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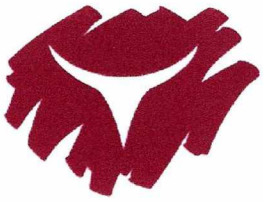

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B E L G I U M

"Fight Against Lineage 1 Rinderpest Virus" Project in Southern Sudan

European Development Fund project number: REG/5007/005 EDF VII & VIII

Year One Report:
November 2001 to October 2002

The "Fight Against Lineage One Rinderpest Virus" Project in Southern Sudan is implemented by VSF-Belgium and funded by the Pan-African Programme for the Control of Epizootics (PACE) of the African Union Interafrican Bureau for Animal Resources (AU-IBAR). The PACE Programme is funded by the European Community.

This document has been produced with the financial assistance of the European Community. The views expressed herein are those of VSF-Belgium and can therefore in no way be taken to reflect the official opinion of the European Community.

Abbreviations

ACORD	Agency for Co-operation and Research in Development
ACROSS	Association of Christian Resource Organisations Serving Sudan
ADRA	Adventist Development and Relief Association
AGID	agar gel immunodiffusion
AHA	Animal Health Auxiliary
AU	African Union
CAHW	community-based animal health worker
CAPE	Community-based Animal Health and Participatory Epidemiology Unit
CAR	Central African Republic
CBPP	contagious bovine pleuro-pneumonia
cELISA	competitive enzyme-linked immunosorbent assay
DOT	Diocese of Torit
DRC	Democratic Republic of Congo
FAO	Food and Agriculture Organisation
GREP	Global Rinderpest Eradication Programme
IBAR	Interafrican Bureau for Animal Resources
KARI	Kenya Agricultural Research Institute
LSD	Lumpy skin disease
MOU	Memorandum of Understanding
NGO	non-governmental organisation
NPA	Norwegian People's Aid
OAU	Organization of African Unity
OIE	Office International des Epizooties
OLS	Operation Lifeline Sudan
OLS-SS	Operation Lifeline Sudan Southern Sector
Oxfam-GB	Oxfam Great Britain
PACE	Pan African Programme for the Control of Epizootics
PARC	Pan-African Rinderpest Campaign
PCR	polymerase chain reaction
PPR	Peste des Petits Ruminants
RP	Rinderpest
SC-UK	Save the Children – United Kingdom
SPDF	Sudan People's Defence Force
SPLA	Sudan People's Liberation Army
SPLM	Sudan People's Liberation Movement
SRRA	Sudan Relief and Rehabilitation Association
SSAHATI	Southern Sudan Animal Health Training Institute
UNICEF	United Nations Children's Fund
VNT	virus neutralisation test
VSF-Belgium	Veterinaires sans Frontieres – Belgium
VSF-Suisse	Veterinaires sans Frontieres – Switzerland
VSF-G	Veterinaires sans Frontieres – Germany

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Summary

- During the first year of the project has focused on introducing the strategy for rinderpest eradication to all levels of stakeholders, supporting final rinderpest vaccination campaigns, ensuring that the timeframe for stopping vaccination is observed, developing a community-based rinderpest surveillance system, adding to existing information on rinderpest epidemiology, and developing emergency-preparedness capacity and plans.

- The planned activities and the actual achievements are summarized in table 1 below. The main achievements are:

➢ rinderpest project personnel were all recruited and in position by 1st January 2002, orientation and training was provided, regular project review and planning meetings were held.

➢ the project contributed to the personnel, resources and running costs of the administration unit of VSF-Belgium, which has provided accounting, procurement and logistical support to the project.

➢ a new project office and store was constructed and equipped in Lokichokio.

➢ the project carried out field training courses on the rinderpest eradication strategy for Veterinary Supervisors, Co-ordinators and field veterinarians. 16 Field Veterinarians and 98 Veterinary Co-ordinators and Supervisors were trained during 11 courses.

➢ Approximately 140 Field veterinarians, Vet Co-ordinators and Supervisors attended the four regional livestock co-ordination meetings, which included one-day sessions introducing and revising the strategy for rinderpest eradication, led by project vets.

➢ A workshop to review progress on rinderpest eradication in southern Sudan was held on 31st July 2002 in Nairobi, for NGO/FAO co-ordinators and counterparts.

➢ Project vets visited eight out of the twelve livestock NGOs in one or more of their field areas to provide support to training, dialogue, surveillance and disease investigation. They assisted with 34 community dialogue meetings for approximately 1,200 community members, and visited 6 schools to talk to children and teachers about rinderpest eradication. Project vets assisted with 3 basic CAHW training courses for a total of 41 CAHWs, and 2 CAHW refresher courses for a total of 12 CAHWs. All courses included sessions on the role of the CAHW in rinderpest eradication.

➢ areas in southern Sudan that do not have an NGO to support animal health services were identified and visits made to some of these areas to provide support to rinderpest eradication activities as well as general advice and support for the community-based animal health service. Visits were made to: Budi, Torit, West Kapoeta, North Bor, South Bor, and Awerial Counties. Project vets facilitated 10 community dialogue meetings for approximately 230 community members, and visited 1 school to talk to teachers and children about rinderpest eradication. One CAHW refresher course was carried out for 20 CAHWs, and CAHW equipment provided.

➢ Project veterinarians have participated in the following regional meetings and workshops:
  - Participatory Epidemiology, Nov 2001, Addis Ababa AU-IBAR PACE,
  - CBPP control, Nov 2001, Addis Ababa AU-IBAR PACE,
  - Participatory Epidemiology, Arusha, April 2002, CAPE Unit of PACE,
  - Eastern Africa Regional Workshop on Mild Rinderpest, June 2002, Nairobi AU-IBAR PACE.
  - community-based livestock disease surveillance workshop, Arusha, PACE Tanzania/VETAID/CAPE Unit of PACE.
  - Livestock Co-ordination Workshop in Khartoum, April 2001.

➢ Rinderpest eradication communication and training materials were purchased and distributed to field personnel: 700 t-shirts, 100 audiotapes, 400 laminated photocards, and guidelines for rinderpest community dialogue and CAHW training.
➢ 3 animal health workers from Torit County, Eastern Equatoria were funded to attend a four-month AHA training course, and two animal health workers from Budi County were funded to attend a 2 month AHA refresher training course.
➢ As planned, most areas of southern Sudan stopped rinderpest vaccination by end December 2001. The project supported vaccination in targeted areas of the infected zone until the end of June 2002. The areas that were targeted were the Murle and Jie communities of Pibor County, and neighbouring areas of Kapoeta and Bor Counties. Approximately 89,000 vaccinations were carried out, and the vaccinators paid by the project.
➢ The rinderpest project has developed and introduced a community-based surveillance system. It comprises passive surveillance - outbreak reporting and investigation, and active surveillance - cattle camp visits, market surveillance, surveillance during dialogue and participatory disease searching. Livestock keepers, CAHWs, Vet Supervisors and Co-ordinators, field vets and rinderpest project vets all play important roles in the system.
➢ 33 outbreak reports were made during 2001, of which 5 were rinderpest rumours. In the period January to October 2002 69 outbreak reports were made, of which 21 were rinderpest rumours. The 22 rinderpest reports during the project period came from 16 different Counties or States with no particular concentration in a particular area. None of the investigations indicated an outbreak of rinderpest. Some were outbreaks of other diseases or individual cases of RP-like disease, some were due to a fear of rinderpest occurring in a neighbouring area or were false alarms with the aim of drawing attention to a deficiency in animal health services.
➢ During cattle camp surveillance visits, 487 herds or cattle camps were surveyed which contained a total of 335,638 cattle (5.6% of the estimated cattle population), by 103 out of approximately 185 supervisors, representing all six regions and 27 out of 34 counties or states. Only four livestock keepers mentioned that rinderpest was affecting their cattle, and on further questioning said that they hadn't seen clinical rinderpest for 10 or more years. Most livestock keepers had not seen rinderpest for five or more years. Reports of rinderpest in the last 2-3 years could usually be correlated with known outbreak reports of rinderpest or other diseases.
➢ VSF-B has an MOU with the KARI Regional Reference Laboratory for the submission of samples for rinderpest serology and virus testing. 3 batches of samples were submitted from rinderpest outbreak investigations - all were negative for rinderpest virus. 2000 sera and filter paper samples were submitted for rinderpest serology - full results have not yet been received.
➢ A sub-national rinderpest emergency contingency plan has been drafted and circulated to NGOs and FAO within the livestock programme and PACE. Local contingency plans have been drafted and are being finalised.
➢ VSF-Belgium has prepared stocks of thermostable rinderpest vaccine, diluent, vaccination equipment, portable fridges, and sampling equipment at its base in Lokichokio, for rapid deployment by air or road in the event of an emergency. The two project vehicles can be moved by road or air to the required location in the event of an emergency.
➢ The project collaborated with the CAPE Unit of PACE by facilitating a consultant to carry out fieldwork in the Boma area on CBPP epidemiology. The consultant found that CBPP was endemic with a seasonal variation in incidence, and made recommendations for an appropriate strategy. Based on the recommendations of the consultant, a draft CBPP control strategy was developed for presentation to the November 2002 livestock co-ordination meeting. Small stocks of CBPP vaccine, antibiotics, and cold chain have been procured and will be provided to areas that are interested to implement the CBPP strategy.

- The original year one budget was amended in September 2002 to reflect some variations in actual costs compared to the original estimates when the budget was prepared. There was an under spend of the overall budget due to two-month delay in start of implementation, postponement of wildlife surveillance work, no confirmed outbreak of rinderpest so no need to use the contingency budget and reduced utilisation of other budget lines, surveillance payments started later than planned, and CBPP control component was lower priority relative to the RP activities so expenditure on this has been low,

- The main constraints faced by the project were:

➢ Late and erratic rainfall has reduced crop production in 2002, which is causing hunger in many communities. This may reduce participation in activities.

➢ A high number of airstrips were denied clearance by the Government of Sudan from March onwards, which has restricted access, interrupted planned activities and caused problems with logistical support. At the end of September, the Government of Sudan imposed a 9-day flight ban for Equatoria region, which interrupted all flights from Lokichokio into southern Sudan.

➢ In spite of ongoing peace negotiations there were some major offensives in southern Sudan until the ceasefire in October 2002. Apart from the suffering of the local people, for NGO projects insecurity prevents access to the affected area, affects movement in neighbouring areas, and can result in looting or destruction of project assets. These all cause interruption of project activities. For the livestock programme it means that NGO veterinarians are unable to monitor and support their areas of responsibility, and training courses, dialogue and vaccination activities are postponed. For the Rinderpest Project it limits access for outbreak investigation, other surveillance activities, and training courses, and impedes communication with animal health workers and delivery of supplies.

➢ The success of the rinderpest eradication project depends on existing livestock agencies continuing to support community-based animal health projects throughout southern Sudan. For the rinderpest project to be effective in areas where there is no support to community-based animal health projects, there needs to be a source of medicines and vaccines to meet the current priorities of livestock keepers. Two agencies have received no funds to support their areas so far in 2002, and some areas of southern Sudan continue to have no support from livestock agencies. Rinderpest project veterinarians give special attention to these areas for follow up of rinderpest rumours, field visits for training, community dialogue and surveillance, and ensuring participation of animal health workers in livestock co-ordination meetings and SSAHATI training courses. However the project does not have the resources to supply medicines and vaccines to control other major disease problems

- The focus for year two of the project will be to build on the experiences of year one, continue to develop and refine the systems for outbreak reporting and investigation, surveillance and emergency preparedness, to ensure that if rinderpest virus is still present that it is identified and action taken, and, if it is no longer present, to start to build up evidence that Sudan is free of rinderpest.

Table 1: Summary of Planned Activities versus Achievements Year One

PLANNED ACTIVITY	ACHEIVEMENT YEAR ONE
1. Project management	
1.1 Co-ordination office and project support unit established	All project personnel recruited by 1/1/02, administrative and logistical support provided, office and store in Lokichokio.
1.2a One vet to attend training course/overseas study visit.	3 vets attended 2-week Participatory Epidemiology training course
1.2b Short training course for field veterinarians.	16 field vets trained in rinderpest eradication strategy
1.3a Develop community-based outbreak and surveillance system.	System introduced to all areas during the year.
1.3b Outbreak information reported on a quarterly basis.	Outbreaks reported quarterly to PACE (22 RP rumours, no confirmed outbreak)
1.3c Rinderpest outbreak information reported immediately.	Major rinderpest outbreak rumours reported immediately to PACE
1.4a Organize a participatory stakeholder planning meeting	Review and planning meeting held Nairobi 31st July 2002
1.4b Technical support to FAO/NGOs on use of community-based approach for outbreak follow up and active disease surveillance.	Sessions on RP eradication facilitated during four regional livestock co-ordination meetings, technical and material support provided to FAO and 8 out of 12 NGOs at field level.
1.4c Participate in co-ordination/standardization of strategies for rinderpest and CBPP control with neighbouring countries as organized by PACE PCU.	PACE regional meetings and workshops attended: Participatory Epidemiology, CBPP, Khartoum Livestock Co-ordination Meeting, Mild Rinderpest, and Community-based surveillance.
2. Community-based systems for delivery of animal health services.	
2.1a Develop suitable materials for raising awareness, training of CAHWs, supervisors and veterinarians in rinderpest and CBPP control strategies.	Rinderpest communication materials: 700 T-shirts, 100 audiotapes, 400 photocards and guidelines on community dialogue and CAHW training disseminated.
2.1b Contract CAHWs to carry out rinderpest vaccination,	CAHWs in Kapoeta and Bor County paid for vaccination campaigns.
2.1c Provide medicine/vaccines for CBPP control at cost	Medicine and vaccine procured but not yet issued.
2.2 3 supervisors/co-ordinators trained and equipped.	3 AHAs received 4-month basic training, 2 AHAs received 2-month refresher training
2.3 Assist in the development of appropriate legislation for privatised delivery of sanitary mandate.	Little progress on development of legislation
2.4a 20 new CAHWs given two weeks basic training and equipped.	Assisted with training of 41 new CAHWs
2.4b 40 existing CAHWs will be given refresher training and equipped.	Assisted with refresher training of 32 CAHWs, 20 of these equipped.

2.4c Provide support to community-based animal health services lineage 1 risk areas	8 out of 12 NGOs visited in one or more of their field locations; assisted with 34 community meetings for 1200 people, visited 6 schools. In areas with no NGO support, 6 counties visited, facilitated 10 community meetings for 230 people, visited 1 school. Supported VETWORK to visit Terekeka County.
3. Rinderpest Eradication	
3.1 Participate in border harmonization meetings and initiatives	See 1.4c, PACE Sudan, Kenya and Uganda attended Rinderpest Review meeting 31st July Nairobi
3.2a Facilitate the cessation of mass vaccination in all areas.	Mass vaccination ceased Dec 2001 in most areas, June 2002 in remaining areas, all vaccine stocks withdrawn to central store in Lokichokio
3.2b Support targeted vaccination in high risk communities	Assisted with planning of final vaccination campaigns, paid vaccinators.
3.2c Where agreed with neighbouring countries, support vaccination and ear notching of cattle at international border control points.	No vaccination at border points as agreed with neighbouring countries.
3.2d In case of rinderpest outbreak, carry out focal vaccination/ear notching.	No confirmed outbreak.
3.3a Training of CAHWs, supervisors, co-ordinators and vets in rinderpest surveillance outbreak reporting, investigation and sampling; disseminate guidelines	CAHW training and community dialogue guidelines disseminated for use by NGOs and supervisors, 11 field training courses on rinderpest eradiation carried out for 16 field vets and 98 Vet Supervisors/Co-ordinators
3.3b Collate rinderpest outbreak information, prepare reports and feedback to field level	Outbreak data collated, reported quarterly to PACE, feedback during regional livestock co-ordination meetings
3.3c Investigate all rumours or suspected cases of stomatitis/enteritis	All 21 rinderpest rumours investigated: 3 by project vets, 7 by field vets, 6 by Vet Co-ordinators, 5 by Vet supervisors. Project vets made 6 follow up visits to support investigation.
3.3d Develop active surveillance system for stomatitis-enteritis to be carried out by CAHWs, supervisors and co-ordinators.	Active surveillance using cattle camp visits, market surveillance and dialogue introduced.
3.3e Carry out participatory disease searching in lineage 1 rinderpest areas	Participatory disease search used to investigate rinderpest rumours. Active disease searches planned for early 2003.
3.3f Sero-survey of wildlife in rinderpest lineage one risk areas by PACE wildlife unit	Planned but postponed to early 2003.
3.3g Develop performance indicators for disease surveillance	Not yet done.
3.4a Establish system for submission of samples from field to laboratories	System in place.
3.4b Maintain basic laboratory facility in Lokichokio with laboratory assistant	Laboratory assistant in place, and laboratory maintained.

3.4c Maintain links with appropriate regional laboratories for diagnostic support	MOU with KARI Muguga.
3.5a Provide rinderpest sampling kits in all locations	Sampling kits provided or reequipped in base locations.
3.5b With PACE, validate cow-side rinderpest antigen test and filter papers for serum collection	Rinderpest penside kits provided to some base locations, filter papers included in sampling kits.
3.6a Collate information on livestock populations, movements, rinderpest outbreaks and present in map format	Livestock County/State maps prepared for most areas
3.6b Based on mapped information identify areas of likely endemic maintenance and possible epidemic spread.	Risk areas identified on maps.
3.6c Facilitate the development of the strategy for cessation of mass rinderpest vaccination during 2002 for declaration of provisional freedom by end 2005,	Strategy already developed by PACE, project introduced and promoted strategy.
3.6d In rinderpest lineage one risk areas focus on facilitation of targeted vaccination effort followed by cessation of vaccination and introduction of active surveillance and diseases reporting.	See 3.2 and 3.3.
3.6e Where appropriate, rinderpest vaccination provided free of charge to livestock owners by CAHWs contracted and paid by the programme,	Vaccinators paid during final campaigns.
3.7a Prepare contingency plans for the most likely rinderpest emergency scenarios	Sub-national contingency plan and local contingency plans drafted.
3.7b Purchase and maintain stocks of items for rinderpest emergency response	500,000 doses RP vaccine and diluent, vaccination equipment, fridges and sampling equipment stored in Loki, contingency funds for transportation, 2 vehicles available.
3.7c Co-ordinate with PACE Sudan and NGOs in planning and implementation of rinderpest emergency response.	Contingency plans developed in collaboration with NGOs and PACE.
3.7d Train animal health workers in rinderpest emergency response procedures.	Emergency response is included in RP training see 3.3a
4. CBPP control strategy	
4.1a Collect and map CBPP epidemiological information.	Some data collected, supported PACE-CAPE consultants fieldwork in Boma area
4.1b Develop CBPP control strategy.	Interim strategy drafted – to be introduced in Nov 2002.
4.2a Provide training to animal health workers in CBPP control strategy	Pending introduction of strategy
4.2b Supply resources for CBPP control strategy	Medicines, vaccines, sampling equipment and some cold chain procured.

"Fight Against Lineage 1 Rinderpest Virus" Project in Southern Sudan

European Development Fund project number REG/5007/005 EDF VII & VIII

Overall objective: reducing poverty among those involved in livestock farming and increasing productivity, thereby improving their livelihoods and enhancing food security

Purpose: to develop and apply appropriate systems for animal disease surveillance and control to ensure the eradication of rinderpest, thereby supporting Sudan's livestock industry and sector.

