the evaluation in the three countries concurrently. The team will be expected to indicate the person going to each country. They will also be expected to appoint amongst them a team leader who will also be the main rapporteur. The team leader will coordinate all the activities as well as the preparation of the final report.

The consultants will work together with staff of SERECU, PACE national coordinators (Kenya and Ethiopia) and Coordinator for SAHSP (Somalia), and other stakeholders on the ground.

The table below show a tentative logical table to be reviewed and amended by the consultants and approved by AU/IBAR/PACE.

Week	Day	Activity
1	0-6	Analysis of documents, preparation and review of a mission plan
	7	Presentation of the mission plan and methodology to AU/IBAR/PACE staff during an inception meeting, indicating clearly how the consultants intend to do the work.
2 and 3	8-21	Mission in the field, interviews, draft report
4	22-24	Compile and finalise report
	25 and 26	Circulate report. Review by AU/IBAR/PACE staff
	27	Wrap up meeting
	28	Finalise report to include commendments

Collection of Information and Analysis

Desk Literature Review

- An exhaustive literature review of existing bibliography on the Veterinary Delivery Systems in SES.
- A detailed assessment of the current situation based on the available information at local and national level concerning Veterinary delivery systems in SES. The consultants will consult the available statistics of the various countries as well as information gathered by projects operating in the area (NGOs, CBOs, PACE) and all other consisted areas.

Interviews

- Interviews of various cadres of AHSDs on the ground including Veterinarians, Para-Veterinarians, and para-professionals.
- Interviews of other stakeholders including Ministries, agencies, professional bodies, CBOs, NGOs, and some members of the community.

Definition and priority setting of proposed interventions

The teams of consultants will:

1. While doing the evaluation, approach will be based on existing guidelines on the evaluation of veterinary services (the OIE guidelines for evaluation of veterinary services Terrestrial Animal Code, 2005, Chapter 1.3.4, and the guidelines prepared by PACE under the OIE regulations Appendixed herewith).
2. Present a preliminary report during a wrap up meeting attended by PACE/SERECU, and other interested actors to share the results of the study (analysis of constraints, identification of the leverage points of interventions,

share of the knowledge brought by the study, clarification of roles and functions of each stakeholder in Veterinary delivery systems). The draft report should be circulated to the participants three days before the wrap up meeting.

❖ **Period of performance**

The period of performance under this assignment is soonest possible. The assignment should not exceed 28 days per consultant. This includes time spend on: pre-study briefing, and literature review; field visits; writing of reports; harmonization of reports from the three countries; de-briefing; workshop; corrections; and final report submission. SERECU will provide logistic support. The consultants will be required to provide their own computers.

❖ **Skills/Qualifications for Consultancy**

The required expertise is as follows:

- Must have a strong Veterinary background.
- Should have undertaken previous related studies/evaluation/assignments in the SES.
- Should have a wealth of experience in working with Communities/CBOs in SES.
- Should be registered with the Veterinary regulatory body in the relevant country.
- Skills in: M & E in livestock related projects; intersectoral synergies and coordination; and strategic planning on organizational audit will be an added advantage.
- Nationals will not evaluate their own countries.

❖ **Technical Direction**

The consultants will be expected to prepare their own methodology note and a final mission plan to be approved by AU/IBAR/PACE during the inception meeting.

❖ **Deliverables**

Completed and accepted audit report on veterinary delivery system in SES; clearly showing what is required in terms of manpower and equipment and how to build accountability into the system.

❖ **Assumption of Risk**

The SES is prone to insecurity. The consultant/s will be required to acknowledge that they accept for themselves, their assignees and legal representatives any and all risks and hazards connected with their consultancy with AU-IBAR or connected with any travel provided by AU-IBAR and AU-IBAR shall in no way be liable for any risks and hazards to the consultant/s and their dependants that may result from any cause whatsoever during the period of consultant's assignment.

8.2. Bibliography

1. Abu Omar, M. and Omar, M. O., (1999). *Health for All by the Year 2000: what about the nomads?* Development in Practice, volume 9, Number 3, May 1999, pp. 310-315.
2. Adan Abdikadir (2000). *Community Based Animal and Human Health Service Delivery. Effects of training one Community Worker for both Animal and Human Health in ASAL Areas. The Case for Wajir, Mandera, Garissa, Mwingi and Isiolo. A Report for Animal Health Provider's Workshop for North Eastern Kenya.*
3. Admassu, B. (2002) *Community Animal Health Development in Ethiopia*, in PACE/ Ministry of Agriculture (2002) Proceedings of the Workshop in 'Setting of Minimum Standards and Guidelines for the Training of CBAHWs, and Rationalization of Veterinary Privatization in Ethiopia'. With FAO and CAPE/OAU-IBAR, pp. 2-15.
4. Admassu, B., Nega, S., (2001) *Animal Health Services Historical Development in Ethiopia* Federal Democratic Republic of Ethiopia, Ministry of Agriculture (March 2002).
5. Admassu. B., 2002. *Participatory Impact Assessment of Community-based Animal Health Delivery Systems in the Afar and North Wollo regions of Ethiopia. Community-based Animal Health and Participatory Epidemiology (CAPE) Unit Report, African Union's Interafrican Bureau for Animal Resources (AU/IBAR), Nairobi, Kenya.*
6. *Arid Lands Development Focus (ALDEF) (2002) Revised Animal Health Needs Assessment Report for Wajir North. Report submitted to AU / IBAR.*
7. Ashley, S.D., Holden, S.J., Bazeley, P. (1996). *The Changing role of Veterinary Services: a Report of a Survey of Chief Veterinary Officers' Opinions. Livestock in Development, Crewkerne.*
8. AU / IBAR (2003) *Private veterinary practice in pastoralist areas of eastern Africa. Report of a Regional Workshop held in Nakuru, Kenya 6-9 August.*
9. AU/IBAR (2003) *Policy on community-based Animal Health workers. AU-IBAR.*
10. AU/IBAR (2005). *Guideline to Prevalence Study on Rinderpest in the Somali Ecosystem. AU/IBAR, Nairobi, Kenya.*
11. AU-IBAR (2003) *Community-based Animal Health Workers in Kenya: A case study of Mwingi District. AU-IBAR Cape.*
12. AU-IBAR / PACE /SERECU: *Proceedings of the Somali ecosystem stakeholders' workshop, 15th -16th June 2006, Nairobi, Kenya.*

13. AU-IBAR / PACE /SERECU: Proceedings of the workshop on second cross-border / 5th technical harmonization meeting, 9th -10th May, 2006, Addis Ababa, Ethiopia.
14. Barret, T. et al (Eds) (2006) "Rinderpest and *Pestes des Petits Ruminants*." Biology of Animal Infections Series. Elsevier Academic Press.
15. Barrett, K. and Okali, C., 1998. Community participation in the management of tsetse. A comparative assessment of impact and sustainability. Report submitted to the Animal Health Programme of the Department for International Development. Overseas Development Group, University of East Anglia.
16. Baumann, M.P.O., 1993. Animal Health Services in Somalia: Can centralised structures meet demand in the field? Pastoral Production in Central Somalia. In: M.P.O. Baumann, J. Janzen and H.J. Schwartz (eds). Pastoral Production in Central Somalia. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Eschborn. pp 299-321.
17. Berhanu Bedane (1999). Consultancy Report of the Draft National Veterinary Policy. Federal Democratic Republic of Ethiopia, Ministry of Agriculture, Animal and Fisheries Resources Development and Regulatory Team, Animal Health, Technology and Regulatory Team. Addis Ababa. 59 pages.
18. Blakeway, S., 1995. Evaluation of the OLS Livestock Program, Southern Sudan. Operation Lifeline Southern Sudan-Southern Sector Livestock Program, UNICEF-OLS, Nairobi.
19. CAHNET (2006) Organisations, Institutions, Agencies and Individuals Involved in Community Animal Health (CAH) and other related activities in Kenya. Farm Africa, Nairobi, Kenya www.cah-net.net.
20. Catley, A. (1999). Community-based Animal Health Care in Somali Areas of Africa: A Review. Organisation of African Unity/Inter-African Bureau for Animal Resources, Nairobi, Kenya. 64 pages.
21. Catley, A., (2002). Monitoring and assessment of community-based animal health projects. In: Catley, A., Blakeway, S. and Leyland, T. (eds.), Community-based Animal Healthcare: A Practical Guide to Improving Primary Veterinary Services. ITDG Publishing, London. pp 183-239.
22. Catley, A., Delaney, P. and McCauley, H. (1998). Community-based Animal Health Services in the Greater Horn of Africa: An Assessment for USAID - Office of Foreign Disaster Assistance in cooperation with the USDA - Famine Mitigation Activity. April - May 1998. OFDA/USAID, Washington D.C. 62 pages.

23. Catley, A.C., Blakeway, S. and Leyland, T. (eds.), (2002). Community-based Animal Healthcare: A Practical Guide to Improving Primary Veterinary Services. ITDG Publishing, London. 360 pages.
24. Catley, AC and Mariner, J. (eds) (2001) Participatory Epidemiology. Lessons Learned and Future Directions. Workshop Proceedings. Addis Adaba. Ethiopia.
25. Catley, AC. and Leyland, T., (2001). Community Participation and the Delivery of Veterinary Services in Africa. Preventative Veterinary Medicine 49, (2001) 95-113.
26. Cheneau, Y., (1985) The organization of veterinary services in Africa. OIE Revue Scientifique et Technologique, 5 (1), 107-15 Cliffe, L. et al (1992). Eritrea 1991: A Needs Assessment Study. Centre of Development Studies, University of Leeds.
27. Cooper, M., 2002. CBAH and the Law.: In: The IDL Group (eds) Community Based Animal Health Workers –Threat or Opportunity, The IDL Group, Crewkerne, Somerset, UK.
28. CTA (1997). Livestock Development Policies in Eastern and Southern Africa. Proceedings of a Seminar organized by CTA, OAU/IBAR and the Ministry of Agriculture and Cooperatives, Swaziland. CTA.
29. Daborn, C., Njau, P., Wood, S. and Martin, M. (eds) 1998. Delivery of Animal Health Services in Eastern Africa: Proceedings of the Workshop held at the MS Danish Centre, Usa River, Arusha 14th – 18th Dec. 1998.
www.vetaid.org/publications/arusha98/index.htm.
30. De Haan, C., and Nissen, N.J. 1985. Animal Health Services in Sub-Saharan Africa: Alternative approaches. Washington, D.C.: World Bank.
31. De Haan, C., Bekure, S., (1991) Animal Health Services in sub-Saharan Africa: Initial Experiences with New Approaches. ALPAN Network Paper No. 29, ILCA, Addis Ababa.
32. De Haan, C., Nissen, N.J., (1985) Animal health Services in Sub-Saharan Africa: Alternative Approaches. World Bank Technical Paper No. 44.
33. De Waal, A. (1991). Evil Days: 30 Years of War and Famine in Ethiopia. Human Rights Watch
FAO (1994). Structural Adjustment and the Provision of Agricultural Services in Sub-Saharan Africa. Food and Agriculture Organization of the United Nations, Rome.
34. Delgado, C.L., Rosegrant, M.W., Steinfeld, H., Ehui, S., Courbois, C. (March 1999). The Growing Place of Livestock Products in World Food in the 21st Century. Markets and Structural Studies Division, IFPRI.

