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DELEGATION OF THE EUROPEAN COMMISSION IN THE REPUBLIC OF KENYA ***

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AFRICAN WILDLIFE

VETERINARY PROJECT

Feasibility Study

by

Richard Kock, Philippe Chardonnet, José Lambiza

August 1997





CIRAD-EMVT Département d'Elevage et de Médecine Vétérinaire du CIRAD Campus International de Baillarguet BP 5035 34032 Montpellier Cédex 1. France



THE ZOOLOGICAL SOCIETY OF LONDON Regent's Park London NW1 4RY United Kingdom



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CONTENT

PAGES

SUMMARY/RÉSUMÉ	4-5
ABBREVIATIONS	6-7
1. JUSTIFICATION	8
1.1. BACKGROUND	8
1.1.1. Global context	
1.1.2. Disease questions	
1.1.3. Veterinary needs	
1.2. PROJECT CONTRIBUTION	17
1.2.1. Needs	
1.2.2. Beneficiaries	
1.2.3. Project acceptance	
2. OBJECTIVES AND RESULTS (logical framework)	20
3. IMPLEMENTATION	26
3.1. PROJECT ORGANISATION	26
3.1.1. Project status	
3.1.2. Project management	
3.1.3. Start and duration	
3.1.4. Two central regional coordination units	
3.1.5. Status and role of TA's within OAU/IBAR	
3.1.6. Country involvement	
3.1.7. Non duplication	
3.1.8. Constraints	
3.1.9. Relationship with international organisations	
3.2. PROJECT ACTIVITIES	34
3.2.1. Field operations	
3.2.2. Laboratory analyses	
3.2.3. Training	
3.2.4. Microprojects	
3.2.5. Data processing and reports	
3.6. TIMING	43
4. SUSTAINABILITY	44
4.1. WILDLIFE EPIDEMIO-SURVEILLANCE SYSTEM	44
4.2. CAPACITY	44
5. MONITORING AND EVALUATION	46

6. PROPOSAL FOR PHASE II	47
7. SUMMARISED FINANCING PROPOSAL FOR PHASE I	48
7.1. PROPOSED BUDGET	48
7.2. OBSERVATIONS	48
8. FINANCIAL PROCEDURES	49
8.1. AVAILABILITY OF FUNDS	49
8.2. AUTHORITY MANAGING THE RESOURCE	49
8.3. PROCEDURES TO BE APPLIED	50
8.4. CONCLUSIONS	55
9. SELECTIVE BIBLIOGRAPHY	57
10. ACKNOWLEDGMENTS	59
11. APPENDICES	60
A. TERMS OF REFERENCE FOR TECHNICAL ASSISTANTS	60
B. DETAILED MATRICES	64
C. FEASIBILITY STUDY MISSIONS	65
1. Institutions visited and persons interviewed	65
2. Schedule of activities	73
3. TOR	74

SUMMARY

Expert opinion confirms the need for increased surveillance and research into diseases of freeranging wildlife in West, Central and East Africa. Special emphasis should be focused on rinderpest for which, to be successful, the eradication strategy must include the wildlife component. However, capacity in the region is minimal in this speciality area of veterinary work.

OAU/IBAR initiated a feasibility study in June 1997 for an initial two year project to urgently address the need. This has been completed with the support of the European Union and consideration for funding will be undertaken over the next few months with a proposed starting date of January 1998.

The main focus for the proposed project should be on rinderpest. During the project, full integration of a wildlife disease component into PARC phase II would be planned. The OAU/IBAR recommendation for a project on wildlife veterinary medicine focusing on rinderpest has been endorsed by the OAU Conference of Ministers responsible for animal resources, Swaziland, 4-8 August 1997.

The project aims to provide :

- 1. Improved capacity for veterinary work with wildlife in the region.
- 2. Inputs to aid strategic planning of vaccination and other controls for the final eradication of rinderpest.
- 3. Information on important wildlife diseases in Africa at relatively low costs, regionally and locally.
- 4. Assistance to Governments in decisions relating to disease control and the OIE pathway for the declaration of freedom from disease (using wild animal sentinel populations).
- 5. A better chance of identifying emerging diseases in the region.
- 6. A better understanding of issues related to exposure of people to zoonotic disease associated with wildlife and wildlife products in wildlife areas and wildlife use systems.
- 7. Improved knowledge of diseases of significance to wild animal populations per se, ecological processes and environmental health.
- 8. A mechanism for liaison between PARC components, national veterinary services, wildlife authorities and other stakeholders in wildlife health and disease.

The project would be implemented through:

- 1. The establishment of two regional coordinating units (one in East Africa, one in West and Central Africa) with two expert technical assistants, as well as national collaborators in selected countries in the region.
- 2. In-service and short course training of veterinarians identified for the project (and other stakeholders) in wildlife health, disease and techniques.
- 3. A program of disease searching and surveillance in specific wild animal populations focused on rinderpest.
- 4. The establishment of micro-projects (1-2) in important wildlife use areas.
- 5. Collection and dissemination of relevent information, results and preparation of reports.