Result 1 Adequate capacity established for effective project management.
Result 2 Community-based services for effectively co-ordinated delivery of rinderpest eradication and CBPP control strategies are functional in areas served by Operation Lifeline Sudan southern sector.
Result 3 Sudan is on schedule to be internationally recognized as free from rinderpest disease in 2005.
Result 4 An appropriate strategy for the control of CBPP is in place and has been tested.

I Introduction

During the first year of the project the focus of activities has been on introducing the strategy for rinderpest eradication to all levels of stakeholders, supporting final rinderpest vaccination campaigns and ensuring that the timeframe for cessation of vaccination is observed, developing a community-based rinderpest surveillance system, adding to existing information on rinderpest epidemiology in southern Sudan, and developing emergency-preparedness capacity and plans.

II Achievements during Year One

The planned activities as detailed in the Annual Project Workplan for Year One are shown in a box under each heading for reference.

Result 1 Project Management

1.1 Co-ordination office

The project will establish adequate capacity for effective project management and implementation. The project will contribute personnel, resources and running costs to the administration unit of VSF-Belgium, which will provide accounting, procurement and logistical support to the project. An administrator will be appointed to act as focal point for project administration, based in the Nairobi office. VSF-Belgium will establish a co-ordination office in Lokichokio, from where field activities will be co-ordinated.

VSF-Belgium recruited the rinderpest project personnel - rinderpest project co-ordinator, three regional veterinarians, one laboratory assistant and two driver/logisticians. All were in position by 1st January 2002 (Annex 1). The three regional veterinarians are each responsible for a part of southern Sudan:

- west of Nile,
- Upper Nile and north Jonglei, and
- eastern Equatoria and south Jonglei.

The project personnel met regularly during the year to plan, review, and share information and experiences. An initial planning and orientation meeting for the veterinarians and project manager was

held in early January. A quarterly review and planning meeting for the project veterinarians was held in Nairobi on 29/4/02, and in Lokichokio on 8/7/02 for all rinderpest project staff. Performance appraisals were conducted for all rinderpest project staff after three months and all were confirmed in their positions.

The rinderpest project manager spent time in field locations in southern Sudan with all of the three regional field veterinarians for the purpose of orientation in the new rinderpest eradication strategy, and co-ordinating methodologies for training and surveillance. The laboratory assistant made a visit to Tonj County for field orientation. All field staff attended the compulsory three-day Operation Lifeline Sudan (OLS) security workshop. Three of the four project veterinarians attended a four-day VSF-Belgium management training workshop in Nairobi in February.

The rinderpest project has contributed to the personnel, resources and running costs of the administration unit of VSF-Belgium, which has provided accounting, procurement and logistical support to the project. The Regional Services Manager is the focal point for project administration, based in the Nairobi office. Early in the year a new VSF-Belgium office and store was constructed and equipped within the United Nations camp in Lokichokio, from which the rinderpest project personnel operate and co-ordinate with other livestock agencies.

1.2 Training

Training will be organized for field veterinarians (Sudanese and other nationalities) in epidemio-surveillance, rinderpest eradication verification and CBPP control. One Sudanese veterinarian will attend a 4-6 week training course or overseas study visit relevant to epidemio-surveillance and rinderpest eradication and/or CBPP control. One or more training courses will be organized for a total of approximately 30 field veterinarians in rinderpest eradication and epidemio-surveillance.

The three regional field veterinarians attended a two-week workshop on Participatory Epidemiology in Arusha, Tanzania from 15th – 26th April. This was organized and funded by the Community-based Animal Health and Participatory Epidemiology Unit (CAPE) of the PACE Programme. The skills learned have been integrated into rinderpest surveillance activities.

One of the regional field veterinarians and the laboratory assistant attended a five-day refresher course in post mortem, sampling and basic laboratory techniques, with the aim of improving the quality of samples submitted to the laboratory and improved testing and diagnosis of samples submitted to the Lokichokio laboratory.

The four project veterinarians are scheduled to attend a five-day workshop on wildlife surveillance organised by the PACE Programme. However this workshop has been postponed until Nov-Dec 2002, so the funds for this will be carried forward to year two. In addition suitable short courses in epidemiology and the use of mapping software have been identified and the project plans to send one or more personnel on these courses during year two.

During the year the rinderpest project has been carrying out 9-10 day field training courses on the rinderpest eradication strategy for Veterinary Supervisors, Co-ordinators and field veterinarians. The course includes an explanation of the new eradication strategy, stopping vaccination, surveillance, outbreak investigation, outbreak control, contingency planning, collation of livestock data from the local area, and planning of eradication activities. Each course drew all the veterinary personnel from a particular geographical area (one of more neighbouring counties or districts), with the aim of training personnel from all areas of southern Sudan covered by the project. Details of the training courses carried out are shown in the table below. 16 Field Veterinarians and 98 Veterinary Co-ordinators and Supervisors were trained.

Table 2: Rinderpest Eradication Strategy Training Courses for Field Vets and Vet Co-ordinators/Supervisors

Training Location	Counties/States	Training Course Participants		Date of training
		No. field vets trained	No. Veterinary Co-ordinators/Supervisors trained	
Akobo	Akobo, Nyandit & Diror Districts of Bieh State	3	3	19-28/3/02
Mabui	Yirol & Awerial Counties	2	9	4-19/3/02 (with SSAHATI)
Narus	Kapoeta & Budi Counties	2	11	4-13/5/02
Mading	Latjor State	1	9	23/5-3/6/02
Akon	Gogrial, Aweil South, Wau Counties	3	11	23/5-1/6/02
Haat	Toc, Haat, Jiech Districts of Phou State	-	5	19-28/6/02 (with SSAHATI)
Padak	North and South Bor Counties	-	12	23/6-3/7/02
Marial Bai	Aweil West and North Counties	1	10	24/6-3/7/02
Rumbek	Cuiebet and Rumbek Counties	2	9	16-25/7/02
Kotobi	Mundri, Mvolo, Terekeka Counties	-	14	21-30/8/02
Boma	Pibor County	2	5	19-27/9/02
Total = 11	**20 counties/states**	**16**	**98**	**-**

During 2001 courses had already been carried out for the following areas using the training guidelines prepared by VSF-Belgium:

- by VSF-Belgium Southern Sudan Animal Health Auxiliary Training Institute (SSAHATI): Aweil East, Twic and north Western Upper Nile (12 Vet Co-ordinators/Supervisors), south Western Upper Nile (9 Vet Co-ordinators/Supervisors), and
- by CAPE-funded VSF-B RP activities: Tonj County (11 Vet Co-ordinators/Supervisors, 8 field vets/SSAHATI trainers) and Torit County (1 field vet, 5 Vet Co-ordinators/Supervisors).

In addition during 2002 SSAHATI trained the 4 Veterinary Supervisors in Shilluk Kingdom (northwestern Upper Nile), as part of an Animal Health Auxiliary (AHA) training course, and included the rinderpest eradication strategy training module in a Stockperson refresher course (14), Vet Assistant refresher course (7), AHA training course (21), and two AHA refresher courses (14, 18). Rinderpest project vets carried out part of the rinderpest eradication training for the AHA course and the two AHA refresher courses. The laboratory assistant provided some training on sample collection and submission during the AHA course.

A total of 25 field vets out of a possible 35, and 213 Vet Co-ordinators and Supervisors, have so far received training (some Veterinary Co-ordinators and Supervisors have received training twice during courses run in their home areas and in courses carried out centrally at SSAHATI training centres).

Areas for which some of the Veterinary Supervisors and Co-ordinators have not yet been fully trained are:

- Western Equatoria, Yei, Kajo Keji, & Magwe Counties – due to low epidemiological priority, and
- part of Bieh State, and mid-Western Upper Nile – due to insecurity and lack of access.

Although some of the Vet Co-ordinators and Supervisors from these areas have received some theoretical training on the RP eradication strategy during sessions at regional and Lokichokio co-ordination meetings, or during centralized courses at SSAHATI, some have not received the full practical training. Four training courses to cover these areas have been planned for year two of the project.

Approximately 140 Field veterinarians, Vet Co-ordinators and Supervisors attending the four regional livestock co-ordination meetings have also participated in one-day sessions introducing and revising the strategy for rinderpest eradication and focussing on surveillance, outbreak contingency planning and raising awareness (see section 1.4).

1.3 Community-based system for surveillance of key animal diseases

The project will develop a community-based surveillance system, which will feed into the PACE disease surveillance system. General disease outbreak information will be communicated on a quarterly basis to the PACE Programme Co-ordination Unit at OAU/IBAR but rinderpest surveillance information will be communicated immediately to the PACE Programme Co-ordination Unit (PCU) for appropriate action, as necessary.

The rinderpest project has developed a community-based surveillance system, which is now in use, and will be periodically revised in the light of experience and feedback. The system and the information generated are discussed in section 3.3.

The OLS Livestock Programme had already developed a system for disease outbreak reporting under PARC funding. During livestock co-ordination meetings, training courses and awareness raising activities, the rinderpest project has been stressing the importance of reporting all disease outbreaks. Summaries of outbreak reports received during 2001 and up to October 2002 are in Annexes 2 and 3. Quarterly updates of outbreak reports have been included in the quarterly project reports to PACE. The Veterinary Laboratory in Lokichokio received 33 outbreak reports during 2001, of which 5 were rinderpest rumours. In the period January to October 2002 the veterinary laboratory received 69 outbreak reports of which 21 were rinderpest rumours. The rumours were followed up and the information communicated to AU-IBAR PACE and PACE Sudan. There has been an increased level of disease outbreak reporting and rinderpest outbreak reporting when figures before and during the project are compared.

Details of the 22 rinderpest rumours received during the year November 2001 to October 2002 are given in Annex 4. The 22 rinderpest reports came from 16 different Counties or States (see Annex 5) giving a fairly even distribution throughout the pastoralist areas, with no particular concentration in a particular area. Four reports were made to the OLS veterinary laboratory by community members, three by Veterinary Supervisors, nine by Veterinary Co-ordinators, four by field veterinarians and two came from OLS northern sector via FAO and an NGO. This highlights the involvement of all levels of stakeholders in outbreak reporting from the livestock keeper to the field veterinarian. The action taken as a result of the 21 reports occurring within the southern Sudan region is summarized in the Table 3.

None of the investigations indicated an outbreak of rinderpest (RP). Some were outbreaks of other diseases such as haemorrhagic septicaemia (HS), foot and mouth disease (FMD), east coast fever (ECF) or other causes of increased morbidity or mortality. Other reports were individual cases of RP-like disease, which were not confirmed as RP and did not spread to other cattle. A few reports were made due to a fear of rinderpest occurring in a neighbouring area and a desire for vaccination, and a

few were apparently false alarms made with the aim of drawing attention to a deficiency in animal health services.

Table 3. Rinderpest Outbreak Reports November 2001-October 2002

Investigated by	No. investigations	No. investigations where samples collected	Rinderpest vet made follow up visit	Samples collected by RP vet
Rinderpest veterinarian	3	2		
Field veterinarian	7	3	2	2
Veterinary Co-ordinator	6	2	3	2
Veterinary Supervisor	5	2	1	-
Total	**21**	**9**	**6**	**4**

Depending on the nature of the report and the capacity of animal health services, rinderpest reports were initially investigated by the local field veterinarian, Veterinary Co-ordinator or Supervisor. In about half the investigations, samples were collected either from sick animals or from in contact or recovered animals. Rinderpest project vets carried out the initial investigation in situations where there was little or no capacity on ground, and carried out follow up investigations to cross check initial findings in about one quarter of the other cases. Samples were not collected during some of the investigations due to lack of sick animals to sample, lack of cold chain to store samples, or lack of sampling equipment. Distribution of rinderpest penside test kits and outbreak sampling kits is continuing so that all base locations are equipped with sampling equipment.

1.4 Technical support and co-ordination

The project will commence with a participatory planning meeting involving the major stakeholders, to establish common understanding and promote collaboration. The project will provide technical support to OLS-SS livestock agencies on the utilization of the community-based approach for effective disease surveillance and follow up of outbreaks. Project personnel will participate in co-ordination and standardization of strategies for rinderpest eradication and CBPP control within Sudan and with neighbouring countries by attending relevant regional workshops and meetings. An important activity of the project will be to ensure that activities in southern sector areas are co-ordinated with those in northern sector; project personnel will attend border co-ordination meetings, OAU/IBAR and PACE regional meetings, southern Sudan livestock co-ordination meetings, and livestock co-ordination meetings between northern and southern sectors.

NGO and Counterpart Technical Support and Co-ordination

The initial participatory planning meeting was not necessary because two workshops had already been held during 2001 before the project started to introduce the rinderpest eradication strategy, and included participatory discussion of roles and responsibilities of stakeholders and action planning. These workshops were organized by VSF-B with funded from the CAPE Unit of PACE. However the rinderpest project manager and the three rinderpest field veterinarians attended an OLS Livestock Programme planning meeting in January 2002, to introduce the new rinderpest project and personnel, and discuss the planned field activities. A workshop to review progress on rinderpest eradication was planned for 31st July 2002, after the cessation of mass vaccination (ending 30th June 2002) and approximately 12 months after the initial Rinderpest Eradication Strategy Workshop held in Nairobi.

The rinderpest project manager and a regional veterinarian attended the Eastern Equatoria livestock co-ordination meeting held near to Natinga, Kapoeta County from 11-13th February. There were approximately 27 participants that included Veterinary Co-ordinators and Supervisors from all the counties of the region, the SRRA Chief Vet Co-ordinators, veterinarians from FAO-OLS, VSF-

Germany, VSF-Belgium, and DOT, and the PACE East African Epidemiologist.

The project manager and a regional veterinarian attended the Bahr el Ghazal livestock co-ordination meeting held in Rumbek from 2nd -5th May 2002. There were approximately 40 participants that included Veterinary Co-ordinators and supervisors from most of the counties of the region, the Commissioner of Agriculture, Forests and Animal Resources, the SRRA Chief Vet and Agriculture Co-ordinators, and veterinarians from FAO-OLS, VSF-Germany, VSF-Suisse, VSF-Belgium, SC-UK, Oxfam-GB and NPA.

The project manager and the three regional veterinarians attended the Upper Nile livestock co-ordination meeting in Lokichokio from 14th to 17th May. There were approximately 40 participants that included Veterinary Co-ordinators and Supervisors from Western, Central and Eastern Upper Nile and Jonglei regions, and veterinarians from FAO-OLS, ACROSS, ACORD, VSF-Germany, VSF-Suisse, VSF-Belgium, and SC-UK.

The project manager and a regional veterinarian attended the Equatoria West of the Nile livestock co-ordination meeting held in Yambio from 10-12th July. There were a total of 41 participants that included Veterinary Co-ordinators, Veterinary Supervisors, CAHWs, SRRA Chief Vet Co-ordinator, FAO, VSF-Belgium, NPA and Vetwork, representing all the counties of the region except two.

In all the above livestock co-ordination meetings the rinderpest project facilitated one-day sessions on rinderpest eradication including recent rinderpest eradication activities, eradication strategy, and planning for future activities especially surveillance and outbreak contingency planning. The meetings were organised by FAO-OLS whilst the rinderpest project contributed to the costs of participant accommodation and transport.

As planned, the rinderpest project held a meeting in Nairobi on 31st July 2002 to review progress on rinderpest eradication in southern Sudan over the past one year and to make plans for the coming year. There were sessions on the global rinderpest situation, report from northern sector, regional updates from southern Sudan, report from the veterinary laboratory, surveillance, contingency planning and awareness raising. There were 28 participants from 8 NGOs, PACE, FAO southern and northern sectors, SPLM Commissioner of Agriculture, Forests and Animal Resources, PACE Kenya and PACE Uganda.

Some important issues were raised:

- in order for rinderpest eradication activities to be successful, the animal health priorities of livestock keepers need to be met. In areas where there are no animal health services the project is facing difficulty because it does not have the capacity to assist with other animal health problems. There are several important areas that do not have community-based animal health projects. Ideally these should be covered by other agencies, or the rinderpest project should have some resources to control other diseases.
- progress has been made on improving sample collection and submission to the laboratory however a need was identified for field veterinarians to undergo training in rinderpest sampling and laboratory testing.
- the requirement by Kenya Veterinary Services to obtain individual import permits for each batch of samples brought from southern Sudan to KARI slows down sample submission.
- the development of a sub-national rinderpest contingency plan needs to be accelerated.

With the start of the PACE-funded VSF-Belgium rinderpest project, the responsibility for co-ordination of rinderpest activities in OLS southern sector moved from FAO-OLS to VSF-B. To ensure a smooth transition, the rinderpest project manager had several meetings with the OLS Livestock Programme Co-ordinator to reach agreement on the responsibilities of VSF-Belgium. As a result, an MOU between FAO-OLS and VSF-B was drafted, detailing respective responsibilities and areas of collaboration to support general disease control e.g. veterinary laboratory, cold chain, field

investigations, etc. Whilst the contents of the MOU were largely put into practice, it was never signed by FAO-OLS.

Support was provided to VSF-Germany to assist with the start of their new community-based animal health programme for the Boma area, and the implementation of the final vaccination campaign in that area. One regional veterinarian accompanied VSF-Germany on their first visit to the area in early February and then spent 6 weeks in the area in February and March whilst carrying out fieldwork in collaboration with the CAPE Unit of PACE (see section 4.1).

The rinderpest project collaborated with FAO-OLS to provide support to the indigenous NGO, Vetwork Services Trust, to follow up a rumour of rinderpest from Lainya, to attend the Equatoria West of Nile Livestock co-ordination meeting, and to make a visit to Tali, Terekeka County. Vetwork have been unable to carry out fieldwork so far this year due to lack of donor funds.

The rinderpest project liaises closely with the VSF-B SSAHATI project to identify needs for training of Veterinary Co-ordinators and Supervisors, and provides technical support on the rinderpest training modules used by SSAHATI, through provision of curriculum, training guidelines and materials, and visits by RP project vets to assist with training courses.

Project vets visited eight out of the twelve livestock NGOs in one or more of their field areas to provide support to training, dialogue, surveillance and disease investigation (see section 2.4). In addition, project veterinarians met informally whenever the opportunity arose with NGO field veterinarians in Lokichokio and Nairobi to get updates on their areas of activity. Good relationships have been cultivated with NGO field personnel and co-ordinators to ensure good collaboration and support to rinderpest eradication activities at all levels.

Regional Co-ordination

In November 2001, the rinderpest project co-ordinator attended two workshops in Addis Ababa run by AU-IBAR PACE on participatory epidemiology and CBPP control.

The rinderpest project co-ordinator attended the Livestock Co-ordination Workshop in Khartoum from 21st to 25th April, and made presentations on VSF-Belgium activities in southern Sudan, and Rinderpest Project activities in particular. This was a very useful meeting for sharing information and experiences with northern sector field veterinarians, and agreeing on rinderpest eradication activities for the next one year. Meetings were held with OCHA (Office for Co-ordination of Humanitarian Assistance) and HAC (Humanitarian Aid Commission) to discuss problems with access. Representatives from PACE Sudan and FAO-OLS Northern Sector were funded to attend the Southern Sector Rinderpest Eradication Review Meeting in Nairobi, July 2002

The three regional field veterinarians attended a two-week workshop on Participatory Epidemiology in Arusha, Tanzania from 15th – 26th April. This was organized and funded by the CAPE Unit of the PACE Programme and drew participants from other PACE East Africa programmes.