35. Dulu, T.D., (June 2000). Department of Veterinary Services Strategy for Animal Health Services Delivery for the Participating Districts in North Eastern Province Kenya (Mandera, Wajir, Garissa and Tana River) in OAU/IBAR, PARC-VAC (June 2000). Stakeholders Workshop on Community-Based Animal Health Care in the North Eastern Province, Tana River district and Southern Somalia – The Way Forward.
36. Ethiopia Veterinary Association: capacity strengthening / building and partnership for enhanced animal health services provision and development in Ethiopia, proceedings of the 18th annual conference of the Ethiopia Veterinary Association (EVA), Addis Ababa, 9th -10th June, 2004.
37. Federal Democratic Republic of Ethiopia, Ministry of Agriculture & Rural Development, Addis Ababa: Veterinary Services Delivery System (Draft), June 2004.
38. Federal Democratic Republic of Ethiopia, Ministry of Agriculture & Rural Development, Addis Ababa: national minimum standards and guidelines for design and establishment of community-based animal health workers system, 2004.
39. Federal Democratic Republic of Ethiopia, Ministry of Agriculture & Rural Development, Animal Health Services Department, Addis Ababa: trainer's manual for design and implementation of community-based animal health workers course in Ethiopia, January 2006.
40. Government of Kenya, Ministry of Agriculture (1998) Improved Delivery of Animal Health Services in Kenya. European Commission & Consortium BECOM/SATEC Development International, Volume I Government of Kenya.
41. Grace, D. and Muraguri, P. (Eds) (2001) Privatised Animal Health Services in ASAL Areas: Feasibility and Business Planning. Workshop Proceedings. OAU-IBAR Cape Unit.
42. Grace, D., (2001). A Perspective on Community-based Animal Health in Chad: Situational Analysis, Context and Opportunities for Collaboration. Community-based Animal Health and Participatory Epidemiology (CAPE) Unit Report, African Union's Interafrican Bureau for Animal Resources (AU/IBAR), Nairobi, Kenya.
43. Hadgu, K., (2002) Current status of community based animal health programme (CBAHP) in Ethiopia in PACE/Ministry of Agriculture (2002) Proceedings of the Workshop in 'Setting of Minimum Standards and Guidelines for the Training of CBAHWS, and Rationalization of Veterinary Privatization in Ethiopia'. With FAO and CAPE/OAUIBAR, pp 16-21.
44. Hadrill, D., Catley, A. and Iles, K., 2002. Getting Started. In: Catley, A., Blakeway, S. and Leyland, T. (eds.), 2002. Community-based Animal Healthcare: A Practical

45. Halpin, B. 1981. Vets - Barefoot and otherwise. Pastoral Network Paper No. 11c, Overseas Development Institute, London.
46. Heffernan, C., Misurelli, F. (2000) The Delivery of Veterinary Services to the Poor: Preliminary Findings from Kenya. VEERU/DFID.
47. Holden, S., 1997a. Community-based Animal Health Workers in Kenya: Example of private delivery of animal health services to small scale farmers in marginal areas, Livestock in Development / DfID Policy Research Programme R6120CA.
48. Holden, S., 1997b. Wajir Pastoral Development Project. Final report on an Assessment of Economic Impact. Oxfam – GB& Ireland / Livestock in Development reports, Crewkerne.
49. Hoste C. (1997). Current Livestock Policies in Eastern and Southern Africa. Livestock Development Policies in Eastern and Southern Africa. Proceedings of a Seminar organized by CTA, OAU/IBAR and the Ministry of Agriculture and Cooperatives, Swaziland. CTA.
50. Hübl K.; Gathuma J. M. and Kajume J. K. (1998). Improved Delivery of Animal Health Services in Kenya. Volume 1.
51. IDL. 2002. Community Based Animal Health Workers -Threat or Opportunity, The IDL group (eds), publishers the IDL Group, P.O. Box 20, Crewkerne.
52. IIED (1996). Participation, Policy and Institutionalisation. PLA Notes Number 27.
53. Intermediate Technology Development Group/PARC-VAC/SNV (May 1999) Proceedings of the Eighth Decentralised Animal health Workshop: Practice, Policy and the Law in the Delivery of Animal Health Services Particularly in Arid and Semi Arid Lands (ASAL).
54. Isiaho, R. et al (2004) Viable Practice Units and Promotion of Sustainable Privatised Animal Health Services. A Report for KVAPS by FIT Resources, Nairobi.
55. Issues Arising from the NGO Response. ACORD/IIED Drylands Programme PACE.
56. Jones, B.A., Deemer, B., Leyland, T.J., Mogga, W. and Stem, E. (1998). Community-based animal health services in southern Sudan: the experience and future. Proceedings of the 9th International Conference of Association of Institutes of Tropical Veterinary Medicine (AITVM), 14th-18th September, 1998, Harare. 107-133.

57. Kaberia, B.K. (1999) Farm Africa's Experiences, in Intermediate Technology Development Group/PARC-VAC/SNV (May 1999), pp 47-53.
58. Kaberia, B.K., (1998). Meru Tharaka Nithi Dairy Goat and Animal Health Care Project: Private and Community-based Animal Health Care Service in Meru and Tharaka Nithi, Kenya. In: Daborn, C., Njau, P., Wood, S. and Martin, M. (eds) 1998. Delivery of Animal Health Services in Eastern Africa: Proceedings of the Workshop held at the MS Danish Centre, Usa River, Arusha 14th – 18th Dec. 1998. Unpaginated electronic document available at www.vetaid.org/publications/arusha98/index.htm
59. Kagonyera M. (1997). Prospective for Regionally Co-ordinated Agricultural Development Policies. Livestock Development Policies in Eastern and Southern Africa. Proceedings of a Seminar organized by CTA, OAU/IBAR and the Ministry of Agriculture and Cooperatives, Swaziland. CTA.
60. Kajume J. K. and Muthee A. M. (1997). Livestock Development Policies in Eastern and Southern Africa. Proceedings of a Seminar organized by CTA, OAU/IBAR and the Ministry of Agriculture and Cooperatives, Swaziland. CTA.
61. Kajume, J.K. (1999) Delivery of Animal Health Services in ASALs versus High Potential Areas: Status of the Art, in Intermediate Technology Development Group/PARC-VAC/SNV (May 1999), pp. 18- 22.
62. Kajume, J.K. (1999). Community-based animal health services in Kenya: justified or not? In: Practice, Policy and the Law in the Delivery of Animal Health Services in Arid and Semi-arid Lands. Proceedings of the Eight Decentralised Animal Health Workshop, May 17-21, 1999. ITDG/PARC-VAC/SNV, Nairobi. 37- 41.
63. Kamau, J.K. et al. (2003) Veterinary Practitioners Bill 2002 and Community Based Animal Health Delivery Systems. Workshop Proceedings. Kunste Hotel, Nakuru. DVS/ KVB / AU-IBAR-CAPE.
64. Kassa, G., (2000) An Overview of Government Policy Interventions in Pastoral Areas: Achievements, Constraints and Prospects in Pastoralist Forum Ethiopia (2000) Proceedings of the National conference on Pastoral Development in Ethiopia, pp. 59-78.
65. Kenya Veterinary Board. "Minimum Standards and Guidelines for Training community-based Animal Health workers. KVB. Nairobi. Kenya.
66. Keter, S., (May 1999) The Experience of Intermediate Technology Group in Decentralised Animal Health: History and Impact. IT-Kenya in Intermediate Technology Development Group/PARC-VAC/SNV (May 1999), pp. 23-29.
67. Kitaw, T. (2002) The current situation of private veterinary practice in Ethiopia in PACE/ Ministry of Agriculture (2002) Proceedings of the Workshop in 'Setting of

Minimum Standards and Guidelines for the Training of CBAHWs, and Rationalization of Veterinary Privatization in Ethiopia'. With FAO and CAPE/OAU-IBAR, pp 51-56.

68. Kloos, H., (1998) **Primary Health Care in Ethiopia under Three Political Systems: Community Participation in a War-Torn Society.** *Social Science and Medicine*, 46, Nos. 4-5, pp. 505-522.
69. Leidl, K. 1996. **Development of Primary Animal Healthcare Systems: Examples based on the animal health project in northeast Thailand and basic animal health service project in northern Malawi in:** Zimmerman, W., Pfeiffer, D.U. and Zessin, K.H. (eds.) **Primary Animal Health Activities in Southern Africa.** Proceedings of an International Seminar held in Mzuzu, Malawi, 26 February to 8 March 1996, German Foundation for International Development, Food and Agriculture Centre, Feldafing. 14.
70. Leonard, D.K., 2000. **The New Institutional economics and the Restructuring of Animal Health Services in Africa.** In: D.K. Leonard (ed), **Africa's Changing Markets for Health and Veterinary Services: The New Institutional Issues.** St. Martin's Press, New York. pp 1-39.
71. Leonard, D.K., Koma, L.M.P.K., Ly, C., Woods, P.S.A., (1999) **The new institutional economics of privatising veterinary services in Africa.** *OIE Revue Scientifique et Technologique*, 18 (2), 544-561.
72. Leyland, T., 1996. **The case for a community-based approach with reference to southern Sudan.** In: **The World Without Rinderpest.** FAO Animal Health and Production Paper 129, 109-120.
73. Leyland, T., Akabwai, D. and Mutungi, P. 1998. **Delivery of Private Veterinarian Supervised Community-Based Animal Health Services To Arid And Semi Arid Pastoralist Areas – Are They A Viable And Sustainable Option?** In Daborn, C. Njau, P., Wood, S. and Martin, M. (eds) 1998. **Delivery of Animal Health Services in Eastern Africa: Proceedings of the Workshop held at the MS Danish Centre, Usa River, Arusha 14th – 18th Dec. 1998.**
74. **Livestock in Development. (1998). Strategies for Improving DFID's Impact on Poverty Reduction: A Review of Best Practice in the Livestock Sector.** DFID Natural Resources Policy and Advisory Department.
75. Ly, C., 2000. **Management and the impact of auxiliaries on pastoral production and veterinary services in Senegal.** In: D.K. Leonard (ed) **Africa's Changing Markets for Health and Veterinary Services: The New Institutional Issues.** St. Martin's Press, New York, USA.