RÉSUMÉ

Les experts confirment la nécessité d'une surveillance et d'une recherche accrues sur les maladies de la faune sauvage en Afrique occidentale, centrale et orientale. C'est particulièrement le cas pour la peste bovine dont la stratégie d'éradication, pour qu'elle aboutisse, doit inclure une composante faune sauvage. Toutefois, les compétences dans cette spécialisation de la médecine vétérinaire font largement défaut dans la région.

L'OUA/IBAR a entrepris en juin 1997 l'étude de faisabilité d'un projet initial de deux ans visant à répondre sans délai aux besoins. L'étude a été conduite avec l'aide de l'Union Européenne et le financement du projet est à l'étude pour un démarrage proposé en janvier 1998.

Le principal centre d'intérêt du projet doit être la peste bovine. Le projet initial programmera l'intégration complète d'une composante "maladies de la faune sauvage" à la phase II du programme PARC. La recommandation de l'OUA/IBAR pour un projet "médecine vétérinaire de la faune sauvage" centré sur la peste bovine a été entérinée par la Conférence de l'OUA des Ministres en charge des ressources animales, Swaziland, 4-8 août 1997.

Les objectifs du projet sont:

- 1. Améliorer les compétences régionales en médecine vétérinaire de la faune sauvage.
- 2. Contribuer à la stratégie d'éradication de la peste bovine.
- 3. Produire une information à moindre coût sur les maladies importantes de la faune sauvage en Afrique aux niveaux régional et local.
- Apporter une aide aux Gouvernements dans la prise de décisions relatives au contrôle des maladies et au processus OIE de déclaration "indemne de maladies" (en utilisant les animaux sauvages comme populations sentinelles)
- 5. Augmenter les chances de détecter les maladies émergentes dans la région.
- 6. Mieux comprendre les questions relatives aux zoonoses liées à la faune sauvage et aux produits de la faune dans les zones peuplées de faune et dans les différents modes d'utilisation de la faune.
- 7. Développer la connaissance des maladies importantes pour les populations animales sauvages elles-mêmes, les processus écologiques et la santé de l'environnement.
- 8. Etablir un mécanisme de liaison entre les différentes composantes du PARC, les services vétérinaires nationaux, les autorités responsables de la faune sauvage et les autres parties prenantes en matière de santé et pathologie de la faune sauvage.

La mise en oeuvre du projet comporterait :

- 1. La création de deux unités de coordination régionale (l'une en Afrique de l'Est, l'autre en Afrique de l'Ouest et du Centre) avec deux experts assistants techniques, ainsi que de collaborateurs nationaux dans certains pays de la région.
- 2. La formation sur le terrain et en sessions courtes de vétérinaires identifiés pour le projet (et autres parties prenantes) en matière de santé de la faune sauvage, pathologie et technologie spécialisée.
- 3. Un programme de détection et de surveillance des maladies, centré sur la peste bovine, dans certaines populations animales sauvages déterminées.
- 4. La réalisation de micro-projets (1-2) dans le domaine de l'utilisation de la faune sauvage.
- 5. La récolte et la diffusion des résultats et d'informations appropriées.

ABBREVIATIONS

ACC	African Conservation Centre
ADRI	Agricultural Research Institute Tanzania
ASAL	Arid and semi- arid lands
ASETO	Projet d'Appui au Secteur de l'Elevage au Tchad Oriental (FAC, Chad)
ASF	African Swine Fever
AWF	African Wildlife Foundation
CAB	Commonwealth Agricultural Bureau
CBPP	Contagious Bovine PeriPneumonia
CCPP	Contagious Caprine Pleuro Pneumonia
CFPE	Centre de Formation Pratique en Elevage (Mali)
CFVO	Chief Field Veterinary Officer
CIRAD-EMVT	Centre de Coopération International en Recherche Agronomique pour le
	Développement
CIRDES	Centre International de Recherche-Développement sur l'Elevage en Zone
	Subhumide (Burkina Faso)
DEFRVZ	Direction de l'Enseignement, de la Formation et de la Recherche Vétérinaire
	et Zootechnique (Chad)
DERA	Division de l'Elevage et des Ressources Animales (Chad)
DFC	Direction de la Faune et des Chasses (Burkina Faso)
DNAER	Direction Nationale de l'Aménagement Rural et de l'Environnement (Mali)
DPNRF	Direction des Parcs Nationaux et Réserves de Faune (Chad)
DOP	Division de l'Organisation Pastorale (Chad)
DVO	Divisional Veterinary Officer
DVS	Directorate of Veterinary Services
ECD	European Commission Delegation
ECU	European Currency Unit
EDF	European Development Fund
EISMV	Ecole Inter-états de Sciences et Médecine Vétérinaire (Dakar)
EU	European Union
ERGO	Environment Research Group
EWCO	Ethiopian Wildlife Conservation Organisation
FAO	Food and Agricultural Organization
FCFA	Francs CFA
FAO	Food and Agriculture Organisation of the United Nations
FOC	Friends of Conservation
FMD	Foot and Mouth Disease
FZS	Frankfurt Zoological Society
GREP	Global Rinderpest Eradication Programme
GTZ	German Aid
IBAR	Inter African Bureau for Animal Resources
ICIPE	International Centre for Insect Physiology and Ecology
IGADD	Inter Government Agency for Desertification and Development
ILRI(ILCA)	International Livestock Research Institute
IPR	Institut Polytechnique Rural de Katibougou (Mali)
IUCN	Internation Union for the Conservation of Nature and Natural Resources - The
	World Conservation Union
JICE	Japanese International Cooperation Agency