The project manager attended the Eastern Africa Regional Workshop on Mild Rinderpest 17-19th June in Nairobi organized by PACE. There were valuable presentations on epidemiology, laboratory methods and surveillance and useful interactions with rinderpest experts.

The project manager attended a workshop in Arusha, Tanzania on community-based livestock disease surveillance, organized by PACE Tanzania, VETAID Tanzania and the CAPE Unit of PACE, and made a presentation on experiences with information collection and disease surveillance in southern Sudan. This was a good opportunity to learn about other countries' experiences with community-based surveillance.

The project manager was invited to attend the GREP Meeting on rinderpest eradication in Rome in early October, but was unable to attend due to a flight ban imposed by the Government of Sudan, which prevented her return to Lokichokio in time to fly to Rome.

Result 2 Community based services for the delivery of rinderpest eradication and CBPP control strategies

2.1 Community-based services

The project will obtain, develop and distribute suitable materials and extension packages for raising community awareness and training of CAHWs, supervisors and veterinarians in cessation of rinderpest vaccination, rinderpest surveillance and CBPP control strategies. These might include photo cards, cloth flip charts, information sheets, manuals, community dialogue guidelines, and videos. To support the long-term development of the delivery of appropriate veterinary services by private veterinary practitioners, the project will support CAHWs to carry out rinderpest vaccination, and provide medicines/vaccines for CBPP to the livestock keepers at cost.

Various communication and training materials were developed during 2001 with CAPE Unit funding including audiotapes, videotapes, t-shirts, rinderpest photo cards, and handouts. The rinderpest project has continued to distribute the existing materials to animal health workers and NGO field personnel, and based on experiences with these CAPE-funded materials, additional supplies of the most useful materials were purchased and distributed. These materials are used by field vets and animal health workers during community meetings and when visiting cattle camps. They assist in explaining about the eradication of rinderpest, reminding people of the main clinical signs, the importance of reporting possible cases, and what would happen if an outbreak does occur. The materials stress that everyone has a role to play in the eradication of rinderpest.

- 700 t-shirts with rinderpest pictures and messages were distributed to CAHWs, Veterinary Co-ordinators and Supervisors, field vets and community leaders,
- 100 audiotapes were recorded with songs about rinderpest and its eradication in a variety of local languages, and distributed to field vets, Vet Co-ordinators and Supervisors. In addition blank audiotapes and batteries were given to individual field workers in order to record songs prepared by their communities,
- 400 laminated photocards depicting photos of rinderpest clinical signs have been prepared and are being distributed to animal health workers,
- guidelines for rinderpest community dialogue and CAHW training have been distributed to animal health workers,
- 5 footballs and 5 volleyballs have been purchased for use at sporting events organized in conjunction with rinderpest awareness activities.

New ideas for additional communication materials and methods are constantly coming up, and the project will incorporate these into the year two plan. It is necessary to periodically bring a new way of communicating in order to maintain the community's interest in the message being passed. The rinderpest project manager met with the PACE Communications Officer to discuss experiences and future plans.

The main rinderpest vaccination campaigns were planned in Murle and Jie areas of Pibor County. VSF-Germany managed to secure funds to support the establishment of community-based animal health services in this area from February 2002. Their funds included in kind payments for the vaccinators in the area therefore the rinderpest project did not have to cover this cost. However the project made payments to the vaccinators who carried out limited vaccination in the Kapoeta and Bor areas between January and June 2002.

2.2 Training of Animal Health Auxiliaries

In rinderpest lineage one risk areas, assess the existing capacity of community-based animal health services and identify the need for new supervisors and co-ordinators, or refresher training of existing supervisors and co-ordinators. Support will be provided for 3 veterinary auxiliaries to attend 4-5 months training courses or 2-month refresher training courses provided by VSF-B.

The rinderpest project liaises with the VSF-Belgium South Sudan Animal Health Auxiliary Training Institute to identify the need for training of new supervisors and co-ordinators, or refresher training of existing supervisors and co-ordinators in areas important for rinderpest activities. Three animal health workers from Torit County, Eastern Equatoria were funded to attend the four-month AHA training course from April to August 2002, and two animal health workers from Budi County were funded to attend the 2 month AHA refresher training course from October to December 2002 in Marial Lou, Tonj County organized by VSF-B SSAHATI.

VSF-B SSAHATI has developed a reference manual for AHAs. The project manager read through and gave comments on a draft of the manual. The manual includes basic information on rinderpest disease and control, but refers the reader to the relevant rinderpest eradication strategy documents, which are provided during the training course.

2.3 Legislation

The project will collaborate with the PACE Common Services Veterinary Legislation and Privatisation sub-unit and the OLS Livestock Programme to assist in the development of appropriate legislation to allow privatised veterinary supervised CAHWs delivery in southern Sudan, particularly in relation to sanitary mandates.

The SPLM is in the early stages of developing a legal policy framework for the livestock sector, with support from the OLS Livestock Programme. The rinderpest project is following the process and will participate when appropriate, particularly on aspects that will relate to rinderpest eradication and other disease control. During the Bahr el Ghazal livestock co-ordination meeting in Rumbek in May, the SPLA Commissioner for Agriculture, Forests and Animal Resources made a presentation on the progress they have made so far. The framework is still in draft outline format and they have not yet started to develop the details of legislation. There has therefore been little progress during 2002 on the development of legislation for animal health services, however the civil authorities have participated in several of the livestock co-ordination and rinderpest meetings and are therefore aware of the activities that are going on. This will hopefully pave the way for the development of appropriate legislation in the future. The project manager has not yet met with the PACE Veterinary Legislation and Privatisation Unit.

2.4 Promotion of community-based initiatives and capacity

Community-based initiatives will be widely promoted since this approach has yielded highly satisfactory results during recent years. In rinderpest lineage 1 risk areas, the existing capacity of community-based animal health services will be assessed and the need for new CAHWs or refresher training of CAHWs will be identified. The project will provide support to existing or new NGO projects, or to areas with no supporting agency, to improve coverage in the lineage 1 risk areas, and will assist in community dialogue, selection and training of CAHWs, follow up and refresher training of CAHWs, and provision of equipment. Approximately 20 new CAHWs will be given two weeks basic training and equipped. Approximately 40 existing CAHWs will be provided with refresher training.

Project vets visited eight out of the twelve livestock NGOs in one or more of their field areas to provide support to training, dialogue, surveillance and disease investigation:

- ACORD – Pagak-Latjor State and Aweil West County
- DOT – Kapoeta County
- NPA – Yirol County

- Oxfam-GB – Mundri and Rumbek Counties
- SC-UK – Juaibor-Phou State and Akon-Gogrial County
- VSF-Belgium CBAHP – Akobo and Tangnyang-Bieh State, Haat, Toc, Jiech, Menime and Nyadin-Phou State, Tonj County, and Mading-Latjor State
- VSF-Germany – Boma, Pibor County
- VSF-Suisse – Malualakon-Aweil East, and Turalei-Twic County.

Project vets assisted with 34 community dialogue meetings for approximately 1,200 community members. They also visited 6 schools and talked to children and teachers about rinderpest eradication. Project vets assisted with three basic CAHW training courses for a total of 41 CAHWs, and two CAHW refresher courses for a total of 12 CAHWs. All courses included sessions on the role of the CAHW in rinderpest eradication.

There are a number of areas in southern Sudan that do not have an NGO to support animal health services. There were identified by the project (see map in Annex 6) and a proposal prepared to try to seek funding for agencies to support services in the most important areas i.e. those in the infected zone and those in the surveillance zone with high livestock populations. Meanwhile the project vets visited these areas to provide support to rinderpest eradication activities as well as general advice and support for the community-based animal health service. Visits were made to:

- Budi County,
- Torit County,
- west Kapoeta County,
- North Bor County,
- South Bor County,
- Awerial County.

Project vets facilitated 10 community dialogue meetings for approximately 230 community members. They also visited 1 school and talked to teachers and children about rinderpest eradication. One CAHW refresher training course was carried out by a project vet in Awerial for 20 CAHWs, and CAHW equipment provided for these 20 CAHWs. In November 2002, the North Bor County Veterinary Co-ordinator will be supported by the project to carry out refresher training for the CAHWs and to reequip these CAHWs.

In addition the rinderpest project provided support to Vetwork Services Trust to allow them to make a two-week field visit to their project area of Tali, Terekeka County, and hold meetings with local authorities, veterinary co-ordination committee, and local personnel. Vetwork had failed to secure funds for this area in 2002, creating a gap in community-based animal health programme coverage. In December 2002, the project will also support Vetwork to train and equip some new CAHWs for the area and refresher train and equip the existing CAHWs.

Result 3 Rinderpest Eradication

The main thrust of the project will be to ensure that Sudan is on schedule to be internationally recognized as free from rinderpest disease in 2005. An appropriate strategy for OLS-SS areas will be developed in consultation with GREP, PACE, OLS Livestock Programme agencies, other experts and animal health workers, taking into account existing epidemiological information and gaps in information in certain areas. A major emphasis will be placed on building surveillance systems and capacity, whilst vaccination is targeted and time-bound.

The strategy and timeframe for rinderpest eradication from Sudan was developed by the PACE Co-ordination Unit in early 2001, before the project started. The project works closely with the PACE Co-ordination Unit and PACE Sudan to ensure that this strategy is followed in the areas for which the project is responsible. The main components of the strategy are:

- zonation of Sudan into infected zone, surveillance zone and provisionally free zone,
- cessation of rinderpest vaccination in all areas by 31st Dec 2001, with the exception of targeted areas in the infected zone which cease by 30th June 2002, withdrawal of all rinderpest vaccine from the field,

- strengthening outbreak reporting and investigation systems,
- development of surveillance systems,
- preparation of rinderpest contingency plans.

3.1 Border harmonization meetings

Bearing in mind the common borders of southern Sudan with Ethiopia, Kenya, Uganda, DRC and CAR, and the movement of pastoralist groups across these borders, all rinderpest eradication activities will be co-ordinated with neighbouring countries through border harmonization meetings, local meetings between field staff, and OAU/IBAR, PACE and other co-ordination meetings. These will provide opportunities for information sharing, co-ordination of strategic and operational planning, and will promote the optimal use of resources and complementary implementation of activities.

Project veterinarians have participated in the following regional meetings and workshops (see section 1.4 Regional Co-ordination):

- Participatory Epidemiology, Nov 2001, Addis Ababa AU-IBAR PACE,
- CBPP control, Nov 2001, Addis Ababa AU-IBAR PACE,
- Participatory Epidemiology, Arusha, April 2002, CAPE Unit of PACE,
- Eastern Africa Regional Workshop on Mild Rinderpest, June 2002, Nairobi AU-IBAR PACE.
- community-based livestock disease surveillance workshop, Arusha, PACE Tanzania/VETAID/CAPE Unit of PACE.

In addition project vets attended the Livestock Co-ordination Workshop in Khartoum in April 2002 and representatives from PACE Sudan, PACE Kenya and PACE Uganda attended the rinderpest review meeting in Nairobi organised by the project in July 2002. These meetings and workshops have provided technical information to the project vets and provided opportunities for exchange of experiences and ideas with colleagues and experts from the region.

3.2 Stopping vaccination against rinderpest

Following the agreed outline strategy for Sudan, mass vaccination against rinderpest will be discontinued in all parts of southern Sudan by mid 2002. The timeframe for stopping mass vaccination against rinderpest will vary with the epidemiological area. In the area to the west of the Nile, mass vaccination will cease by the end of December 2001. Areas to the east of the Nile (East Nile ecosystems) will be categorized - according to the apparent rinderpest risk and accessibility - as high-risk communities, indicator communities and limited access communities. In high-risk communities, participatory disease searches will be carried out combined with sample collection and targeted vaccination of defined sub-populations will be carried out where appropriate. Indicator communities will be the subjects of enhanced surveillance. The approach regarding limited access communities will be opportunistic and may include surveillance with vaccination. Vaccination and ear notching of cattle may be carried out at international border control points, in accordance with agreed cross-border movement control systems. In case of confirmed rinderpest virus circulation, focal outbreaks or epidemics, tactical vaccination with ear notching will be carried out with the aim of eliminating the infection.

Most areas of southern Sudan stopped rinderpest vaccination by the end of December 2001. The project supported vaccination in targeted areas of the infected zone until the end of June 2002. The areas that were targeted were the Murle and Jie communities of Pibor County, and neighbouring areas of Kapoeta and Bor Counties. The vaccination figures achieved in these areas between January and June 2002 were as follows:

- South Bor 7,000 (only Murle cattle grazing within the area were targeted not the resident Dinka population),
- Kapoeta County 35,000 (only the Jie community and neighbouring Toposa community at Mogos and Lopet, and Toposa neighbouring Murle and Jie at Kurun were targeted),
- Pibor County 46,719 – a high proportion of the Jie community were vaccinated, a smaller proportion of Murle were vaccinated due to limited timeframe for vaccination before the

deadline, some had previously been vaccinated by northern sector, and some initially agreed to vaccination but later refused when the campaign started.

The project paid the vaccinators in south Bor and in Kapoeta County for the vaccinations carried out. In Pibor, VSF-Germany provided in kind support to the vaccinators. The vaccine utilised came from existing stocks of the OLS Livestock Programme. The project purchased 500,000 doses of thermostable vaccine that was not needed for the final campaigns and therefore has been retained as a contingency stock, which has not yet been needed. Funds for a further 500,000 doses have therefore not been spent.

The project facilitated withdrawal of all stocks of rinderpest vaccine to Lokichokio and the destruction of expired stocks.

No rinderpest vaccination is being carried at international border control point, as agreed with PACE and neighbouring countries. There has been no confirmed rinderpest disease during the reporting period and therefore no rinderpest vaccination has been carried out, except in targeted areas.

For each area of southern Sudan the last month and year of rinderpest vaccination has been documented as a reference for the future planning of sero-surveillance activities.

3.3 Support for surveillance networks

The project will develop and introduce an epidemio-surveillance system appropriate to southern Sudan, in consultation with PACE, OLS Livestock programme agencies, and institutions providing laboratory support.

- *Training*: In support of surveillance networks, the project will provide training to CAHWs, supervisors, co-ordinators and vets in rinderpest surveillance, outbreak reporting, investigation and sampling. Approximately eight field workshops will be organized, focussing on lineage 1 risk areas. The project will disseminate guidelines on surveillance, reporting and investigation of rinderpest outbreaks. Rinderpest outbreak information and reports will be prepared and feedback will be provided to field level.
- *Passive surveillance*: The project will ensure that all rumours or suspected cases of stomatitis/enteritis arising from outbreak reporting and active surveillance are promptly investigated.
- *Active surveillance*: A system of active surveillance will be developed for stomatitis-enteritis, which will be carried out by CAHWs, supervisors, co-ordinators and field veterinarians utilizing systematic livestock owner interviews and clinical examination of cattle in cattle camps and markets. Systems will be introduced and fully functioning by the end of year one. Once rinderpest vaccination has ceased, intensive surveillance will be introduced, using a purposive sampling system where randomised sampling is not possible. Purposive disease searching will be carried out by project personnel, in collaboration with NGO staff and counterparts, in the main communities to the east of the Nile to improve understanding of rinderpest epidemiology in this ecosystem.
- *Wildlife surveillance:* The project will facilitate the implementation of a sero-survey of wildlife in the rinderpest lineage 1 risk areas, to be carried out by the PACE wildlife unit. The project will also raise the awareness of communities and animal health workers of the importance of reporting deaths and disease amongst wildlife.
- *Performance indicators:* Appropriate PIs will be developed for general disease surveillance, active disease surveillance, stomatitis/enteritis outbreak investigation and diagnosis, and sero-surveillance, following the recommendations of GREP.

The project has developed and introduced an epidemio-surveillance system, which is described in Annex 7. It consists of passive surveillance; outbreak reporting and investigation, and active surveillance; cattle camp visits, market surveillance, surveillance during dialogue and participatory disease searching. Livestock keepers, CAHWs, Vet Supervisors and Co-ordinators, field vets and rinderpest project vets all play important roles in the system.

Training
A CAHW training module for rinderpest eradication, including surveillance and outbreak reporting and investigation, has been disseminated to all field veterinarians and supervisors for their use during CAHW training courses and refresher training courses. Project vets have assisted with the training of CAHWs in some areas of the infected and surveillance zones (see section 2.4).

Guidelines for carrying out community dialogue for rinderpest eradication, including the role of the community in surveillance and outbreak reporting, have been disseminated to all field veterinarian and supervisors to assist with effective dialogue. Project vets have assisted with community dialogue in many areas (see section 2.4).

11 ten-day field training courses on rinderpest eradication, which include theory and practical sessions on surveillance, outbreak reporting and investigation, and sample collection, have been carried out. A set of handouts covering all aspects of the course is given to each participant for future reference. The courses were attended by 98 Veterinary Supervisors and Co-ordinators and 16 field vets (see table 2). 5 courses were for participants in the infected zone, 4 for the surveillance zone and two for the provisionally free zone. In year two, one more course is planned for a part of the infected zone, and three for parts of the surveillance zone. In addition information on surveillance, outbreak reporting and investigation and sampling has been presented and discussed during regional livestock co-ordination meetings which are attended by Veterinary Supervisors, Co-ordinators and field vets (see section 1.4).

Passive Surveillance
The rinderpest outbreak reports received and the action taken are detailed in section 1.3, Table 3, and Annexes 2-5. Data on rinderpest outbreak reports has been presented during regional livestock co-ordination meetings.

Active Surveillance
Cattle camp visits and other active surveillance activities are described in Annex 7. The data collected from cattle camp surveillance up to end of October 2002 is summarized in Annex 10.

- 487 herds or cattle camps were surveyed,
- these herds contained a total of 335,638 cattle (5.6% of the estimated cattle population),
- surveillance visits were made by 103 out of approximately 185 supervisors,
- visits were carried out in all six regions and in 27 out of 34 counties or states.

Only four livestock keepers mentioned that rinderpest was affecting their cattle, and on further questioning said that they hadn't seen clinical rinderpest for 10 or more years. Most livestock keepers had not seen rinderpest for five or more years. Reports of rinderpest in the last 2-3 years could usually be correlated with known outbreak reports of rinderpest or other diseases.

Active disease search exercises have been planned for the 2003 dry season in Murle areas of Pibor County and in part of the Sobat Basin. These areas have been targeted as areas of possible endemic foci.

Wildlife Surveillance
The project collaborated with the wildlife unit of PACE to plan a wildlife surveillance exercise during the 2002 dry season in the Pibor area. The exercise however was postponed until the 2003 dry season. During community dialogue and training courses, the importance of reporting deaths or diseases of wildlife is stressed and areas of wildlife concentrations have been identified and mapped.

Performance Indicators
Performance indicators have not yet been developed for the surveillance system. These will be developed during year two of the project.

3.4 Specimen submission

An efficient system for submission of samples from field to laboratories will be established, the basic laboratory facility in Lokichokio will be improved, and a laboratory assistant will be recruited to carry out basic tests. S/he will process and forward serum and other samples to regional laboratories. Links will be strengthened with appropriate regional laboratories for diagnostic support. The project will pay for the services provided by the regional laboratories. Duplicate sets of serum samples will be collected; one set will be sent to the CVL, Soba, for testing for the presence of rinderpest antibodies. When necessary samples may be sent to the world reference laboratory in UK.