76. Ly, C., 2002., *The Economics of Community-based Animal Health Workers.* : In: The IDL Group (eds), *Community Based Animal Health Workers -Threat or Opportunity*, The IDL Group, Crewkerne (in print).
77. MacMillan S (Ed). (1985) *Wildlife/Livestock Interfaces on Rangelands. Proceedings of a conference held at Taita Hills Lodge, Kenya April 22-25, 1985.* Winrock International.
78. Majok, A. A., Schwabe, C. (1994). *Development among nomadic and transhumant peoples in Africa: A practical paradigm for local actions.*
79. Mariner, J.C. (2001). *Manual on Participatory Epidemiology. Methods for the Collection of Action-Oriented Epidemiological Intelligence.* FAO Animal Health Manual No. 10, ISBN 92-5-104523-2. FAO, Rome, Italy.
80. Mariner, J.C., 1996. *The World Without Rinderpest: Outreach to Marginalised Communities.* In: *The World Without Rinderpest.* FAO Animal Health and Production Paper 129, 97-107.
81. Mariner, J.C., 1996. *The World Without Rinderpest: Outreach to Marginalised Communities.* In: *The World Without Rinderpest.* FAO Animal Health and Production Paper 129, 97-107.
82. Mariner, J.C., 2000. *Manual on Participatory Epidemiology.* FAO Animal Health Manual No. 10. Food and Agriculture Organisation, Rome.
83. Mariner, J.C., 2002. *Community Animal Health Workers and Disease Surveillance.* In: Catley, A., Blakeway, S. and Leyland, T. (Eds) *Community-based Animal Health Care: – A practical Guide to Improving Veterinary Services*, Intermediate Technology Publications, London, pp 240-272.
84. Mariner, J.C., Akabwai, D., Leyland, T.J., Lefevre, P.C. and Masiga, W.N., 1994. *Strategy for the Eradication of Rinderpest from Africa with Thermostable Vero Cell-adapted Rinderpest Vaccine.* Proceedings of the International Symposium on Morbillivirus Infections. Hannover Veterinary School, Germany, 12-13 June 1994.
85. Mariner, J.C., McDermott, J., Heesterbeek, J.A.P., Catley, A. and Roeder, P. (2005). *A model of lineage-1 and lineage-2 Rinderpest virus transmission in pastoral areas of East Africa.* *Preventive Veterinary Medicine*, 69, 254-263.
86. Mbogo, D.E. (May 1999), *The role of the Kenya Veterinary Board in Intermediate Technology Development Group/PARCVAC/SNV (May 1999)*, p. 29.
87. McCorkle, C.M., 2002. *Community-based Animal Health Workers: The Story So Far.* In: The IDL Group (eds) *Community Based Animal Health Workers -Threat or Opportunity*, The IDL Group, Crewkerne.

88. Mekonnen, G. (2001) Working with Community Based Animal Health Workers and Private Veterinary Pharmacies/Clinics. Proceeding of a Border Harmonization Workshop, 9-11 July, 2001, Garissa, Kenya. OAU/IBAR/PACE.
89. Mesfin, T., (2000) An Overview and Analysis of the History of Public Policy Towards the Development of Pastoralism in Ethiopia, in Pastoralist Forum Ethiopia (2000) pp 35.43 Ministry of Agriculture.
90. Minear, L., 2002. Pastoralist Community Harmonization in the Karamoja Cluster: Taking it to the Next Level. Feinstein International Famine Center, Friedman School of Nutrition Science and Policy, Tufts University, Medford.
91. Ministry of Agriculture and Rural Development (September 2001) Harmonized Proceedings of Regional grassroot Stakeholders Workshops on the Review of Policies and Laws relating to the Delivery of Veterinary Services and the Management of Animal Health Products and Marketing.
92. Ministry of Agriculture and Rural Development, Kenya (2001). Harmonized Proceedings of Regional Grassroot Stakeholders Workshops on the Review of Policies and Laws Related to the Delivery of Veterinary Services, and Management of Animal Health Products and Marketing. OAU/IBAR.
93. Ministry of Finance and Planning (March 2001). On Poverty Reduction. Pastoralist Thematic Group Government of Kenya.
94. Nalitolela, S., Allport, R., Ndanu, H., Shongon, L., 2001. Impact of animal health improvement on food security of a pastoralist community in Simanjiro District. Proceedings of the 19th Tanzania Veterinary Association Annual Scientific Conference, Arusha, December 2001.
95. Nega, S., (2002a) A guide to rationalizing veterinary services in Ethiopia in PACE/Ministry of Agriculture (2002) Proceedings of the Workshop in 'Setting of Minimum Standards and Guidelines for the Training of CBAHWs, and Rationalization of Veterinary Privatization in Ethiopia'. With FAO and CAPE/OAU-IBAR, pp. 70-94.
96. Nega, S., (2002b) Setting of minimum standards and guidelines for the training of Community based animal health workers (CBAHWs) in Ethiopia: a discussion paper, in PACE/Ministry of Agriculture (2002) Proceedings of the Workshop in 'Setting of Minimum Standards and Guidelines for the Training of CBAHWs, and Rationalization of Veterinary Privatization in Ethiopia'. With FAO and CAPE/OAU-IBAR, pp. 22-39.
97. Ngugi, W. (Ed) "A Guide for Trainers of Community – Based Animal Health Workers' in Kenya." Department of Veterinary Services. MOLFD, Nairobi, Kenya.

98. Oakley, R., 1998. Experiences with Community-based Livestock Worker (CLW) Programmes, Methodologies and Impact: A Literature Review. Veterinary Epidemiology and Economics Research Unit, Department of Agriculture, University of Reading, Reading.
99. Oakley, R., Dasebu, S. and Escrivao, R (2002) The Safe Administration of Medicines. Can CBAHWs Be Trusted? In: The IDL Group (eds.) Community Based Animal Health Workers - Threat or Opportunity? The IDL Appendix 3. Bibliography page 2 Group, Crewkerne, Somerset, UK.
100. OAU/IBAR (2001) Community-Based Animal Health and Participatory Epidemiology (CAPE) Unit (publicity brochure).
101. OAU/IBAR (September 1999). Proceedings and Recommendations: Policy Harmonisation Workshop for Directors of Veterinary Services– West, Central and Eastern Africa. Mombasa, Kenya.
102. OAU/IBAR, PARC-VAC (June 2000). Stakeholders Workshop on Community-Based Animal Health Care in the North Eastern Province, Tana River district and Southern Somalia – The Way Forward.
103. OAU/IBAR. PACE-OAU/IBAR (2001). Dryland Myths: Policies That Hurt Pastoralists. Policy Briefing Paper no. 7.
104. OAU/IBAR. PACE-OAU/IBAR (2001). Towards Pro- Pastoralist Policies in Africa. Policy Briefing Paper no. 8. OAU/IBAR.
105. OAU/IBAR. PACE-OAU/IBAR (2001). Veterinary Privatization. Policy Briefing Paper no. 5.
106. Odeyemi, I.A., 1996. Location-allocation modelling of veterinary services in Africa: A case study of Zimbabwe. Institute of Ecology and Resource Management, Edinburgh University.
107. Odhiambo, O., Holden, S., and Ackello-Ogutu, C. (1998). Oxfam Wajir Pastoral Development Project: An Economic Assessment. Oxfam UK/Ireland, Nairobi.
108. OIE, Editorial from the Director General: the role of private veterinarians and veterinary para-professionals in the provision of animal health services.
109. Okwiri, F.O., Kajume, J.K. and Odondi, R.K., 2002. An assessment of the economic viability of private animal health service delivery in pastoral areas of Kenya, (CAPE) Unit, OAU/IBAR, Nairobi.

110. Oxby, C. (September 1989). African Livestock-Keepers in Recurrent Crisis: Policy.
111. Oxby, C. (September 1989). African Livestock-Keepers in Recurrent Crisis: Policy Issues Arising from the NGO Response. ACORD/IIED Drylands Programme.
112. PACE-OAU/IBAR (2001). Africa Needs Animals. Policy Briefing Paper no. 1. OAU/IBAR.
113. PACE-OAU/IBAR (2001). Community-based Approaches in Livestock Development: The Means and the End. Policy Briefing Paper no. 9.
114. PACE-OAU/IBAR (2001). Policies That Help Livestock Trade. Policy Briefing Paper no. 3.
115. PACE-OAU/IBAR (2001). The Livestock Revolution and Opportunities for Africa. Policy Briefing Paper no. 2. OAU/IBAR.
116. PACE-OAU/IBAR. "Cross-border Issues related to the provision of Animal Health services with reference to Kenya, Uganda, Ethiopia, and Tanzania". AU-IBAR.
117. Pastoral Extension Team (2001) Pastoral Community Development in Ethiopia. FAO/World Bank Ministry of Agriculture.
118. Pastoralist Forum Ethiopia (2000) Proceedings of the National Conference on Pastoral Development in Ethiopia.
119. Pastoralist Forum Ethiopia (2001) Proceedings of the Second National Conference on Pastoral Development in Ethiopia: Poverty Reduction Strategy and Pastoral Development.
120. Pastoralist Parliamentary Group (2003). Strengthening Market Orientated Livestock Production and Health in Pastoralist Areas. Workshop Proceedings. Safari Park Hotel. 15-16th August 2003. Community-based Livestock Initiative Programme.
121. Preker, A. S., Harding, A., Girishankar, N., (August 1999). The Economics of Private Participation in Health Care: New Insights from Institutional Economics. World Bank/International Social Security Association.
122. Riviere-Cinnamond A and Eregae M (2003) Community Based Animal Health Workers (CAHWs) in Pastoralist Areas of Kenya. Report submitted to the AU / IBAR.

