Rinderpest Eradication Strategy Workshop for Southern Sudan

1st – 2nd August 2001
Nairobi

DIERENARTSEN ZONDER GRENZEN | VETERINAIRES SANS FRONTIERES
B E L G I U M

Acknowledgements

The workshop was funded by the Community-based Animal Health and Participatory Epidemiology Unit (CAPE) of the Pan African Programme for the Control of Epizootics (PACE), Organization of African Unity (OAU) Interafrican Bureau for Animal Resources (OAU-IBAR), and was planned and carried out by VSF-Belgium under the co-ordination of the PACE Programme.

For further information contact:

VSF-Belgium
P.O. Box 13986
Nairobi
Kenya
Tel: 576287
Fax: 573105
E mail: **bjones@vsfb.or.ke**

CAPE Unit
PACE,
OAU-IBAR
P.O. Box 30786
Nairobi
Kenya
Tel: 251517
Fax: 253680
E mail: Andy.Catley@oau-ibar.org

Dr Rene Bessin, Co-ordinator PACE Programme
OAU-IBAR
P.O. Box
Nairobi
Kenya
Tel: 338544
Fax: 226565
E mail: rene.bessin@oau-ibar.org

Rinderpest Eradication Strategy Workshop for southern Sudan 1-2nd August 2001, Nairobi

Summary

The Rinderpest Eradication Strategy Workshop for Southern Sudan 1-2nd August 2001 was organised by VSF-Belgium for the Operation Lifeline Sudan (OLS) Southern Sector Livestock Programme under the co-ordination of the Pan African Programme for the Control of Epizootics (PACE), OAU-IBAR, and funded by the Community-based Animal Health and Participatory Epidemiology Unit (CAPE) of PACE.

The aim of the workshop was to present the new strategy for the last stage of rinderpest eradication from Sudan to the organisations involved in livestock activities in OLS Southern Sector. Participants included representatives from OAU-IBAR PACE Programme, FAO-OLS, NGOs and counterparts from both southern and northern sectors.

Presentations were made on the global status of rinderpest and strategy for eradication, the current rinderpest status of Sudan, the new rinderpest eradication strategy for Sudan, rinderpest surveillance, vaccination policy, emergency response, and raising awareness of the new strategy. The participants identified the roles and responsibilities of stakeholders in the new strategy and developed one-year action plans for its implementation.

The strategy can be summarized as follows: Sudan is divided into three epidemiological zones; the provisionally free zone, the surveillance zone, and the infected zone. These zones will become effective from 1/1/02. Activities to be carried out in the infected zone are; targeted vaccination campaigns in selected communities to be completed by 30/6/02, all other mass vaccination activities to be completed by 31/12/01, intensive active and purposive surveillance, and the control of any confirmed rinderpest outbreaks. Activities to be carried out in the surveillance zone are; all mass vaccination to have ceased by 31/12/01, intensive active and purposive surveillance, and the control of any confirmed rinderpest outbreaks. Activities in the provisionally free zone are; all mass vaccination to have ceased by 31/12/01, routine surveillance, and the control of any confirmed rinderpest outbreaks.

The participants raised some concerns in relation to the implementation of this strategy that included; availability of funding to implement, adequate laboratory support for surveillance, short timeframe to introduce the strategy, emergency response capacity, access and security to implement fully, and the role and remuneration of community-based animal health workers.

The main action points arising out of the workshop were to:
- Prepare a document describing the strategy – PACE
- Present the strategy document to counterparts for their endorsement and distribution to field level counterparts to promote their participation – PACE/FAO-OLS/VSF-B
- Distribute the strategy document to NGOs to support project proposals and inform donors – FAO-OLS/VSF-B
- Preparation of communication materials and carry out community dialogue on new strategy – NGOs/counterparts/VSF-B
- CAHW training in new strategy – NGOs/counterparts with VSF-B support
- Training of AHAs, SPs, field vets in new strategy – NGOs with VSF-B support
- Complete mass vaccination by end 2001 and return balance of vaccine – CAHWs, AHAs, SPs
- Surveillance – CAHWs, AHAs, SPs, field vets
- Cold chain maintenance – NGOs
- Planning for emergency response – NGOs/VSF-B/FAO-OLS with PACE support

- Livestock Co-ordination Meeting 15-19th October Lokichokio – introduce new strategy, review progress – VSF-B, PACE
- Infected zone strategy meeting 20-21st October Lokichokio – all agencies and counterparts active in zone + VSF-B, FAO-OLS and PACE
- Proposal writing – NGOs
- Preparation and distribution of workshop minutes – VSF-B
- Targeted vaccination; Pibor, Kapoeta, Riwoto, Lafon – northern sector, Nyangatom – FAO-OLS, Toposa – DOT, Bor Dinka and Murle – ACROSS.
- Seek donor for Boma CBAHP – FAO-OLS

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Abbreviations

ACORD	Agency for Co-operation and Research in Development
ACROSS	Association of Christian Resource Organisations Serving Sudan
ADRA	Adventist Development and Relief Association
AHA	Animal Health Auxiliary
CAHS	community-based animal health service
CAHW	community-based animal health worker
CAPE	Community-based Animal Health and Participatory Epidemiology Unit
CAR	Central African Republic
CV	community vaccinator
DOT	Diocese of Torit
DRC	Democratic Republic of Congo
DVO	District Veterinary Officer
ELISA	enzyme-linked immunosorbent assay
EVK	ethno-veterinary knowledge
FAO	Food and Agriculture Organisation
FRRA	Fashoda Relief and Rehabilitation Association
GAA	German Agro-Action
GOS	Government of Sudan
GREP	Global Rinderpest Eradication Programme
HQ	headquarters
IBAR	Interafrican Bureau for Animal Resources
LSD	Lumpy skin disease
MOU	Memorandum of Understanding
NGO	non-governmental organisation
NPA	Norwegian People's Aid
OAU	Organisation of African Unity
OIE	Office International des Epizooties
OLS	Operation Lifeline Sudan
OLS-NS	Operation Lifeline Sudan Northern Sector
OLS-SS	Operation Lifeline Sudan Southern Sector
Oxfam-GB	Oxfam Great Britain
Oxfam-QC	Oxfam Quebec
PACE	Pan African Programme for the Control of Epizootics
PARC	Pan-African Rinderpest Campaign
PPR	Peste des Petits Ruminants
RASS	Relief Association for South Sudan
RDC	Relief and Development Committee
RP	Rinderpest
SC-UK	Save the Children – United Kingdom
SP	stockperson
SPLA	Sudan People's Liberation Army
SPLM	Sudan People's Liberation Movement
SRRA	Sudan Relief and Rehabilitation Association
UNICEF	United Nations Children's Fund
VSF-Belgium	Veterinaires sans Frontiers – Belgium
VSF-CH	Veterinaires sans Frontiers – Switzerland
VSF-G	Veterinaires sans Frontiers – Germany
WFP	World Food Programme

Rinderpest Eradication Strategy Workshop for southern Sudan
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I INTRODUCTION

The control and eventual eradication of rinderpest has been one of the main objectives of the Operation Lifeline Sudan (OLS) Southern Sector Livestock Programme. Through widespread vaccination by community-based animal health workers (CAHWs) using thermo stable rinderpest vaccine, rinderpest outbreaks have been controlled and the incidence of outbreaks has decreased. The last confirmed outbreak in the southern Sudan region was in 1998.

In line with the Global Rinderpest Eradication Campaign (GREP) and the Pan-African Programme for the Control of Epizootics (PACE) of Organisation of African Unity (OAU) Inter African Bureau for Animal Resources (OAU-IBAR), Sudan is trying to progress towards the final elimination of rinderpest. A strategy for the next stage of eradication has been developed. The aim of this workshop is to present the new strategy to the organisations that are involved in rinderpest control activities in the southern sector areas of the southern Sudan region and to discuss the details of its implementation. This will be the first of a sequence of workshops and meetings that aim to introduce the strategy to stakeholders at all levels.

The workshop is funded by the Community-based Animal Health and Participatory Epidemiology Unit (CAPE) of PACE, OAU-IBAR, and is carried out under the co-ordination of the PACE programme.

Objectives of the Workshop

By the end of the workshop participating OLS agency programme co-ordinators will:

- have revised their existing knowledge of rinderpest disease;
- be familiar with the global rinderpest eradication strategy and understand its main components; stopping mass vaccination, surveillance, and outbreak control;
- be familiar with the current rinderpest situation in Africa generally and in Sudan specifically;
- be familiar with the Sudan plan for rinderpest eradication and how this relates to OLS-southern sector areas;
- understand their roles and responsibilities in relation to rinderpest eradication, and those of other stakeholders from field to international level, and the implications for programme planning;
- have developed an emergency response plan for action in the case of a rinderpest rumour, suspected or confirmed outbreak;
- have discussed ways of raising the awareness of other stakeholders to support the eradication of rinderpest from southern Sudan;
- have agreed on an activity plan and timeframe for the implementation of rinderpest eradication activities.

II WORKSHOP PROCEEDINGS

1. Introduction

Piers Simpkin, FAO-OLS, OLS Southern Sector Livestock Programme Co-ordinator welcomed everyone to the workshop and asked everyone to stand up one by one and introduce themselves (see Annex 2 for list of participants). He then invited Dr Rene Bessin, PACE Programme Co-ordinator, OAU-IBAR, to say a few words and officially open the meeting.

2. Opening Speech by Dr Rene Bessin, PACE Programme Co-ordinator

Ladies and Gentlemen, invited guests and institutions, dear colleagues, first of all I would like on behalf of the Director of OAU-IBAR to welcome all of you to the workshop on rinderpest in southern Sudan and in particular on direction and co-ordination of activities.

I have been involved in the co-ordination of activities during the last three years of PARC in eastern Africa. Therefore I feel best placed in being involved in today's discussion. There have been many actors involved in the fight against rinderpest and particularly in its eradication in southern Sudan. It is obvious that with the current political situation in the southern region of Sudan that there will need to be good co-ordination and information flow between northern and southern sector animal health services if rinderpest eradication is to be achieved in a timely way.

VSF-Belgium in its position as a potential future implementer of PACE activities in southern sector areas of southern Sudan should clarify the role of OAU-IBAR and the emergency fund for rinderpest outbreak in relation to the many stakeholders in northern and southern sectors and in the future, in relation to the PACE programme for northern and southern sector.

This office has a concern over the lack of co-ordination on the approach to rinderpest eradication in southern Sudan. That is why we have initiated the setting up of a rapid response team and a team which is the PACE Epidemiology Unit to consolidate activities related to rinderpest eradication in southern Sudan. OAU-IBAR is the only regional organisation to take the lead in this field. GREP has a global mandate and thus must collaborate and work closely with OAU-IBAR in eradicating rinderpest in the African continent.

Furthermore the first half of 2001 demonstrates clearly the involvement and commitment of IBAR to rinderpest eradication in the last two foci. In essence, the PACE Co-ordination Unit work during the first half of 2001 focussed at Sudan, where the whereabouts of rinderpest lineage 1 virus continues to remain a mystery. The PACE Co-ordination Unit has finalized the PACE global plan which has two parts one for the Sudan Government and the other for southern Sudan to be executed by an international NGO. Approval is awaited, the MOU has been signed, and documents have been forwarded to Brussels.

Two co-ordination meetings were held in Khartoum during the last 6 months with the aim to develop a rinderpest eradication strategy, which is agreed by Sudan Government and by FAO-OLS operating in southern Sudan. Under the strategy PACE Epidemiology Unit has taken the lead at technical level of the rinderpest eradication operation in Sudan.

On the 23rd of April 2001 a report was received from DVO Pibor indicating cattle deaths in Gumuruk area west of Pibor, Jonglei State, southeast of Sudan. There have been persistent rumours of rinderpest from Pibor Province and from its surrounding areas held by SPLA since November 2000. Several attempts were made to clarify whether or not the reported outbreaks had a causal connection with rinderpest. Despite all the rumours rinderpest could not be confirmed nor denounced.

i) Activities

1. IBAR facilitated the development of strategies according to the ecosystem areas for eradication.

2. Facilitated rinderpest surveillance.

3. Assisted PACE Sudan to progress along the OIE Pathway including support to field operations.

4. Promoted the continuous dissemination of information about the rinderpest situation.

ii) Achievements

1. Strategy for lineage 1 ecosystem has been discussed in a number of meetings with all stakeholders involved. It is focussed at south of Sudan and includes operations in three zones:

Provisionally free zone; routine surveillance

Surveillance zone: active surveillance (disease search, purposive surveillance)

Infected zone: vaccination of selected communities, active surveillance

All vaccination in provisionally free and surveillance zones will stop by 31/12/01 and in the infected zone by mid-2002 or earlier depending on a review of the situation.

2. Surveillance has been continuing in Sudan, where it received special support in form of purposive disease search in accessible areas of East Nile ecosystem. Rinderpest was not confirmed but retrospective evidence indicates recent outbreaks in early 2000 based on methods of participatory epidemiology supported by modelling.

3. Sudan government has new zoning and timetable, which has been intensively discussed in two co-ordination meetings. The progress depends on clarification of the rinderpest situation in the East Nile ecosystem.

4. Rinderpest alert was given triggered by rumours from Pibor Province in southern Sudan. The situation in southern Sudan has been extensively discussed in various meetings and workshops.

5. Because of difficulties to access southern Sudan, an aerial survey along the Ethiopian-Sudan border was carried out in April 2001. Subsequent sampling of Kob and Roan population was done in June 2001.

6. Support was given for surveillance work in Pibor Province of southern Sudan, including preparation of a rinderpest vaccination campaign in Murle community of East Nile ecosystem.

7. An article about rinderpest rumours in Pibor Province has been edited together with our communication unit.

iii) Problems and Constraints

1. The current strategy is OIE Pathway driven, which may be reconciled with GREP approach for better benefit of countries around endemic areas.

2. Serological results from the regional laboratories have not been forthcoming. Test results on samples submitted in April are still pending.

3. The national laboratory Soba in Khartoum has a backlog of several samples. Urgent testing requested related to suspected outbreak has not been followed satisfactorily.

4. Countries bordering endemic areas have no chance for further declarations with the current pathway as long as lineage 1 and 2 rinderpest virus has not been eliminated with objective evidence.

5. Sudan is waiting for release of funding for strategy implementation.

iv) Recommendations

1. More concentrated focus to prove the presence of rinderpest virus in suspected areas for subsequent elimination, which is the key to all surrounding countries for nationwide declarations in connection with any pathway.

2. PACE Epidemiology Unit has recommended a review of guidelines for more practical approach.

3. Surveillance should involve livestock keeping communities; CAPE Unit to be proactive in this field.

v) Conclusions

I know that you have a very busy schedule but you should not overlook the issues of:

- global status of rinderpest and the global eradication strategy,

- current strategy for Sudan,

- wildlife surveillance as a tool for surveillance of rinderpest virus,

- modelling of rinderpest to forecast the situation in southern Sudan.

On this note I would like to declare the Rinderpest Strategy Meeting for southern Sudan officially open.

3. Expectations – Piers Simpkin, FAO-OLS

The participants were asked the question;

'what are we hoping to get out of this workshop?'

They were asked to record their expectations or questions on pieces of card. The cards were collected, read out and pinned to a board, grouping related ideas together. The answers are listed in the box below.

What are we hoping to get out of this workshop?

Strategy

Field strategy
Understanding of the implications of the strategy at the field level
How to manage the transition from rinderpest vaccination to next step
Clear pathway for implementation taking the current constraints into consideration
Is stopping mass vaccination in June 2002 appropriate to some areas?
Global acceptability of eradication strategy and timing
How can we be sure that the 'experts' responsible for the strategy have got it right?
Meeting avoids blue prints
Joint approach to implement OIE pathway
Be prepared to revise deadline of stopping vaccination in southern Sudan should the situation dictate
Set up a clear strategy for rinderpest eradication
Strategy of how to eradicate rinderpest in southern Sudan
Effective methods for the eradication of rinderpest that have long-term results
Conclusion of how to eradicate rinderpest disease

Roles

Clarification of stakeholders' roles
Everyone will know his or her role
All agencies involvement
How NGOs should respond
What are incentives and disincentives for committing to new strategy?

Relation to CAHS

Know whether vaccination will be free of charge
Who should pay the animal health workers for their work of sample collection? PACE? NGOs?
How to reconcile demand-led with compulsory cessation of vaccination approach?
What will be the new core product for CAHS if rinderpest vaccination stops?
Methods of ensuring communities have easy access to vaccinations, drugs, etc.