The rinderpest project employs a laboratory assistant in the veterinary laboratory in Lokichokio, who is responsible for the day-to day work of the laboratory, carries out routine basic tests on samples submitted from the field, and processes and forwards serum samples, filter paper samples and samples for outbreak investigations to Nairobi, with the necessary documentation for import permits and laboratory submission. She received a one-week laboratory refresher course. She has made presentations during livestock co-ordination meetings and during an AHA training course on improving quality of samples submitted to the laboratory. The project has provided supplies to maintain the laboratory in collaboration with FAO-OLS.

From January to September 2002 the veterinary laboratory in Lokichokio received and tested the following samples:

- 190 blood smears (18 positive trypanosomiasis, 3 positive microfilaria, 3 positive Anaplasma, 1 positive ECF),
- 21 faeces samples (4 >500 epg)
- 7 skin scrapings (2 positive for dermatophilus),
- 51 sera for brucellosis (11 were positive).

VSF-B has signed an MOU with the KARI Regional Reference Laboratory, Muguga for the submission of samples for rinderpest serology and virus testing. 3 batches of samples were submitted from rinderpest outbreak investigations and were tested by AGID, virus isolation and PCR. All were negative for rinderpest virus. 2000 sera and filter paper samples were submitted for rinderpest serology in June 2002. KARI is following the recommended sero-surveillance protocol of a series of serological tests. Whilst some of the tests had been performed and informal preliminary results reported the full results of all tests performed had not been received by the end of October 2002.

Samples were collected from two suspected outbreaks of PPR and submitted to Muguga. Samples for virus isolation were negative, but the serum collected had very high antibody titres by both cELISA and VNT, indicating current or very recent exposure to PPR.

Five batches of samples were submitted from FMD outbreaks to the FMD Laboratory in Nairobi. Results of virus isolation were negative in all but one case, which was positive for SAT1. Serology results have only been received for two batches, which showed high levels of SAT1 antibody, and lower levels of O, A and SAT2. Results for the remaining three batches are still pending.

In addition, about 1,500 sera were collected during a CBPP surveillance exercise (see section 4.1).

Whilst the correct methods for sampling cases of rinderpest-like disease have been developed and are being disseminated during rinderpest training courses, there is weakness in the collection of appropriate samples to confirm other common diseases. The laboratory assistant and one regional veterinarian have developed some guidelines for field reference to assist in the collection of the correct samples for investigation of common diseases, which will be distributed during the November 2002 livestock co-ordination meeting.

3.5 Laboratory diagnostics

In support of laboratory diagnostics, capacity and standards, the project will maintain rinderpest sampling kits in all locations, and will work with PACE to validate the cow-side rinderpest antigen test and filter paper serum collection.

Under the earlier PARC-funded rinderpest activities, UNICEF livestock programme had developed outbreak sampling kits that were distributed to most field locations to be used by field vets and supervisors. The content of the kits has been revised and items have been procured for restocking and making new kits. The project vets have been updating and resupplying kits during field visits. Additional kits have been distributed to some areas.

Some penside rinderpest test kits were supplied by FAO during 2001. These were distributed to some locations and their use demonstrated during training courses. A test report form was developed. The tests have mostly been used during training courses for demonstration and practicals, and the remaining tests expired in July 2002. A new stock of 300 rinderpest penside tests was procured and has been divided into kits of 10 tests for distribution to base locations. Some problems were identified with the original batch of tests and the information provided to the manufacturer who plans to make some improvements. A supply of filter papers for serum collection has been procured for inclusion in sampling kits.

3.6 Rinderpest monitoring and surveillance

Activities connected with rinderpest eradication and verification include:

- Collate, analyze and regularly update information on livestock populations, movements, rinderpest outbreaks and present in map format,
- Based on the above information identify areas of likely endemic maintenance (rinderpest lineage 1 areas) and areas of possible epidemic spread (rinderpest lineage 1 risk areas),
- Facilitate development of the strategy for cessation of mass rinderpest vaccination in the southern Sudan region by OLS livestock programme during 2001-2 to allow declaration of provisional freedom by mid 2002, and declaration of freedom from disease by end of 2005,
- In rinderpest lineage 1 risk areas, focus on facilitating tactical vaccination followed by cessation of vaccination and introduction of active surveillance and disease reporting, working closely with the relevant NGOs/FAO and local animal health workers,
- In certain lineage 1 endemic areas, where it is considered likely to promote maximum coverage and will not undermine existing cost recovery systems, rinderpest vaccination will be provided free of charge to livestock owners by CAHWs contracted and paid by the project,
- On cessation of vaccination, active surveillance and disease reporting systems will be fully operational in all areas, and sero-surveillance will be introduced. A system of payment for key rinderpest surveillance work carried out by animal health workers will be developed.

The project has been facilitating the mapping of each county and state during the rinderpest eradication training courses. The local animal health workers prepare a livestock resource map of their own area, identifying areas of perceived rinderpest risk. Most counties and states have now been mapped. The maps have promoted discussion of animal health service coverage, where to target surveillance, areas of wildlife concentrations, and copies will be included in the local contingency plans. The project plans to extract data from these hand drawn maps and collate them using mapping software.

See sections 3.2 and 3.3 for activities related to strategy, vaccination, and surveillance.

3.7 Emergency preparedness plan

In collaboration with all stakeholders, the project will develop an emergency preparedness plan that takes into account the major constraints to rapid response in southern Sudan, by:

- preparing contingency plans for the most likely rinderpest emergency scenarios,
- purchasing and maintaining at strategic points stocks of items necessary for rinderpest emergency response,
- co-ordinating with PACE Sudan, FAO and NGOs in the planning and implementation of rinderpest emergency response, including provision of technical support and transport,
- training animal health workers in rinderpest emergency response procedures.

A sub-national rinderpest emergency contingency plan has been drafted and circulated to NGOs and FAO-OLS and PACE for comments. Local contingency plans have been drafted by Vet Supervisors, Co-ordinators and field vets during the rinderpest eradication training courses which consist of several sections: animal health personnel and other key personnel, resources available and needed, seasonal calendar, local map, and outbreak investigation and control procedures. The local plans are being finalised. Once they are finalised, sub-national and local plans will be distributed to the appropriate stakeholders. The plans will be reviewed every 6 months to ensure they are up to date. Rinderpest outbreak investigation and control is included as a component of the rinderpest eradication training course, and has been revised during regional livestock co-ordination meetings.

VSF-Belgium has prepared stocks of thermostable rinderpest vaccine, diluent, vaccination equipment, portable fridges, and sampling equipment at its base in Lokichokio, for rapid deployment by air or road in the event of an emergency. The two project vehicles operate from Lokichokio and in the event of an emergency can be moved by road or air to the required location.

Result 4 CBPP control strategy

4.1 Development of a CBPP control strategy

Epidemiological information on the dynamics and impact of CBPP will be collected through general disease reporting, outbreak reports and investigation, and participatory disease searching with follow up field and laboratory investigations. The information will be mapped and appropriate strategies developed in consultation with PACE and other CBPP experts for CAHWs, supervisors and veterinarians to control CBPP.

The project collaborated with the CAPE Unit of PACE by facilitating a consultant to carry out fieldwork in the Boma area on CBPP epidemiology during February and March 2002. This is part of a larger piece of research on CBPP in the region. A report of the field work has been received, and a summary of the findings is given in Annex 11. The consultant found that CBPP was endemic with a seasonal variation in incidence, and was ranked as a high priority by livestock keepers. CFT serology showed 6.2% prevalence of CBPP antibody. He recommended that the initial target should be to reduce losses related to CBPP and recommended a strategy of whole herd vaccination plus treatment of clinical cases, with vaccination repeated after 6 months, and after a further 12 months. This control strategy should be offered to livestock keepers who indicate that CBPP is a problem, who would then pay a fee for the vaccination and treatment.

Based on the recommendations of the consultant, a draft CBPP control strategy was developed and will be presented to the November 2002 livestock co-ordination meeting for discussion (Annex 12). The strategy is intended to be temporary with the aim of taking the first step forwards from the current situation of occasional treatment of clinical cases and very limited vaccination coverage, towards a more rational herd-level approach to CBPP control. It will be modified and updated in the light of field experience and future recommendations from PACE.

4.2 Training

Training in CBPP control strategy will be provided at all levels; the necessary supplies (vaccines, cold chain, and medicines) will be procured; and, transport will be provided to enable the strategy to be implemented in a pilot area.

Training in CBPP control has not yet been provided, however a draft strategy will be presented to Vet Supervisors, Co-ordinators and field vets during the November 2002 livestock co-ordination meeting. Small stocks of CBPP vaccine, antibiotics, and cold chain have already been procured and will be provided to areas that are interested to implement the CBPP strategy.

III Budget Utilisation

The original year one budget was amended in September 2002 (see annex 12) to reflect some variations in actual costs compared to the original estimates when the budget was prepared.

Out of the total year one budget of 935,500 EUR, 584,676 EUR (approximately 63%.) was spent by end of October 2002. An initial advance of 748,400 EUR was received of which 584,676 EUR was spent (78%). A request for the interim payment of 800,000 EUR will therefore be made at the same time as this narrative and financial report is submitted. There were several reasons for the 37% under spend:

- whilst the contract was signed in early November 2001, VSF-Belgium was not given the go ahead to start implementing until mid-December 2001, so major activities did not start until January 2002. Most personnel and running costs are therefore for only 10 out of the 12 months budgeted (70,000),
- the wildlife surveillance work was postponed until 2003 (50,000),
- there was no confirmed outbreak of rinderpest so there was no need to use the contingency (30,000),
- there was no rinderpest outbreak and the vaccinations carried out in 2002 were less than had originally been estimated (the targeted areas were drastically reduced) and existing stocks of OLS Livestock Programme vaccine were used for these campaigns, so only half the planned amount of rinderpest vaccine was purchased as contingency stock (50,000),
- due to lower than predicted vaccination numbers only a small amount of funds was needed for payment of vaccinators, and the surveillance system only got going in mid-2002 so surveillance payments were very low (30,000),
- CBPP control component was lower priority relative to the RP activities so expenditure on this has been low (37,000),
- built into the air/road transport costs was support to outbreak response (airlift of vehicle etc.) but there was no major outbreak so this was not utilised (20,000),
- costs of the field workshops and meetings were less than estimated (20,000),
- some activities were postponed until year two of the project e.g. vet training/study visit (6,000) and some supplies were still in the process of procurement and had not yet been invoiced by the end of October 2002.

Based on the experiences of year one, a year two work plan and cost estimate is being prepared that incorporates the unspent funds of year one.

IV Constraints

Climatic Conditions

Unusually heavy rains affected parts of southern Sudan towards the end of 2001. This prevented road access to key areas such as Boma, Jonglei region but improved grazing conditions for the livestock of Eastern Equatoria after several years of poor rains. The rainy season in southern Sudan normally starts in May and ends in October-November, however the rains started late in 2002 and were then erratic

and patchy with an overall rainfall below average. This meant that there was a longer period when it was easier to move around by road and airstrips were dry enough to land. However in many areas crops were planted late, or were planted and didn't survive, and harvesting was later and lower than normal. This has caused hunger in many areas, and World Food Programme assessments indicate moderate to high food deficits in many parts of southern Sudan. The poor food security situation is likely to affect project activities during 2003 if the communities the project is working with are short of food. In addition, due to delay in growth of pasture and lack of water availability, cattle were late in returning to their wet season grazing areas and left earlier than normal to go to dry season grazing areas.

Access

The rinderpest project co-ordinator and one regional veterinarian planned to visit Boma in early March to participate in CBPP field work and assist VSF-Germany. However clearance for the Boma airstrip was denied by the Government of Sudan from 1st March so the visit had to be cancelled. A high number of airstrips were denied clearance from March onwards, which has restricted access, interrupted planned activities and caused problems with logistical support. At the end of September, the Government of Sudan imposed a 9 day flight ban for Equatoria region, which prevented all flights from Lokichokio into southern Sudan. RP Project field staff were in the field at the time and planned movements were delayed. The project manager was prevented from attending the FAO GREP meeting in Rome due to the flight ban.

Security

In early January a merger between the two largest rebel factions, SPLM and SPDF, was announced. This has reduced interfactional fighting, however there are still several smaller rebel factions that are allied to the Government of Sudan, which continue to cause conflict within the southern region.

There have been intensive peace negotiations between SPLM/A and the Government of Sudan in July, September and October 2002, leading to an MOU signed on 15/10/02 agreeing to continue negotiations, with cessation of hostilities and unimpeded humanitarian access until 31/12/02.

In spite of the peace negotiations, until the October ceasefire, there were some major offensives in southern Sudan. Apart from the suffering of the local people, for NGO projects insecurity prevents access to the affected area, affects movement in neighbouring areas, and can result in looting or destruction of project assets. These all cause interruption of project activities. For the livestock programme it means that NGO veterinarians are unable to monitor and support their areas of responsibility, and training courses, dialogue and vaccination activities are postponed. For the Rinderpest Project it limits access for outbreak investigation, other surveillance activities, and training courses, and impedes communication with animal health workers and delivery of supplies. The main areas affected were:

- early in the year there was major LRA (Lord's Resistance Army) activity in Eastern Equatoria in Magwe and Torit Counties. UPDF (Ugandan People's Defence Force) entered Sudan to fight with the LRA. The LRA has continued to be active in the area.
- Kapoeta town was captured from the Government of Sudan by the SPLA. After its capture it was heavily bombed by the Government causing continued displacement of the population. Access to the area was restricted after a truck hit a landmine in the area. Torit and Lafon were also captured but later fell back to the Government again.
- at end of 2001 and early 2002 parts of Northern Bahr le Ghazal were severely affected by People's Defence Force (PDF) raids, causing looting and displacement. Government of Sudan forces attacked villages around Wau, and for several months there was fighting between Government of Sudan and SPLA to the north and east of Wau. NGO personnel were evacuated or movement restricted.
- In the areas around the oilfields in Western Upper Nile there continued to be insecurity and major displacement of communities.
- Interclan fighting between Lou and Jikany north of Akobo resulted in displacement of Jikany with their cattle to the north of the Sobat, and the VSF-Belgium base in Wanding was looted.

Akobo was taken over by the SPLA and the VSF-B base in Akobo looted.

- Bieh State has been insecure for most of the period due to fighting between different factions and changes in allegiances. Waat was attacked by a militia, one NGO person was killed and three people taken hostage. The hostages were later released unharmed.
- Latjor State had several security alerts due to threats by a Government-allied militia around Nasir, and several different factions are operating in the eastern part of the State.

Funding for partner agencies

The success of the rinderpest eradication project depends on existing livestock agencies continuing to support community-based animal health projects throughout southern Sudan. This constraint was highlighted and discussed during the rinderpest review meeting on 31st July (section 1.4). For the rinderpest project to be effective in areas where there is no support to community-based animal health projects, the project needs to have medicines and vaccines to meet the current priorities of livestock keepers. Two agencies have received no funds so far in 2002:

- Vetwork Services Trust, which had been covering Tali Payam in Terekeka County, Eastern Equatoria. VSF-B rinderpest project provided funds for Vetwork to make a two-week visit to the area during this period.
- ACROSS which had been covering south Bor County and part of Western Upper Nile. They have closed both livestock projects from June 2002. VSF-B has participated in identifying strategies for continuing to support the CAHWs in these areas.

Some areas of southern Sudan continue to have no support from livestock agencies:

- Torit, Budi and Magwe Counties in Eastern Equatoria,
- most of Western Equatoria,
- North Bor and Pochalla, Jonglei, and
- parts of Upper Nile e.g. Ruweng, Atar.

Rinderpest project veterinarians give special attention to these areas for follow up of rinderpest rumours, field visits for training, community dialogue and surveillance, and ensuring participation of animal health workers in livestock co-ordination meetings and SSAHATI training courses. However the project does not have the resources to supply medicines and vaccines to control other major disease problems. A proposal was therefore prepared to seek funds for one or more livestock agencies to support community-based animal health services in key areas of the infected and surveillance zones.

Regional lab support

VSF-Belgium has signed an MOU with KARI, Muguga for submission of samples for rinderpest serology and outbreak investigation. Whilst samples submitted for virus testing are normally reported quickly, serological testing and receipt of reports takes several months.

V Action Plan for Year Two

The focus for year two is to build on the experiences of year one, continue to develop and refine the systems for outbreak reporting and investigation, surveillance and emergency preparedness, to ensure that if rinderpest virus is still present that it is identified and action taken, and, if it is no longer present, to start to build up evidence that Sudan is free of rinderpest.

A detailed work plan and budget was submitted to PACE in October 2002, but this will now be revised to take into account the funds carried forward from year one.

Annex One

VSF-Belgium Rinderpest Project Personnel

VSF-Belgium recruited the following staff to implement the rinderpest project, which operates in parallel with the existing Community-based Animal Health Project and South Sudan Animal Health Auxiliary Training Institute of VSF-Belgium. The three projects report to the VSF-Belgium Head of Mission, based in Nairobi

Bryony Jones	Rinderpest Project Manager
Samuel Letereuwa	Regional Veterinarian
Aluma Araba	Regional Veterinarian
Peter Koskei	Regional Veterinarian
Alice Kiyong'a	Laboratory Assistant
Mathew Chepkiyieny	Driver/logistician
Bernard Nachomo	Driver/logistician

The regional veterinarians are responsible for co-ordination and support to rinderpest eradication activities in the following areas:

Samuel Letereuwa	Phou State, Bieh State, Latjor State and the Shilluk Kingdom
Aluma Araba	Magwe, Torit, Budi, Kapoeta, Pibor, Pochalla and Bor Counties
Peter Koskei	West of the Nile; Northern Bahr el Ghazal, Lakes, Western Equatoria regions, Western Upper Nile, and parts of Eastern Equatoria west of the Nile

The Rinderpest Project Manager advises and assists the regional veterinarians. The laboratory assistant is in charge of the Lokichokio veterinary laboratory. The driver/logisticians drive and maintain the two project vehicles and carry out logistics in support of field activities.