123. RWA International/Network UK (2000). Pastoral Livelihoods in the Greater Horn of Africa: Appraisal Mission Final Report. DFID Rural Livelihoods Department, London.
124. RWA International/Network UK (April 2000). Pastoral Livelihoods Programme Appraisal Mission. Annex 3: Animal Health Service Delivery in Pastoral Areas of the Greater Horn of Africa. Final Report. DFID.
125. Rwambo, P., (May 1999) Delivery of Animal Health Services in Arid and Semi-Arid Lands (ASALs): Professional, Policy and Legal Considerations in Intermediate Technology Development Group/PARC-VAC/SNV (May 1999), pp.30-33.
126. SAHSP (2006a). Follow-Up Investigation of the Rinderpest (RP) Situation in Central and Southern Somalia. Somali Animal Health Services Project – Technical Report. Terra Nuova - East Africa, Nairobi, Kenya.
127. SAHSP (2006b). Participatory Disease Search and Purposive Surveillance for Rinderpest (RP) in Central and Southern Somalia. Somali Animal Health Services Project – Technical Report. Terra Nuova - East Africa, Nairobi, Kenya.
128. Shankland, A., (2000). Analysing Policy for Sustainable Livelihoods. IDS. Research Report No. 49.
129. Silkin, T. and Kasirye, F. (2002) Veterinary Services in the Horn of Africa: Where Are We Now? A review of animal health policies and institutions focussing in pastoral areas. A report for AU-IBAR. PACE-CAPE.
130. Sones, K. and Catley, A.(Eds). (2002) Primary Animal Health Care in the 21st Century: shaping the rules, policies and institutions. An International Conference held in Mombasa, Kenya 15-18 October 2002. AU-IBAR.
131. Stem C., and Sode I. O. (1999). Towards Sustainable Human and Animal Health-Care for the Underserved Areas of Moyale, Marsabit and Samburu Districts. A Final Report for FARM Africa and GTZ. Somalia.
132. Tambi, E. and Onesmus, M (2005) Patterns of change in Beef Production and Consumption in Africa. AU-IBAR. PACE.
133. Tambi, E. and Onesmus, M. “Delivery of Livestock Services: Some experiences from Sub-saharan Africa. AU-IBAR. PACE.
134. Tambi, E. et al (2005) Ex-ante Economic Analysis of Animal Disease Surveillance. AU-IBAR, PACE, EU.

135. Tempia, S. (2006). The Dynamics of Rinderpest in Nomadic Pastoral Systems: The Somali Surveillance Example. PhD Thesis, Colorado State University, Fort Collins, USA, 234 p.
136. Terra Nuova (1999). Pan-African Rinderpest Vaccination Campaign – Somali Component, Phase I – Final Project Report. Terra Nuova - East Africa, Nairobi, Kenya.
137. Terra Nuova (2001). The Itinerant Training Programme for Somali Veterinary Professionals, Phase II – Final Project Report. Terra Nuova - East Africa, Nairobi, Kenya.
138. UNICEF/UNSO (November 1992). Pastoralists at a Crossroads: Survival and Development Issues in African Pastoralism. Nomadic Pastoralists in Africa.
139. Veterinary Services Department Ethiopia (1992) Private Veterinary Practice and Drug Handling: Criteria and Regulations Ministry of Agriculture.
140. Veterinary Services Department Ethiopia (2001) Proclamation to Provide for the Control of Animal Diseases (draft).
141. Woodford, J. (Ed.). (2000). Proceedings of a Workshop to Formulate a Legal Framework for the Provision of Animal Health Services by Community-based and other Paraveterinary Personnel in Tanzania, 27-31 March, 2000, Morogoro. United Republic of Tanzania, Ministry of Agriculture and Co-operatives, Division of Livestock Development/ DFID Animal Health Services Project – Mwanza/ Paul Shapiro Associates. 98 pages.
142. Young, J. and Woodford, J., 2002. The rules of the game and how to influence policy. In: Catley, A., Blakeway, S. and Leyland, T. (eds), Community-based Animal Health Care: A Practical Guide to Improving Veterinary Services, Intermediate Technology Publications, London. pp 273-309.
143. Young, J. et al. (2003) “Animal Health Care in Kenya”. Working Paper 214. ODI. London.

8.3. Livestock Development Plan for SES

1. A review of all relevant reports/ publications concerning the Livestock Sector in the SES going back 50 years is catalogued with both hard and electronic copies. The latter compiled on a CD and posted on the AU-IBAR web site.
2. A review of all current and prospective development plans for the Livestock Sector in the SES to highlight gaps and weaknesses that need to be addressed.

3. Taking account of 1 and 2 above the design a multi-faceted, holistic and unified Livestock Development Plan tailored to the SES that will establish current and realise the full potential value of livestock production including:
 - Strengthening of the Livestock Marketing Council.
 - Legal and enforceable framework embracing all Livestock Service Providers.
 - Livestock Marketing Strategy.
 - Livestock Production Strategy.
 - AHDS Strategy to control epidemic, endemic and public health disease.
 - Disease Surveillance and Monitoring.
 - Rangeland and Water Conservation.
 - Livestock / Wildlife integration.

4. The Operation of Livestock Services in the SES should take particular account of the need for:
 - Applied Research and linkage to Blue Sky Research where appropriate.
 - Promotion of ASAL adapted breeds ie the Camel.
 - Laboratory Services.
 - Logistics and Procurement.
 - Vaccine production.
 - Remote sensing for livestock counts and natural resource management.
 - Appropriate Technologies for Rural Livestock Products.
 - Respect for and use of Indigenous ASAL Knowledge.
 - Pastoral Representative Bodies.
 - Training at professional, para-professional and community levels.
 - Incentives and improved remuneration for staff working in the ASAL.
 - Education and recruitment of livestock service providers indigenous to ASAL.
 - Transport.
 - Communications / Internet Access.
 - Trans-boundary disease control harmonisation.
 - Application of appropriate modern technologies, ie electronic chips for identification.

5. Ensuring the Sustainability of Livestock Services will be addressed by:
 - Review of Privatisation Policy.
 - Review of Income Earning Opportunities.
 - Review of Livestock Service Activities not currently under MoLFD.
 - Review of Livestock Sector Taxation.
 - Curtailing the loss of revenue from the sector to middlemen and other players.
 - Opportunities for value adding to the livestock sector eg export market.

8.4. Ethiopia

8.4.1 Work Programme / Itinerary - Dr Julius Kajume

Date	Locality	Activity
9-07-2006	Nairobi, Kenya Addis Ababa, Ethiopia	<ul style="list-style-type: none"> • Departure • Arrival
10-07-2006	Addis Ababa	<ul style="list-style-type: none"> • Briefing session with PACE coordinator • Review the programme • Meet DVS, Ethiopia • Meet epidemiologist
11-07-2006	Addis Ababa	<ul style="list-style-type: none"> • Meet other relevant Government officers, especially those responsible for: disease control and laboratory services, • Meet organizations and institutions based in Addis Ababa involved in animal health. They include SC-USA, a vet pharmacy, SC-UK, vet clinics-both private and public, FARM-Africa,
12-06-2006	Addis Ababa	<ul style="list-style-type: none"> • Meet relevant professional associations (e.g. Ethiopia Veterinary Association), development agencies (e.g. FAO) and key informants • Prepare for field trip –to Somali regional state
13-06-2006	Travel to Awassa	
14-06-2006	Travel to Negele Borena	
15-06-2006	Travel to Filtu	<ul style="list-style-type: none"> • Meet Filtu woreda veterinary officer / animal health staff • Meet livestock keepers • Meet community animal health workers • Meet an NGO involved in animal health • Meet any other stakeholder involved in animal health
	Travel to Dollo town	
16-06-2006	Dollo Odo woreda	<ul style="list-style-type: none"> • Meet relevant players and stakeholders including the Dollo Odo woreda veterinary officer, livestock keepers, private vets and CAHWs, • visit a vet pharmacy, a vet clinic, satellite lab • meet or visit any other relevant key informant or organization, e.g. PCDP
17-06-2006	Dollo Bay woreda	<ul style="list-style-type: none"> • Meet relevant players and stakeholders including the Dollo Bay woreda veterinary officer, livestock keepers, private vets , NGOs and CAHWs, • visit a vet pharmacy, a vet clinic • meet or visit any other relevant key informant or organization
18-06-2006		<ul style="list-style-type: none"> • Continue with activities above • Meet CAHWs Association • Woreda pharmacy Board
19 th , 20 th and 21 st July 2006	Travel to Addis Ababa	
22 nd July 2006	Addis Ababa	Wrap up meeting with PACE coordinator and departure for Nairobi.

Comments:

1. The main area of focus is Dollo Ado.
2. The journey from Addis Ababa to Dollo town is estimated to take 2.5 days, covering a distance of approximately 1000 kms and mainly on rough road.

8.4.2 Key Informants / Persons Met

Name	Organization	Contact
1. Dr. Sileshi Zewdie	Director, Department of Animal Health Services – Ethiopia	P.O. Box 62347 Addis Ababa nat.pace@yahoo.com
2. Dr. Amsalu Demisse	Veterinary Epidemiology Unit, Department of Animal Health Services – Ethiopia	P.O. Box 62347 Addis Ababa nat.pace@yahoo.com
3. Amare Dejenu	PACE (Epidemiologist), department of animal health services – Ethiopia	P.O. Box 62347 Addis Ababa amaredejenu@yahoo.com
4. Dr. Zerihun Negatu	Vet Privatisation and Promotion Office ((VPPO), Department of Animal Health Services – Ethiopia –	P.O. Box 62347 Addis Ababa Jbzg2000@yahoo.com
5. Tegegn Gudeta	Oromia Pastoralist Area Development Commission, Animal Resource and Veterinary Services Development Department	Tel: 0916829379 / 011-122-9163 Fegegngudeta@yahoo.com
6. Abebe Welde	Deputy Commissioner, Oromia Pastoralist Area Development Commission	0911 389064 011122 91 71
7. Fayisa Tefa	Rural Development Head, Oromia Pastoralist Area Development Commission	091 1391908 011 1229168
8. Dr. Laike M Yigezu	President ,Ethiopia Veterinary Association – (EVA)	laikemay@yahoo.com mobile: 25191 685326
9. Dr. Mesfin Ayele	Program Manager – Pastoral Livelihoods Initiative (PLI), FARM-Africa.	Tel: 251-1-553415 / 558971 Mobile: 251-9-605994 mesfina@ethionet.et
10. Dr. Amanuel Kassie	PLI Coordinator FARM-Africa	Amanuel-kassie@yahoo.com Tel: 0911 405276
11. Dr. Bayou Aberro	ACF – Action Against Hunger	aict@etaicnet.et
12. Julien Chalimband	ACF – Action Against Hunger (Action Contre la Faim)	Acf.foodsecurity@gmail.com 0911 947195
13. Dr. Melesse Nadew	Vaccine Production Dept. Manager, National Veterinary Institute, Debre Zeit	Tel: 251-1-338411 Nvi-rt@ethionet.et melessenadew@yahoo.com
14. Dr. Solomon Nega	Consultant for FAO on livestock	Tel: 0911 408148 airp_s@etionet.et
15. Nur Ali	Pastoralist Concern Association Ethiopia – PCAE project manager	Filtu P.O. Box 105, Negele, Ethiopia 0116 180307 / 186778
16. Abdi Assack Sadi	CAHW	Filtu
17. Aleson Ali Birik	CAHW	Filtu
18. Mesfin Asefa Tesema	Veterinary Assistant, Filtu	Ministry of Agriculture & Rural Development, Filtu
19. Gabo Birique	Livestock owner	Filtu
20. Abdi Abdille	Livestock owner	Filtu
21. Hashim Abdille Abdi	SC/USA Marketing & Early Warning Officer, Dollo Ado	Tel: 0464 490025/29 0464 490046 hashimibander@yahoo.com
22. Dr. Alemayeu Tadesse	Dollo Ado District / Woreda Vet Officer – Department of Agriculture	Tel: 0464490069
23. Aden Guliye	Animal Health Technician, Dollo Ado Vet Office, Department of Agriculture	
24. Mahdi Mohamud	Cooperatives & Natural Resources Officer – Department of Agriculture, Dollo Ado	
25. Mohamed Yusuf Ebrahim	CAHW	Dollo Bay
26. Mohamed Abdi Noor	Livestock owner	Dollo Bay
27. Yusuf Ahmed Ileye	Dollo Bay Agricultural Head / Chief, Department of Agriculture	Dollo Bay
28. Mowlio Ali Abdi	District Health Head, Dollo Bay	Tel: 0464 490004
29. Shine Ebrahim	Juba Veterinary Drugs shop, Dollo Ado	Tel:0464 490090