Co-ordination

Create common understanding between SPLA and GOS regarding rinderpest eradication
Consensus
Assure co-ordination and harmonisation
Understanding of various co-ordination roles
How to co-ordinate rinderpest eradication programme
Agency co-ordination? Who, where, information exchange?

Timeframe

Timelines for implementation
We would have known the duration of the campaign e.g. 2 years, 3 years, how many years?
How long will rinderpest campaign take – months, years?
Hit and run versus long term?

Constraints

Funding constraints/availability
Structures to implement will really be in place
Discuss also risks of the new approach

Surveillance

To agree on a common strategy for surveillance zone (methodology, sample collection, frequency)
Logistical support in the surveillance process: what is the modality
Initial sero-surveillance to identify less immune herds/counties

Clarify the role of wildlife in the disease cycle?
Are we able to set-up sufficient and efficient active surveillance?
To design and circulate proper mapping with results on investigations

Emergency Response

How to quickly respond to outbreak after stopping vaccination?

Laboratory Support

To agree on a close collaboration with all the labs involved – Soba Khartoum, Muguga, Loki Lab
Laboratory support (faster reports)

Transparency

I hope the meeting will be run through participation
Ensure transparency of exchange of information
Transparency of plans

OAU/IBAR PACE

Efficiency of OAU-IBAR with donor funds
What will PACE programme contribute in terms of technical inputs/materials to NGOs
Ensure PACE implementation and financing as a major programme support

Access

Ensure no-man's land are fully covered from both sides
Ensure access to both OLS-NS and OLS-SS by either in case of outbreaks
How to cover the areas where no one is working?
How do we improve on access to achieve the strategy?
Cross border strategies
Understanding north-south co-operation in transition/border areas
How would we ensure that there is absolute eradication of rinderpest and yet the coverage is not guaranteed due to insecurity in a big area of southern Sudan?

A handout listing the main objectives of the workshop was distributed (see I. Introduction).

4. Review of rinderpest disease – Bryony Jones, VSF-Belgium

The participants were asked:

What do you know about rinderpest?

Their answers were recorded on a flip chart and are listed in the box below.

What do you know about rinderpest?

Most important transboundary disease *
Killer disease *
Huge plague that decimated the cattle of Africa at the end of 19th century *
Caused creation of some vet schools
Known and feared by all pastoralists *
Disease we can eradicate *
Limits livestock exports *
Can be very mild and persist in vaccinated populations
Sets government and donors panicking *
Causes workshops!
3ds – discharges, diarrhoea, death
Presence in Sudan causes alarm in neighbouring countries *
Problem of developing world – forgotten by developed world
Continued in Sudan for last 100 years *
Economically devastating *
Rumours are used to attract attention
Related to measles and distemper
Prioritised by pastoralists (EVK) *
Quick killer disease *

Restricts traditional marriages *
No medicine apart from vaccine
Maintained in cattle – spread to wildlife
Pastoralists feel it has reduced
Remaining foci in Sudan could reinfect surrounding areas*
Dear friend of cattle rustling, trade, and conflict
PPR – confuses situation
Stopping use of rinderpest vaccine in sheep and goats may increase PPR
Other rinderpest-like diseases
Food security *
Poverty *

* = *reasons why we want to control and eradicate rinderpest*

They were then asked

Why do we want to control and eradicate rinderpest?

Many of the reasons were already given in answer to the first question. They have been marked with * in the list above.

They were then asked

Why is it possible to eradicate rinderpest?

The answers are listed below.

Why is it possible to eradicate rinderpest?

It is directly transmitted
There is no carrier status
In theory, good diagnostic tests are available
There is professional capacity to do the job
Rinderpest is a conservative virus – stable, vaccines highly effective
Appropriate tools are available: community-based approach, thermo-stable vaccine
Vaccine is cheap
It is not a multi host disease – mainly affects cattle (also wildlife)
Has been eliminated from Europe and parts of Africa and these areas have maintained freedom
Smallpox had similar attributes and has been eradicated
Given high priority by pastoralists – cattle are their main capital
There is political good will.

5. Global status of rinderpest and strategy for eradication – Gavin Thomson, Main Epidemiologist, PACE Programme of OAU-IBAR

Since the 1980s the distribution of rinderpest has reduced from being present in east, central and west Africa, the Middle East and parts of Asia, to the current situation of three probable reservoirs: south eastern Sudan, southern Somalia and Pakistan.

Laboratory investigations of rinderpest virus collected from outbreaks shows there are three distinct lineages:

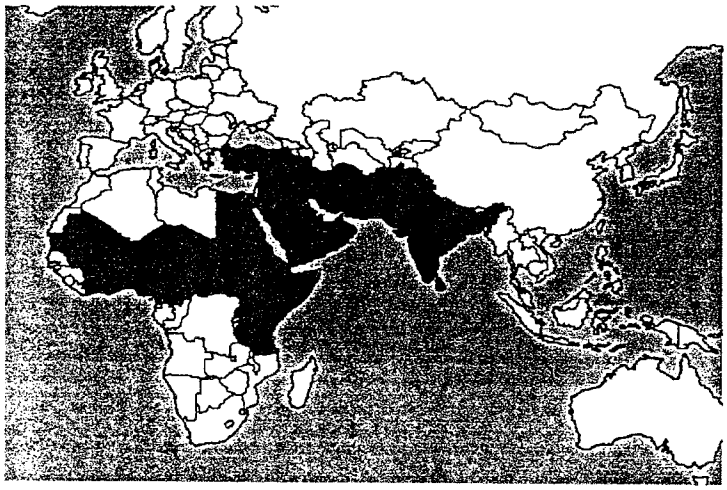
Lineage 1 has been found in Kenya, Sudan, Ethiopia, Nigeria, and Egypt and is currently thought to be present in south east of Sudan.

Lineage 2 has been found in Kenya, Tanzania, and Nigeria and is currently thought to be present in southern Somalia.

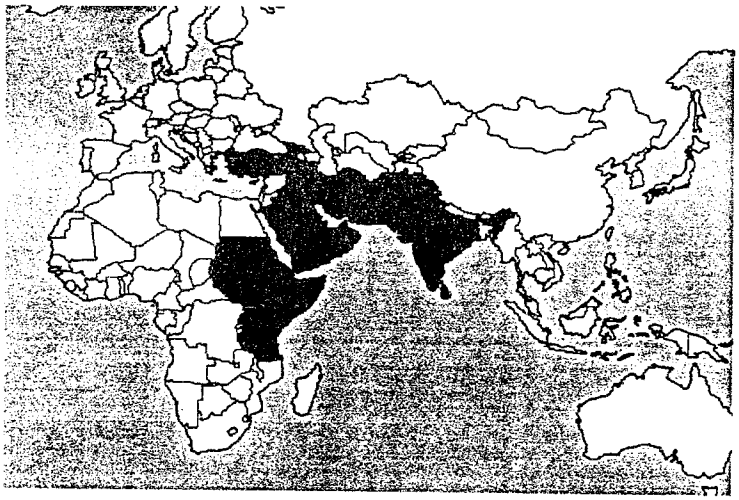
Lineage 3 has been found in Asia and is currently thought to be present in Pakistan.

Lineage 2 rinderpest caused the outbreak in Kenya in the mid-90s, which mainly affected wildlife and caused mild rinderpest in cattle. The occurrence of mild forms of rinderpest disease is a challenge to the final eradication efforts.

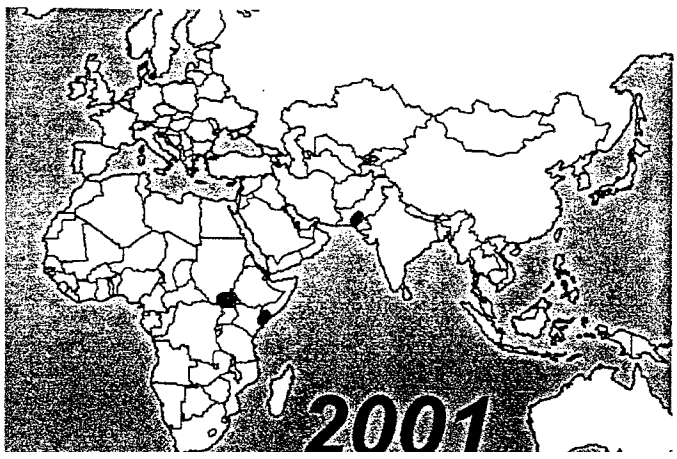
Rinderpest Infected Areas



Early 1980s



Early 1990s



How has this current situation (of three remaining foci) been achieved?
- by intensive and systematic vaccination against rinderpest facilitated by PARC.

Organisations involved in global eradication of rinderpest
International
- *OIE (*Office International des Epizooties)
- *GREP (Global Rinderpest Eradication Programme - FAO)*

Africa
- *OAU(AU)-IBAR*

- *PACE (financed by the European Union)*

The goal is to achieve global eradication by 2010. To reach this target what is required?
- *No occurrence of rinderpest after end of 2002*
- *No vaccination against rinderpest after end of 2002*
- *Extensive and statistically based surveillance for the infection in both domestic and wild animal populations to prove eradication*

Why must vaccination cease?
Vaccination masks rinderpest in two ways:
- *the disease is not visible (subclinical infection)*
- *it is difficult to distinguish serologically between animals that have been infected and those that have been vaccinated*

Rinderpest virus can survive in cattle populations that are not vaccinated properly!

Some common questions:

Is it not dangerous to stop vaccination before rinderpest is finally eradicated?
What if vaccination has been stopped and the disease suddenly reappears?

PACE and other organisations will have emergency strategies in place by the end of 2001.
These will comprise:
- *Emergency vaccine stocks*
- *Emergency funds for rinderpest outbreaks*
- *Emergency (contingency) plans for each country involved in PACE*

What is the rinderpest eradication policy now?
- *Cessation of vaccination wherever possible*
- *Active search for rinderpest*
  - *disease*
  - *infection (serology)*
- *Eliminate it where it is found*
- *Verify that rinderpest virus no longer occurs in Africa (international accreditation)*

Questions from participants:
- Explain sub-clinical infections

- sub-optimally vaccinated populations can be persistently infected with rinderpest without obvious clinical disease. We get many scare stories and we have serological data but there is no real evidence of rinderpest. A vaccination effort is mounted and therefore we can't do sero-surveillance. If we stop vaccination and only carry out vaccination when rinderpest is actually confirmed then we will have a clearer picture of what is happening.

- During the transition phase of stopping mass vaccination shouldn't we establish immune status of herds to see risk areas?

- vaccination coverage is low in many areas which means there are a lot of susceptibles

- Prevalence of rinderpest in wildlife?

- this will be covered later.

- In some areas where there has been no vaccination e.g. Nuba Mountains, Shilluk, and there has been no word of outbreak, there is no point in doing any vaccination before end of 2001.

- agreed

- Rinderpest affects other species – sheep and goats?

– sheep and goats can be infected but show no clinical signs. They are not persistently infected or carriers.

- We are not controlling rinderpest in sheep and goats, only cattle?

– sheep and goats do not maintain the disease so we focus on control in cattle to eliminate the disease.

- RP vaccine is used in sheep and goats for PPR, when the vaccine is withdrawn PPR will not be controlled

– using RP vaccine in sheep and goats makes it difficult to prove rinderpest is gone. We should use PPR vaccine for control of PPR, not rinderpest vaccine.

- In northern sector we should not ignore the importance of PPR. It will create a demand for RP vaccine.
- Soba is making a homologous PPR vaccine.
- What if there is an outbreak before 2010

- I think we are scared to think about it!

- using the OIE Pathway individual countries can prove eradication and prevent reintroduction.

- using the GREP pathway the whole world will be verified as free using a regional approach.

- Are we able to do active surveillance if we can't vaccinate everywhere?

- this is a fundamental question that we will aim to answer as activities go ahead.

- Surveillance requires manpower, we need indigenous people to be trained to carry on the work when the NGOs are gone.

6. Status of rinderpest in Sudan

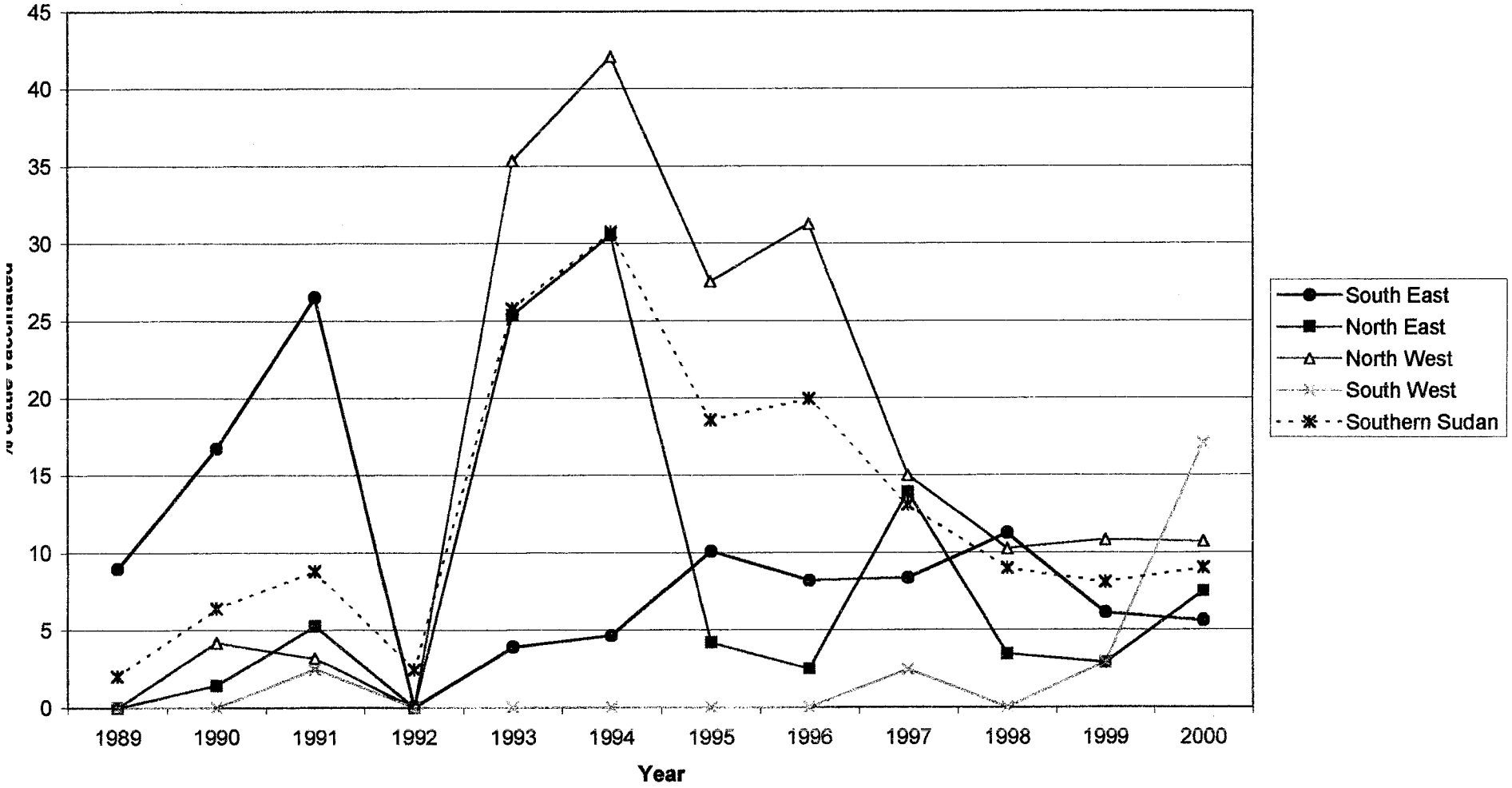
6.1 Southern Sector – Bryony Jones, VSF-Belgium

The main activities in relation to rinderpest control in southern sector areas since 1989 have been mass vaccination and outbreak reporting and control. Graph 1 shows annual rinderpest vaccination figures overall and by region and demonstrates the trends. It does not show that there have been pockets of very high coverage at different points in time. Detailed figures are presented in the following document, which was distributed to all participants:
Review of Rinderpest Control in Southern Sudan 1989-2000, B. Jones, CAPE Unit, PACE Programme, OAU-IBAR. 2001.