Annex 2: Summary of Disease Outbreak Reports 2001

No	Date of report	Area			Organisation	Clinical diagnosis	Laboratory confirmation	Action taken	Date of action
		County	Payam	Village					
1	1/02/01	Aweil East	Malual Akon		VSF-CH	Anthrax	No samples submitted	Blanthrax vaccine requested	
2	3/02/01	Pibor	Pochalla	Otalo	World Relief	Internal parasites	Theileria piroplasms & egg count +ve	16 litre Valbazen sent	7/3/01
3	9/03/01	Mundri	Lozo	Aru	OXFAM-GB	FMD	sample haemolysed	Treatment of secondary infection done	
4	16/2/01	Yirol	Adior	Toic	SRRA Vet	burns (264 cattle)	not applicable	Secondary infection treated by AHA/SP	
5	23/3/01	Tonj	Thiet	Malual Mok	FAO	Anthrax	Not sampled	200 cattle vaccinated with Blanthrax	24/3/01
6	26/3/01	Bor North	Kongor	Piomatak	SRRA Vet	FMD	Sample collected	UNVET sending drug for secondary treatment	
7	6/4/01	Yirol	Aliap	Abuyong	SRRA Vet	CBPP/HS	No samples submitted	Vaccines and antibiotics sent by FAO	14/5/01
8	24/4/01	Tonj	Kwanythii	Noi-Abouk-Nyang	FAO	Blackquarter	Sampling not done	Blanthrax vaccination carried out	24/4/01
9	26/4/01	Tonj	Kwanythii	Lurcuk	FAO	S-E monitoring	No sampling	One cow with signs of tearing, emaciation – tryps	26/4/01
10	1/5/01	Shilluk area	Zone II	Lul (Otang Lul)	VSF-Germany	CBPP	No sampling	Treatment with antibiotics carried out	3/5/01
11	23/5/01	Mundri	Kidiba / Lazo		OXFAM-GB	HS / BQ	Sampling done	5,316 HS and 1,623 BQ vaccinations done	Feb - May
12	31/5/01	Western Upper Nile	Mayendit	Around Thornyol	ACROSS	Rinderpest rumour	No sampling done	One cow with diarrhoea, RP vaccine delivered	28/6/01
13	4/6/01	Kapoeta	Kapoeta	Karakamuge	DOT	Rinderpest rumour	Not accessible from southern sector	Checked by northern sector , no RP found	
14	14/6/01	Aweil West	?	?	SRRA Vet	Anthrax	No sampling done	Blanthrax vaccine requested	
15	15/6/02	Latjor	Maiwut	Wureng, Jakou, Turu	ACORD	FMD	No sampling done	Antibiotics used on secondary infection.	15/6/01
16	18/6/01	Shilluk area	Zone II	Kom	VSF-Germany	CCPP	No sampling done	Treatment carried out with antibiotics	18/6/01
17	26/6/01	Shilluk area	Zone II	Wecreek, Agour	VSF-Germany	Orf	No sampling done	Symptomatic treatment	26/6/01

18	11/7/01	Torit	Kiyala	Tiraangole	SRRA Vet	CBPP	No sampling done	Peribov vaccination done	11/07/01
19	17/7/01	Tonj	Makuac	Lualjang, Kuenhbar	VSF-Belgium	BQ	No sampling done	Vaccination carried out with Blanthrax	19/7/01
20	5/8/01	Bor South	Baidit	Angakuci/ Panmaketh	ACROSS	CCPP/PPR?	No sample taken	ACROSS dealing with the situation	7/8/01
21	6/8/01	Bor South	Baidit	Mayen / Angakuei	ACROSS	HS	No sample taken	UNVET supplied HS vaccine	19/9/01
22	31/8/01	Bor South	Baidit	Panyei/ Panmaketh	ACROSS	CBPP	No sample taken	ACROSS dealing with the situation	1/9/01
23	August	Budi	Lorema	Lorema	SRRA Vet	LSD? Cowpox?	No sampling	Antibiotic given for secondary infection	August
24	14/9/01	Shilluk area	Oriny	Ogwar	VSF-Germany	Gumboro disease? NSD?	No sample taken	VSF-G handled the situation	14/9/01
25	18/9/01	Tonj	Kwanythii	Abiem, Monthlor	FAO	FMD	No sample taken	Secondary infection treatment	28/9/01
26	20/9/01	Tonj	Kwanythii	Aboak, Gwacwen	FAO	BQ	No sample taken	Vaccination carried out by FAO	25/9/01
27	2/10/01	Rumbek	Pacong	Matar	OXFAM-GB	FMD	Sample collected for typing	OXFAM-GB handling situation	4/10/01
28	2/10/01	Rumbek	Pacong	Matar	OXFAM-GB	Foot rot	No sample taken	OXFAM-GB handling situation	4/10/01
29	3/10/01	Kapoeta	Karacha	Karacha	DOT	S-E monitoring	Penside test negative		4/10/01
30	21/10/01	Rumbek	?	Malek	OXFAM-GB	BQ	No sample taken	Blanthrax vaccine sent	1/11/01
31	16/11/01	Phou State	Juaibor	Juaibor	SCF-UK	Rinderpest rumour	Serum samples submitted	Short visit 7/12/01 VSF-B, full visit carried out in Feb 2002 – found no evidence of clinical disease.	7/12/01
32	23/11/01	Gogrial	Pathuon	Majakliet, Toch	VSF-Germany	Anthrax	No sampling done	148 vials of Blanthrax provided	26/11/01
33	23/11/01	Gogrial	Kwajok	Kwajok	VSF-Germany	B/Q	No sampling done	"	"

Annex 3: Summary of Disease Outbreak Reports January – October 2002

No	Date of report	Area			Organisation	Clinical diagnosis	Laboratory confirmation	Action taken	Date of action
		County	Payam	Village					
1	14/1/02	Panyinjar	Ganyiel/Nyal	Laidit	VSF-Suisse	FMD	21serum samples submitted; positive results 81% SAT 1, 44% O, 19% A, 19% SAT 2.	Secondary infection treated by VSF-CH	18/1/02
2	26/1/02	Tonj	Akop	Rual Malith	VSF-B	PPR	Eye swabs negative, sera had very high antibody titres for PPR by cELISA and VNT.	Secondary infection treated by VSF-B	29/1/02
3	31/1/02	Budi	Lauro	Kilanya	SRRA Vet	Rumour of rinderpest	No sampling done	Investigated by Stockperson, found calves with diarrhoea, diagnosed worms/ECF	2/2/02
4	Jan 02	Twic	Turalei	Aweng / Akuac	VSF-Suisse	Rinderpest Rumours	Serum samples submitted – results pending	Investigation done by VSF-B rinderpest project – no evidence of rinderpest found	1/2/02
5	5/2/02	WUN	Nimne	Nimne	ACROSS	Rumour of rinderpest	No samples submitted	Further information indicated high incidence of tyrpanosomiasis, ACROSS following up	7/2/02
6	12/2/02	Tonj	Thiet	Cum Anyua area	FAO	Rumour of stomatitis	No samples submitted	Investigation by FAO staff found no disease	18/2/02
7	22/2/02	Maridi	Kozi	Gova, Mudobai	SRRA Vet	CBPP	No sampling done	FAO sent antibiotic	25/3/02
8	22/2/02	Maridi	All	widespread	SRRA Vet	Coccidiosis	No sampling done	FAO sent Furaprol	25/3/02
9	13/3/02	Aweil East		Mabior	VSF-Suisse	Bloody diarrhoea	Samples collected and submitted to Muguga 20/3 – results negative.	Post mortem; FB blockage of intestine	13/3/02
10	13/3/02	Western Kordofan		El Muglad, Meiram, Abyei	FAO Rome	MCF	MCF (Soba Lab and S. Africa)	Northern sector investigated, S sector alerted NGOs in NBEG	13-14/3/02
11	27/3/02	Rumbek	Maper	widespread	Oxfam-GB	Anthrax/blackquarter	Samples collected from cases of 'normal' diarrhoea and ocular discharge in 3 herds – no mouth lesions – submitted to Muguga for RP	21,250 doses of Blanthrax sent	28/3/02

							checking – results negative.		
12	2/4/02	Kapoeta	Kauto	Kuron	VSF-G / FAO	Red water	No sample submitted	Berenil 30 sachet given by VSF-G	2/4/02
13	3/4/02	Aweil East	Malualakon	Karkou	VSF-Suisse	Blackquarter	No samples submitted	Blanthrax to be sent when available	?
14	11/4/02	Yirol	Awerial	Makoi, Wuonayat	SRRA Vet	HS	No samples submitted	HS vaccine being sent	?
15	11/4/02	Shilluk Zone II	Athidway	Thuru-Aweih	VSF-G	Rinderpest rumour	Samples submitted to Muguga 19/4/02 – results negative	VSF-G vet monitoring, found fever, eye and nose discharge, no diarrhoea or mouth lesions.	13/4/02
16	12/4/02	Jonglei	Ayod	Ayod	SRRA Vet	Rumour of 'rinderpest/fluke'	No samples collected	RP vet visited in May; fear of RP but no evidence of disease.	15/4/02
17	15/4/02	Kapoeta	Mogos	Mogos/Kurun	DOT	HS/redwater?	Nil	HS vaccine issued, DOT/FAO to visit	15/4/02
18	13/05/02	Bieh	Nyirol	Pading	Oxfam-GB N. Sector	Rinderpest Rumours	Nil	SCF-UK found no report or outbreak in area	June
19	16/05/02	Liech	Mayendit	Pulual	ACROSS	Rinderpest report	Nil	Investigation revealed error in filling outbreak report form, probable HS outbreak	27/07/02
20	18/05/02	Twic	Akak	Akoc	VSF-Suisse	Anthrax	Nil	Blanthax sent by FAO	
21	24/5/02	Bor	Anyidi	Murle	SRRA Vet	Rumour of rinderpest	Samples sent but were frozen – serum submitted – results pending.	Vaccination of herd carried out.	24/5/02
22	25/5/02	Juba	Tali	Tali	Vetwork Sudan	B/Q	Nil	Documenting outbreak	25/5/02
23	28/5/02	Mundri	Mundri	Mundri	OXFAM-GB	B/Q	Clostridia seen in smear	Advice given on control	29/5/02
24	29/5/02	Mundri	Kotobi	Kotobi	OXFAM-GB	B/Q	Clostridia seen in smear	Advice given on control	30/5/02
25	31/05/02	Kapoeta	Kauto	Nanyangachor	FAO	HS	Nil	Antibiotic used, vaccine sent later	31/05/02
26	08/06/02	Budi	Monita	Dokoc	SRRA vet	Diarrhoea (cidith)	Nil	Info received in Sept by VSF-B RP	10/06/02
27	11/6/02	Latjor	Kiechkuon	Wernyin/ Korgai	ADRA	HS	Nil	Advice given on control	11/6/02
28	11/6/02	Awerial	Abuyong	Widespread	SRRA Vet	HS	Nil	Advice given, vaccine supplied	12/6/02
29	11/6/02	Juba	Lainya	Lainya	SRRA Vet	Rumour of rinderpest	One smear showed piroplasms, serum submitted – results pending	Visit by FAO/Vetwork found possible ECF cases	21/6/02
30	17/06/02	Liech	Mayendit	Pader	RASS	HS	Nil		28/06/02
31	27/06/02	WUN	Leer	Nguek	RASS	HS	Nil		29/06/02
32	3/7/02	Kapoeta	Nanyangachor	Nanyangachor	FAO	Mange in goats	Nil	Visit to be made by FAO	?

33	5/7/02	A/South	Mangargier	Maper	SC-UK	B/Q	Nil	Action taken by SC-UK	6/7/02
34	7/7/02	Maiwut	Pagak area	Mading	ACORD	Rumour of rinderpest	Nil	AHA investigated 11/7; no RP seen, ?ECF. VSF-B RP visited area 24/8.	8/7/02
35	16/7/02	Kapoeta	Kauto	Namurpus	VSF-B	Anaplasmosis?	One smear positive	Investigation done by VSF-B RP	16/7/02
36	17/7/02	Kapoeta	Narus	Nalikujuk	VSF-B	HS		Investigated by VSF-B RP	21/7/02
37	17/7/02	Kapoeta	Kauto	Kuron	VSF-B	HS	Samples submitted	Sampling done by VSF-B RP	17/7/02
38	17/7/02	Kapoeta	Kauto	Kuron	VSF-B	Babesoisis?	Samples submitted	Sampling done by VSF-B RP	17/7/02
39	19/7/02	Kapoeta	Kauto	Loronomor	VSF-B	Convulsions/madness - ? anthrax	Smear anthrax negative	Sampling done by VSF-B RP	19/7/02
40	19/07/02	Kapoeta	Nanyangachor	Kabelakanei	VSF-B	FMD	Serum sample collected – results pending	Advice given on control of secondary infection	19/07/02
41	19/07/02	Liech	Mayendit	Dablual	RASS	HS	Nil		30/07/02
42	20/07/02	Liech	Mayendit	Thowkuok	RASS	BQ/HS	Nil		25/07/02
43	25/07/02	Kajokeji	Jalimo kinyiba	Jalimo kinyiba	NPA	Helminths	Nil	P.M observation by AHA	16/10/02
44	22/7/02	Kapoeta	Mogos	Nachunyareng	VSF-B	Red urine	Samples submitted	Investigated by VSF-B RP	22/7/02
45	30/07/02	Yirol	Adior	Adior	NPA	Goat pox	Nil	FAO advised antibiotic treatment	30/07/02
46	31/07/02	Awerial	Awerial	Minkamann	SRRA vet	Rumour of rinderpest	No samples submitted	Investigated by SP confirmed clinically HS and FMD outbreaks	26/07/02
47	August	Pibor	Maruo	Maruo Hills	FAO N. Sector	HS	?	Suppies of vaccine already sent to Pibor FAO-N	
48	August	Pibor	Likongole	Likangole	FAO N. Sector	CBPP	?	Supplies of vaccinealready ent to Pibor FAO-N	
49	02/08/02	Kajokeji	Liwolo	Sokare-Kulupi	NPA	ECF	Nil	Handled by NPA	03/08/02
50	08/08/02	Kajokeji	Lire	Dwani-Muresuk	SRRA vet	LSD	Nil		09/08/02
51	12/08/02	Rumbek	Meen Atol	Abar kou	OXFAM-GB	CCPP/PPR	Samples submitted	CCPP vaccine given by FAO	28/08/02
52	16/08/02	Torit	Keyala	Keyala	SRRA vet	Lumpy skin disease	Nil	Advise given and antibiotic supplied	16/08/02
53	17/08/02	Kapoeta	Kauto	Kuron	FAO	HS	Nil	Control carried out by FAO vet	25/08/02
54	27/08/02	Gogrial	Akon	Akon, Wel	SC-UK	FMD	Nil	Secondary infection treated	28/08/02
55	28/08/02	Twic	Akak	Pan-nyok	VSF-Suisse	FMD rumour	Serum sent to Nairobi – results pending	Clinical confirmation Vet supervisor	12/09/02
56	30/08/02	Kapoeta	Kauto	Nakaralob	FAO	HS	Nil	Control carried out by FAO vet	30/08/02

57	03/09/02	Kajokeji	Lire	Guri-Baranya	SRRA vet	Liver flukes	Nil	Controlled by NPA vet	06/09/02
58	03/09/02	Twic	Twic	many payams	VSF-Swiss	Anthrax	Nil	Blanthax sent by FAO in spt	04/09/02
59	04/09/02	Bor South	Biong	Pagok	SRRA vet	HS	Nil	Antibiotics and HS vaccine to follow.	05/09/02
60	05/09/02	Mundri	Mundri	Gut-Makuei	OXFAM-GB	FMD	Sample submitted – results negative (poor samples)	Advice on control & sample handling	21/10/02
61	08/09/02	Bor Central	Padak	Padak	SRRA vet	HS	Nil	Antibiotic and vaccine sent by FAO	
62	13/09/02	Tonj	Akop	Pawang	VSF-B	Anthrax	Nil	Contorl carried out by VSF-B	14/09/02
63	15/09/02	Shilluk Z-II	Oriny	Bol	VSF-Germany	FMD	Serum submitted – results pending	Advice antibiotic for secondary infection	15/09/02
64	19/09/02	Tonj	Thiet	Piokoi village	FAO	CCPP	Serum positive for PPR	Treatment with antibiotic done by FAO vet	19/09/02
65	03/10/02	Twic	Turalei	Agany Amiol	VSF-Swiss	RP rumour	Samples were SAT1 +ve	Investigated by VSF-Suisse, found FMD	04/10/02
66	08/10/02	Tonj	Akop	Majak, Ariec	VSF-B	BQ	Nil	Controlled by VSF-B	10/10/02
67	10/10/02	Gogrial	Mankuach	Manok	VSF-Germany	RP rumours	Nil	Cases of FMD observed	
68	16/10/02	Kajo Keji	Lire	Longira	SRRA Vet	Liver fluek	Nil		
69	22/10/02	Shilluk Z-I	Nyilwak	Nyilwak	VSF-Germany	RP rumours	Nil	Investigated by VSF-G AHA Anthrax cases	23/10/02

Compiled by Gachengo Matindi, FAO-OLS, with additional information added by VSF-B RP Project.

Annex 4: RP Rumours Reported November 2001 to October 2002

Date report received by Vet Lab, Loki Report No.	Location Approx co-ordinates	Reported by	Details of initial report	Action taken	Outcome
26/11/01 2002/01	Juaibor, Phou State, Upper Nile 9.3°N 30.5°E	Gabriel Galuak, AHA, Vet Co-ordinator, Juaibor	Radio message dated 16/11/01 (received 26/11) that referred to a report sent 1 week earlier (never received); rinderpest rumour, 7 deaths	26/11 BJ sent radio message requesting further details, discussed with SC-UK (NGO covering area). 7/12 SC, VSF-B passing visit, met with AHA and livestock keepers, provided penside kit and sampling kit, serum sent by AHA. 5-12/2/02 SL, RP Project and SC-UK field visit – visited affected villages, no current clinical cases, 29 deaths from diarrhoea and nasal discharge. Livestock keepers named tryps, HS or RP (only one informant) as the cause. Serum samples collected from 'recovered' cattle.	No clinical rinderpest found. *Serum samples collected from 'recovered' cattle – awaiting results.* ***From livestock keepers' description cause of outbreak was probably HS.***
15/1/02 2002/02	Aweng Payam, Twic County 9.3°N 28.8°E	Gabriel Zacharia, Stockperson, Vet Co-ordinator Abyei (based Turalei)	15/1/02 Radio message; rinderpest affecting cattle from Western Upper Nile moving into Aweng area	AA and BJ - follow up with VSF-CH for further info. 18/1 Peter Dak, VSF-CH, WUN reported no rinderpest but BQ and HS 25/1 VSF-CH staff to Turalei 1-18/2 BJ and KP, RP Project field visit – visited cattle camps, no RP cases, no reports. Serum samples collected from 1-2 yo unvacc.	No clinical cases seen by livestock keepers or animal health workers. *Serum results pending.* ***Probably other disease.***
11/2/02 2002/3	Kilanya, Lauro Payam, Budi County 4.5°N 33.7°E	Louis Lohitare, Vet Co-ordinator, Budi County	31/1/02 rumour of rinderpest reported to Vet Co-ordinator. Vet Co-ordinator reported during EEQ LCM 11/2/02	2/2/02 LL investigated – saw 3 calves and 1 adult with diarrhoea, diagnosed worms/ECF.	No sampling done to confirm diagnosis, but this is an ECF area. ***Probable ECF Surveillance required – security a major***

					problem.
9/2/02 2002/4	Nimne, Western Upper Nile 9.3°N 30°E	RASS Chief Vet Co-ordinator, Nairobi	2/5/02 Verbal report to FAO-OLS Livestock Programme Co-ordinator during a meeting in Nairobi: Had received a report of rinderpest in the Nimne area from Gatpan Biel, Stockperson in Mayendit	7/2/02 VSF-CH and ACROSS (NGOs working in this area) contacted. Gatpan Biel had visited an area on the border of Nimne and Koch Districts and found many cattle affected by tryps and fluke but no signs of rinderpest were found. He met the local AHA who said there was no report of rinderpest in the area. Nimne has been very insecure during this period so no field visit by RP Project has been possible.	No evidence of RP outbreak. ***Probable false alarm Area requires surveillance when security improves.***
15/2/02 2002/5	Cum Anyua, Thiet, Tonj 8.5°N 28.8°E	Robert Otik, FAO-OLS Field Vet	12/2/02 Radio message, received rumour of stomatitis in cattle a few hours walk from Thiet	18/2/02 field vet went to investigate and found no disease	***Probable false alarm***
14/3/02 2002/6	Mabior, Aweil East 9.1°N 27.7°E	Makuei Malual, VSF-CH Field Vet	Vet Lab Submission Form dated 11/3/02 – yearling with bloody diarrhoea, tearing, no mouth lesions.	Investigated, samples collected (submitted to Muguga on 20/3), post mortem found foreign body obstruction of intestines.	*Laboratory results negative RP.* ***Not RP – foreign body obstruction***
2002/7	Western Kordofan 9.6°N 28.5°E	FAO Rome	13/3/02 call from FAO Rome mentioned MCF outbreak in W. Kordofan.	Northern sector investigations; laboratory confirmed MCF.	***Sporadic cases of MCF affecting various cattle herds***
28/3/02 2002/8	Maper, Rumbek 7.8°N 29.8°E	Gabriel Makuac Oxfam-GB	27/3/02 radio message outbreak of anthrax/ blackquarter	On 26/03/02 Vet Supervisors investigated an outbreak of anthrax/blackquarter reported on 20/3/02. Found cases of 'normal' diarrhoea and ocular discharge in 3 herds – no mouth lesions. They collected samples which were submitted to Muguga for RP checking	*Lab results negative RP.* ***Probably not rinderpest***
17/4/02	Athidway, Zone II,	Vincent Mauka, VSF-G Vet	11/4/02 Rumour of rinderpest in Athidway	12/4/02 VSF-G vet visited, History Fellata reporting rinderpest-like clinical signs: eye, nose, mouth	*Lab results negative RP.*