Adan		
30. Dr. Tesfaye Rufael	Asella Regional Vet Lab.	P.O. Box 212, Asella, Ethiopia. Tel: 0911764972 rufaelc@yahoo.com
31. Dr. Yonis Abdurahaman	Dire Dawa Regional Vet Lab	
32. Dr. Tefera	Veterinary Meat Inspector, Department of Animal Health Services, Addis Ababa – Ethiopia	P.O. Box 62347 Addis Ababa

8.4.3 NGOs & Other Organizations Involved in AHSD in the Region

Name of Organization	Sites of Intervention	Remarks
1. SCF UK	Jijiga, Shimile, Fiq zone	CAHWs training and promotion of Privatisation
2. SC USA	Liben, Afder, Gode Zone	CAHWs training and basic vet service
3. HCS	Shinile zone	CAHWs training and basic vet service
4. HI	Erer district	CAHWs training and basic vet service
5. Oxfam GB	Harshin district	CAHWs training and promotion of privatisation
6. ACF	Warder, Qorahe	CAHWs training and basic vet service
7. SCAHP of AU/IBAR	Bare district	CAHWs training and promotion of privatisation
8. LVIA	Moyale	CAHWs training and infrastructure development
9. PCAE	Liben, Afder	CAHWs training and infrastructure development
10. CDSE	Jijiga Zone	CAHWs training and basic vet service
11. PCDP	Jijiga, K/beyah, Aysha, Shinile, Kefalo, Dollo ado Chereti, K/dahar, Degahabur district	CAHWs training and infrastructure development
12. ICRC	Gode, Degahabur, K/dahar, Afder zones	Community awareness and emergency basic vet intervention
13. PADP	K/beyah, Gode, Dollo district	Basic veterinary services and Infrastructure development
14. COOPI	Liben	Infrastructure development (phased out)
15. IRC (NEW)	Degahabur and Qorahe zones	CAHWs training and basic vet service
16. HFH	Gashamo and Aware districts	(Local NGO) Training of CAHWs
17. UNISOD (New)	Denbel district	(Local NGO) Training of CAHWs
18. OWDA	Fiq Degahabur, Gode and Qorahe	(Local NGO) Training of CAHWs
19. FAO	In hot spot districts	Supply of vet inputs for emergency intervention & training of CAHWs & professionals
20. CCM	Gode	CAHWs training (phased out)

8.5. Kenya

8.5.1 Field Trip Itinerary

July 2006	Activity	Days
6-8	Visits to DVS, Deputy DVS Admin, KVB, KVA, KVAPS, NGO's	3
9-10	Travel to Garissa - Meeting and discussions with Provincial Vet Officer NE Region and DVO Garissa	2
11	Travel to Ijara in company with AHA Garissa – Visit Provincial Vet Laboratory and meeting with Ijara DVO and District Vet personnel	2
12	Travel to Garissa - Meeting and discussions with Provincial Vet Officer NE Region and DVO Garissa	
13-15	Travel to Wajir –Meeting and discussions with DVO and District Vet personnel	3
16-18	Travel to Mandera –Meeting and discussions with DVO and District Vet personnel	2
19	Travel to Moyale –Meeting and discussions with DVO and staff	2
20	Travel to Marsabit	2
21	Travel to Isiolo –Meeting with DVO and staff	2
22	Return Nbi	1
	Total number of days	19

8.5.2 Key Informants / Persons Met

Name	Position
1. Francis Chabari	Co-ordinator PACE Support Programme GTZ-IS
2. Dr Annie Lewa	CAHWs Coordinator PACE SERECU
3. Rene Bessin	PACE Programme Coordinator AU-IBAR
4. Dr Dickens Chibeu	SERECU Coordinator AU-IBAR
5. Dr Andrea Massarelli	Main TA to PACE Programme AU-IBAR
6. Dr Philippe FR Leperre	Regional TA for EA PACE Programme AU-IBAR
7. Dr Bernard M Mugenyio	Liaison Officer for Kenya SERECU AU-IBAR
8. Dr Bideh Kebkiba	Main Epidemiologist PACE Programme AU-IBAR
9. Dr Leonard Njagi	Privatisation Officer MoLFD
10. Dr Joseph Musaa	Director of Veterinary Services, MoLFD
11. Dr Isiah Ouma	Deputy Director of Veterinary Services, MoLFD
12. Dr HSN Kinyia	Project Manager KVAPS
13. Dr RM Murithi	Epidemiologist. Dept Vet Services. MoLFD
14. Dr Tabitha Kimani	Chairlady Kenya Veterinary Women Association
15. Dr HK Kirigia	Senior Assistant Director of Veterinary Services, MoLFD
16. Dr Wang'a	Chairman, Kenya Veterinary Association
17. Dr JC Mugachia	Chairman of Council, Kenya Veterinary Association
18. Dr JN Kuria	Chairman, Kenya Veterinary Board
19. Dr John Kamau	Executive Officer, Kenya Veterinary Board
20. Dr Harry Oyas	PACE Kenya National Coordinator
21. Dr W Wangwe	SADVS / PDVS NE Province
22. Dr Murira	SVO / DDVS Garissa District
23. Elias J Hirsi	SLHA, Garissa District
24. Wilson Vuyiya	JLHA, Garissa District
25. Zablon Jilo	Technologist, RVIC Garissa
26. Judith Chepkemi	Senior Lab Attendant, RVIC Garissa

27. Haboin Mohamud	Lab attendant, RVIC Garissa
28. Dr AW Waithaka	SVO, Ijara District
29. Dr GS Mukok	SVO, Ijara District
30. Dr JM Kiama	DDVO, Wajir District
31. Dr PM Komu	SVO, Wajir District
32. Ibrahim O Farah	SLHO, Wajir District
33. Abdi Mussa Mohamud	DDMO, ALRMP, Wajir District
34. Ahmed Jelle	Cordinator DPA, Wajir District
35. Abdalla M Adan	Chairman, DLMC, Wajir District
36. Dr A Abdalla	VO/DDVO Mandera District
37. MA Yussuf	LPO, Mandera District
38. AA Farah	SLHO, Rhamu, Mandera District
39. MA Abdi	JAHA, Takaba, Mandera District
40. AA Dahir	SLHA, Mandera Central, Mandera District
41. AA Ahmed	SLHA, DVO, Mandera District
42. NM Issack	SLHA, DVO, Mandera District
43. AAA Rahman	Unemployed Pvt AHA, DVO, Mandera District
44. Mohamed Sahal	Administrative Officer, EPAG, Mandera District
45. Dr ET Amutete	SVO/DVO Moyale District
46. R M Nthiwa	SLHS/DHSO Moyale District
47. A D Waqo	SLHA Moyale District

8.5.3 Specific Recommendations for the Creation of a SERECU AHDS in KS

A SERECU AHDS in KS programme is designed and funded to create a co-ordinated and enabling AHDS operating environment for all cadres of AHDS staff. The goal will be to achieve effective and informed district wide disease surveillance and create a sustainable veterinary delivery system that meets the needs of the pastoralists in order to gain their support for Rinderpest and other epizootic disease control measures.

The SERECU KS AHDS programme should include provisions for:-

1. A Veterinary Officer to be designated or posted to each of the 5 KS District Vet Offices of Ijara, Garissa, Wajir, Mandera and Moyale to function as SERECU District AHDS Coordinators. These posts to incorporate cost recovery functions paving the way for future privatisation.
2. The posts of District Veterinary Officers and SERECU District AHDS Coordinators in the KS being made attractive to the highest calibre of Veterinary Officers. This can be achieved by the creation of opportunities for continuing professional development, in-service support, adequate provision of field allowances and other income supplements.
3. Enabling sufficient numbers of Animal Health Technicians to be recruited to post one to each District as a District AHDS Supervisor and one to each Divisional Vet Office as Divisional AHDS Supervisors – the job description of these posts to be designed with the objective that they are ultimately incorporated and paid for in a privatised AHDS structure.

4. Divisional AHDS Supervisors to undergo training as CAHW trainers and through the PAs, or similar pastoralist representative bodies, select and train sufficient numbers of CAHWs so that the livestock population in each Division has an adequate level of AHDS cover.
5. That CAHWS are trained according to the KVB / DVS approved curriculum and receive regular refresher training courses. On completion of training and achieving a satisfactory standard they are issued with start up kits containing the required equipment and drugs.
6. Divisional AHDS Supervisors to be provided with a loan to establish a Veterinary drugs and equipment store from which CAHWs will purchase their re-supply needs.
7. District AHDS Coordinators to be provided with a loan to establish a District Veterinary drugs and equipment store to be run by the District AHDS Supervisor from which Divisional AHDS Supervisors will purchase their re-supply needs.
8. That the establishment of SERECU funded and the continuation of any existing stores and peddlers selling veterinary drugs or equipment will be subject to a licence issued on an annual basis by the DVO for which the effective supervision of a Veterinary Professional will be one requirement.
9. DVOs to be provided with 4 W/D radio and gprs equipped Land Rover tdi 110 LWB Station Wagons. SERECU District AHDS Coordinators to be provided with radio and gprs equipped Land Rover tdi 132 Double Cab Pick-Ups. AHAs to be provided with 175 trail motorcycles. CAHWs to be provided with bicycles.
10. Each District Vet Office in the KS to be provided with satellite internet connection with terminals installed in each working office. Any deficiencies at each office in terms of hardware and software needs to be made good. Budget to include provision for internet service provider operating costs.
11. "Contracts" to be awarded to each District AHDS Coordinator to undertake specified amounts of disease investigatory activity into the prevalence, epidemiology and control of economically important livestock diseases and diseases of public health importance. Outputs to include papers published in peer reviewed Veterinary Journals.
12. District Laboratories to be equipped and supplied with reagents suitable for supporting applied disease investigatory activities. Diagnostic services should additionally be geared towards enabling an informed and cost efficient AHDS for which a diagnostic fee would be appropriate and willingly paid.
13. Research "Contracts" that should be actively sought from National, Regional and International Research Institutions and FVMs so that additional and remunerated use is made of the District AHDS.