During the first few years there was limited access from a few bases. During 1993 and 1994 there was an expansion in the programme and introduction of the community-based approach. There was a rise in vaccination in Bahr el Ghazal and Western Upper Nile associated with this and the occurrence of major rinderpest outbreaks. Over the last few years there has been a decline in the number of vaccinations.

Sero-monitoring of vaccination efficiency has been patchy and numbers of sera tested are low but from 2,364 sera tested during this period, 72% were sero-positive. Sera were not randomly selected but biased to areas of vaccination and to possible outbreaks. Out of cattle that had been vaccinated 79% were positive and cattle that were said not to have been vaccinated 57% were positive. This demonstrates that where vaccination is being carried out it has been done effectively to achieve high herd immunity. The apparently high immunity in unvaccinated cattle could be due to active RP virus in the past, maternally derived immunity, or cattle that have been vaccinated. What is important is that the vaccination effort has raised herd immunity from the background level of 57% to 79%.

Graph 1: Annual Rinderpest Vaccinations; percentage cattle population vaccinated per zone



Outbreak reporting: since 1998 the livestock programme has been concentrating on improving and formalising the system of outbreak reporting and follow up and there has been an increase in the quality and quantity of reports as the system has become established. There were laboratory confirmed rinderpest outbreaks in Eastern Equatoria in 1992, 1993, 1995 and 1998. In Bahr el Ghazal and Western Upper Nile there were laboratory confirmed outbreaks in 1993 and 94, and a clinically diagnosed outbreak in Western Upper Nile in 1997 (one herd affected, no sampling, ring vaccination carried out). Since the 1998 outbreak there have been numerous rumours of rinderpest. All are either investigated and turn out to be other diseases, or no disease, or the investigation is delayed due to access or security and the situation remains unclear, but are probably not due to rinderpest.

In 2001 so far we have had rumours from Mayendit, Western Upper Nile, in May (one cow with diarrhoea, vaccination carried out, no samples collected), and from Karakumuge, Kapoeta, in June (rumour, northern sector investigating).

Questions from participants

- Do you have percentages of rumours that were found to be other diseases, speed of investigation of rumours, number of rumours not investigated, number laboratory tested?

- these statistics have not been worked out but the data is available so can be done.

- What is the significance of 57% sero-positive in unvaccinated animals?

- there is sampling bias towards outbreaks and many samples were collected during the years when rinderpest was widespread. Also some of the animals may have been vaccinated. 57% is therefore not surprising.

- From the graph we see increased vaccination coverage in 1993-94 in response to outbreaks but this did not happen in 1998?

– the 1998 outbreak affected a smaller cattle population in a more sedentary agricultural area. There was a high level of vaccination in this population but on the graph it is masked by low coverage of a much larger population in the neighbouring parts of the region.

6.2 Northern Sector: Dr Mohammed Razig, PACE Sudan Assistant Co-ordinator

The last confirmed outbreaks in Sudan were in Lagawa, West Kordofan in 1991, and in the Lopit Hills, east Equatoria in 1998.

Report of Rinderpest Investigation in Pibor

In January 2001 reports were received from Pibor area (Pibor province, Jonglei State, southeast of the Sudan) claiming deaths of livestock and wildlife. An investigation team was jointly organized from PACE Sudan and the Central Veterinary Laboratories. Information collected indicated that there was no evidence of RP or any other epizootic disease in the area. Still claims of deaths of cattle and antelopes were prevailing. It was agreed then that PACE would organize field investigation team led by the wildlife disease specialist to cover both Ethiopian and Sudanese sides.

In March 2001 a meeting was held in OAU/IBAR and in that meeting a report was submitted by the RDP livestock consultant. The report was discussed and it stated clearly the current situation of RP in the west and east Nile ecosystems. Based on that report, a strategy was formulated to cease vaccination in the area by mid 2001.

On the 23rd of April 2001 a report was received from DVO Pibor indicating cattle deaths in Gumuruk area west to Pibor. In response to this report a second investigation team was sent to the area to investigate. The team was composed of the head of the division of field investigation at PACE Sudan HQ and the senior diagnostician at the Central Veterinary Laboratory. The Pibor DVO accompanied the team. The investigation team made proper investigation and collected relevant samples and information. Despite no evidence of rinderpest from the laboratory results, other information collected

from the stakeholders strongly suggested rinderpest; therefore, the investigation team launched an emergency program for massive vaccination.

The preliminary information collected was presented to the PACE/Sudan/FAO livestock coordination meeting (27-31.5.2001). The meeting recommended further investigation to be made lead by PACE epidemiologist. Information collected and disseminated to the mentioned meeting described many deaths of cattle in the area. Symptoms of emaciation, with some cases showed lacrimation were noted. No stomatitis, no diarrhoea, and no rise in temperature. Mortality rate is about 60%. Autopsy showed oedema and ulcer of abomasum, intestinal, and rectal ulcers. Cysts of cysticercosis were shown in the heart and skeletal muscles. Samples were collected for laboratory test. Samples included blood for serology, tissues from different organs and blood films. Samples tested by immuno-capture ELISA were found negative for rinderpest. Heavy infestation of fascioliasis, schistosomiasis and cysticercosis were identified

As recommended, a third team composed of the PACE epidemiologist, FAO Sudan livestock officer and senior pathologist at the Central Veterinary Laboratory and Pibor DVO visited the area for more investigation and follow up. The third team reported no active cases indicative of rinderpest. The mission could not conclude definitively that the disease was rinderpest but it was unanimously agreed that it could be the source of the high mortality rates and vaccination campaign should commence immediately.

The team was aware of the emergency program adopted for this zone (the infected zone) and the mass vaccination program was launched in the area (as recommended at the 5th coordination workshop, May 2001). Trained CAHWs and CVs were actively involved in vaccination program. The team has supervised training of new CAHWs who directly joined the campaign. Six vaccination teams were formed, namely: Gumuruk, Linkongole, Fertet, Pibor, Jie teams in addition to one mobile team. Herders responded positively to the vaccination campaign. 225,000 animals were vaccinated during the period 23.5.2001-25.6.2001. Now the condition was brought under control, but more vaccine is needed to cover all the area. A request was submitted to FAO for provision of 350,000 doses of thermostable RP vaccine to be shipped urgently to the area. PACE will lead the process to avail more vaccine.

Another campaign will be organized from Kapoeta area (East Equatoria) to cover the accessible areas, while the OLS SS is encouraged to cover the rest of the accessible areas of the Toposa land.

The situation now is brought under control and it is clear that, based on the information collected, the majority of claims and death reports are rumors. The Sudanese authorities responded to the situation with utmost efficiency. The role-played by all partners; FAO, UNICEF, WFP and NGOs is greatly appreciated.

Questions from participants

- Were unvaccinated animals sero-sampled?

– 50 animals of different ages were sampled and about 50% were positive

- is this proof of RP?

- could be but difficult to interpret because vaccination has previously been carried out in this area .

- Reports coming to southern sector at this time were of a LSD outbreak
- In Karakumuge, what was the extent of the investigation in this area because information from southern sector is that this area is currently insecure and cannot be accessed from either side?

- we only have a brief verbal report of the investigation and are waiting for the full written report from the field veterinarian.

6.3 Rinderpest disease searching and modelling in southern Sudan: Andy Catley, CAPE Unit of PACE, OAU-IBAR

Andy Catley presented extracts of a consultancy report by Dr Jeff Mariner, CAPE Unit, PACE Programme, OAU/IBAR. Co-workers involved in the fieldwork were Aluma Araba, Gachengo Matindi, George Were and John Osman of the OLS-SS Livestock Programme.

Copies of the consultancy report were distributed to the participants: *Report of the consultancy to assist in the development of a rinderpest eradication strategy in the west and east Nile ecosystems, J.C. Mariner, RDP Livestock Services, 2001.*
The consultancy had three main objectives:
1. Conduct disease searching for rinderpest in the East Nile ecosystem
2. Assess feasibility of developing a disease model for rinderpest in southern Sudan
3. Make recommendations for rinderpest eradication strategy in southern Sudan

1. Rinderpest Disease Searching
He used a participatory disease searching methodology for rinderpest disease searching, which included:
- Semi-structured interviews
- Mapping
- Other methods e.g. proportional piling for herd age structure and mortality due to rinderpest

The work was conducted over five weeks from February to early March, 2001 and focused on the Kengen River area, which is predominantly occupied by the Murle community.

Some findings included:
- Despite rumours of rinderpest in the Pibor area in November/December 2000, no direct evidence of a recent major rinderpest epidemic in the Kengen River system
- But, considerable evidence of recent rinderpest circulation, particularly in the southern part of the East Nile ecosystem. This evidence includes:

- widespread rumours;
- descriptions of endemic disease patterns;
- continued prioritization of rinderpest by Murle and other communities.

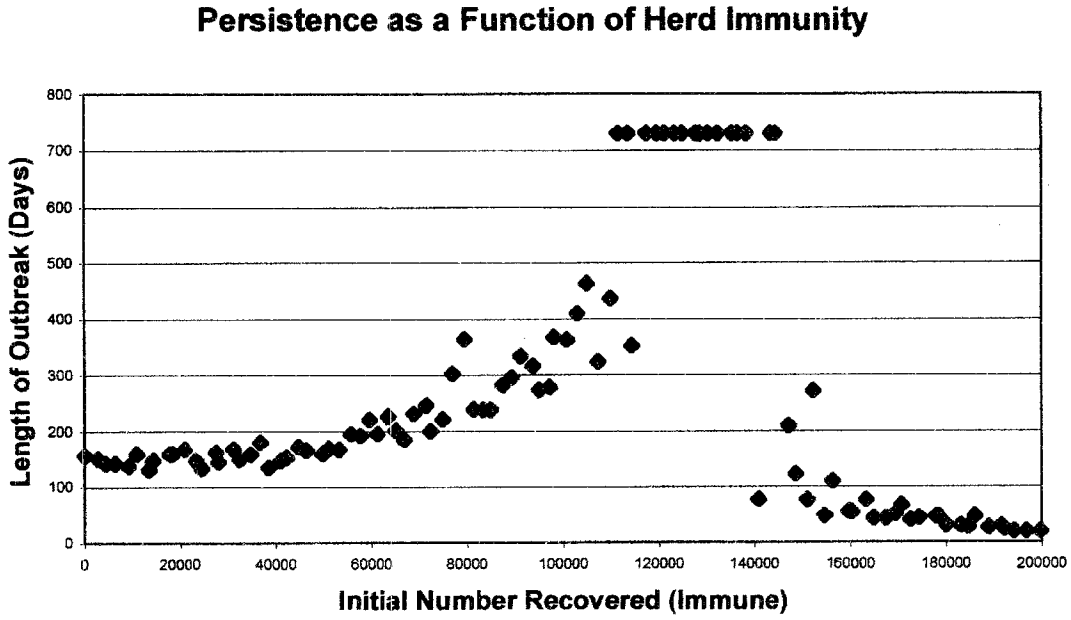
2. Development of a model for rinderpest in southern Sudan
Disease models are computer-generated simulations that can show how diseases behave in, and move through populations (disease dynamics). Models can be used as tools to help develop disease control strategies. Models are most useful when field experience informs the development of the model.
Modelling has been used to:
- Identify optimal vaccination strategies for interrupting the transmission of a disease agent
- Show the impact of sub-optimal vaccination practices
- Understand the conditions that contribute to eradication versus an endemic situation

Typically, models require data such as:
- the proportion of a population susceptible to infection
- mortality rates
- age structure of the population
- contact between animals in a population.

In southern Sudan, this type of data can be sourced from:
- the literature e.g. baseline surveys on rinderpest in BEG (Majok et al., 1991).
- livestock keepers, using simple participatory methods (e.g. proportional piling of mortality by age group)

Using this and other data, a model was developed for rinderpest in southern Sudan. One use of the model was to assess how rinderpest vaccination affects the duration of a rinderpest outbreak.
The graph below demonstrates the relationship between levels of immunity in a cattle population and the duration of a rinderpest outbreak after the introduction of infection into that community. At low

levels of immunity the outbreak lasts less than two hundred days. As the level of immunity increases to around 50% the duration of the outbreak increases up to 500 days. At immunity levels of 55-70% the outbreak persists for 700 days plus. At immunity levels of greater than 75% the outbreak duration decreases to less than 200 days. This model underlines the principle that sub-optimal vaccination can encourage the persistence of rinderpest disease in a population.



Key findings

- Rinderpest vaccination in southern Sudan has not been 'blanket vaccination', but localised to specific, accessible areas
- Where vaccination has been conducted, adequate immunity has been achieved (70 to 80%) but when herd immunity is <70%, rinderpest virus may become endemic

In other words, insufficient vaccination coverage in a given community can encourage an endemic situation. This will delay eradication.

Recommendations for OLS

1. The East Nile Ecosystem can be considered as two separate sub-systems:
- the South-East Nile ecosystem
- the Sobat Basin
2. Emphasis should shift from vaccination to surveillance. Any future vaccination should be:
- well targeted and time-bound
- only conducted where access is good and 80-90% coverage can be achieved
3. Communities can be categorised according to:
- size
- contact structure
- interaction with neighbours
- accessibility

For example,

Vaccination and Surveillance Communities: Toposa, Jie, Murle and Bor Dinka
Surveillance Communities: Anuak, Kachipo, Lotuko, Lopit, Boya and Didinga
Limited access Communities: Nuer and Dinka of the Sobat Basin and the Pibor Murle

4. A deadline for cessation of vaccination should be defined. This will require dialogue with NGOs and communities.
5. As new communities are accessed e.g. Murle, sero-sampling should be conducted before vaccination. This will provide data on circulation of rinderpest virus prior to vaccination.
6. Comprehensive participatory disease searches should be conducted in the main communities east of the Nile during the 2001-2002 dry season. The need to continue vaccination after this period should be critically assessed.

Questions from participants

- When doing sero-monitoring need to collect history because cattle could be rustled, marriages etc. so the vaccination history is unknown.
- Vaccination and surveillance doesn't make sense

- the consultant is using surveillance in a broad sense nor just for sero-surveillance but retrospective disease searching, rinderpest-like disease searching etc.

- Need to clarify the terminology of 'disease search', the chances of finding active infection are very low. The method described here is a retrospective activity.
- Why is there such a low vaccination coverage in the Toposa area?

- some people resist vaccination, some areas are insecure especially Karakumuge to Kengen, etc.

- Before doing vaccination need to harmonize communities to improve access and coverage.
- Why are we stopping vaccination; is it to follow the OIE pathway, or to prevent endemicity, or because of declining desire of cattle keepers?

- all of these!

7. The new rinderpest eradication strategy for Sudan – Bryony Jones, VSF-Belgium

In the earlier sessions of this workshop we have heard that southern Sudan is probably one of the last places in the world that might be infected with rinderpest. We have also heard about the activities that have been going on in both northern and southern sector areas to eradicate rinderpest. In southern Sudan the main focus had been on mass vaccination and outbreak reporting and control. We are now in the situation that most parts of southern Sudan have not had an outbreak of rinderpest for several years. We are therefore at the stage where we should stop mass vaccination in most areas and expand and intensify out surveillance system. This is in line with the global rinderpest eradication strategy. There are some communities where the rinderpest situation is unclear and these should receive special attention for vaccination campaigns and surveillance.

On the basis of rinderpest information received from both northern and southern sector areas over the last few years, the PACE Programme of OAU-IBAR has developed a strategy for southern Sudan to move towards final rinderpest eradication. On behalf of the PACE programme I would like to present this strategy to you and then for us to discuss how it can be implemented in the areas in which we work.

The PACE Programme recognises that some areas are more likely to be free of rinderpest than others, so instead of declaring that mass vaccination stop everywhere by a certain date, the strategy is to phase in the cessation of mass vaccination. PACE has therefore divided southern Sudan into zones: the provisionally free zone, the surveillance zone, and the infected zone (see maps below). These zones will become effective from the 1st of January 2002.

The infected zone is composed of parts of Eastern Equatoria region, Jonglei region, and parts of Upper Nile region. It is delineated by the Sobat River to the north, the White Nile to the west, the Ethiopian border to the east and the Kenyan border to the south. Activities to be carried out in this zone are; targeted vaccination campaigns in selected communities to be completed by 30/6/02, all other mass vaccination activities to be completed by 31/12/01, intensive active and purposive surveillance, and the control of any confirmed rinderpest outbreaks.