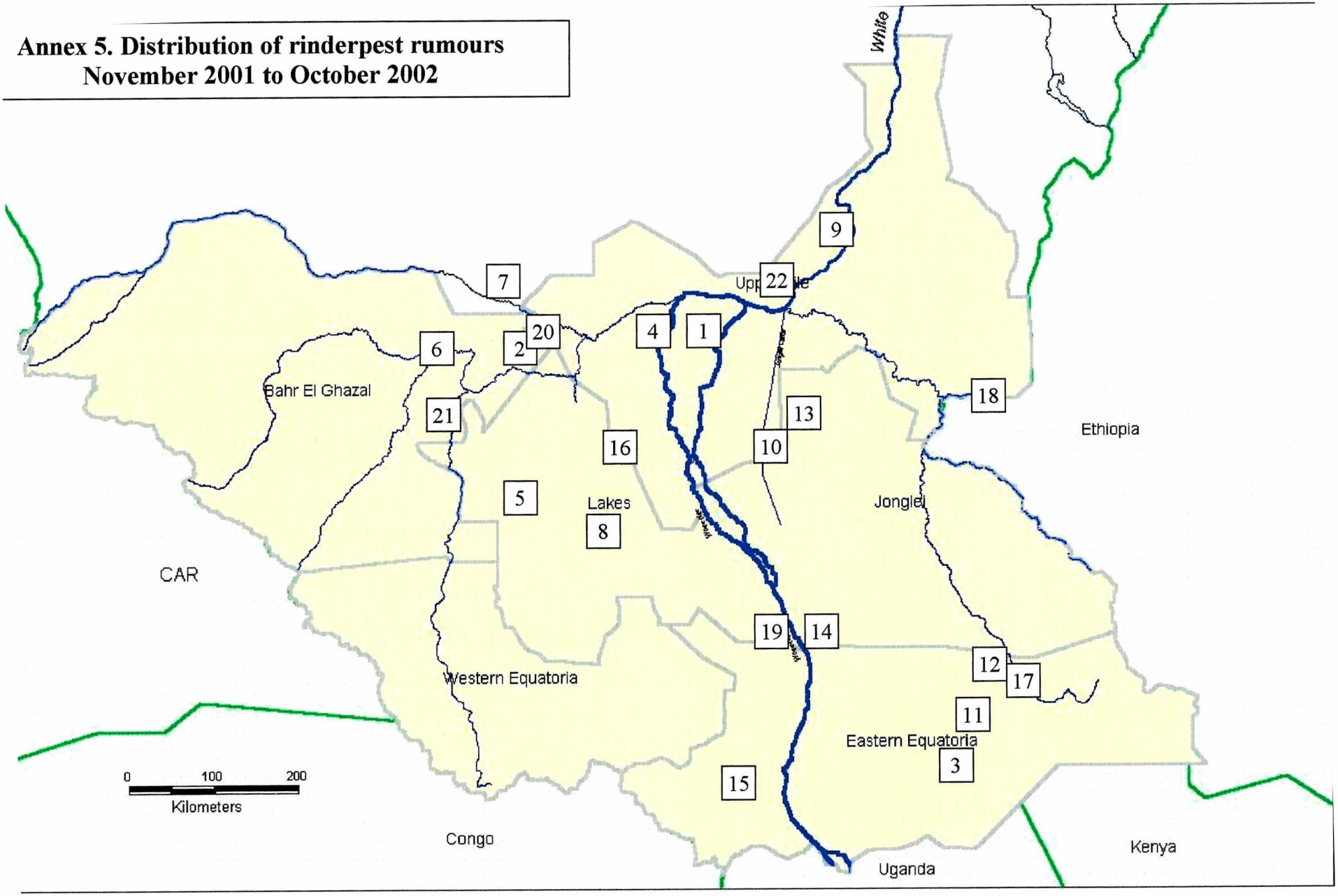
2002/9	Shilluk Kingdom 10.1°N 32.3°E		in Fellata cattle reported to VSF-G vet	discharge, diarrhoea and dysentery, lameness, eating soil, death (14 sick, 6 dead within 10 days), mainly adults affected. Total no. in 3 herds 1000. Saw 3 sick cattle, no dead ones; tears, stringy nasal discharge, no mouth lesions or discharge, no diarrhoea/dysentery, fever 41°C, lymph nodes swollen, some lameness – no ulceration, staring coat, good body condition, recumbency. Samples from 3 cases (EDTA blood, nasal swabs and FPs) collected, received Loki 17/4/02, submitted to Muguga on 19/4/02. 19/4/02 VSF-G vet at the site monitoring – no new cases. Fellata had earlier been complaining of HS but no vaccine yet supplied. Origin of Fellata is Abu Jibeer/El Obeid, will move north in May. Vaccinated last year and year before against RP by northern sector.	***Probably not rinderpest.***
15/4/02 2002/10	Ayod, Ayod District, Phou State 8.1 °N 31.4 °E	Ayod SRRA Vet Co-ordinator	Radio message dated 12/4/02; 'outbreak of rinderpest/liver fluke, cattle dying'	16-18/4/02 Radio message sent to Ayod requested more details, to Jiech (Ayod District) for info on the disease situation, and alerts to the neighbouring areas of Bor, Lankien. 18/4/02 reply from Jiech – current diseases; tryps, footrot, CBPP and FMD. 22/4/02 Reply from N Bor – no rumours of RP, going to check in areas bordering Ayod. SL, VSF-B RP visited in May and carried out investigation. Vet Co-ordinator admitted he had no seen or heard of RP but feared the disease and wanted vaccination to be done. SL carried out PDS and found no evidence of clinical disease in the area.	***Probably fear of rinderpest and demand for animal health services.***
13/5/02 2002/11	Nakwamir, Mogos, Kapoeta County	Lolem Elia, DOT Livestock Officer	Outbreak report form dated 10/4/02 – description included possible RP signs.	Report received on 8/4/02, investigated by Lolem Elia, DOT 10-14/4/02. Disease called Eengolet or Ekulam – thought to be a tick-borne disease.	***Tentative diagnosis of tick-borne disease but not confirmed.***

	5.2 °N 33.7° E				
21/5/02 2002/12	Kuron, Kapoeta County 5.5 ° N 34.4 ° E	?	5/5/02 disease outbreak reported.	9/5/02 and 21/5/02 by Nimaya Mogga, FAO. No cases found. 21-27/4/02 Vet Supervisor in the area for vaccination did not find any cases. Signs reported: bloody urine, diarrhoea, death within 2-5 days, yellow meat. Earlier investigation (2/4/02) of similar cases in same area by VSF-G found anaemia, watery diarrhoea, nasal discharge. PM – pale yellow mucous membranes, blood in abdominal cavity, flesh yellow. Local name lanyakiring – tentative diagnosis of babesiosis.	No signs of RP found. ***From clinical description thought to be tick-borne disease.***
13/5/02 2002/13	Pading, Nyirol District, Bieh State 8.5 °N 31.8°E	Oxfam, Malakal	E mail dated 9/5/02 via Suzan Bishop from Oxfam Khartoum, suspected RP reported from Malakal by fax. 2/5/02 Dini on Sobat, livestock owner reported RP in Pading, come to Dini to find vaccine.	Initially thought Pading was close to Ayod where SL had just carried out PDS. Later found it was near to Waat so 21/5/02 sent info to SC-UK who cover the area – Martin Yoa, SC-UK Livestock Officer reported no reports of RP in the area. He had been in Pultruk, close to Pading at end of March 2002, in Waat in June 2002 where he talked with cattle owners from that area but no mention of RP. Vet Supervisor of Nyirol District had seen no RP.	***Probable false alarm***
28/5/02 2002/14	Anyidi, South Bor 6.2 °N 31.8° E	Johnson Alier Garang, Vet Supervisor, Paluer, South Bor.	Letter dated 24/5/02 reporting rumour of RP from Murle cattle camps in Anyidi payam.	Johnson Garang investigated: 1.5 years calf sick with fever, rough hair coat, eye discharge, mucus from nose, difficulty breathing, sunken eyes, white blisters on the tongue, ulcers under teeth with white pus, diarrhoea with blood and white pus, weak. One 1 year reported died. Samples collected but arrived on Sunday and put in freezer by FAO! Serum submitted to Muguga. Vaccination was carried out – this was already planned for Murle cattle.	***Only one case in herd - ? may or may not have been RP.*** Vaccination already carried out.
11/6/02	Lokoroba,	Chairman of	Chairman of livestock	21/6/02 VETWORK and FAO investigation, herd	***Tentative diagnosis of***

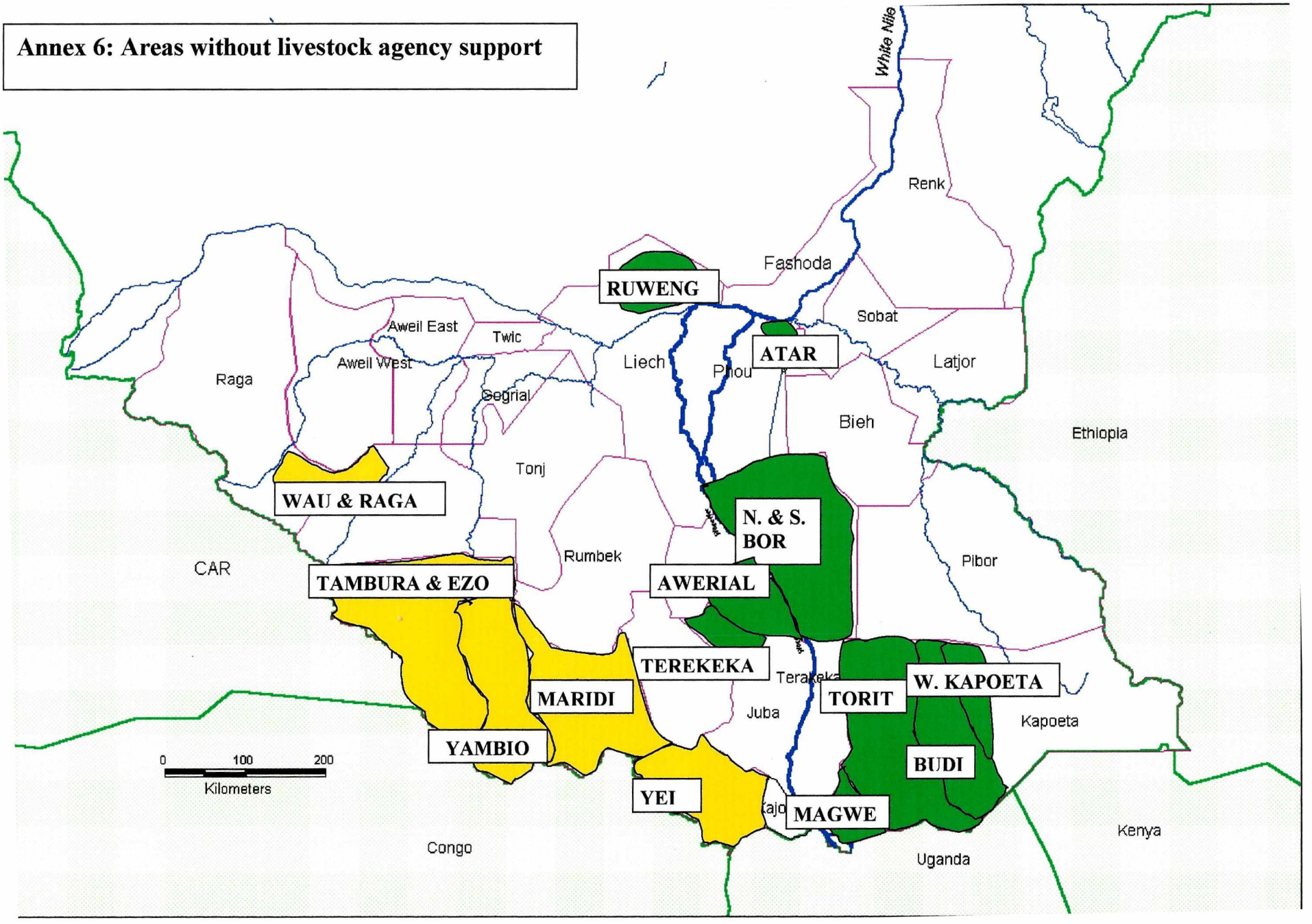
2002/15	Lainya, Yei County 4.4 ° N 31.1°E	VETWORK Services, Arua office	committee reported rumour of rinderpest to VETWORK office in Arua – cattle with bloody diarrhoea, lacrymation and death after 2 days.	never vaccinated, owner reported 30 died, herder reported only 10 died. Team only saw one mild clinical case of what was suspected to be ECF (lacrymation, nasal discharge, difficulty breathing – lymph node smears were negative, blood smears showed piroplasms.	***ECF. No clinical rinderpest seen.***
21/6/02 2002/16	Pulual, Mayandit, Liech State	Daniel Gatgong, AHA	Outbreak investigation form dated 16/5/02, received at Vet Lab 21/6/02, indicating possible RP outbreak.	GMM, FAO sent radio message 29/6/02 to get more information. Reply from Gatpan Biel and Daniel Gatgong – no RP reported, confusion in filling outbreak form. BJ checked with Michael Otto, ACROSS who had been in the area in early June – he said there had been an outbreak of HS not RP.	***Probable HS outbreak.***
28/6/02 2002/17	Kuron, Kapoeta County 5.5 ° N 34.4 ° E	Abraham Sagal, SRRA Narus	Verbal message from VSF-Germany to Lab Assistant of RP outbreak in Kuron. VSF-G NBI : Abraham Sagal, SRRA Narus (a cattle owner) reported that some months ago cattle were dying in an area northeast of Kapoeta and in Nyangachor. Now there is a fresh outbreak and he is sure it is rinderpest.	GMM, FAO contacted Commissioner, SRRA Secretary and Toposa Development Association – but they have no information. AA, VSF-B RP went to Kapoeta 15-23/7/02 and visited Namurpus, Kurun, Nanyangachor (all in Kauto), Nalikujuk (Narus) and Mogos – found a variety of different diseases with tentative diagnoses of tick-borne disease, anthrax, FMD. Local names for the tick-borne disease = nyamany, longolete, lonyangakiring (yellow carcass).	***Probable tick-borne disease.*** Blood smears showed one out of ten anaplasmosis positive.
8/7/02 2002/18	Mading, Turor District, Latjor State 8.5 °N 33.9 °E	Deng Bol, Vet Co-ordinator, Pagak	Radio message dated 7/7/02, CAHW reported disease outbreak in Mading cattle camp, Turor District 3-4 hours walk south of Pagak. Eye	Deng Bol plans to go to investigate. 11/7/02 radio message from Deng Bol, diagnosed disease as ECF (?). Giving antibiotic treatment, and continuing surveillance.	***No clinical evidence of rinderpest***

			and nose discharge, salivation, bloody diarrhoea, death after a short time, killed one 8 year old.		
1/8/02 2002/19	Minkamman, Awerial County 6.1 °N 31.5 °E	William Maluk, SRRA Vet Co-ordinator, Awerial County	GMM, FAO talked on radio with William who said that a CAHW had come from Minkamman and reported an outbreak of rinderpest in one gol.	William Maluk got in touch with Joseph Majer, Vet Supervisor, Minkamman to verify the report – HS and FMD outbreaks occurring. BJ – VSF-B talked with livestock keepers at Bunagok airstrip on 12/8/02 who reported an outbreak of FMD in Minkamen area.	Outbreak reported to be HS and FMD
8/10/02 2002/20	Agany Amiol, Turalei, Twic County 9.1 N 28.5 E	Michael Majok Nyol, SRRA Vet Supervisor, Turalei	3/10/02 Rinderpest rumour	4/10/02 Investigated by AHA, found clinical FMD outbreak in 21 cattle camps, affecting 5-600 animals, with 15 deaths, collected samples which were positive SAT 1	FMD outbreak
12/10/02 2002/21	Mankuach, near Manok, Gogrial County 8.5 N 28.5 E	VSF-G Luanyaker	10/10/02 Rinderpest rumour – report of cattle with tears, sores in mouth and diarrhoea	There had been earlier reports of a disease coming with cattle from Mankien to Mayanjur and Awutwut with tears, bloody diarrhoea and death. Areas inaccessible to VSF-G. Cases of FMD observed by animal health workers.	FMD outbreak
18/10/02 2002/22	Nyilwak, Shilluk Zone I 9.7 N 31.5 E	AHA Nyilwak, Shilluk Zone I via VSF-G	18/10/02 AHA reported rumour of rinderpest to VSF-G NBI by radio.	VSF-G asked AHA to follow up. On 23/10/02 VSF-G reported that the AHA had investigated and found 3 cattle had died in one cattle camp. Based on history he suspected two cases of anthrax and one of mixed infection. No RP cases seen.	Anthrax cases

Annex 5. Distribution of rinderpest rumours November 2001 to October 2002



Annex 6: Areas without livestock agency support



Annex 7

Community-based Rinderpest Surveillance System

Mass rinderpest vaccination ceased throughout Sudan in June 2002. The main focus for rinderpest eradication is therefore now on surveillance. The aim is to have a very sensitive system of surveillance that will detect any cases of rinderpest-like disease and that will build up a body of evidence to verify that there is no rinderpest present. It is too early to use sero-surveillance because mass vaccination has only recently stopped. In the absence of conventional veterinary services in OLS southern sector areas it was necessary for the VSF-Belgium Rinderpest Project to develop a rinderpest surveillance system that could be carried out by the existing network of CAHWs, supervisors and field veterinarians, with support from the four Rinderpest Project veterinarians, and could generate surveillance information to be reported to PACE Sudan.