14. Applied Study “Contracts” to be sought from reputable drug companies to evaluate existing and test efficacy of new products of market potential for the ASAL.
15. “Seeing Practice” schemes developed where students from National, Regional and International FVMs are facilitated for periods of field attachment according to a prescribed set of charges.
16. Education and Training fund to enable selected individuals from the local community to qualify for training as CAHWS, JAHAs, AHAs, LAHOs and Veterinarians. There should be a special scheme to facilitate CAHWS to retrain as JAHAs, JAHAs to retrain as AHAs, AHAs to retrain as LAHOs and LAHOs to retrain as Veterinarians.
17. Niche AHDS developed to maximise the livestock production potential of particular zones in the KS i.e. Forage, Dairy and other intensive livestock production systems in the land adjacent to the Dawa and Tana rivers.
18. Specialisations encouraged and enabled for specific species of importance for the ASALs ie Donkeys, Camels and Wildlife.
19. Creation of District AHDS bank accounts, jointly managed by the DVO and SERECU AHDS Coordinator, into which the proceeds from specified income earning activities are paid and from which disbursement for agreed purposes, including commissions, are paid. A transparent accounting system reported to the National SERECU AHDS Co-ordinator on a monthly basis will be made.
20. Development, within the SERECU AHDS programme, of a culture of commercial AHDS practice, with the objective of producing real and verifiable data concerning the financial viability of AHDS in ASAL areas and the impact of innovative interventions and adaptive strategies designed to improve on that viability.

8.6. Somalia

8.6.1 Field Trip Itinerary

Period/Dates	Locality	Activities
11 -14 th July 06	Nairobi	Discussions with: <ul style="list-style-type: none">• SAHSP,• COOPI,• VSF-CH,• ICRC,• Somalia Embassy
15 - 19 th July 06	Dinsor Somalia	Discussions with <ul style="list-style-type: none">• SAHSP,• Drug stores,• SOWELPA officials,• Markets
19 – 24 th July 06	Afamadow	discussions with: <ul style="list-style-type: none">• SOWELPA officials,• chairman, Mayor and Councillors of Afamadow Council,• Pastoralists,• SAHSPs,• Drug stores• Markets

8.6.2 Key Informants/Persons Met

COOPI in Dinsor

1. Morris - Livestock

COOPI in Nairobi

1. Emmanuela Olesambu

VSF-Swiss (Nairobi)

1. Dr. Martin Nyamweya
2. Dr. Dan Opiyo Owour

ICRC

1. Dr. Mathias Frese

Terra Nuova

1. Mr. Osman Omar Budul
2. Mr. Abdikarim Khalif Olow

SAHSP

1. Dr. Henry Wamwayi (Nairobi)
2. Dr. Mohamed Dirie (Nairobi)
3. Dr. Stephano Tempia (Dinsor)
4. Dr. Francis Sudi (Dinsor)
5. Dr. Mohamed Haji Hassan Ali (Afamadow/Nairobi)
6. Dr. Ali Roble Mohamed – SAHSP Southern Zone Field Officer (Afamadow)
7. Dr. Samuel Wakhusama (Afamadow)

SOWELPA met in Afamadow and Dinsor

1. Dr. Alrashid Sheikh Ahmed – Chairman
2. Mr. Ali Warsame Guled – Vice Chairman
3. Dr. Hashi Osman Mohamed
4. Mr. Alrashid Suber Ahmed
5. Mr. Omar Ismail Adani
6. Mr. Abdi Hassan

Afmadow District Council

1. Mr. Mahmud Moalim Omar – Chairman
2. Mr. Iman Haji Shabeid – Vice Chairman
3. Mr. Bashir Alwahaab – PRO
4. Mr. Mohamed Dagrre
5. Mr. Magan Aahi
6. Mr. Abdi Inshar Abdi – Mayor

Pastoralists

1. Mr. Abdi Moalim Mohamed
2. Mr. Dhoobo Abdi Magan
3. Mr. Deeqow Gaarane
4. Mr. Abdi Kadir Yusuf Hasan

8.6.3 Veterinarians and Veterinary Assistants in Southern Somalia

Category	Region	District	No. Of vet/vet assistants
Veterinarians	Bay	Baidoa	1
		Baidoa/Akaba	1
	Bakool	Hudur	1
	Gedo	Beled Haawo	1
	Middle juba	Buaale	1
		Saakow	1
	Lower juba	Kismayu	3
	Lower shabelle	Marka	2
		Shalabod	1
		Qoryooley	1
		Janaale	1
Afgoye	1		

		Brava	1
Animal Production Officers	Bay	Baidoa	1
	Gedo	Baarthere	1
		Lower Juba	1
		Kismayu	1
		Lower Shabele	1
Vet Assistants	Bay	Baidoa	5
		Dinsor	4
		Baidoa akab	2
		Ufarow	1
	Bakool	Tieglow	3
		Hudur	1
	Gedo	Garbahaarey	1
		Eelwaak	1
		Beled Haawo	1
		Dhamase	1
	Middle Juba	Baarthere	2
		Saakao	2
		Buale	2
	Lower Juba	Geleb	2
		Kismayu	2
		Badhadhe	1
		Kudha	1
		Jammame	1
	Lower Shabelle	Afmadow	4
		Marka	2
		Qoryooley	3
		Brava	1
		Daafeed	2
Buulo		1	
Shalambood		1	
Afgoe	1		
Total number of veterinarians			16
Total number of vet assistants			51
Total number of animal production staff			4

8.6.4 CAHWs Trained and Equipped by PACE in Southern Somalia

NO	Name	Location	District
1	Hussein Dhure Yare	Yaqbarawe	Dinsoor
2	Hawo Abdi Ali	Yaqbarawe	Dinsoor
3	Hassan Ali Adan	Rebay	Dinsoor
4	Borow Aden Ibrahim	Gurban	Dinsoor
5	Yiraw Ibrahim Husein	Wel Barrei	Dinsoor
6	Abdulle Mad Moalin	Bulo Oman	Dinsoor
7	Abdi Ali Gabo	Kurtun	Dinsoor
8	Ibrahim Moalin Osman	Bulo Fur	Dinsoor
9	Nunow Hafow Ali	Kananah	Dinsoor
10	Amino Ibrahim Ali	Kananah	Dinsoor
11	Mohamed Ali Borrow	Hirmo Wamo	Dinsoor
12	Mohamed Nur Madow	Qodqod	Dinsoor
13	Jamilo Aden Ahmed	Misra	Dinsoor
14	Abdirahman Mohamed Ahmed	Misra	Dinsoor

15	Hassan Dhurre Adan	Arabow	Buale
16	Bakar Ali Shekh	Sarira	Buale
17	Habiba Hassan Mohamed	Bulo-Fulay	Bur-Hakaba
18	Abdi Shekh Abdullahi	Hilowkei	Bur-Hakaba
19	Ali Dhayow Mohamed	Dhomale	Bur-Hakaba
20	Aden Hussein Mohamed	Lewilei	Bur-Hakaba
21	Mohamed Dar Abdulle	Barka Moumin	Sacco
22	Olad Mohamed Yarow	Towsi	Sacco
23	Aden Mohamed Moalin	Banada	Sacco
24	Abdullahi Haji	Gelgel Onle	Sacco
25	Moalin Moumin	Gomir	Sacco
26	Bishar Aden Ali	Golame	Sacco
27	Adow	Fadumo Hirai	Sacco
28	Ibrahim Moalin Elmoge	Warabe Gube	Sacco
29	Moalin Hussein	Shidlei	Sacco
30	Mohamed Hussein Nur	Laweytu	Sacco
31	Abdi Nur Abdullahi Elmoge	Nus-Duniyo	Buale
32	Mohamed Nur Omer	Aw Jellow	Buale
33	Salah Hasan Afei	Bulo-Gulol	Buale
34	Mohamed Hussein Mohamed	Bulo-Gulol	Buale
35	Nur Dar Haf	Waraha Dhoblei	Buale
36	Nur Ali Nunow	Rendile	Buale
37	Sahal Ali Badi	Harganti	Buale
38	Abdi Moalin	Dujuma	Buale
39	Hassan Osman Hassan	Bulo-Gadud	Buale
40	Abdullahi Hussein Sahal	Jabbi	Buale
41	Mohamed Yonis Hashi	Jamar	-
42	Mohamed Shekh Moge	Dhesheg	-
43	Mahad Hussen Hassan	Haraneqa	-
44	Shabei Gedow Ahmed	Qeysan Gur	-
45	Abdi Shekh Bashir	Yeyo	-
46	Mahad Ahmed Madei	Hayo	-
47	Qasim Shekh Yusuf	Gomes	-
48	Gibin Dhaqane Shonqol	Orbis	-
49	Bile Mohamed Dhimbil	Fanqal	-
50	Abdi Wahab Farah	Sarira	-
51	Mohamed Farah Qase	Anotel	-
52	Mohamed Ragow	Kukuben	-
53	Mohamed Haji Ahmed	Jirole	-
54	Qasim Abdullahi Gabow	Arboqarso	-
55	Aden Jelle Dhimbil	Findigow	-
56	Digale Adow Nishan	Qallei	-
57	Afi Hussen Gure	Tolbi	-
58	Siad Digale Moalin	Habajo	-
59	Bishar Abdullahi Hassan	Arbo-Dhabos	-
60	Dhaqane Ahmed Isaq	Santaro	-
61	Abdullahi Mohamed Shimoi	Tosha	-
62	Abdi Ali Osman	Kudha	-
63	Mohamed Dhayow Mohamed	Manarani	-
64	Aden Abdi Nur	Odow	-
65	Mohamed Moalin Dhubow	Moye	-
66	Abdullahi Baraki Hassan	Durow	-
67	Hussen Abdullahi Egal	Jadealei	-