The surveillance zone has two parts, the western and eastern parts. The western surveillance zone is composed of Western Equatoria, part of Eastern Equatoria, Lakes region and part of Bahr el Ghazal. It is delineated by the Bahr el Ghazal and Jur rivers and the Western Equatoria/Bahr el Ghazal boundary to the north, the White Nile to the east, and the CAR/DRC/Uganda border to the west and south. The eastern surveillance zone is composed of part of Upper Nile. It is delineated to the south by the Sobat River and the White Nile, to the east by the Ethiopian border, to the north by the latitude 10 degrees, and to the west by the border of the Shilluk Kingdom. Activities in the eastern and western surveillance zones are; all mass vaccination to have ceased by 31/12/01, intensive active and purposive surveillance, and the control of any confirmed rinderpest outbreaks.

The provisionally free zone is composed of the rest of Sudan. In the southern region it includes parts of Bahr el Ghazal and Upper Nile regions. It is delineated to the south by the administrative boundary between Western Equatoria and Bahr el Ghazal, the Jur and the Bahr el Ghazal rivers, the administrative boundary of the Shilluk Kingdom, and the latitude 10 degrees. Activities in the provisionally free zone are; all mass vaccination to have ceased by 31/12/01, routine surveillance, and the control of any confirmed rinderpest outbreaks.

Southern Sudan Zonation

Provisionally free zone:
Mass vaccination stops by end of 2001
Surveillance
Control of confirmed outbreaks

Surveillance Zone:
Mass vaccination stops by end of 2001
Surveillance (intensive active and purposive)
Control of confirmed outbreaks

Infected zone:
Targeted vaccination campaigns to be completed by 30/6/02
Surveillance (intensive active and purposive)
Control of confirmed outbreaks

The communities of the infected zone will be divided up based on the following criteria:
- significance in maintaining rinderpest,
- access and security,
- possibility of carrying out an effective vaccination campaign to reach 80-90% of the cattle population.

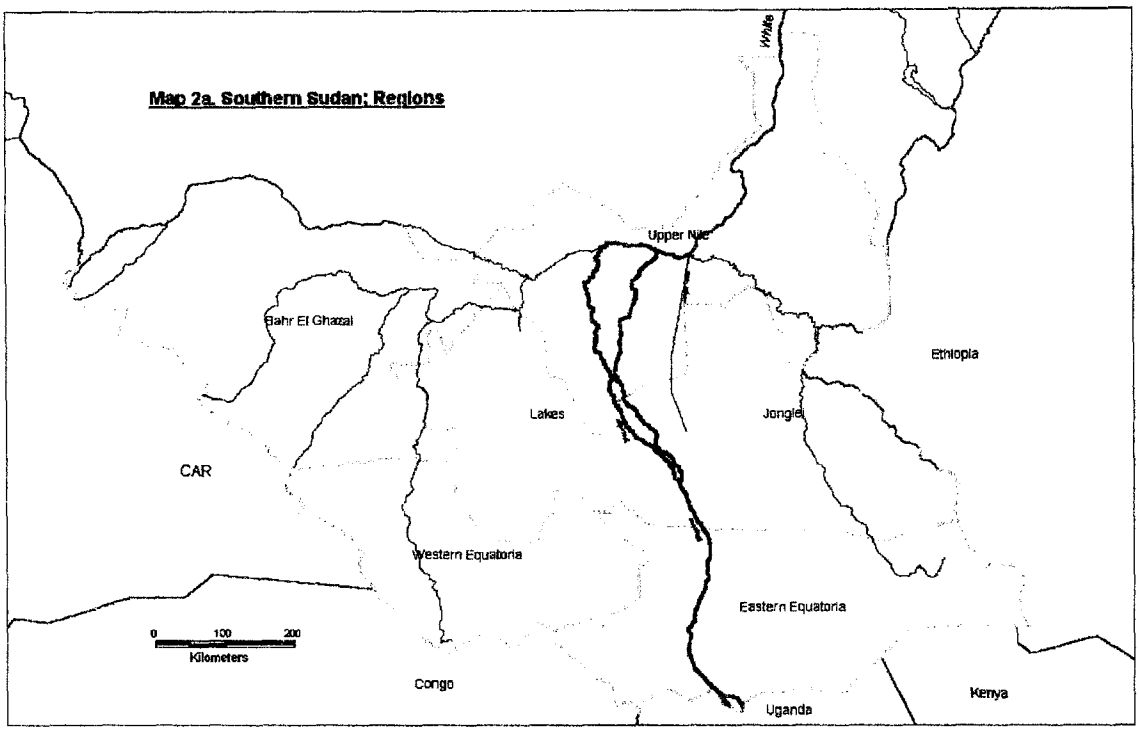
A suggested division is as follows:

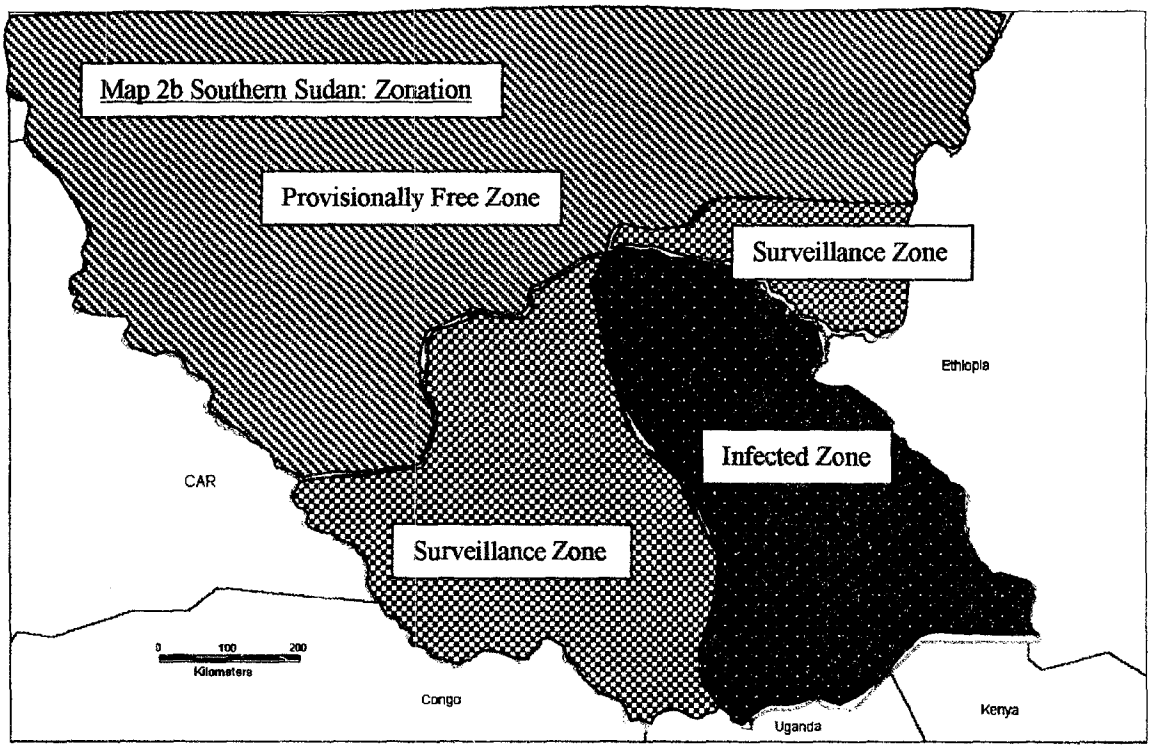
Vaccination and surveillance communities:
- Murle (northern and southern sector)
- Toposa and Nyangatom (northern and southern sector)
- Jie (northern and southern sector)
- Bor Dinka (southern sector)

Surveillance only:
- Anuak (southern sector)
- Kachipo (southern sector)
- Boya (northern and southern sector)
- Didinga (northern and southern sector)
- Letuka/Lopit (southern sector)
- Pari (northern sector)
- Nuer and Dinka south of Sobat river (northern and southern sector)

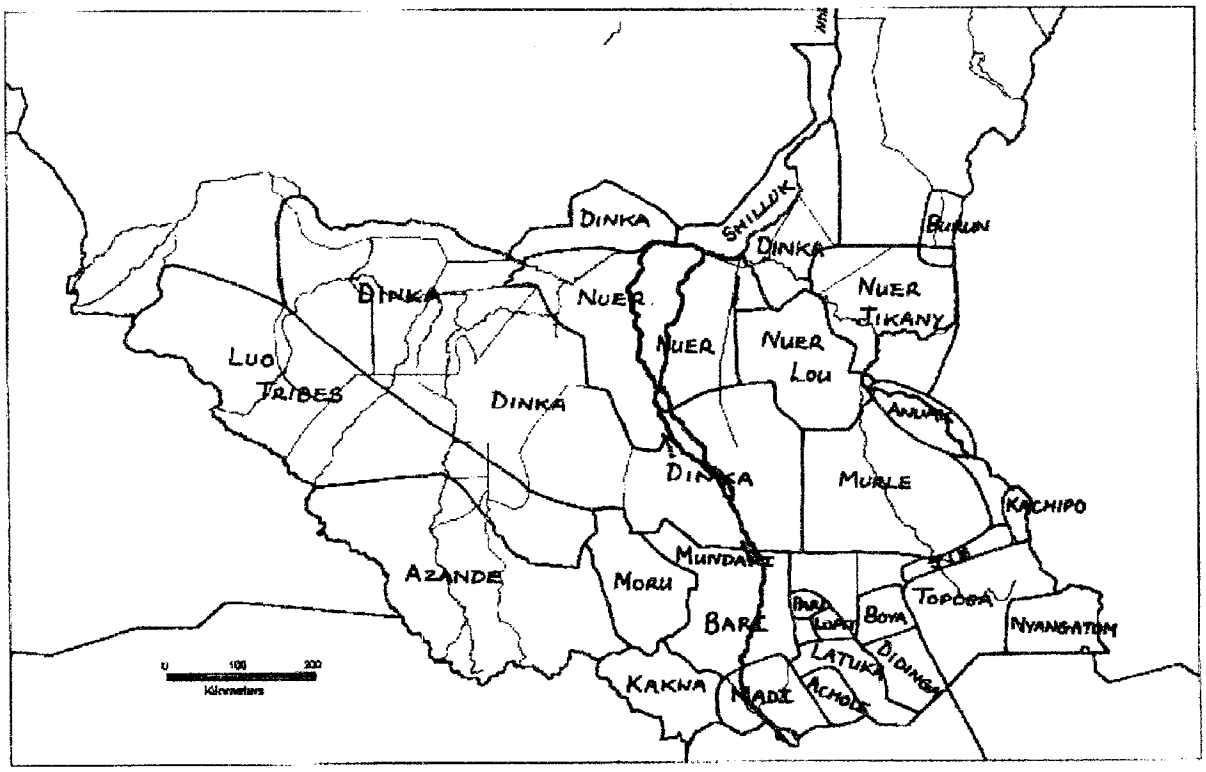
In summary, all mass vaccination activities will be completed by the end of 2001. The only vaccination that will be carried out after this date will be campaigns in targeted communities of the

infected zone which will be completed by 30/6/02, and ring vaccination in response to a confirmed rinderpest outbreak.





Map 3. Southern Sudan; Main Ethnic Groups



8. Surveillance – wildlife and sero-surveillance: Richard Kock, Wildlife Unit, PACE Programme, OAU-IBAR

Richard Kock demonstrated the important role that wildlife surveillance can play as an indicator of rinderpest virus presence, especially where mild rinderpest is circulating and vaccination of cattle has been carried out. Wildlife surveys in Kenya and Uganda have provided useful information that has contributed to the understanding of the epidemiology of rinderpest in these areas. In relation to Sudan, surveillance has been carried out amongst wildlife in Kidepo National Park, Uganda, which borders Eastern Equatoria; no rinderpest antibody was found. Recently a survey has been carried out in Ethiopia along the southern Sudan border. Laboratory results demonstrated the presence of PPR but little evidence of recent rinderpest circulation.

Questions from the participants

- It seems to have taken a long time to establish that rinderpest was present during the last Kenyan outbreak

- it is important for there to be transparency in disease outbreak reporting.

- When we carry out sero-surveillance should there be an age-structure to the samples collected?

– because of persistence of maternally derived immunity the best age of animals to sample is 2 years, and this age can easily be verified by the teeth.

- It should be stressed that there are non-serological methods for surveillance and these are likely to be of great importance in Sudan. In addition surveillance will be primarily in cattle and focus on recording suspected cases, documenting, and using internationally recognised laboratory tests.
- If a population greater than 10,000 maintained rinderpest for 3 years in Kenya don't they pose a risk of reinfecting cattle. In Sudan could Kob maintain rinderpest – the population is larger than 10,000?

- it may be possible, but studies have shown in other countries that if rinderpest is controlled in cattle then it does not occur in associated large populations of wildlife.

9. Vaccination – Bryony Jones, VSF-Belgium

We have talked about stopping mass vaccination in most areas by end of 2001 and in some areas by mid 2002. Once vaccination has ceased the only times when vaccination will be carried out will be in the event of a confirmed rinderpest outbreak. We will discuss this a bit later when we talk about outbreak control. This is major change in the way we have been working and it is important to understand why it is necessary to stop mass vaccination because we need to be able to support the field vets in passing this message to our animal health workers and the communities we work with.

The participants were asked:

Why should we stop mass vaccination?

Their answers were recorded on a flip chart and are listed in the box below.

Why should we stop mass vaccination?

To fight against an enemy – need to know where it is
To see where rinderpest might be
Technically wrong to continue – encouraging endemicity
To provide baseline data
Facilitate the eradication process
No confirmed outbreaks for a while
Vaccination coverage dropping
Payment for a non-priority disease
Re-establish confidence in cattle trade
Focus on other ideas
International obligation to eradicate
Bullet suppliers growing tired

Gachengo Matindi described the following analogy that was used during a community dialogue workshop in Tonj County:

You are fighting a war and your enemy has been cornered inside a tukul. You fire your gun into the tukul to kill your enemy. Do you keep on firing? No – at some point you stop firing. Then what do you do? You wait and watch to see what happens. If there is no sound or movement for some time then you go carefully to have a look and see if he is dead. All the time you are on the alert in case he is still alive. Why don't you just keep on firing? Because it is a waste of bullets.

We stop mass vaccination because there have been no outbreaks for several years in most areas, and we want to know whether rinderpest is still present or not. When mass vaccination is stopped it will be easier to detect the remaining foci of rinderpest because clinical cases may occur and sero-surveillance can be used to detect virus circulation. If there are endemic areas then stopping mass vaccination will make it easier to detect them and then resources can be focussed on eliminating the virus from these key areas. In the longer term, resources can be used to increase control of other important diseases.

The participants were then asked:

What might happen after we stop mass vaccination?

Their answers are recorded below

What might happen after we stop mass vaccination?

No dramatic change in a short time
People will be more vigilant in areas of higher coverage i.e. where awareness is higher
Outbreak!
Decreasing immunity
Rinderpest reports increase to get emergency vaccination
CAHWs redundant

The participants were then asked:

How can we minimize the risk of a rinderpest outbreak?

At this stage the only thing that can be done is to ensure targeted vaccination campaigns in the infected zone are effective in achieving 80-90% coverage. This may wipe out any endemic foci that exist.

The participants were then asked:

How can we minimize the severity of an outbreak if it should occur?

The answers are listed below:

How can we minimize the severity of an outbreak if it should occur?

Involve Community structures in control measures such as movement control, vaccination
Talk to donors to fund activities and emergency response
Train CAHWs in clinical signs and their role in surveillance as sentinels
Make community aware of their role in surveillance
Make community aware of their role in emergency response
Rapid confirmation of rinderpest
Emergency response prepared
Free vaccination in the event of an outbreak
Understand local epidemiology
Guaranteed access by all players
Discuss factors that could lead to failure of strategy
Need time to introduce strategy to community
Rapid response
Procedures for surveillance
Communications.

10. Feedback on the new strategy

The participants were put randomly into four groups and asked to answer two questions:

What is good about the new strategy?
What is not good about the new strategy?

They were asked to write their answers on cards (green for good and red for not good). The cards were collected up, read out and pinned to the board.