The system for rinderpest surveillance is constantly evolving as the project continues. The Rinderpest Project plans to review the surveillance methods at the end of 2002 and will make changes as necessary. Once the different components of the surveillance system have been developed, performance indicators will be defined with appropriate targets so that the effectiveness of the system can be monitored. Rinderpest sero-surveillance will be introduced during 2004-5, with CAHWs, Vet Supervisors and Co-ordinators playing key roles in this exercise.

1. Baseline livestock and disease information

Baseline livestock and disease information is collected whenever a community-based animal health project starts in an area. Field veterinarians carry out an initial baseline survey with the local animal health workers using a variety of conventional and participatory appraisal techniques. The information is updated as the project continues. This baseline information has been drawn on by the Rinderpest Project to better understand the epidemiology of rinderpest in southern Sudan and the project is constantly adding to this information during field visits. Livestock resource maps and seasonal calendars have been prepared for most areas using animal health workers and livestock keepers as informants. These are used to assess coverage, plan surveillance and as components of the local rinderpest outbreak contingency plan.

2. Reporting of outbreak rumours and outbreak investigation

The OLS Southern Sector Livestock Programme has already developed a system for reporting disease outbreaks and the Rinderpest Project aims to strengthen this system through training and awareness raising. All animal health workers are responsible for reporting all disease outbreaks that they observe or that are reported to them. A CAHW receiving a report will carry out a basic investigation (history and clinical examination) and then provide a verbal report to the supervisor. The supervisor initially sends a radio message with the first details of the outbreak report and then carries out a further investigation, which includes history, clinical examination, and sample collection if appropriate. He/she then fills in an outbreak investigation form (Annex 8), which is sent to the OLS veterinary laboratory in Lokichokio, Kenya, close to the Sudan border. At the same time he/she sends a second radio message summarizing the information, control measures being taken, and further assistance required. If there is a field veterinarian in the area, they provide support to the supervisor during this process.

Rinderpest reports receive special attention. Whilst CAHWs, Vet Supervisors and field vets are responsible for the initial investigation, whenever possible a field investigation is carried out by a Rinderpest Project vet to verify the findings. Outbreak sampling kits and rinderpest penside tests are provided in base locations for Vet Supervisors and field vets to collect samples, although the cold chain is not adequate in some areas to support this. A 500$ reward is being offered to be shared amongst the key people involved in the reporting and investigation of the first confirmed case in a rinderpest outbreak, e.g. the livestock keeper, the CAHW, Vet Supervisor, and field vet.

3. Active Surveillance

The Rinderpest Project has developed some methods for active surveillance that can be carried out by Vet Co-ordinators and Supervisors.

3.1 Cattle camp visit

The cattle camp visit (Annex 9) includes an interview with the livestock keeper with questions about diseases, deaths, movements and rinderpest, followed by clinical examination of the cattle and the recording of any clinical signs observed. The Vet Supervisors are asked to carry out this exercise in two different cattle camps every month and are paid 150/- Kenya Shillings (approximately 2 USD) for each visit. The method has been gradually introduced to most areas since May 2002.

3.2 Market surveillance

An exercise similar to the cattle camp visit for use in livestock markets has been developed and is being field-tested. It is envisaged that where there is a regular cattle market Vet Supervisors will visit to carry out interviews and clinical surveillance for a small payment.

3.3 Community dialogue

Community dialogue is used routinely by Vet Supervisors and NGO vets for communication on a variety of community-based animal health programme issues. They are encouraged to include rinderpest eradication as a regular topic in their dialogue and also as a surveillance opportunity by asking similar questions to those used in the cattle camp visit.

3.4 Participatory Disease Searching

Participatory disease searching (PDS) was used in some of the suspected rinderpest endemic areas during 2001 to improve understanding of rinderpest epidemiolgy in the area, and to help in the development of the strategy for rinderpest eradication. It is used by the Rinderpest Project vets in areas where the rinderpest situation is not well known due to lack of access and/or there is no community-based animal health programme, and when carrying out rinderpest rumour investigation. In many situations the rinderpest rumour is very vague and there are no obvious clinical cases. PDS techniques are valuable for purposive surveillance to detect whether there have been any recent clinical cases in the area or whether the rumour is due to fear of possible introduction of rinderpest, other disease outbreak, or simply a demand for animal health services. CAHWs and Vet Supervisors play a valuable role in PDS as key informants, liaison with the community, and as translators and guides.

4. Role of Stakeholders in Rinderpest Surveillance

A major part of the work of the Rinderpest Project focuses on raising awareness and training so that all stakeholders can play their role in rinderpest eradication activities. As the incidence of rinderpest has reduced fewer people have direct experience of the disease so it is necessary to remind people of the clinical signs and the severity of the disease.

The community, including community leaders, livestock keepers, women, youth and children, need to be aware of the programme to eradicate rinderpest and the important role that they play. They should know the main clinical signs of rinderpest, the importance of reporting any cases of rinderpest-like disease and who to report to if they should see any cases. The Rinderpest Project has developed guidelines to be used by field vets and Vet Supervisors for carrying out community dialogue on rinderpest eradication, and has developed a some communication materials to assist in passing the information, including cloth flip charts, photocards, t-shirts, posters, songs, stories, drama and role play.

In the vast and remote area of southern Sudan the network of CAHWs is key to the identification of the last foci of rinderpest and the verification of freedom from rinderpest. Through their ongoing work of treatment and vaccinations for other diseases, the CAHWs are in continuous contact with the livestock keeper and therefore they will be the first to receive a report or detect a possible rinderpest outbreak. The CAHWs ensure that even the most remote and inaccessible areas and communities have

access to animal health services and are able to report possible outbreaks of rinderpest. The CAHWs are a crucial link between the livestock keepers and other animal health workers. It is important that they know the main clinical signs of rinderpest, the importance of reporting any cases of rinderpest-like disease to their supervisor, and the need to quickly investigate any reports. A CAHW training module for rinderpest eradication has been developed by the Rinderpest Project which is being used by NGO vets and Vet Supervisors.

The Vet Supervisors and field veterinarians should know the main clinical signs of rinderpest, their role in active surveillance, the importance of reporting all possible rumours of rinderpest-like disease to the OLS veterinary laboratory, and the need to quickly investigate any rumours and carry out a full investigation including sample collection. A training course has been developed by the Rinderpest Project to train all supervisors and field vets in all of these topics. The training course also includes sessions on raising the awareness of the community, developing locally appropriate methods for communicating the information, and carrying out a community meeting. The training course is carried out in the field for groups of supervisors and vets from a given area. Most areas have now been covered.

Annex 8.

DISEASE OUTBREAK INVESTIGATION FORM

USE THIS FORM TO REPORT DISEASE OUTBREAKS IN ANY SPECIES OF LIVESTOCK

County/District/Zone: _____ **Payam/Parish/Omodia:** _____

Village: _____ **Cattle camp/herd/flock:** _____

Location: _____ **Livestock keeper's name:** _____

1. Date reported to animal health services: _____ 2. Date of investigation: _____

3. (For cattle) is this a dry season cattle camp? ☐ or a wet season cattle camp? ☐

HISTORY

4. Approximate number of animals in the affected cattle camp/herd/flock: _____

5. When did the disease first start: _____

6. Number of sick animals: _____ 7. Number of animals that have died: _____

8. Affected population (tick where appropriate)

SEX			AGE		
	male	☐		calves/kids, less than one year old,	☐
	female	☐		yearling, one to two years	☐
		☐		adults, older than two years	☐

9. When did you move your herd/flock to this place? _____

10. Where did you come from? _____

11. Are there any new animals in the herd? _____

12. Where did the new animals come from? _____

13. Are any other cattle camps/herds/flocks affected? YES / NO
Give their names or locations: _____

14. Are wild animals affected? YES / NO
What types of wild animals? _____

15. What is the local name of the disease? _____

16. What is the English translation of the disease name? _____

17. Has the livestock keeper seen this disease before? YES / NO
When and where? _____

CLINICAL EXAMINATION

18. General appearance of animals: _____

19. Eyes: _____

20. Nose: _____

21. Mouth: _____

22. Faeces: _____

23. Lymph nodes: _____

24. Respiration: _____

25. Skin: _____

26. Body temperatures: _____

27. Any other clinical signs? _____

POST MORTEM EXAMINATION

28. General appearance of carcass: _____

29. Eyes, Nose: _____

30. Mouth: _____

31. Feet: _____

32. Abdominal organs e.g. intestines, large stomach, true stomach _____

33. Respiratory organs: _____

34. Any other abnormalities noticed: _____

35. When and where did they last see rinderpest in this area? _____

36. Do you think the disease is rinderpest? YES / NO

37. When was rinderpest vaccination done in this cattle camp/herd? _____

38. Have you collected any samples for sending to the lab? YES/NO

Signature of investigator: _____ Full name: _____

Position: _____ Organization:

Annex 9.

CATTLE CAMP VISIT FOR RINDERPEST SURVEILLANCE

County/District/Zone: _____ Date: _____

Payam/Parish/Omodia: _____ Village: _____

Cattle camp/herd: _____ Location: _____

Cattle owner's name: _____ Investigator: _____

1. Livestock Keeper Interview; *interview the cattle camp leader and/or any livestock keepers*

1.1 What are the main disease problems affecting your cattle at the moment?

_____
_____
_____
_____
_____
_____

1.2 Have any cattle in your herd died of disease in the last one month? *(ask for details)*

Cause of death (local name of disease)	Cause of death (English name for the disease)	Number of deaths	Additional Information

1.3 **When** did you move your herd to this place? _____

1.4 **Where** did you come from? _____

1.5 **When** do you plan to move your herd again? _____

1.6 **Where** do you plan to move to? _____

1.7 **When** did you last see rinderpest in this area? _____

1.8 **Where** did you last see rinderpest in this area? _____

1.9 Have you ever seen rinderpest in your own herd? YES/NO When? _____ Where? _____

1.10 **When** were your cattle last vaccinated against rinderpest? _____

2. Herd Examination; *clinical surveillance*

- Walk amongst the cattle herd observing every animal.
- If you notice that an animal has signs of illness, make a mark in the table below against the type of clinical sign.
- If the clinical sign is not listed in the table, write it in one of the blank spaces at the bottom of the table.
- If you see an animal with salivation, examine inside the mouth for any mouth lesions.
- When you have looked at all the cattle in the herd, count up the number of marks for each clinical sign and put the totals in the boxes
- Any cattle with 3 or more signs of eye discharge, nose discharge, salivation/mouth lesions, or diarrhoea should be isolated and a full rinderpest case investigation should be carried out.

2.1 Approximate number of cattle in camp/herd? _____

2.2 General body condition of the herd? _____

Clinical sign	Number of cattle affected	Total	Remarks or Comments
Eye discharge			
Nose discharge			
Salivation			
Mouth lesions (if you see salivation open mouth and check for wounds)			
Diarrhoea			
Lameness			
Skin disease			
Ticks			
Lice			
Emaciation			
Wounds			
Coughing			

Annex 10. **Cattle Camp Active Surveillance Visits**
Summary of data collected May – October 2002

The cattle camp visit surveillance system was introduced during regional livestock co-ordination meetings and rinderpest training courses from May 2002 onwards. The data summarized below reflects all forms received up to October 2002. Some forms are still arriving therefore the data is not complete.

	May	June	July	August	Sept	Oct	Total
No. forms received	28	60	97	86	154	62	**487**
No. supervisors sending forms (185)	19	31	53	54	78	32	**103**
No. regions sending forms (6)	4	5	6	6	6	6	**6**
No. counties/states sending forms (34)	10	14	18	17	21	14	**27**
No. cattle surveyed (6 m.)	9,440	38,235	69,089	66,868	119,111	32,985	**335,638 (5.59%)**

1. Livestock keeper interviews

1.1 Main diseases currently affecting the cattle

Disease	No. livestock keepers naming the disease as a current problem	% of livestock keepers naming the disease as a current problem
CBPP	341	70
Tryps	294	60
HS	217	45
Blackquarter	200	41
Ticks	190	39
Flukes	138	28
Anthrax	133	27
Worms	128	26
Skin disease	103	21
FMD	95	19
Lice	71	15

Only 4 livestock keepers mentioned rinderpest as a disease affecting their cattle:

- Aweil North (2) – later in the interview said they had last seen rinderpest in 1987 AND 1992,
- Yambio – had not seen rinderpest ever in the area, he came from Cuiebet 3 years ago,
- Awerial – later in the interview he said that he had last seen rinderpest in 1983.

Other diseases that were named less frequently were brucellosis, diarrhoea, eye infection, eye worm, chronic FMD, fever, rabies, heartwater, lice, ECF, three day sickness, foot rot, mastitis, bloat, retained placenta, abortion, snake bite, wounds, TB, and constipation.

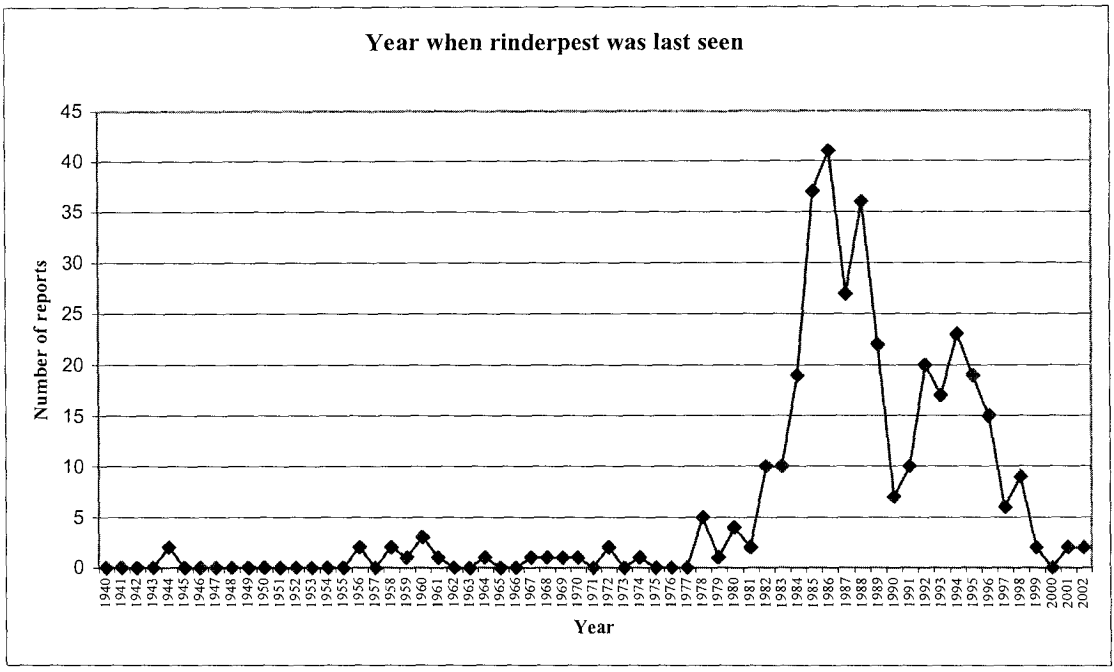
1.2 Cattle deaths in the last one month

A total of 4,349 cattle were said by the livestock keepers to have died in the previous one month. This is approximately 1.3% mortality per month, which is 16% mortality per year. 93 (19%) herds reported that they had no deaths in the last one month.

Disease	No. deaths	% of total deaths
Blackquarter	967	22
CBPP	766	18
HS	652	15
Anthrax	471	11
Tryps	340	8
Skin disease	186	4
ECF	168	4
Fluke	113	3
Diarrhoea	105	2
Worms	77	2
FMD	55	1

Other causes of deaths named less frequently were: brucellosis, emaciation, bloat, external parasites, sudden death, heartwater, three day sickness, anaplasmosis, snake bite, old age, blindness, dystokia, mastitis, TB and broken leg.

1.3 Rinderpest last seen in the area



2. Clinical Surveillance

2.1 Cattle population

487 herds or cattle camps were surveyed which contained a total of 335,638 cattle. Herd or cattle camp size ranged from 7 to 8,500 cattle, with an average herd/cattle camp size of 689.

2.2 General body condition

Herd condition	Number of herds	% of herds
Very good	36	8
Good/healthy	222	49
Fair/normal	147	33
Bad/weak/poor	25	6
Very bad/emaciated	19	4
?	38	-

2.3 Clinical Signs

Clinical signs	% cattle showing clinical sign
Ticks	4
Lameness	1
Emaciation	1
Eye discharge	1
Lice	1
Skin disease	1
Diarhoea	1
Coughing	1
Wounds	1
Nose discharge	1
	1

Other clinical signs that were observed at a rate of less than 0.5% were: salivation, mouth lesions, difficulty breathing, swollen joints,swollen lymph nodes, mastitis, loss of tail hair, hair loss, rough coat, eye worm, and abortion.

Annex 11

Pan African Programme for the the Control of Epizootics
Community-based Animal Health and Participatory Epidemiology Unit
Preliminary Data Collection Report
Consultancy on The Dynamics of CBPP Endemism and the Development of Effective Control/Eradication Strategies for Pastoral Communities

Jeffrey C. Mariner, RDP Livestock Services, February - April 2002

Acknowledgments:
VSF-Belgium especially Dr Aluma Araba,
VSF-Germany,
Community-based Animal Health and Participatory Epidemiology Unit of PACE for their financial support and technical guidance, especially Dr. Andy Catley.

Summary
This report describes the preliminary results of a participatory epidemiological study into the epidemiology of contagious bovine pleuropneumonia (CBPP). The purpose of the study is to gather first hand expert opinion on the epidemiology of CBPP as it occurs in pastoral areas. This information will be used to develop a CBPP computer model. Existing veterinary knowledge of livestock owners is a key resource that ensures the relevance and realism of disease models.

This initial report covers a four-week mission to Boma in Southern Sudan and a short preliminary site visit to the Mwanza area in Tanzania.

In Boma, the study focused on the four clans of the Jie. Additional interviews were carried out with the Murle, Kachipo and displaced Dinka in the area. All of these groups interact. The Jie were interviewed both in their villages and at their cattle camps along the Kengen and Bodo Rivers. The Murle were interviewed at their dry season grazing area in Lazach.

In Mwanza, interviews were completed with the mixed agricultural Wasukuma in Kwimba and with the pastoral Taturu (Tatuge) in Meatu District. Although the Wasukuma are adopting agriculture, they continue to maintain large cattle herds and cattle play an important role in culture. The Taturu are a small, primarily pastoral culture closely related to the Masai.

The methodology used throughout the study was participatory epidemiology. This technique involves the use of participatory methods to gather intelligence on the epidemiology of disease. The process began with semi-structured interviews using open-ended questions. Typically respondents were asked to describe their cattle disease problems. Issues raised by the informants were probed. Once CBPP was volunteered as a problem, the interview team conducted more detailed data collection exercises on this disease. These included mapping, matrix scoring, timelines and proportional piling activities.

Approximately 1,400 sera were collected and stored as split samples. One set of samples is being tested for the presence of RP antibody and the second for CBPP antibodies using the CFT and ELISA test at CIRAD/EMVT. The CBPP test results will be used to estimate prevalence and to assist in the estimation of the basic reproductive number (R_0) for CBPP for the disease modelling. Preliminary results of the CBPP tests indicate a 6.2% antibody prevalence, which means that 6.2% of the cattle were suffering from either acute or chronic infection.