68	Aden Gosar Ali	Dhoba	-
69	Ibrahim Farah Hasan	Didi-Adei	-
70	Osman Bashir Ismail	Badhadhe	-
71	Shukri Farah Shaqlane	Badhadhe	-
72	Sahan Salah Shukri	Kulbiyow	-
73	Mohamed Abdi Ali	Sheeye	-
74	Abdullahi Derow Dhaqane	Burgabo	-
75	Abdirisaq Taba Hassan	Hidda	-
76	Yusuf Bashir Ismail	Lalafto	-
77	Abdi Omer Mohamed	Kulbiyo	-
78	Hodan Barre Abdi	Jila	-
79	Salad Abdi Ahmed	Gora	-
80	Sheikh Mohamed Haji Ali	Ato	Rabdhurre
81	Sheikh Mohamed Haji Mukhtar	La Helow	Rabdhurre
82	Abdullahi Keysdane Salad	Elberde	Elberde
83	Kaho Siyad Moalin	Elberde	Elberde
84	Barre Isaq Ali	Hirai	Elberde
85	Gabow Ahmed Oday	Salkudhoble	Elberde
86	Idiris Ibrahim Aden	Elmagad	Elberde
87	Osman Dirie Abdi	Abesale	Elberde
88	Abdi Muhamad Dhaqane	Qura-Jome	Elberde
89	Gura Mohamed Ali	Qura-Jome	Elberde
90	Mohamed Ali Hussien	Teet	Hudur
91	Aden Mogow Ibrahim	Figta	Elberde
92	Fadumo Aw Abdi	Ato	Rabdhurre
93	Mohamed Osman Ali	Moro-Gabei	Hudur
94	Moalin Abdirahman Ahmed	Garas-Weyne	Hudur
95	Fadumo Mohamed Ahmed	Garas-Weyne	Hudur
96	Sheikh Mohamed Aden	Aborre	Hudur
97	Nurrow Aden Isaq	Abal	Hudur
98	Fadumo Aden Mamow	Dheji	Hudur
99	Osman Aden Hassan	Wardhujilei	Hudur

8.6.5 CAHWs in Active Delivery of AHS in Southern Somalia

No	Region	District	Name	Location
1.	Bay	Dinsoor	Hussein Dhure Yare	Yaqbarawe
2.	Bay	Dinsoor	Hawo Abdi Ali	Yaqbarawe
3.	Bay	Dinsoor	Hassan Ali Adan	Rebay
4.	Bay	Dinsoor	Borow Aden Ibrahim	Gurban
5.	Bay	Dinsoor	Yiraw Ibrahim Hussein	Wel Barrei
6.	Bay	Dinsoor	Abdulle Mad Moalin	Bulo Oman
7.	Bay	Dinsoor	Abdi Ali Gabo	Kurtun
8.	Bay	Dinsoor	Ibrahim Moalin Osman	Bulo Fur
9.	Bay	Dinsoor	Nunow Hafow Ali	Kananah
10.	Bay	Dinsoor	Amino Ibrahim Ali	Kananah
11.	Bay	Dinsoor	Mohamed Ali Borow	Hirmo Wamo
12.	Bay	Dinsoor	Mohamed Nur Madow	Qodqod
13.	Bay	Dinsoor	Jamilo Aden Ahmed	Misra
14.	Bay	Dinsoor	Abdirahman Mohamed Ahmed	Misra
15.	Bay	Bur-Hakaba	Habiba Hassan Mohamed	Bulo-Fulay
16.	Bay	Bur-Hakaba	Abdi Sheikh Abdullahi	Hilowkei
17.	Bay	Bur-Hakaba	Ali Dhayow Mohamed	Dhomale

18.	Bay	Bur-Hakaba	Aden Hussein Mohamed	Lewilei
19.	Gedo	B/hawo	Osman Sheikh Abdi	Hareriley
20.	Gedo	B/hawo	Osman H. Ibrahim	Irrida
21.	Gedo	B/hawo	Mohamed Isaq Ibrahim	Baqtile
22.	Gedo	Dolow	Shirar Addow Mohamed	Kurtun
23.	Gedo	Dolow	Mohamed Ahmed Omar	Unsi
24.	Gedo	B/hawo	Mohamed Hussein Abdi	Gawetho
25.	Gedo	Dolow	Bare Diis	Gubtao
26.	Gedo	B/hawo	Adan Mahad	Warta Ad
27.	Gedo	B/hawo	Adan Hareth Abdullahi	Godondowe
28.	Gedo	B/hawo	Omar Mohamed Gurhan	Tawakal
29.	Gedo	B/hawo	Shukri Mohamed	Ara-ase
30.	Gedo	B/hawo	Iftiin Odawaa Abdi	Khadijo Hagi
31.	Gedo	B/hawo	Abdisamed Warsame	Buulo-hawo
32.	Gedo	El-waq	Birimo Addow	Damase
33.	Gedo	El-waq	Mohamed Yarow Dhakane	Damase
34.	Gedo	El-waq	Mohamed Sheikh Abdi	Abagale
35.	Gedo	El-waq	Mohamed Abey	Nusdariq
36.	Gedo	El-waq	Hareth Mohamed	Yaqle
37.	Gedo	B/hawo	Deris Mohamed	Hareritur
38.	Gedo	El-wak	Hire Sheikh Hassan	El-wak
39.	Gedo	El-wak	Hassan Sheikh Abuna	El-wak
40.	Gedo	El-waq	Isaq Suraw Isaq	Elbanda
41.	Gedo	G/harey	Adan Mohamed Mire	Tulo-barwaqo
42.	Gedo	G/harey	Mohamed M. Osman	G/harey
43.	Gedo	G/harey	Yusuf Ali Mohamed	Tulo-barwaqo
44.	Gedo	G/harey	Mohamed Hassan Mohamed	G/harey
45.	Gedo	G/harey	Mohamed Shaiye Ali	G/harey
46.	Gedo	G/harey	Mohamed Sheikh Nur	Bura
47.	Gedo	G/harey	Ali M. Mohamed	Buraa
48.	Gedo	Bur-dhubo	Ali Osman Igal	Bur-dhubo
49.	Gedo	G/harey	Bishar Ibrahim	Dabley
50.	Gedo	G/harey	Omar Mursal	Bur-ijabo
51.	Gedo	G/harey	Mohamed Wayrah	Godey
52.	Gedo	Bur-dhubo	Mohamed Adan Ali	Bur-dhubo
53.	Gedo	Bur-dhubo	Abdirashid Ali	Bur-dhubo
54.	Gedo	Bur-dhubo	Mohamed Hussein Hassan	Bur-dhubo
55.	Gedo	G/harey	Omar Hashi	Fanwein
56.	Gedo	G/harey	Dahir Abdullahi	Mara-ade
57.	Gedo	El-waq	Abdi Ahmed Gule	Daso
58.	Gedo	El-waq	Omar Sheikh Isaq	Samarole
59.	Gedo	G/harey	Ali Muse Isse	El-Ade
60.	Gedo	El-waq	Garad Gure Salad	Garsaal
61.	Gedo	G/harey	Abdulahi Hussein Omar	El-ade
62.	Gedo	G/harey	Abdi Harun Kadiye	Busar
63.	Gedo	G/harey	Ali Abdi Sheikh Adan	Bambahalima
64.	Gedo	G/harey	Adan Osman Mohamed	Busar
65.	Gedo	El-waq	Hussein Abdishakur	Garsaal
66.	Gedo	G/harey	Abdi Mohamed Abdille	El-gaduud
67.	Gedo	G/harey	Mohamed Adan Diriye	El-gaduud
68.	Gedo	El-waq	Omar Mohamed Oyow	Aus-qurun
69.	Gedo	Bardere	Hure Diriye Isse	Bardere
70.	Gedo	El-waq	Abdifatah Sheikh	Daresalaam

71.	Gedo	El-waq	Hussein Ahmed	Aus-qurun
72.	Gedo	El-waq	Isse Hassan	Aus-qurun
73.	Gedo	El-waq	Abdullahi M. Hassan	Kukuma
74.	Gedo	El-waq	Mohamed M. Ahmed	Fafahdun
75.	Gedo	El-waq	Ali Adan Osman	Fafahdun
76.	Gedo	El-waq	Abdirashid Adan	Dibayo
77.	Gedo	El-waq	Siyad Bashir Abdi	Kukuma
78.	Gedo	Bardere	Osman Diriye Bule	Bardere
79.	Gedo	Bardere	Shukri Ali Mohamed	Bardere
80.	Gedo	Bardere	Abdirashid M. Abdullahi	Bardere
81.	Gedo	Dolow	Hassan Ahmed Adan	Dolow
82.	Gedo	Dolow	Abdullahi Ahmed Mohamed	Dolow
83.	Gedo	Dolow	Mohamed sheikh Mohamad	Godwein
84.	Gedo	Dolow	Kalif Mohamed Sarey	Dolow
85.	Gedo	Luk	Sharif Shire Gurhan	Shatolow
86.	Gedo	Dolow	Hassan Abdullahi Dahir	Godwein
87.	Gedo	Dolow	Osman Mohamed Hanshi	Dolow
88.	Gedo	Luk	Abdi Bees	Luk
89.	Gedo	Luk	Ahmed M. Ali	Luk
90.	Gedo	Luk	Omar Mohamed	Garasow
91.	Gedo	Luk	Mohamed Mohamad	Magane
92.	Gedo	Luk	Mohamed Nur	Salbey
93.	Gedo	Luk	Mohamed Omar	Luk
94.	Gedo	Luk	Alinoor Alio	Luk
95.	Middle Juba	Sacco	Mohamed Dar Abdulle	Barka moumin
96.	Middle Juba	Sacco	Olad Mohamed Yarow	Towski
97.	Middle Juba	Sacco	Aden Mohamed Moalin	Banada
98.	Middle Juba	Sacco	Abdullahi Haji	Gelgel Onle
99.	Middle Juba	Sacco	Moalin Moumin	Gomir
100.	Middle Juba	Sacco	Bishar Aden Ali	Golame
101.	Middle Juba	Sacco	Adow	Fadumo Hirai
102.	Middle Juba	Sacco	Ibrahim Moalin Elmoge	Warabe Gube
103.	Middle Juba	Sacco	Moalin Hussein	Shidlei
104.	Middle Juba	Sacco	Mohamed Hussein Nur	Laweytu
105.	Middle Juba	Buale	Abdi nur Abdullahi Elmoge	Nus-duniyo
106.	Middle Juba	Buale	Mohamed Nur Omer	Aw Jellow
107.	Middle Juba	Buale	Salah Hasan Afei	Bulo-Golol
108.	Middle Juba	Buale	Mohamed Hussein Mohamed	Bulo-Golol
109.	Middle Juba	Buale	Nur Dar Haf	Waraha Dholei
110.	Middle Juba	Buale	Nur Ali Nunow	Rendile
111.	Middle Juba	Buale	Sahal Ali Badi	Harganti
112.	Middle Juba	Buale	Abdi Moalin	Dujuma
113.	Middle Juba	Buale	Hassan Osman Hassan	Bulo Gadud
114.	Middle Juba	Buale	Abdullahi Hussein Sahal	Jabbi
115.	Middle Juba	Buale	Hassan Dhurre Aden	Arabow
116.	Middle Juba	Buale	Bakar Ali Sheikh	Sarira
117.	Lower Juba	Afmadow	Mohamed Yonis Hashi	Jamar
118.	Lower Juba	Afmadow	Mohamed Shekh Moge	Dhesheg
119.	Lower Juba	Afmadow	Mahad Hussen Hassan	Haraneqa
120.	Lower Juba	Afmadow	Shabei Gedow Ahmed	Qeysan Gur
121.	Lower Juba	Afmadow	Abdi Shekh Bashir	Yeyo
122.	Lower Juba	Afmadow	Mahad Ahmed Madei	Hayo
123.	Lower Juba	Afmadow	Qasim Shekh Yusuf	Gomes