Good	Not Good
Timeline provides targeted action in certain areas	Difficulty of access
Will now be concentrating in smaller (more risky) areas	Strategy not accommodating insecurity

Targets lower risk areas first	Risk of neglecting certain areas (not accessible areas)
Higher coverage (%)	Different stakeholder interests
Enhances regional and international trade – minimizes poverty, enhances food security	Reduces participation of livestock owners in financial contribution towards services
Fits regional approach	It may interfere with cross-border trade
Technologically viable – costs, manpower, means	Might undermine sustainability of CAHS (CAHW motivation)
Can restore trust and commitment of the donor community	Impact on remuneration of CAHWs
Long term cost saving	Could lead to confusion in the field due to a changing message
Makes economic sense	Poor database to start from
Cheaper logistically	Strategy not clear on contingency
CAHWs will continue to be productively employed	Can we deliver in terms of response time, taking all criteria to account?
Opportunity for more dialogue – more participatory	Risk of failure – loss of cattle owner and donor confidence
Follows signals from the field	In case of uncontrolled outbreak, we will lose the confidence of the community
Frees cattle owner's resources to put into other areas/medicines	Access to rapid response – limitations
Resources will be available for other diseases	Short time period for implementation
Involvement of all NGOs and communities and local authorities	Short time frame
Fits existing structures	A lot of training and dialogue to do in a short time
Mobilizes new effort – new direction	Need a lot of dialogue – extra
We have a plan that is understood and agreed upon	Insufficient funds
Focused monitoring and surveillance	Lack of assured funding
Shows progress towards gaol	Funds for implementation not available
Will unmask the virus	Lack of diagnostic ability/lab support
Get rid of the disease	Labs are not yet ready

Some very valid concerns that were raised by most of the four groups were:
- inadequate funds,
- laboratory support,
- short timeframe to introduce and implement,
- emergency response capacity
- access and security
- role and remuneration of CAHWs.

11. Surveillance – in the community-based animal health programme

The participants were asked:

What do we understand by the word surveillance?

The answers included:

Alert
Listening out for
Scouting

Dissemination of information

They were then asked:

How can we carry out surveillance?

The answers included:

Talking to people – livestock keepers, traders
Focus on risky areas
Observation - in cattle camps
Document, report, follow up and investigation

Some surveillance is passive such as receiving disease outbreak reports, whilst other methods are active such as going to markets and cattle camps to ask questions and look for clinical signs. Surveillance can be purposive when you target an area where rumours are coming from or where you are not sure what there is in the area.

Sero-surveillance is a specialised type of active surveillance that is used from one year after mass vaccination has stopped. Serum is collected from unvaccinated animals that are over one year of age to see if they have any rinderpest antibody. If antibody is present then this may indicate the circulation of rinderpest virus in the area.

12. Roles and responsibilities in implementation of rinderpest eradication strategy – Piers Simpkin, FAO-OLS

The participants were asked to name all the different stakeholders who are involved in the efforts to eradicate rinderpest from southern Sudan. The answers are listed in column one of the table below.

The participants were then asked what the roles of each stakeholder were. Due to shortage of time it was not possible to go into detail for each stakeholder, but a list of the main roles was drawn up and are shown in the top row of the table below. It was agreed which of each of these roles belonged to which stakeholders. These are noted as ticks in the columns of the table.

The participants were then divided into two groups based on which stakeholder group they belonged to. One group was composed of NGO people, the second group was composed of PACE, FAO and counterparts/local authorities. The groups were asked to discuss in detail their roles in the eradication of rinderpest.

Their answers are shown in the boxes below.

A draft project proposal had been developed that incorporated the types of rinderpest activities that NGOs are likely to be implementing. Copies were distributed to the participants to assist with proposal writing.

ıles and responsibilities in implementation of rinderpest eradication strategy and implications for programme planning and budgeting

takeholder	Support strategy	Information source	Assist in implementing	Outbreak control	Peace/ stability	Surveillance/ vaccination payments	Emergency response	Coordination	Training
attle owners/keepers ncluding women)	✓	✓	✓	✓	✓		✓		
attle camp leaders	✓	✓	✓	✓	✓		✓		
hiefs	✓	✓	✓	✓	✓		✓		
ɔcal authorities ounterparts	✓	✓	✓	✓	✓		✓		
CCs	✓		✓						
GOs	✓	✓	✓	✓	✓	✓	✓		✓
onors	✓		✓	✓	✓	✓	✓		
HAs	✓	✓	✓	✓	✓		✓		
ockpersons	✓	✓	✓	✓	✓		✓		
AHWs	✓	✓	✓	✓	✓		✓		
aders	✓	✓	✓	✓					
ɔvernments of ighbouring countries	✓	✓	✓	✓	✓				
AU	✓		✓	✓	✓				
ACE	✓	✓	✓	✓	✓	✓	✓	✓	✓
O	✓	✓	✓	✓	✓		✓		✓
boratories	✓	✓	✓	✓					
litical leaders	✓		✓	✓	✓				
litia/military	✓		✓	✓	✓				
urches/religious ɔups	✓		✓	✓	✓				
E	✓		✓						

Roles of NGOs

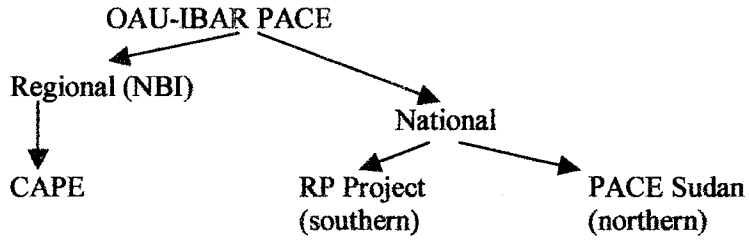
1. Training
– surveillance techniques by PACE,
- reporting/data management and transmission
2. Community-awareness
– intensive,
- front-runner to implementation
3. Communication and reporting
– feedback
– PACE to NGO to community
4. Clarify plans to donors
– change of budgetary/logistical aspects,
- development of programme indicators,
- NGO/donor meeting – document working paper
5. UNICEF/FAO
– support to NGOs from savings on vaccines (!)
– technical/logistical support
6. Gap-filling
- coverage improvement to access the areas not covered
7. Pay for information gathering
– increased workload in surveillance; do we pay for information that leads to search/location of rinderpest in south Sudan
8. Networking

Roles of FAO, PACE, Local Authorities

Local Authorities

Creating/maintaining an enabling environment:
– policy/strategy
- Legal framework,
- security/access,
- co-ordination,
- information/communications,
- reconciliation/dialogue
- SRRA/RASS/FRRA/RDC endorsement of strategy
(lessons to be learnt from polio campaign)

PACE
Structure:



Roles:
Inform/co-write endorsement document
Technical support to national level (training)- strategy, data management
Produce strategy document for NGOs to use in proposals

Note: this group did not finish the task

13. Emergency response to rinderpest reports – Bryony Jones, VSF-Belgium

It is important to prepare in advance for a possible rinderpest outbreak so that everyone involved knows his or her role and who else is involved. First let us think through the sequence of events from when a cow first gets sick with a rinderpest-like disease:

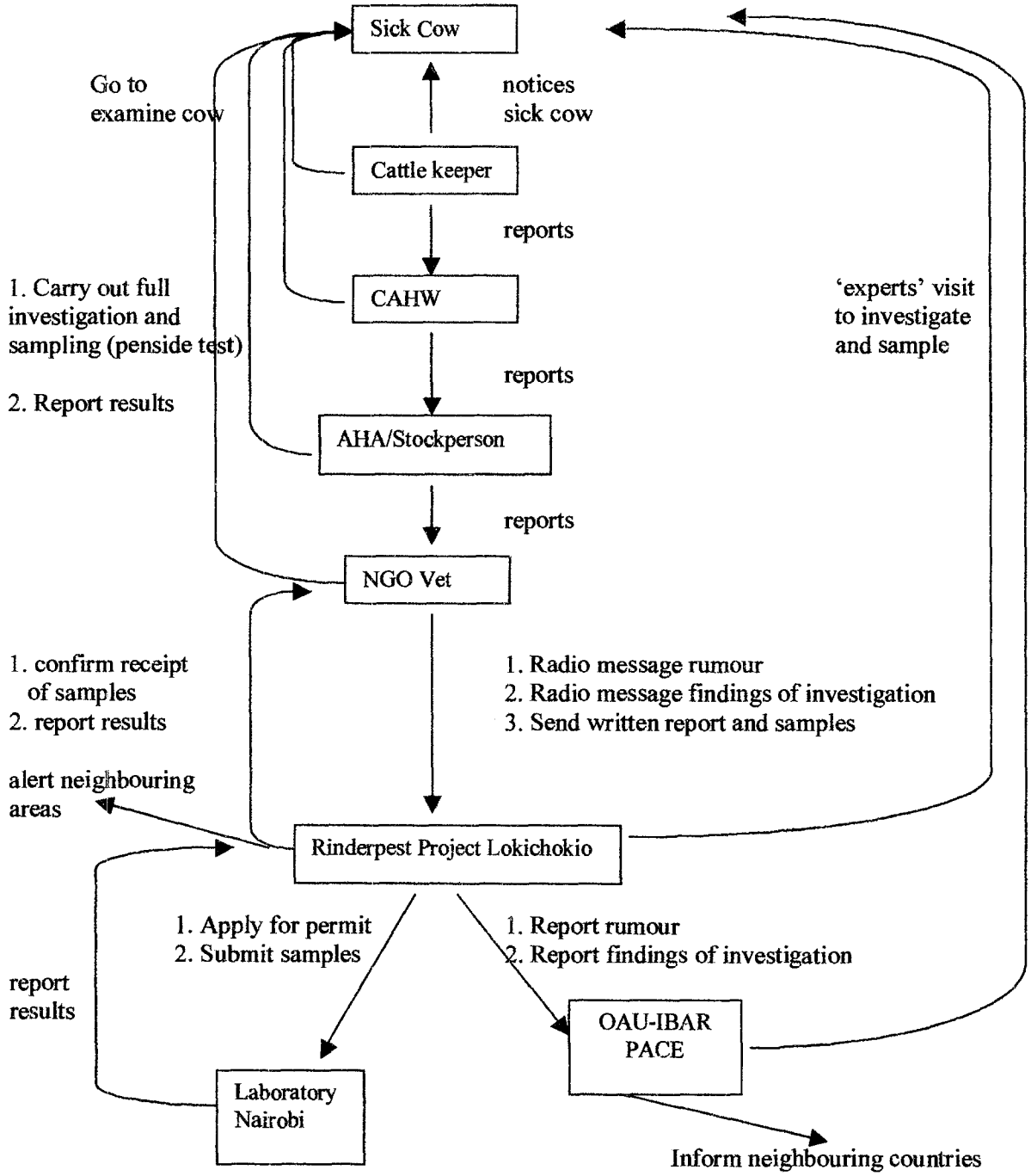


Diagram showing key people involved in reporting and investigating a suspected case of rinderpest.

If initial investigations indicate possible rinderpest the NGO vet, AHA/SP and CAHW should put in place initial control measures i.e. isolation of sick animal(s), movement control of herd, surveillance of surrounding herds.

If there is laboratory confirmation of rinderpest then NGO vet, AHA/SP, CAHW with the assistance of RP Project +/- PACE should map outbreak and make control plan to include targeted vaccination, quarantine and movement control, and surveillance. Pre-positioned vaccine will be released by the RP Project

If laboratory results are negative but there is still a strong suspicion of RP based on clinical signs and progression of the outbreak then samples should be collected again from early cases. If samples or results are delayed for whatever reason and the outbreak is progressing, based on maximum data from field and in consultation with PACE, the Rinderpest Project could release vaccine to mount a targeted campaign, whilst making every attempt to obtain laboratory confirmation. The reality is if that if this occurs, Rinderpest Project and PACE staff are very likely to be on ground and will be able to make a strategic decision.

If the initial investigation indicates it is likely to be another disease then appropriate samples should be collected to confirm the clinical diagnosis and appropriate control measures taken.

Where should vaccine be pre-positioned?
- need to consider; reliable cold chain, security, person in control, risks of too many storage sites, access, etc.
Various locations were considered: Lokichokio, Nairobi, Rumbek, Arua, Boma. After some discussions it was agreed that vaccine should be pre-positioned in Lokichokio only – this is where we have always stored it. Loki can serve Eastern Equatoria by road, and Upper Nile/Jonglei, Bahr el Ghazal and Western Equatoria by air.

14. Raising awareness of animal health workers and communities – Bryony Jones, VSF-Belgium

This morning we listed all the stakeholders involved in rinderpest eradication and listed their roles and responsibilities. How are all these people going to find out what their roles and responsibilities are?

The CAPE Unit of PACE has already funded VSF-Belgium to carry out some preliminary work for the field level stakeholders. A training course for AHAs, SPs and field veterinarians was developed and field-tested in Tonj County, and this was followed by a workshop on community awareness-raising methods.

During the field-testing of the training course and workshop everyone participating learnt a great deal. At the beginning of the training course there was worry about the new strategy, in particular the concept of stopping mass vaccination. By the end of the training course the animal health workers had understood and accepted the strategy and were able to participate in a community dialogue workshop where they explained the strategy to community members who questioned and then accepted the strategy.

Rinderpest Eradication Training Course for Animal Health Workers

- ten-day training course for AHAs, Stockpersons, and field vets
- Training course includes:
  - *revision of rinderpest disease and control;*
  - *global rinderpest eradication strategy and strategy for Sudan;*
  - *understand the components of the new rinderpest eradication strategy;*
  - *mapping of area of work;*
  - *investigation of a rinderpest outbreak report;*

- *control of a suspected or confirmed rinderpest outbreak;*
- *active surveillance for rinderpest-like diseases;*
- *preparation of a rinderpest eradication action plan for their area.*

▪now being incorporated by VSF-B into the AHA/Stockperson course
▪plan to do training in some areas east of Nile in next few months.

Community Awareness-raising Methods for Rinderpest Eradication Workshop for Animal Health Workers and Community Members

•four-day workshop
•main objective was to design a variety of culturally appropriate community awareness-raising materials for communication of the new rinderpest eradication strategy
•The workshop included:
- *methods of communication*
- *target community*
- *development and demonstration of community awareness-raising materials*
- *preparation and implementation of a community dialogue meeting on rinderpest eradication*

A video was shown of the songs and a poem that were developed during the workshop. They incorporated messages related to rinderpest eradication. Audiotapes of the same songs and poem were distributed to some of the participants (10 copies) to be used in their project areas.

Some of the drawings that were developed during the workshop were displayed on the walls, depicting clinical signs of rinderpest, reporting, sampling, control methods, benefits of eradication and consequences of not eradicating. It is planned to use these to make cloth flip charts and distribute them to field staff to assist with dialogue.

Laminated photocards of rinderpest clinical signs were developed to be given to the animal health workers during the rinderpest eradication training course. Copies of these were distributed to the workshop participants (50 copies).

During the workshop a lot of ideas came up for educational materials such as reading books and teachers' packs, the use of t-shirts to pass messages and the need for a slogan for the eradication campaign. Animal health workers from the whole of the livestock programme have been invited to send in ideas for t-shirt designs.

A summary of the work that was carried out is in Annex 6. Full reports of the training course and workshop are available to anyone who would like them.

The CAPE Unit has provided further funding to duplicate and further develop some of these materials and ideas, and to develop a CAHW training module.

15. Action plan and timeframe for rinderpest eradication

The participants were asked to go to zonal groups as follows:
West of Nile (Surveillance and Provisionally Free Zones)
Eastern Surveillance Zone
Infected Zone

Their group task was to develop an action plan for rinderpest eradication for the next 12 months. What needs to be done, who is going to do it, when are they going to do it, what resources are required, and where are the gaps?

Summaries of their plans are shown below.