Interim Recommendations for the Control of CBPP

The herders indicated that CBPP is stably endemic with a seasonal dimension to the severity of clinical cases. CBPP was ranked as a high priority. Any programme seeking to address the perceived animal health needs of the communities around Boma will need to address CBPP as a major priority.

Programmes should focus on realistic elective control methods that reduce losses. CAHW networks should be trained and equipped to administer treatment and preventive vaccination at the livestock owner's request and upon payment. Antibiotics, such as long acting tetracyclines, tylosin and its relatives can be provided with appropriate training on their proper application (route of administration, correct dose rate, adequate course of treatment).

Further evaluations of the use of antibiotics in a field setting should be undertaken. Representative cases could be treated and monitored for clinical response. At the end of the period of observation, a subset could be purchased for post-mortem examination and culture of sequestra.

Vaccination can be provided to animals and herds in contact or at risk of exposure using market-based pricing. The limitations and extent of the duration of immunity should be clearly explained to livestock owners as part of the service.

Action research on a tactic of combined vaccination and treatment vs. simple vaccination on a herd basis would also be worthwhile. The tactic would consist of treatment of clinical cases and simultaneous vaccination of others in contact. Impact of vaccination and treatment could be evaluated by pre-intervention and post-intervention (after 12 weeks) serological evaluation of the herds under the two different regimes. The impact of each respective strategy on the number of serological reactors could be taken as a measure of suppression of infection.

Annex 12.

Proposed Interim Strategy for CBPP Control in OLS Southern Sector areas of southern Sudan
- for discussion at the Southern Sudan Livestock Co-ordination Meeting, Lokichokio 11-15th November 2002

1. Introduction

Field experience in the pastoralist areas of OLS southern sector areas of southern Sudan has shown that CBPP commonly occurs in most herds or cattle camps; it is endemic. The majority of livestock keepers state that it is one of the major current disease problems. There is a high demand for treatment of clinical cases, and oxytetracycline 20% long acting has been provided to CAHWs for this purpose. They usually only give one injection, and charge the cost of the medicine plus service and overhead costs. CBPP vaccination has been promoted in some areas at a subsidized fee, and there has been increasing demand for vaccination over the last few years. Initially a combined rinderpest and CBPP vaccine was used, then T1-SR, and in the last few years T1-44. Vaccination has usually only been carried out on an annual basis for livestock keepers who would like it done.

One of the activities of the PACE-funded VSF-Belgium Rinderpest Project is to develop an appropriate CBPP control strategy for southern sector areas of southern Sudan. There is an ongoing discussion globally and within PACE of how best to implement the long-term goal of CBPP eradication, bearing in mind some of the limitations of currently available treatments, vaccinations and laboratory tests, and the difficulties of controlling movement of cattle.

Now that rinderpest has not occurred in many parts of southern Sudan for a number of years, there is an increasing demand for control of CBPP, and the NGOs supporting community-based animal health projects are seeking guidance on the best way to control CBPP, what to train CBPP and what advice to give to livestock keepers.

The strategy outlined below is intended as a practical interim approach to CBPP control, pending updated recommendations from AU-IBAR PACE, that could lead into a more comprehensive control or eradication strategy in the future.

2. Basic strategy for CBPP control

2.1 NGOs and counterparts should assess whether CBPP is a high priority in the areas they are covering. Most probably already have this information through baseline surveys, dialogue meetings, disease reports, etc. but could gather additional information through ranking or proportionally piling exercises with livestock keepers.

2.2 In areas where CBPP is a high priority the following control activities could be promoted:

- whole herd/cattle camp vaccination against CBPP, repeated after 6 months, and repeated annually after that,
- at the time of vaccination, suspected clinical cases of CBPP should be treated with antibiotic and not vaccinated,
- clinical cases of CBPP occurring at other times should be treated with antibiotic.

Notes:

- a single CBPP vaccination probably will have little impact on the future incidence of CBPP in the herd, and therefore it should be repeated after 6 months in order to reduce the incidence. One-off vaccination and partial vaccination of herds/cattle camps should be discouraged.
- Antibiotic treatment should be an effective course i.e. the dose should be adequate and the treatment should continue until a few days after clinical signs have gone, e.g. if using oxytetracycline 20% long-acting the recommended route of administration and dose for the animal's bodyweight should be used, repeated every 3 days until a few days after the signs have gone. Alternative antibiotics, such as tylosin, could be used by the correct route and at the recommended dose rate and repeated daily until a few days after the signs have gone. Use of oxytetracycline capsules by any route should be discouraged because it is an underdose and of very short duration of therapy.

CBPP vaccination is currently highly subsidized. It is proposed that this subsidy should continue and the current price be maintained. Part of the revenue would pay for the services of the CAHWs that carry out the vaccination and the balance that is left should go to the agency providing the vaccine, to offset the cost of procuring further supplies.

The cost of antibiotic treatment would follow the local systems of payment for treatments.

2.3 NGOs and counterparts should give the above advice to livestock keepers during community dialogue meetings and whenever livestock keepers raise the problem of CBPP. The livestock keepers can then choose whether to pay for a course of vaccinations, or whether to just pay for treatment of clinical cases. It would be important for all livestock keepers in a cattle camp to agree on a common strategy for their herds.

2.4 NGOs and counterparts should include CBPP control as a topic during basic and refresher CAHW training courses. CAHWs should be able to advise livestock keepers of their options: treatment of clinical cases, or a course of vaccinations plus treatment of cases, and encourage them to report outbreaks of CBPP. This should also be included in AHA and Stockperson training courses.

2.5 Where there is a centralized slaughtering point, meat inspection should be encouraged with a system of recording the number of cattle slaughtered, inspected, and the clinical signs observed. Fresh samples of lung and thoracic fluid can be collected from suspected and recovered cases of CBPP for laboratory testing at Kabete. Samples of lung fixed in formalin can be sent for histology.

2.6 Reports of CBPP outbreaks should be reported and where possible investigated through history-taking, clinical examination, and post mortem examination. If possible serum samples should be collected from a several clinical cases. Samples of fresh lung and thoracic fluid, and formalin-fixed lung can be collected at post mortem.

Note that this approach to the control of CBPP is based on individual herds or cattle camps that wish to pay to try to reduce the disease in their own cattle. At this stage we are not advocating for compulsory mass community-wide vaccination against CBPP for the following reasons:

- There are not enough funds to expand the current cold chain to provide vaccine to all livestock keepers,
- There are not enough funds to provide vaccine for all cattle for 6 monthly campaigns,
- We never achieved mass vaccination for rinderpest even when it was free of charge, using a heat-stable vaccine, and where there were current or recent outbreaks, so it is unlikely to be achievable for CBPP,
- Mass vaccination against CBPP using the currently available vaccines will not eradicate the disease unless it is coupled with strict movement restrictions, which are currently very difficult to achieve in southern Sudan.

3. Collection of Epidemiological Information

3.1 Encourage reporting and investigation of possible CBPP outbreaks, with laboratory confirmation.
3.2 Encourage recording and reporting of meat inspection data.
3.3 Collate information collected during routine baseline surveys and assessments, and during participatory disease searching.

4. Field Research to assist in development of Control Strategy – to be carried out by VSF-B RP Project in collaboration with interested NGOs/counterparts

4.1 Comparison of efficacy of oxytetracycline versus tylosin (or other potentially useful antibiotic): treat suspected cases of CBPP with one or other antibiotic and then follow up with livestock keeper and by clinical examination to assess clinical response.
4.2 Assess efficacy of vaccination only versus vaccination plus treatment of clinical cases: collect sera from a proportion of a herd, carry out vaccination or vaccination plus treatment (whole herd), then collect a second batch of sera after 12 weeks. Sera tested by CFT. Also livestock keepers' perceptions of incidence/prevalence before the intervention and incidence/prevalence after 3 months plus.

Annex 13 Budget for Year One of Project

			Original Budget			Amended Budget		
Code	**Component & item**	**Unit**	**Quantity**	**Unit cost**	**Total EUR**	**Quantity**	**Unit cost**	**Total EUR**
1	**Enhanced national capacity**							
1.1.	**Project support unit**							
1.1.1	***personnel***							
1.1.1.1	Head of Mission	month	1	4500	4500	1	**4600**	**4600** *
1.1.1.2	Senior accountant	month	1	1200	1200	1	1200	1200
1.1.1.3	Office& Personnel Manager	month	2	850	1700	2	**1000**	**2000** *
1.1.1.4	Secretary	month	1	500	500	1	**800**	**800** *
1.1.1.5	Office assistant	month	2	250	500	2	**260**	**520** *
1.1.1.6	Bookkeeper	month	6	1000	6000	6	**1050**	**6300** *
1.1.1.7	Logistics Co-ordinator	month	6	3000	18000	6	**2830**	**16980** *
	sub total				*32400*			*32400*
1.1.2	***equipment***							
1.1.2.1	construction - office/store/accom.		1	10,000	10000	1	10,000	10000
	sub total				*10000*			*10000*
1.1.3	***running costs***							
1.1.3.1	office cost NBI/Loki	month	12	500	6000	12	500	6000
1.1.3.2	communications	month	12	250	3000	12	250	3000
1.1.3.3	vet training/study visits	course	1	6000	6000	1	6000	6000
1.1.3.4	vet training course Loki/Sudan	course	1	6000	6000	1	6000	6000
1.1.3.5	co-ordination meetings Loki	session	2	5000	10000	2	5000	10000
1.1.3.6	co-ordination meetings Sudan	session	4	500	2000	4	500	2000
1.1.3.7	indirect costs (3.4% direct costs)	unit	1	30000	30000	1	30000	30000
	sub total				*63000*			*63000*
	sub total enhanced national capacity				**105400**			**105400**
2	**Improved veterinary services**							
2.1.	**Services delivery**							
2.1.1	***personnel***							
2.1.2	***equipment***							

2.1.2.1	Extension materials	unit	1	10,000	10000	1	10,000	10000
2.1.2.2	CAHW equipment	kit	70	130	9100	70	130	9100
	sub total				*19100*			*19100*
2.1.3	***running costs***							
2.1.3.1	vet auxiliary training	year	3	5000	15000	3	5000	15000
2.1.3.2	CAHW training, basic/refresher	course	4	3000	12000	4	3000	12000
	sub total				*27000*			*27000*
	sub total improved veterinary services				**46100**			**46100**
3	**Fight against rinderpest**							
3.1.	***Personnel***							
3.1.1	Veterinarian, Project Officer (1)	month	12	4400	52800	12	4400	52800
3.1.2	Field Veterinarians (3)	month	36	3215	115740	36	3215	115740
3.1.3	Field Assistants (2)	month	24	1400	33600	24	1400	33600
3.1.4	Laboratory Assistant (Lokichokio)	month	12	1000	12000	12	1000	12000
3.1.5	Accommodation Lokichokio	month	12	1155	13860	12	1155	13860
3.1.6	surveillance/vaccination payments	year	1	30000	30000	1	30000	30000
	sub total				*258000*			***258000***
3.1.2.	***equipment***							
3.1.2.1	sampling/lab equipment	unit	1	5000	5000	1	5000	5000
3.1.2.2	cold chain	unit	1	5000	5000	1	5000	5000
3.1.2.3	vaccination equipment	unit	1	4000	4000	1	4000	4000
3.1.2.4	quick run kits for staff	unit	6	130	780	6	130	780
3.1.2.5	camping kits for staff	unit	6	650	3900	6	650	3900
3.1.2.6	computer equipment	unit	2	5000	10000	2	5000	10000
3.1.2.7	stationery	unit	1	1000	1000	1	1000	1000
3.1.2.8	construction, field store/base	unit	1	4000	4000	1	4000	4000
3.1.2.9	bicycles and spare parts	unit	10	132	1320	**10**	**145**	**1450**
	sub total				*35000*			***35130***
Code	**Component & item**	**Unit**	**Quantity**	**Unit cost**	**Total EUR**	**Quantity**	**Unit cost**	**Total EUR**
3.1.3.	***running costs***							
3.1.3.1	rinderpest vaccine	50 dose	20000	5	100000	20000	5	100000
3.1.3.2	laboratory fees	unit	1	10000	10000	1	10000	10000

3.1.3.3	field workshops, CAHWs/supers	session	8	2000	16000	8	2000	16000	
3.1.3.4	community meetings	session	10	250	2500	10	250	2500	
3.1.3.5	air/road transport, staff	month	12	7500	90000	12	7500	90000	
3.1.3.6	air/road transport, cargo	year	1	30000	30000	1	30000	30000	
3.1.3.7	vehicle	unit	2	30000	60000	2	**33052**	**66104**	*
3.1.3.8	vehicle running costs	vehicle	2.5	12000	30000	**2**	**7883**	**15766**	*
3.1.3.9	mobile radio	unit	2	5000	10000	**4**	**4500**	**18000**	*
3.1.3.10	wildlife survey	survey	1	50,000	50000	1	50,000	50000	
	sub total				*398500*			*398370*	
	sub total fight against rinderpest				**691500**			**691500**	
4	**Control of other epizootics**								
4.1.	***Personnel***								
4.2.	***Equipment***								
4.2.1	cold chain	unit	1	12500	12500	1	12500	12500	
	sub total				*12500*			*12500*	
4.3.	***running costs***								
4.3.1	vaccines/medicines	year	1	40000	40000	1	40000	40000	
4.3.2	sampling/laboratory costs	year	1	10000	10000	1	10000	10000	
	sub total				*50000*			*50000*	
	sub total control of other epizootics				**62500**			**62500**	
	Sub total				**905500**			**905500**	
	Contingency				30000			30000	
	Total Budget Year One				**935500**			**935500**	

Annex 14 Financial Report

NGO	VETERINAIRES SANS FRONTIERES BELGIUM
TITLE OF THE PROJECT	FIGHT AGAINST LINEAGE 1 RINDERPEST VIRUS PROJECT - SUDAN SOUTHERN SECTOR SUB-PROJECT
COUNTRY	SUDAN
YEAR OF REPORTING	YEAR ONE
PERIOD REPORTED	NOV 2001 TO OCT 2002

AMOUNT RECEIVED (EURO)	**935,500.00**
AMOUNT SPENT (EURO)	**584,676.00**
1. Enhanced national capacity	**90,702.00**
2. Improved veterinary services	**23,625.00**
3. Fight against rinderpest	**444,890.00**
4. Control of other epizootics	**25,459.00**
BANK BALANCE	**350,824.00**

Month	EUR - KES	Expenditure EUR	Expenditure KES
Jan	70.7900	38,692	2739,006
Feb	68.8359	83,926	5,777,121
Mar	68.0986	26,546	1,807,745
Apr	68.5006	34,581	2,368,819
May	69.6274	30,445	2,119,806
Jun	69.6274	88,404	6,155,340
Jul	76.1330	97,071	7,390,306
Aug	76.1000	41,153	3,131,743
Sep	76.1000	42,529	3,236,456
Oct	76.3000	101,330	7,731,479
Total expenditure		584,677	42,457,825

Weighted average exchange rate **72.61757451**

Note: due to receipt of funds at end of Dec 2001, costs incurred Nov/Dec 2001 appear during January 2002

AR PACE PROGRAMME

STATUS OF ALLOTMENT

BUDGET PERIOD: NOV 2001 TO OCTOBER 2002

y: SUDAN

Component & item	A This year BUDGET	B This Year Expenditure	BALANCE A-B	Account Reference
Enhanced national capacity				
Project support unit				
personnel				
Head of Mission	4600	4536	64	62041200, 62900015
Senior accountant	1200	1200	0	62043500, 62900007
Office& Personnel Manager	2000	1991	9	62043900, 62900014
Secretary	800	785	15	62046300, 62900010
Office assistant	520	473	47	62046400, 62900018
Bookkeeper	6300	6297	3	62044000, 62900020
Logistics Co-ordinator	16980	15414	1566	vacant
sub total	***32400***	***30696***	***1704***	
equipment				
construction - office/store/accom.	10000	9998	2	61930018
sub total	***10000***	***9998***	***2***	
running costs				
office cost NBI/Loki	6000	5998	2	61930021, 61930019, 61000002-3-4, 61040002
communications	3000	2998	2	61010007, 61010008, 61010009
vet training/study visits	6000	0	6000	61930023
vet training course Loki/Sudan	6000	1628	4372	61100003
co-ordination meetings Loki	10000	7988	2012	61930027
co-ordination meetings Sudan	2000	1396	604	61930027
indirect costs (3.4% direct costs)	30000	30000	0	HQ
sub total	***63000***	***50008***	***12992***	

sub total enhanced national capacity	**105400**	**90702**	**14698**	
Improved veterinary services				
Services delivery				
personnel				
equipment				
Extension materials	10000	3767	6233	61100011
CAHW equipment	9100	4863	4237	61100006
sub total	***19100***	***8630***	***10470***	
running costs				
vet auxiliary training	15000	14900	100	61100003
CAHW training, basic/refresher	12000	95	11905	61100002
sub total	***27000***	***14995***	***12005***	
sub total improved veterinary services	**46100**	**23625**	**22475**	
Fight against rinderpest				
Personnel				
Veterinarian, Project Officer (1)	52800	52360	440	62041900, 62900019
Field Veterinarians (3)	115740	70367	45373	62042400, 62900006
Field Assistants (2)	33600	15837	17763	62043400, 62900008
Laboratory Assistant (Lokichokio)	12000	6120	5880	62044100, 62900021
Accommodation Lokichokio	13860	13854	6	61930010
surveillance/vaccination payments	30000	609	29391	62048500
sub total	***258000***	***159147***	***98853***	
equipment				
sampling/lab equipment	5000	3738	1262	61220005
cold chain	5000	5000	0	61220002
vaccination equipment	4000	3908	92	61210001
quick run kits for staff	780	776	4	61930022
camping kits for staff	3900	3900	0	61930028
computer equipment	10000	5011	4989	61020001, 61020002
stationery	1000	879	121	61100004
construction, field store/base	4000	3164	836	61930005

	bicycles and spare parts	1450	1450	0	61500006, 61501006
	sub total	***35130***	***27826***	***7304***	
	Component & item	**Total EUR**			
	running costs				
	rinderpest vaccine	100000	49516	50484	61200001
	laboratory fees	10000	9818	182	61220005
	field workshops, CAHWs/supers	16000	7619	8381	61110008
	community meetings	2500	1179	1321	61100001
	air/road transport, staff	90000	63000	27000	61502002, 61502001
	air/road transport, cargo	30000	27546	2454	61502003, 61502001
	vehicle	66104	66103	1	61500001
	vehicle running costs	15766	15166	600	61501001
	mobile radio	18000	17970	30	61900002, 61901002
	wildlife survey	50000	0	50000	61910002
	sub total	***398370***	***257917***	***140453***	
	sub total fight against rinderpest	**691500**	**444890**	**246610**	
4	**Control of other epizootics**				
	personnel				
	equipment				
	cold chain	12500	4338	8162	61220002
	sub total	***12500***	***4338***	***8162***	
	running costs				
	vaccines/medicines	40000	11969	28031	61200001
	sampling/laboratory costs	10000	9152	848	61220005
	sub total	***50000***	***21121***	***28879***	
	sub total control of other epizootics	**62500**	**25459**	**37041**	
	Sub total	**905500**	**584676**	**320824**	
	Contingency	30000	0	30000	
	Total Budget Year One	**935500**	**584676**	**350824**	