124.	Lower Juba	Afmadow	Gibin Dhaqane Shonqol	Orbis
125.	Lower Juba	Afmadow	Bile Mohamed Dhimbil	Fanqal
126.	Lower Juba	Afmadow	Abdi Wahab Farah	Sarira
127.	Lower Juba	Afmadow	Mohamed Farah Qase	Anotel
128.	Lower Juba	Afmadow	Mohamed Ragow	Kukuben
129.	Lower Juba	Afmadow	Mohamed Haji Ahmed	Jirole
130.	Lower Juba	Afmadow	Qasim Abdullahi Gabow	Arboqarso
131.	Lower Juba	Afmadow	Aden Jelle Dhimbil	Findigow
132.	Lower Juba	Afmadow	Digale Adow Nishan	Qallei
133.	Lower Juba	Afmadow	Afi Hussen Gure	Tolbi
134.	Lower Juba	Afmadow	Siad Digale Moalin	Habajo
135.	Lower Juba	Afmadow	Bishar Abdullahi Hassan	Arbo-Dhabos
136.	Lower Juba	Badhadhe	Dhaqane Ahmed Isaq	Santaro
137.	Lower Juba	Badhadhe	Abdullahi Mohamed Shimoi	Tosha
138.	Lower Juba	Badhadhe	Abdi Ali Osman	Kudha
139.	Lower Juba	Badhadhe	Mohamed Abdi Ali	Sheeye
140.	Lower Juba	Badhadhe	Mohamed Dhayow Mohamed	Manarani
141.	Lower Juba	Badhadhe	Aden Abdi Nur	Odow
142.	Lower Juba	Badhadhe	Mohamed Moalin Dhubow	Moye
143.	Lower Juba	Badhadhe	Abdullahi Baraki Hassan	Durow
144.	Lower Juba	Badhadhe	Hussen Abdullahi Egal	Jadealei
145.	Lower Juba	Badhadhe	Aden Gosar Ali	Dhoba
146.	Lower Juba	Badhadhe	Ibrahim Farah Hasan	Didi-Adei
147.	Lower Juba	Badhadhe	Osman Bashir Ismail	Badhadhe
148.	Lower Juba	Badhadhe	Shukri Farah Shaqlane	Badhadhe
149.	Lower Juba	Badhadhe	Sahan Salah Shukri	Kulbiyow
150.	Lower Juba	Badhadhe	Abdullahi Derow Dhaqane	Burgabo
151.	Lower Juba	Badhadhe	Abdirisq Taba Hassan	Hidda
152.	Lower Juba	Badhadhe	Yusuf Bashir Ismail	Lalafto
153.	Lower Juba	Badhadhe	Abdi Omer Mohamed	Kulbiyo
154.	Lower Juba	Badhadhe	Hodan Barre Abdi	Jila
155.	Lower Juba	Badhadhe	Salad Abdi Ahmed	Gora
156.	Bakool	Rabdhurre	Sheikh Mohamed Hagi Ali	Ato
157.	Bakool	Rabdhurre	Sheikh Mohamed Hagi Mukhtar	La Helow
158.	Bakool	Elberde	Abdullahi Keydsane Salad	Elberde
159.	Bakool	Elberde	Kaho Siyad Moalin	Elberde
160.	Bakool	Elberde	Barre Isaq Ali	Hirai
161.	Bakool	Elberde	Gabow Ahmed Oday	Salkudhoble
162.	Bakool	Elberde	Idiris Ibrahim Aden	Elmagad
163.	Bakool	Elberde	Osman Dirie Abdi	Abesale
164.	Bakool	Elberde	Abdi Muhumad Dhaqane	Qura-Jome
165.	Bakool	Elberde	Gura Mohamed Ali	Qura-Jome
166.	Bakool	Hudur	Mohamed Ali Hussen	Teet
167.	Bakool	Elberde	Aden Mogow Ibrahim	Figta
168.	Bakool	Rabdhurre	Fadumo Aw Abdi	Ato
169.	Bakool	Huddur	Mohamud Osman Ali	Moro-Gabei
170.	Bakool	Huddur	Moalin Abdirahman Ahmed	Garas-Weyne
171.	Bakool	Huddur	Fadumo Mohamed Ahmed	Garas-Weyne
172.	Bakool	Huddur	Sheikh Mohamed Aden	Aborre
173.	Bakool	Huddur	Nurow Aden Isaq	Abal
174.	Bakool	Huddur	Fadumo Aden Mamow	Dheji
175.	Bakool	Huddur	Osman Aden Hassan	Wardhujilei

8.7. Consultants Profiles

Dr. Walter Masiga

Qualifications:

Dr. Masiga holds Bachelor of Veterinary Science from the University of East Africa, Doctor of philosophy from the University of Nairobi, and Doctor of science from Tufts University, Boston, USA.

Work experience and responsibilities:

Dr. Masiga worked at the East African Veterinary Research Organization (now National Veterinary Research Centre) Muguga, starting as a research officer and eventually becoming the Centre Director, a position he held for over 15 years.

Director OAU-IBAR from 1985 to 2000, with wide ranging responsibilities including overall management of IBAR, policy formulation, planning, liaison and coordination, resource mobilisation, programme implementation and supervision among others.

As a scientist, Dr. Masiga has produced many scientific publications in various local and international journals, has been extensively involved in editorship work and other professional activities.

Has participated in many local and international conferences, seminars and meetings, and quite often presenting papers and taking the lead role in the deliberations

Dr. Masiga has been instrumental in developing and establishing veterinary service delivery systems and policies in several African countries including Kenya and the neighbouring countries. Has been at the centre of Rinderpest control, surveillance and eradication efforts in Africa, particularly in the design and implementation of PARC and PACE programmes

Has participated in many consultancy assignments for reputable institutions and organizations such as FAO and World Bank.

Dr. Masiga has traveled widely both locally and abroad including the SES region and other African regions and countries.

Registered as a veterinary surgeon by Kenya Veterinary Board, and has been an active member of several scientific and professional bodies.

Dr. Julius K Kajume

Dr. Kajume has over 25 years of experience in Government veterinary service, both field and policy levels. He is a strong advocate of community-based animal health service delivery system. He has participated in various consultancy assignments, among the relevant ones include:

Review of livestock programme (Rinderpest prevention and surveillance within the framework of the household food security programme) in Southern Sudan (UNICEF-OLS, 2001);

An Assessment of the Economic Viability of Private Animal Health Service Delivery in Pastoral Areas of Kenya (AU/IBAR, 2001);

Cross Border Issues Related to Animal Health Service Delivery with Particular Reference to Kenya, Uganda, Tanzania and Ethiopia (AU/IBAR, 2002);

Animal Health Care in Kenya: the Road to Community-Based Animal Health Service Delivery (Overseas Development Institute, 2003);

Study on Viable Practice Units and Promotion of Sustainable Privatized Animal Health Services (KVAPS, 2004);

External Evaluation of the Maasai Cross Border Community Animal Health Project in Narok District of Kenya (VSF-Germany, 2005);

Organizations, Institutions, Agencies and Individuals Involved in Community-Based Animal Health in Kenya (FARM-AFRICA/Community Animal Health Network, 2005);

Training of Government livestock extension staff in Western Province of Kenya (FARM-AFRICA/Training and Advisory Unit, 2005),

Farmer-To-Farmer Extension Model Policy Issues and their Implications (FARM-AFRICA, December 2005),

Evaluation of Drought Response Programme in the Arid Districts of Kenya (COOPI and Partners, December 2005 to February 2006)

Dr Kajume has traveled widely in arid and semi-arid areas in the Somali Eco-system, and is well conversant with values and cultures of most of pastoralist communities in Kenya.

Dr. Chris Daborn

Dr Chris Daborn holds Bachelor of Veterinary Medicine from the Royal Veterinary College, University of London and Master of Science in Tropical Animal Health and Production from the Centre for Tropical Veterinary Medicine, University of Edinburgh. Currently, he is a private veterinary practitioner based in Karatu, Northern Tanzania where he is setting up the delivery of veterinary services to pastoralists in the Ngorongoro Conservation Area as part of an Integrated Livestock Wildlife Programme. Dr Daborn has 30 years of experience in the delivery of veterinary services in Africa, largely gained from field placements with Government, Private and NGO programmes. He spent 7 years as a course supervisor of the MSc Course in Tropical Veterinary Medicine at the CTVM, Edinburgh University. Apart from an acquired experience in veterinary service delivery systems Dr Daborn has made a particular area of focus of the potentially valuable role that a professionally supervised veterinary programme can play in the development of sustainable systems of livestock services delivery to pastoralist communities.

Dr Daborn has presented papers in workshops, conferences and published in local and international journals. He has organized Regional and International Conferences, including the “Delivery of Veterinary Services in East Africa”, “Pastoralism in Tanzania – The Way Forward” and the “OIE Regional Conference for Africa” held in Arusha in 1998. He is the Honorary Senior Veterinary Advisor to the Arusha Society for the Protection of Animals. He has also undertaken consultancy work for various clients including WHO, FAO, EU and DFID. He was an active member of the WHO expert committee on Animal Tuberculosis and was responsible for the establishment of an ongoing programme to investigate the zoonotic importance of Bovine Tuberculosis in Humans TB in Africa with particular reference to the HIV/AIDS epidemic. He helped in the setting up of Vetaid, a UK based NGO, and subsequently established the very successful and ongoing Community Based Animal Health Programme in Simanjiro District, Northern Tanzania.