Action Plan West of Nile

Activity	By whom	Time frame
1. CAHW awareness training (3-4 days)	NGO/all people participating in this workshop	As soon as we get to the field
2. Developing of extension packages	NGOs/community	asap
3. Community dialogue workshops/meetings	NGOs, CAHWs	After 1 and 2 above
4. Mass vaccination to end by 2001 (90% achieved) and awareness raising	CAHWs	End by 2001 continuous
5. Active and purposive rinderpest surveillance	Identified focal persons (Stockpersons, AHAs)	After stopping mass vaccination, continuous
6. Establishment of rinderpest surveillance system	NGO/focal person and stakeholders	As above
7. Establish a team for response in case of outbreak	As above	As above
8. Incentive for surveillance focal persons	PACE +10% from cost recovery	As above
9. Training of focal persons	VSF-B/NGOs	Before termination of mass vaccination
10. Functional cold chain in place/maintenance	NGO/FAO	asap

Eastern Surveillance Zone

Activity	By whom	Time frame
2001		
1. Train vets; comprehensive, rinderpest eradication strategy	NGO via VSF-B, PACE	Asap by end of Sept 2001
2. Develop emergency response	NGO with PACE support	Asap by end of Sept 2001
3. Train animal health workers/VCC; comprehensive, development of extension materials	NGO with VSF-B/PACE support	October 2001
4. Dialogue; local authorities and counterparts	CAHWs, AHAS, SP, VCCs	Oct-Dec
5. Vaccination: last chance, on cost recovery	CAHWs, AHAs, SPs	Oct-Dec
6. Stop vaccination; back load rinderpest vaccines	NGO, CAHWs, AHAs, SPs	31/12/01
7. Proposal writing	NGO, counterparts	Donor cycle
8. Review; livestock co-ordination meeting	AHAs, SPs, NGO - Loki	October 2001
2002		
1. Surveillance; train vets, AHAs, CAHWs in serum collection, penside test, sample collection, participatory methods, clinical diagnosis	NGO with PACE support	Jan – Mar
2. Communication procedures and materials development	AHA/SP/NGO, PACE involvement	

3a. Refresh emergency response; equipment is in place, emergency funds, logistical support in place	All	
3b. Practice drills and refreshers	NGO, AHA, SP, CAHWs, VCC, local authorities, cattle owners	April – Dec
4. Dialogue	Animal health workers, VCCs	
5. Ongoing surveillance	All	
6. Write proposal	NGO	Donor cycle

Infected Zone

All:	dialogue on strategy continuing
Northern Sector :	Pibor vaccination ongoing (vaccine awaited)
(PACE and FAO)	Kapoeta, Riwoto, Lafon vaccination starting in October
Southern Sector FAO:	vaccinating Nyangatom
	Find donor for Boma area – do sero-surveillance pre-vaccination campaign
DOT:	vaccinating from Narus eastwards
ACROSS:	train Murle CAHWS
	Vaccinate Gam area Nov-Dec
	Vaccinate Bor area Mar-may
SCF:	dialogue done
	Train CAHWs in Motot in September
	Vaccinate in Piri from Sept to Nov

Need strategy meeting for infected zone especially eastern Equatoria

It was agreed that the strategy meeting for the infected zone should be after the October LCM i.e. 21-22nd October 2001. People who would need to participate include: DOT Raphael Lotira, FAO Aluma Araba, SC Martin Yoa, VSF-B JY/BDW/JO, ACROSS Aart and Michael Otto, PACE Co-ordination Unit – Risto, RP project for southern Sudan – BJ, Boma NGO if identified, northern sector – Martin, Jacob, Anwar, and southern sector counterparts.

16. Workshop evaluation and closing

A questionnaire was distributed to the participants for the evaluation of the workshop. The answers to the questionnaire are detailed in Annex 7.

Bryony Jones thanked the CAPE Unit for funding the workshop, making presentations and participating, the PACE Programme for making presentations and participating, and the rest of the participants for attending and actively participating. Many things had been discussed and issues raised that needed further discussion but a good start had been made in introducing the new rinderpest eradication strategy and preparing for its implementation.

Annex 1

Rinderpest Eradication Strategy Workshop
1-2nd August 2001, Nairobi

2. Workshop Programme

Day One

8.30 am	Introductions and opening of the workshop Expectations from the workshop
9.30	Review of rinderpest disease
10.00	Coffee Break
10.30	Global status of rinderpest and the global rinderpest eradication strategy
11.30	Status of rinderpest in Sudan; southern sector areas, northern sector areas, recent epidemiological investigations.
1.00	Lunch
2.00	The new rinderpest eradication strategy for Sudan and its implementation in southern sector areas; vaccination, surveillance, outbreak control.
3.30	Tea Break
4.00	Implementation of new strategy (continued)
5.00	Close

Day Two

8.30	Review of day one
9.00	Roles and responsibilities in implementation of rinderpest eradication strategy and implications for programme planning and budgeting.
10.00	Coffee break
10.30	Roles and responsibilities (continued)
11.30	Emergency response to suspected rinderpest: sequence of actions, roles and responsibilities
1.00	Lunch
2.00	Rinderpest eradication; raising awareness of animal health workers and communities
3.00	Tea break
3.30	Action plan and timeframe for rinderpest eradication.
5.00	Workshop evaluation and closing of workshop.

This workshop is funded by the CAPE Unit of the PACE Programme, OAU-IBAR and is carried out under the co-ordination of the PACE Programme.

Annex 2

Workshop Participants

	NAME	ORGANISATION	POSITION	E MAIL ADDRESS
1	Majok Bol Kur	Vetwork Services Trust	Finance Officer	vetwork@nbnet.co.ke
2	Roseline Kigathi	Pharmaciens sans Frontieres	Assistant Administrator	psfnbo@wananchi.com
3	Delia Grace	CAPE, PACE, OAU-IBAR	Technical Officer	Delia.grace@oau-ibar.org
4	Nick Trent	ADRA South Sudan	Programme Director	ntrent@adra-ss.org
5	Mohammed Razig	PACE Sudan	PACE Assistant Co-ordinator	parcsud@sudanmail.net
6	Adam A. Salih	FAO ECU, Khartoum	Emergency Livestock Programme Officer	faosdnecu@hotmail.com
7	Sam Gonda	Oxfam GB SS Programme	Programme Manager	sgonda@oxfam.org.uk
8	Willi Duhnen	VSF-Germany	Finance and Administration	vsfgermany@net2000ke.com
9	Hans Tietze	VSF-Germany	Programme Co-ordinator	htietz@africaonline.co.ke
10	Raphael Lotira	DOT	Veterinary Co-ordinator	codotlo@maf.or.ke
11	William Mogga	FAO-OLS	Livestock Project Officer	wmogga@unicef.org
12	Sue Garrood	GAA Khartoum	Country Representative	suegarrood@hotmail.com, gaasudan@hotmail.com
13	Nicolas Denormandie	VSF Suisse	Programme Co-ordinator	vsfchnbi@africaonline.co.ke
14	Rene Bessin	OAU-IBAR, PACE	PACE Programme Co-ordinator	Rene.Bessin @oau-ibar.org
15	Andy Catley	CAPE, PACE, OAU-IBAR	Epidemiology/Informatics	Andy.Catley@oau-ibar.org
16	Peter Jok Dut	SRRA	Chief Vet. Co-ordinator	
17	Bandindi Pascal	SPLM/Eco. Prod	Commissioner Agriculture	Bpascal2001@yahoo.com
18	Jim Bond	ACORD	S Sudan Co-ordinator	acordssu@africaonline.co.ke
19	Silvester Okoth	ACORD	Veterinarian	acordssu@africaonline.co.ke
20	Suzan Bishop	VSF-Belgium	Training Programme Co-ordinator	sbishop@vsfb.or.ke
21	George Okech	FAO/Tufts University	CBAHS Technical Advisor	georgeokech@hotmail.com
22	Lawrence Sugut	ADRA	Veterinary Co-ordinator	projects@adra-ss.org
23	Martin Yoa	SC-UK	Project Officer	scfsouthsudan@scfuk.or.ke
24	Aart den Breejen	ACROSS	Section Head HHFS	Across-aart@maf.or.ke
25	Gavin Thomson	OAU-IBAR, PACE	Main Epidemiologist	Gavin.Thomson@oau-ibar.org
26	Richard Kock	OAU-IBAR, PACE	Wildlife 'Expert' (Vet)	Richard.kock@oau-ibar.org
27	Sally Crafter	VSF-Belgium	Head of Mission	scrafter@vsfb.or.ke
28	John O. Kanisio	VSF-Belgium	CBAHP Co-ordinator	gpcoord@vsfb.or.ke
29	John R. Both	RASS	Vet Co-ordinator	rass@africaonline.co.ke

30	Evans Amadala	Oxfam Quebec	Country Co-ordinator S.S.	oxfamqc@africaonline.co.ke
31	Gregory Ikakoro	Oxfam Quebec	Community Peace Building Officer	oxfamqc@africaonline.co.ke
32	Dale Hogland	FAO	Deputy Emergency Co-ordinator	dalehogland@hotmail.com
33	Gachengo Matindi	FAO	Livestock Officer	mgachengo@unicef.org
34	Piers Simpkin	Tufts/FAO	OLS Livestock Programme Co-ordinator	psimpkin@unicef.org
35	James Breen	FAO	Emergency Co-ordinator-South Sudan	breen@africaonline.co.ke
36	Maina Kibata	NPA	Veterinary Co-ordinator	
37	Bryony Jones	VSF-Belgium	Rinderpest Co-ordinator	bjones@vsfb.or.ke

Annex 3

3. RINDERPEST DISEASE

1. Summary

Rinderpest is a contagious viral disease of domestic and wild animals that can kill over 95% of susceptible animals. Rinderpest causes fever, discharges from the eyes and nose, salivation, erosions of mucous membranes, diarrhoea containing blood and mucus, and death. It is spread by close contact. In highly susceptible herds it will cause severe clinical signs and many deaths.

Today, however, many animals are protected by vaccination and some strains of virus are mild. Rinderpest may then cause few clinical signs and few cattle may die. There is no specific treatment for rinderpest, but good nursing may reduce mortality in mild cases.

2. Species Affected

2.1 Domestic Animals: rinderpest is mainly a disease of cattle. Sheep, goats, pigs and camels can be infected with the virus but rarely show clinical signs of rinderpest. Horses, donkeys and poultry are not affected.

2.2 Wild Animals: many species of game animals can get clinical rinderpest: buffalo, eland, giraffe, kudu and warthog are highly susceptible. Other types of game are less often affected.

Wild animals, sheep and goats may be indicators of the presence of circulating rinderpest virus. Sometimes, rinderpest has been seen in wild animals before it is noticed in the cattle of the area, because there is higher mortality and more severe clinical signs in the wildlife. Testing blood from sheep and goats for rinderpest antibody may show that some are rinderpest antibody positive which indicates that they have been exposed to rinderpest virus even though no rinderpest outbreaks may have been reported in the cattle of the area.

3. Disease Transmission

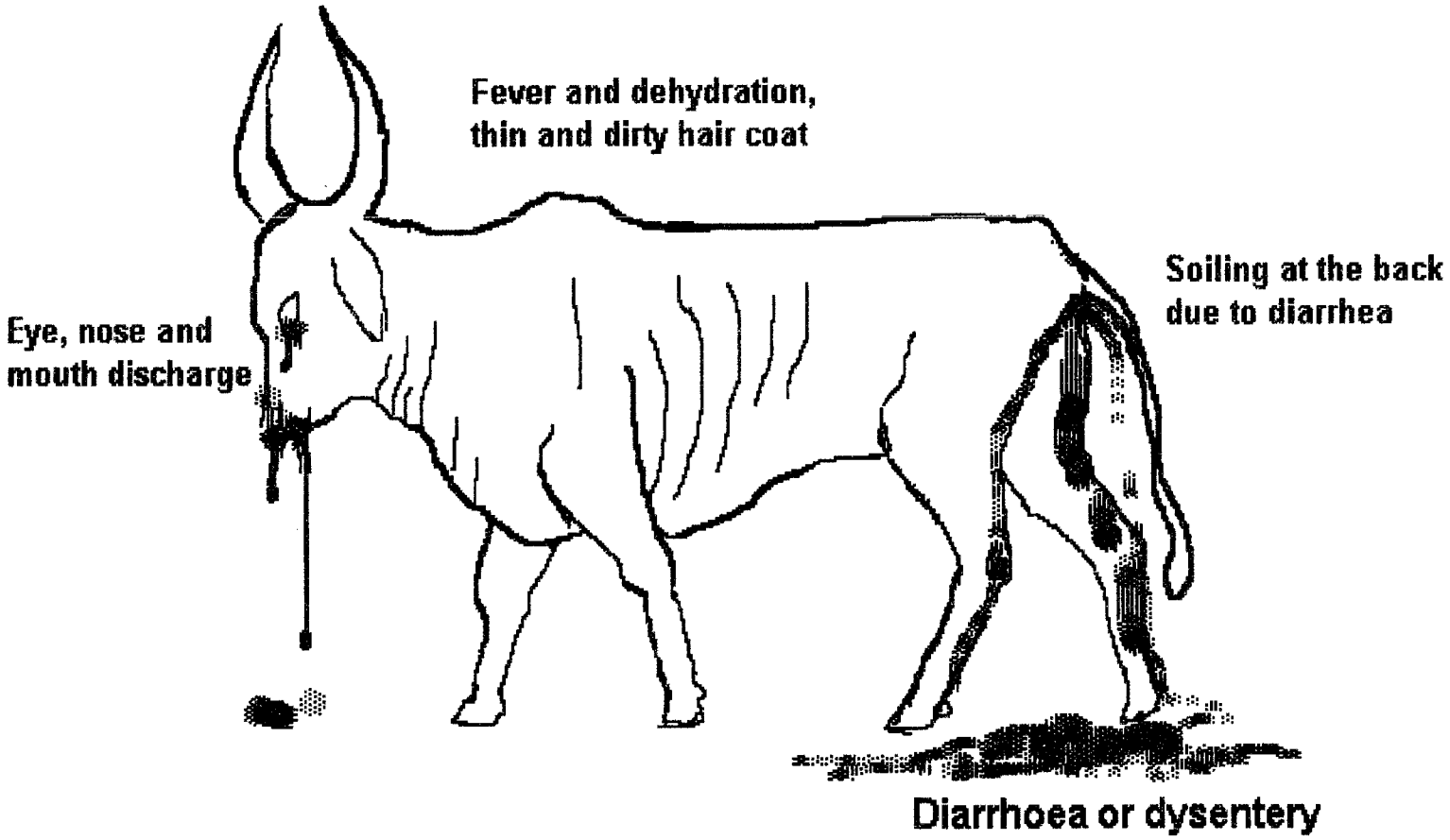
Rinderpest virus is contained in discharges from the eyes, nose and mouth, and in faeces and urine. Once it is outside the animal it is destroyed by heat and light. It is very rare for cattle to be infected by indirect contact, e.g. on food, in water, or on the clothing of people. It can only be spread through the air over very short distances of a few metres.

The most likely source of a new outbreak is contact with an infected animal, often one newly introduced into the herd. Close contact is required for transmission: herding, grazing, watering and tethering close together. Transmission can occur at grazing and watering places. Contact with trade cattle, cattle bought from market, or raided cattle can be dangerous.

4. Appearance in the Cattle Herd

There is usually a history of contact with other sick animals, two or three weeks earlier. Animals of both sexes and of any age can be affected. Where vaccination is widely used deaths will often be seen in the 6 to 18 month age group: these animals have lost their maternal immunity but may not have been vaccinated.

CLINICAL SIGNS OF RINDERPEST



Generally rinderpest will spread rapidly through the herd and to other herds in close contact, but sometimes deaths occur in a herd over several months. Usually many or most of the sick animals will die after about a week but with mild strains of virus more will recover.

If animals vaccinated against rinderpest remain healthy whilst the sick ones are all unvaccinated this is important evidence for suspecting rinderpest. However, there will also be healthy unvaccinated animals, because they have not yet been infected, or because they are incubating the disease. Some animals may be vaccinated but not ear notched. Young calves from immune mothers will also be protected.

5. Clinical Disease in Cattle (see diagram)

The clinical signs described will not be shown by all animals in an outbreak. As many animals as possible should therefore be examined.

The incubation period, the time between infection with the virus and the appearance of clinical signs, is 5 to 15 days. The duration of disease in fatal cases is typically about one week. If animals recover, it takes many weeks for them to return to normal.

Mild rinderpest is very important. It may easily be overlooked because signs of fever, eye and nose discharge, salivation, erosions in the mouth, and/or diarrhoea may be mild or absent. Most affected animals survive.

In some outbreaks, severe disease may be seen in the susceptible part of the herd, but the number affected may be low. This indicates that most of the herd is protected.

5.1 Fever is the first sign, occurring about two days before other signs. The rectal temperature rises rapidly up to 40°C and then to a peak of 41°C by the third to fifth day, then falls slowly. The animal with fever is at first restless but later is depressed and reluctant to move, becomes separated from the herd, has a poor appetite and may not go to water. Milking cows have a sudden drop in yield and pregnant animals may abort. Abortion has also been observed in apparently recovered animals.

5.2 Discharges from the eyes, nose and mouth are seen two days from the onset of fever. The discharge from the eyes and nose is clear at first but later becomes cloudy and contains pus. The animal drools saliva. The muzzle becomes dry and may crack.

5.3 Erosions in the mouth are found on the gums, dental pad, roof of mouth, and cheek papillae. Erosions may be covered with dead white cheesy material. Later, this covering is lost, and red areas with a clear edge are seen. These erosions are shallow and do not bleed.

5.4 Diarrhoea or dysentery begins five days after the onset of fever and at the same time the temperature starts to fall. The liquid faeces often contains blood, pieces of dead gut lining and slime. The animals may strain painfully and the eroded gut lining may be seen though the anus.

5.5 Breathing may be difficult and painful. The animal with fever breathes quickly, but later may grunt as it breathes out. Usually there is not much coughing.

5.6 Death often occurs after a few days of dysentery or recovery may begin at about ten days after the fever started.

6. Post Mortem Signs

Animals that have died of rinderpest may show some or all of the following signs at post mortem examination:

- The **carcass** may be dehydrated, thin, and foul (bad) smelling. The area around the tail, anus and back legs is dirty with faeces from diarrhoea.
- The **mouth** may have red shallow open wounds on the lips, gums, dental pad, roof of the mouth, and cheek papillae. Wounds may have a white cheesy coating.
- The lining of the **nose** may be reddened, eroded with open wounds coated with pus.
- In the **digestive tract**, the folds of the rumen may show reddening, decay and perforation. The fourth stomach (abomasum) may show reddening and/or decay, the small intestine may show patches of decay. The large intestines may show dark stripes of decay along the length of the lining. These may be red in fresh cases turning green-black in older cases. There may be blood inside the gut.
- The lining of the **trachea** may be reddened. The **lungs** may be reddened and swollen and don't collapse when cut open.
- **Lymphoid tissue;** all lymph nodes are usually swollen in the early stages of the disease, but later they become small and grey. Lymph nodes particularly affected are those inside the abdomen along the intestines.

Annex 4

4. RINDERPEST ERADICATION STRATEGY

What does disease control mean?

- reducing the number of animals becoming sick and/or dying from a disease.

What does disease eradication mean?

- completely getting rid of the cause of a disease from the world.

What is the difference between control and eradication?

When a disease is controlled, it means that it is still occurring but at a lower level than before, and because the disease is still occurring disease control activities have to continue year after year to prevent the disease from getting worse again.

When a disease is eradicated it means that the cause of the disease (virus, bacteria, worm etc.) no longer exists, therefore the disease cannot occur ever again. Once the disease is completely eradicated from the world, no further activities are required.

Disease control and eradication strategies

For different diseases there are different strategies for controlling and/or eradicating each disease. These are related to the different nature of each disease (epidemiology); the cause, species affected, means of transmission, etc.

Rinderpest was selected for global eradication because of its devastating impact on cattle populations and also because its epidemiology makes it fairly easy to eradicate compared to other diseases; it is mainly found in cattle, it is transmitted only by direct contact, it has a short incubation period, it causes a short clinical illness that leads to either death or lifelong immunity, there is no carrier status, and there is a very effective vaccine.

Southern Africa is free of rinderpest. Most of the west African countries have eradicated rinderpest, and some central and east African countries have eradicated, or almost eradicated it. The only countries remaining that are still probably infected with rinderpest are Sudan and Somalia. These areas are a major threat to the neighbouring countries and could prevent them from eradicating rinderpest. Southern Sudan is a threat to Uganda, Kenya, Ethiopia, and, to a lesser extent, CAR and DRC. Somalia is a threat to Ethiopia and Kenya.

It is in the interests of all cattle keeping countries to participate in completing the last stages of eradication of rinderpest from the world. Imagine a world without rinderpest!

Strategy for Rinderpest Eradication

For areas that are infected with rinderpest the following activities are carried out:

Stage One: **mass vaccination** is carried out for at least two years in order to reduce the number of rinderpest outbreaks to a low level. **Sero-monitoring** is carried out to monitor the levels of effective vaccination coverage. At the same time **disease outbreak reporting and investigation** is carried out and any **outbreaks controlled by ring vaccination.**

Stage Two: when there have been no confirmed rinderpest outbreaks for two years **mass vaccination is stopped. Disease outbreak reporting and investigation** continues, and **active surveillance** is introduced; **clinical surveillance** for possible cases is carried out, and **sero-surveillance** to identify circulating virus. After **five years with no vaccination** (except ring vaccination to control confirmed outbreaks), that include two years of **random sample surveys** during which no clinical cases have been confirmed and sero-surveillance has shown no signs of virus circulating, then the area is verified free of rinderpest virus.

Definitions

Mass vaccination – vaccination of all cattle throughout a country or region on an annual basis.

Ring vaccination – vaccination of all cattle in a restricted and clearly defined area for a fixed period of time to control a confirmed rinderpest outbreak.

Rinderpest outbreak – one or more cattle showing clinical signs of rinderpest is a *suspected outbreak*, collection of samples and laboratory confirmation makes it a *confirmed outbreak.*

Surveillance – the continuous investigation of a population to detect occurrence of disease, so that action can be taken. Surveillance requires the continuous systematic collection, analysis and interpretation of animal health information. In relation to rinderpest eradication, surveillance is necessary to ensure that;
1. After stopping vaccination and the creation of large areas of susceptible animals, any outbreak of rinderpest is rapidly identified to enable effective control to be undertaken so that the outbreak is limited, and
2. To provide evidence that a country or region is free from disease and/or infection.
Surveillance can be passive or active.

Passive surveillance – routine reporting of disease information, such as disease outbreaks, supplied by livestock keepers and animal health workers.

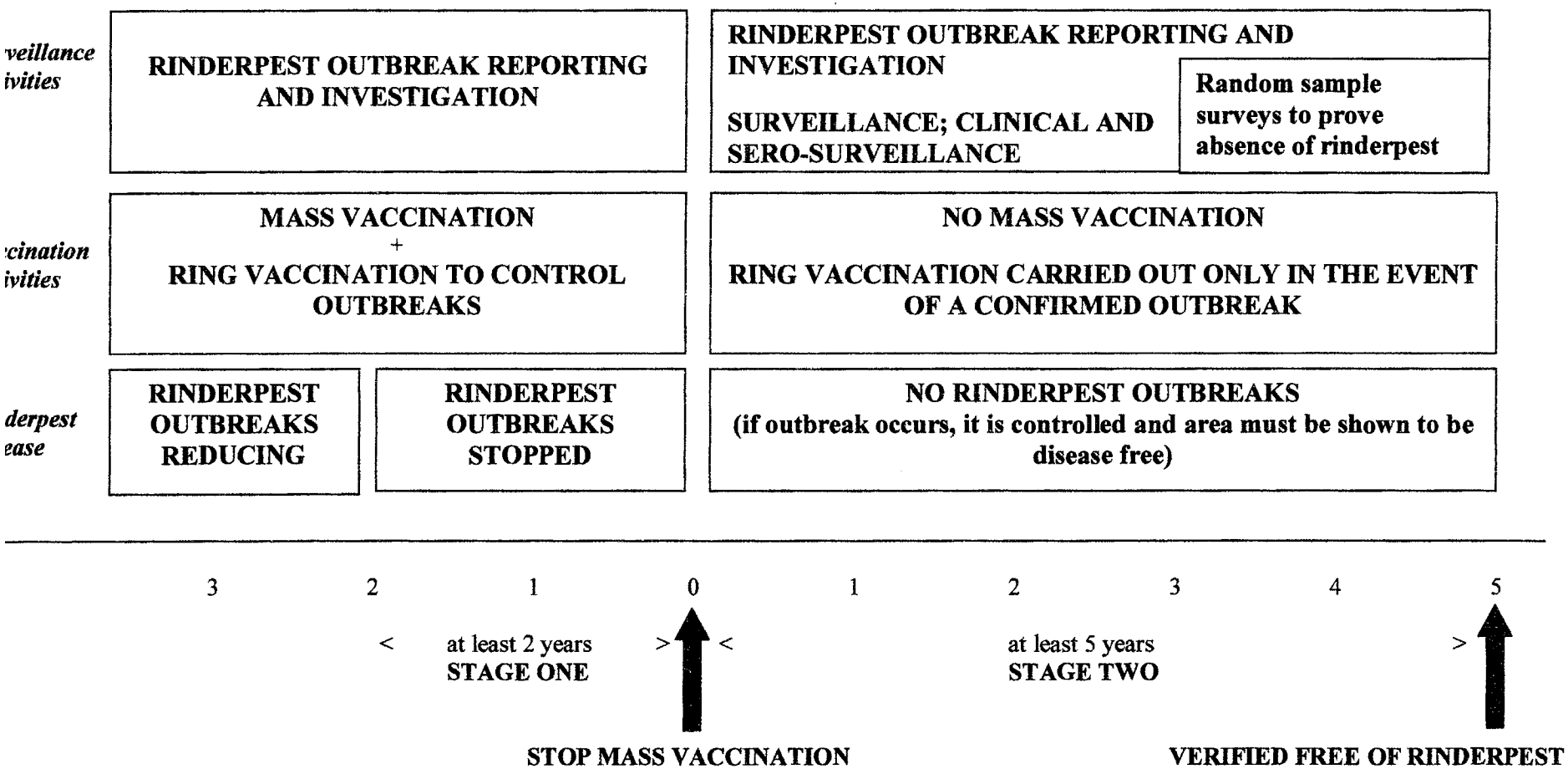
Active surveillance – in relation to rinderpest, is the active search and investigation of cases showing signs of rinderpest-like disease (discharges, diarrhoea).

Sero-monitoring – collection of serum from the cattle population for testing levels of immunity (presence of antibodies) after a vaccination campaign i.e. it measures the efficiency of the vaccination campaign.

Sero-surveillance – collection of serum from the cattle population for testing levels of immunity (presence of antibodies) in an unvaccinated population. It is used for rinderpest surveillance after mass vaccination has stopped. Cattle born after stopping vaccination are sampled to monitor the presence of antibody. Since the animal has never been vaccinated, if antibody is present it indicates that rinderpest virus is still circulating in the population.

Random sample surveys – sero-surveillance and clinical surveillance are carried out on a small selection of the cattle in the population, but the small selection is randomly selected from the whole population so that all animals have the chance to be selected. This increases the chances of finding clinical cases or antibodies if they are present.

Strategy for Rinderpest Eradication



Rinderpest Eradication Strategy for Southern Sudan

Since the start of the OLS Livestock Programme, rinderpest eradication activities have aimed to achieve stage one; mass vaccination (with sero-monitoring), disease outbreak reporting and investigation, and control of outbreaks through ring vaccination. The same activities have been carried out in both government and rebel-controlled parts of southern Sudan and in the neighbouring transition zone.

In spite of not achieving mass vaccination throughout southern Sudan on an annual basis, and the fact that disease-reporting and investigation are not comprehensive in all areas, the efforts of the community-based animal health services have reduced the number of confirmed rinderpest outbreaks from many in the early 1990s to zero in 1999 and 2000. There have been no confirmed outbreaks of rinderpest since 1998 in Torit County. All reports/rumours since 1998 have either been investigated and found to be negative, or could not be investigated but retrospective investigation indicates that they were probably negative.

Southern Sudan is therefore now at a point where it has had no confirmed outbreaks for more than two years and it should move to stage two; stop mass vaccination, continue disease outbreak reporting and investigation, and introduce active surveillance. This change will be co-ordinated with the neighbouring government-controlled areas of southern Sudan and the transition zone.

Bearing in mind the constraints that face southern Sudan, the change in strategy from mass vaccination to no vaccination (except to control outbreaks) must be carefully planned and implemented in order to maintain the participation and confidence of all stakeholders, and to minimize the risk and impact of outbreaks, which would have a serious impact on the food security of an already very vulnerable population.

The main reason for the success of stage one is the use of a community-based approach to animal health service delivery, which involves livestock-keepers, and community leaders in identification of disease control priorities, planning and decision-making, and trains community members as community-based animal health workers, supervisors and co-ordinators. For the final stages of eradication to be successful, these participatory methodologies need to be applied to the recommended approach to rinderpest eradication.

Summary of the strategy change:

Current Strategy		*New Strategy*
mass vaccination		stop mass vaccination
outbreak reporting & investigation	➡	outbreak reporting & investigation
outbreak control		outbreak control
		active surveillance; clinical and sero-surveillance

Annex 5

DRAFT PROJECT PROPOSAL
Community-based Animal Health Project OLS Southern Sector
– rinderpest eradication component

1. Background

The major ethnic groups in southern Sudan are the cattle cultures of the Nuer, Dinka, Murle, Mundari and Toposa of Bahr el Ghazal, Upper Nile and Eastern Equatoria. Livestock are the most critical component of the socio-economic structure of these pastoralist communities. They keep large herds of cattle, goats and sheep as their primary food security base and as a survival mechanism against natural environmental and man-made hazards; drought, floods, epidemic diseases and civil and inter-tribal wars. During the wet season cattle are grazed around the permanent villages and during the dry season cattle are moved to cattle camps in the toic (swampy grasslands), sometimes as far as 150 kms away.

During the civil war, the breakdown of commercial networks, closure of trading routes, increased prevalence of disease, large-scale cattle raiding and displacement has resulted in tens of thousands of pastoralists losing their traditional means of survival. During the 1998 famine livestock were an important survival mechanism for those with access to livestock resources. To alleviate shortages of cereals there was an approximately ten-fold increase of livestock slaughtering for sale and for home consumption. The must vulnerable groups during this famine were those without livestock.

The greatest constraint to livestock productivity in southern Sudan is disease, both endemic and epidemic. Of the many serious diseases present, rinderpest is identified as the most devastating. Animal health services, both traditional and modern were disrupted by the conflict. This allowed the upsurge of rinderpest, which had a devastating affect on livestock in southern Sudan. Prior to the war, rinderpest vaccination programmes had been started in several areas, but were halted by the onset of conflict. Some of the many other diseases are controlled by traditional methods but the major epidemic and endemic diseases; contagious bovine pleuro pneumonia (CBPP), haemorrhagic septicaemia (HS), anthrax, black quarter, foot and mouth disease (FMD), goat pox, contagious caprine pleuro-pneumonia (CCPP), liver fluke, brucellosis, tuberculosis, dermatophilosis cause high mortality and morbidity.

The OLS Livestock Programme was initiated in 1989 by UNICEF/OLS with the main activity of rinderpest vaccination to control outbreaks. Since 1993 a community-based approach to animal health service delivery has been implemented and heat stable rinderpest vaccine has been used, which allows the vaccine to be stored without the need for an extensive cold chain. An increasing number of NGOs have joined UNICEF in the implementation of the community-based animal health services to cover most of the southern sector areas of southern Sudan. Key activities have been the vaccination of cattle against rinderpest and the control of other epidemic and endemic livestock diseases through vaccinations and treatments. The impact of this programme has been the reduction in the incidence of rinderpest outbreaks from 15 in 1994 to the last confirmed outbreak in 1998.

The Global Rinderpest Eradication Campaign has the target of global rinderpest eradication by 2010. One of the last known foci of rinderpest is thought to be in the eastern part of southern Sudan. The OLS Livestock Programme is participating in the implementation of the rinderpest eradication strategy for southern Sudan, under the co-ordination of the Pan African Programme for the Control of Epizootics (PACE) of OAU – InterAfrican Bureau for Animal Resources (IBAR). Funds are being provided by OAU-IBAR to an agency in the livestock programme to take the co-ordination role for rinderpest eradication, to provide technical support, and support for emergency response to the agencies implementing livestock projects in southern Sudan. The success of the effort to eradicate rinderpest from southern Sudan will depend on the participation of all stakeholders in the livestock programme in southern Sudan in the implementation of eradication activities in their areas of responsibility. The eradication strategy is based on the assumption that existing community-based

animal health projects implemented by NGOs and FAO will continue to operate, and that agencies will expand to cover areas that do not yet have projects.

2. Goal

To ensure that targeted households have improved access at all times to sufficient food sources for an active and productive life, in a sustainable way.

3. Objective

To improve livestock productivity through the establishment of a viable animal health delivery system.

4. Strategies

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Rinderpest Eradication
A strategy for rinderpest eradication for southern Sudan has been developed by the PACE Programme of OAU-IBAR and will be implemented by agencies in both northern and southern sector areas. The strategy can be summarized as follows:

- cessation of mass rinderpest vaccination by the end of June 2002,
  - targeted vaccination campaigns in key communities east of the Nile to be completed by end of June 2002,
  - all other areas to cease mass vaccination by end of December 2001,
- strengthening and development of the existing disease surveillance system to ensure the early detection of any rinderpest outbreak,
- contingency planning for rinderpest outbreak control and effective control of outbreaks.

Implementation of the strategy will be co-ordinated by the Rinderpest Project under one of the livestock agencies with funding from PACE, working closely with all livestock projects in southern sector.

5. Activities

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Rinderpest Eradication
In the project area:

- carry out community dialogue workshops and meetings to raise awareness of the local community of rinderpest eradication and the role of the community of achieving eradication,
- carry out refresher training of CAHWs in the new strategy for rinderpest eradication and the role of CAHWs in achieving eradication,
- in collaboration with the PACE-funded Rinderpest Project support the training of Veterinary Supervisors, Co-ordinators and NGO field veterinarians in the new strategy for rinderpest eradication and their role in its implementation,
- support the final mass rinderpest vaccination campaigns to be completed by the agreed date (31/12/01 or 30/6/02); facilitate local planning of the campaign, supervise its implementation, provide transport and logistical support to ensure maximum vaccination coverage, maintain cold chain,
- provide technical support and supervision to CAHWs and Vet Supervisors/Co-ordinators to carry out their rinderpest surveillance roles,
- carry out active surveillance for rinderpest in the project area,
- ensure the full investigation of all rumours of possible rinderpest disease in the project area, including the collection and submission of laboratory samples,

- facilitate visits to the project area by Rinderpest Project staff for the purpose of rinderpest surveillance or rumour investigation,
- develop a local rinderpest outbreak contingency plan, identifying roles and responsibilities of stakeholders, resources and technical support required,
- collect and periodically update baseline livestock data for the project area: livestock population, distribution of population and seasonal movements, animal health workers and their areas of activity, cold chain, etc. Prepare a map of the project area to illustrate this data.
- provide reports of rinderpest rumours and investigations, surveillance activities, and baseline livestock data to the Rinderpest Project.

6. Monitoring and Evaluation

Rinderpest eradication activities will be monitored as follows:
- vaccination data will be reported to FAO-OLS on standard vaccination monitoring forms. The data will be collated, analysed and reported back by FAO-OLS.
- outbreak and surveillance information will be reported to the Rinderpest Project on standard forms. The data will be collated, analysed and reported back by the Rinderpest Project.
- Rinderpest Project field staff will periodically visit the area to monitor the implementation of eradication activities and to assist the project with dialogue, training and surveillance activities.
- in the event of a rinderpest outbreak, the effectiveness of control activities will be monitored through clinical and sero-surveillance by project staff with the assistance of Rinderpest Project staff until it is established that the outbreak has been fully controlled.

7. Budget Summary

Whilst funds are being provided by the PACE Programme to the Rinderpest Project to co-ordinate and provide technical support for rinderpest eradication in southern sector areas, rinderpest eradication will depend on the continued development of the existing NGO community-based animal health projects, and implementation of the rinderpest eradication activities in the project area.

The budget for the community-based animal health project will need to include the following:

- technical personnel: veterinarian or livestock specialist to; provide training and supervision to CAHWs and Vet Supervisors/Co-ordinators, carry out active surveillance, carry out rinderpest report investigations, carry out community dialogue on rinderpest eradication, co-ordinate the preparation of a local rinderpest contingency plan, gather baseline livestock data, report to the Rinderpest Project, attend livestock co-ordination meetings,
- CAHW training; basic training to ensure adequate coverage of project area, refresher training in rinderpest eradication,
- community dialogue workshops and meetings to ensure that the community is aware of their role in rinderpest eradication,
- suitable transport to allow adequate coverage of the project area: vehicle, boat, motorbike, bicycles, etc. as appropriate,
- cold chain to ensure proper vaccine storage, adequate vaccination coverage, and storage of laboratory samples; base fridge, portable fridge, cool boxes and vaccine carriers,
- basic sampling equipment,
- stationery for information collection and reporting,
- basic store and office for storage of equipment and supplies,
- road or air transport to deliver personnel and supplies to the area,
- emergency contingency funds in case of major disease outbreak (rinderpest or other epidemic disease) for transport, cold chain, equipment, vaccines/medicines etc. depending on the emergency.

Annex 6

Development of training and extension materials for rinderpest eradication and active surveillance in southern Sudan

Summary of activities carried out by VSF-Belgium in March 2001 funded by Community-based Animal Health and Participatory Epidemiology (CAPE) Unit of PACE Programme OAU/IBAR

1. Activities

1.1 Rinderpest Eradication Training Course for Animal Health Workers

A six-day training course programme was developed and field-tested in Marial Lou, Tonj County, Southern Sudan, for 19 participants, who included all the AHAs, Stockpersons, and FAO/VSF-B field vets from Tonj County, and VSF-B AHA trainers. The training course objectives were:

By the end of the training course participating AHAs, Stockpersons, and Veterinarians will;

- *have revised their existing knowledge of rinderpest disease and control;*
- *be familiar with the OIE Pathway for rinderpest eradication and the plan for its implementation in southern Sudan;*
- *understand the components of the new rinderpest eradication strategy; stopping mass vaccination, active and passive surveillance, and outbreak control;*
- *have identified in their area of work potential endemic foci and points of disease introduction;*
- *know how to investigate a rinderpest outbreak report including collection and handling of laboratory samples;*
- *know what action to take to control a suspected or confirmed rinderpest outbreak;*
- *know how to carry out active surveillance for stomatitis-enteritis;*
- *have prepared a rinderpest eradication action plan for their area of work that includes final vaccinations, ending vaccination, active surveillance, an outbreak contingency plan, community dialogue and CAHW training.*

Lessons Learned

- *some aspects of the training course were too complicated for the lowest training levels of animal health workers; areas for simplification were identified;*
- *training veterinarians and mid-level animal health workers worked well;*
- *timing of the training course in the middle of the dry season when cattle were far away;*
- *the course requires a minimum of 6 days to complete;*
- *use of pre course and post course questionnaires was valuable to check existing knowledge and understanding of course topics; there was a clear improvement in knowledge of the main topics when the pre and post questionnaires were compared.*
- *most of the participants appeared to grasp the concepts of rinderpest eradication and its components. The group session that gave them the opportunity to give feedback on the new strategy was valuable; some very sensible fears related to the risk of outbreaks and the reactions of the cattle keepers were raised but also fears about closure of the livestock programmes and loss of 'jobs' were raised, and could be responded to.*
- *the course was successful in changing the attitude of the participants from a major fear of stopping mass vaccination before the course to an understanding and acceptance of the concept by the end of the course.*
- *more time was required for introducing the new methods of surveillance, use of the new surveillance forms, and practical experience in use of the methods.*
- *length of time spent on the theory and practice of collection and handling of samples for a rinderpest investigation was adequate; most participants were confident on this topic by the end of the course.*
- *more time should be spent on outbreak control, using group work and/or role play to revise existing knowledge and reinforce the new concepts.*

- *the mapping exercise was very successful, for the veterinarians and facilitator to better understand the livestock situation in Tonj County, and, for all participants, to highlight the risk areas and discuss constraints to coverage.*

1.2 Community Awareness-raising Methods for Rinderpest Eradication Workshop for Animal Health Workers and Community Members

A four-day workshop programme was developed and field-tested in Marial Lou as a follow on from the above training course. Participants included 32 animal health workers and community members with skills in different methods of communication. The main objective of the workshop was to design a variety of culturally appropriate community awareness-raising materials for communication of the new rinderpest eradication strategy for southern Sudan. The workshop programme was as follows:

1. *Introductions and Expectations*
2. *Methods of Communication*
3. *The New Rinderpest Eradication Strategy*
4. *The Target Community*
5. *Development of Community Awareness-raising Materials*
6. *Demonstration of Community Awareness-raising Materials*
7. *Preparation for the Community Dialogue Meeting*
8. *Community Dialogue Meeting on Rinderpest Eradication*
9. *Review of Community Dialogue Meeting*

Various items containing information on rinderpest eradication were prepared including songs, a poem, pictures, etc. The workshop concluded with a community dialogue workshop for community leaders and members from in and around Marial Lou. Participants included men, women and children and numbered over 100.

Lessons Learned

- the workshop was felt to be a valuable exercise, for development of materials for extension of the rinderpest eradication strategy and as an opportunity to explore generally the process of dialogue and communication methods; levels of participation and innovation were high;
- workshop timetable needs to be very flexible to ensure participation of a range of community members;
- some aspects of the workshop needed more time and changes in methodology to allow greater discussion;
- group work to develop community awareness-raising materials required strong leaders to keep the groups focussed on the task;
- the singing/dancing group attracted the most interest from the participants and from the local community; this appears to be a very entertaining and powerful way of passing some basic messages;
- the use of dramas and stories captured interest and appeared to increase understanding of the points being made; these were not explored much during the workshop and there is great potential for further development of these methods of communication;
- the picture group produced some good pictures illustrating key dialogue points. An artist was brought in for the workshop but this is probably not necessary. Participants can prepare their own drawings, whatever the quality, and if necessary the rough drawings can be redrawn later by a professional artist.
- the education group came up with many interesting ideas on both adult and child education although these were not developed into actual materials.
- The experience of carrying out the community dialogue meeting was valuable for all participants. They gained experience in explaining some of the difficult information on rinderpest eradication and the reaction of community members.

2. Future needs

- editing of training manual to reflect the latest strategy for rinderpest eradication agreed in the North-South Co-ordination Meeting, May 2001;

- obtain feedback from PACE on the surveillance system; edit and field-test to finalise report forms and system and include in the training manual;
- develop CAHW training module on rinderpest eradication strategy;
- development of community-awareness materials produced for dissemination to other areas of southern Sudan;
- explore opportunities for using radio broadcasts and child and adult education to pass information.

3. Materials Delivered to CAPE Unit

1. Documents (hard copy and on disc):
- *Rinderpest Eradication Strategy for Southern Sudan – a training course for animal health workers, Marial Lou, Tonj County 5-10th March 2001*; report of the training course.
- *Community Awareness-raising Methods for Rinderpest Eradication - a workshop for animal health workers and community members, Marial Lou, Tonj County 12-15th March 2001*: report of the workshop
- Rinderpest Eradication Strategy for Southern Sudan - a training course for animal health workers, Trainer's guide: *training manual based on the training course and communication workshop with improvements reflecting the lessons learned.*

2. Set of 13 pictures on A2 manila paper depicting rinderpest clinical signs, actions to eradicate rinderpest, benefits of rinderpest eradication
3. Laminated A4 card with seven photographs of rinderpest clinical signs
4. Video tape featuring four songs and one poem about rinderpest, and footage of some of the pictures drawn in the field.
5. Audio tape (master plus 20 copies) of three songs and a poem about rinderpest.

Also available: raw video footage of training course and workshop, photographs of training course and workshop, original drawings prepared in the field.

Annex 7

Workshop Evaluation

1.What do you think was good about the workshop?
Broad spectrum of stakeholders
Possibility to raise concerns and constraints
Rinderpest eradication strategy was clearly presented, understood and agreed upon
Roles are well stated and partners know their roles and plan of action
Northern sector representatives were involved in the strategy formulation and implementation
The workshop started nicely and ended OK because everybody came to attend the meeting
We learnt a lot of things
Issues raised and covered
Presentations
Venue
To cover all the subjects with new partners now it has been discussed with northern and southern groups
Participatory
Presentations made – very good
Highlighted main issues of concern
Operations in SS and NS came together
The workshop was well organized by VSF-B – this is the first rinderpest workshop in southern sector
Eradication of rinderpest is the good step
Participatory approach and interesting discussions
Adequate materials
Good facilitation
Participatory process used
Venue - clean, quiet, no interruptions except the mobile phone
Good meals
Well attended
Informative – PACE team did a good job!
Relevant
Timely
There were many useful ideas shared and many unclear items highlighted
Participatory, informative and has solicited agreement and support for strategy drawn
Presentation good, some new aspects on rinderpest
Active participation of all parties
Serious discussions
Participation of the Minister from the SPLA
Procedure of rinderpest eradication strategy
Discussion on the strategy to end mass vaccination by year 2001 and strategies
Facilitation
People were able to grasp the issue
Crucial topic
Well-organised
Good number of participants/organisations
A difficult topic – well understood at end of workshop
Relaxed format but efficient programme
It has addressed one of the most important livestock diseases in southern Sudan i.e. rinderpest
Participatory
Northern sector attended
Comprehensive coverage

2.What do you think was not good about the workshop?
Too many open questions to really achieve a complete strategy

Workshop has to be based on too many assumptions
Short and limited time for workshop
Short notice
Unclear agenda until the meeting started
The timeframe proposed is early (8.30 to 5.00). We came early and were home very late and some of us coming from very far
Too short
Should have been resident to give more time for people to interact
It may have been too short to cover all the topics
At times it was getting bogged down
Some issues were becoming too academic
Missed to adopt unified position in relation to the strategy
OAU-IBAR personnel not around to answer some concerns
Access and security not discussed
The weather (could have done with some heating system)
Mobile phone interruption!!
Too short - a lot of ideas not exhausted
No per diem!
Many issues not yet resolved
Some parts were rather academic and not all that relevant in this forum
Details of some issues not addressed properly
PACE RP not sure about funding time
Forgot to invite neighbouring states
Strategy partly not clear due to stringent time frame of the operation, funding not clear. Feel it is all now done a little bit in a hurry
Epidemiology discussion were too academic and least related to the on-going field situation
Absence of some community views on whether to stop or not the rinderpest campaign
Ran out of time
Some presentation not very relevant e.g. wildlife
Confirmation of consensus on the strategy
Lots of issues and short time

3. How could the workshop have been improved?
As the problems are not the fault of the workshop team, no improvements can be suggested
More participatory
More inputs form partners
Starting maybe at 9.30 and ending at 3.30
Add extra time
Warmer room
Concentrate on practical issues
By passing the strategy to participants before-hand for a fruitful discussion with concrete results
Very good
Involve more counterparts
Extra day?
Increasing the time to more than two days
Don't know, we have made the best out of it.
Group work discussion to increase capturing of finer details
Invite cattle owners
Needed to keep track of action points as they came up
Surveillance section lost the plot
More time to elaborate plans for the infected zone
Separate rooms for groups
More time for external participants to prepare e.g. PACE
Give enough time for thorough discussions of contentious issues
It was fine

4. What part will you play in ensuring that rinderpest is eradicated from southern Sudan?
Trying to work out a proper compromise for our field teams.
Follow up and ensure prompt rinderpest diagnosis
Prompt response to outbreak and intervene consequently
Ensure co-ordination, harmonisation and transparency
I have to attain the vaccination campaign
Training of surveillance teams
Training on all the other aspects
Documentation
Try very hard to organise as much as we can from the NS
Spread the messages
Continue to re-think the viability of the strategy
Community dialogue and field training to start immediately
Participation in training and active surveillance
Train the local personnel
Active surveillance in the field
Proper documentation reporting
Community dialogue
Too much I suspect!! Hopefully get more resources to cover PACE shortfalls
Ensure that the message on the new strategy reaches the relevant bodies
Ensure that vaccination ends 2001 and that surveillance is in place
Give full support
Participate actively in realising strategy
We will take active part in vaccination, convincing people that this strategy should be followed
Strictly following implementation of the strategy
Intensify dialogue
Reach far in vaccination to realise high figures
Facilitating community dialogue
Total dedication to keeping BJ in line
Wait and see
Wildlife!
Community dialogue
Training of CAHW, Stockpersons and AHAs
Participating in vaccination and surveillance activities
Push for timely and effective implementation.

5. Any other comments?
Thanks to organizer and financer for their good organisation and convenient arrangements.
Have a nice time Bryony and other colleagues
Generally good and interesting. Needs a follow up at Loki and field level
Idea of bringing in northern sector staff was a brilliant idea
Hope to see more northern sector participation at Loki meetings
Good workshop
Need clear guidelines circulated as to what PACE will cover, and what NGOs/FAO need to cover next year.
Let us try hard, decisions made, now we have to move.
Please send minutes as soon as possible
Well done!
Thanks!