KARI	Kenyan Agricultural Research Institute
KWS	Kenya Wildlife Service
LANADA	Laboratoire National de Diagnostic Animal de Bingerville (Côte d'Ivoire)
LANAVET	Laboratoire National Vétérinaire de Garoua (Cameroon)
LCV	Laboratoire Central Vétérinaire de Sotuba (Mali)
LRVZ	Laboratoire de Recherches Vétérinaires et Zootechniques de Farcha (Chad)
MAAFI	Ministry of Agiculture Animal Resources and Fisheries (Uganda)
MAF	Ministry of Agiculture and Forestry (Tanzania)
MDR	Ministère du Développement Rural
MDRE	Ministère du Développement Rural et de l'Environnement (Mali)
MEE	Ministère de l'Environnement et de l'Eau (Chad)
MLD&M	Ministry Livestock Development and Marketing
MOH	Ministry of Health
MTWA	Ministry of Tourism Wildlife and Antiquities
NAO	National Authorising Officer
NARP	National Agricultural Research Project - ODA Kenya
NCAA	Ngorongoro Conservation Authority
NGO	Non Governmental Organisations
	Organization of A frican Unity/Interafrican Bureau for Animal Desources
OIE	Office International des Epizoeties
ODA	Ourseas Development Administration
	Distorted Areas
PAS	Protected Areas
PARC	Pan African Kinderpest Campaign
PAWS	Protected Areas Wildlife Services Project
PDG	Policy Development Group (Kenya)
PPR	Peste des Petits Ruminants
RADO	Regional Agricultural Development Officer
RENASE-PB-Malı	Réseau National de Surveillance de la Peste Bovine au Mali
REPIMAT	Réseau d'Epidémiosurveillance des Maladies Animales au Tchad (Chad)
RP	Rinderpest
SRI	Serengeti Research Institute
TA	Technical Assistant
TAWICO	Tanzanian Wildlife Corporation
TANAPA	Tanzanian National Parks
TB	Tuberculosis
TWCM	Tanzanian Wildlife Conservation Monitoring Centre
TWRI	Tanzanian Wildlife Research Institute
UICN	Alliance Mondiale pour la Nature
USAID	United States Overseas Assistance USDA - United States Department Of
	Agriculture
UVPT	Union des Vétérinaires Privés du Tchad (Chad)
UWA-PAMSU	Uganda Wildlife Authority - Protected areas management and sustainable
	use project.
WD	Wildlife Department
WRI	World Resources Institute
ZSL-FCC	Zoological Society of London Field Conservation Consultancy

1. JUSTIFICATION

1. JUSTIFICATION

1.1. BACKGROUND

1.1.1. Global context

Sub-Saharan Africa (SSA) is currently facing major challenges which are expected to become even more difficult to take up in the future, e.g. (The World Bank, 1996; FAO, 1995-96) :

- **Demographic growth:** The SSA human population has grown from 380 M in 1980 to 572 M in 1994, but the trend seems to be changing: the annual growth rate is now 2.7% (1990-94) after having been 3.0% (1980-90). In West Africa particularly, the human population has increased over five fold from 110 to 620 million people betwen 1900 and 1995 (Club du Sahel, 1996).

- Urbanization: The proportion of urban people in the entire SSA population has grown from 11.3% in 1950 to 30.8% in 1995, resulting from either economic boom (e.g. Lagos, Abidjan) or ecological crisis (e.g. Sahel). Between 1950 and 2020, the urban population in SSA will have increased more than 30 times over, while the rural population will have increased by "only" 4 times.

- **Poverty:** In 1997, SSA is still the poorest continent since 2/3 of the poorest countries in the world are there (Le Monde, 1997). The continent represents only 1% of the world GNP for 10% of the global population. Even though the global GNP is rising by 2.5% per year (1966-97), due to demographic growth, the GNP per capita is decreasing by 1.2% (1985-94).

- **Malnutrition:** Between 1961 and 1994, the daily energetic supply per capita remained stable in SSA at about 85% of the optimum required, while it increased by 21% in the rest of the world. Today few countries achieve food sufficiency. Since 1964, the annual consumption of beef per capita (40% of the meat consumption today) in SSA has decreased from 7.1 to 5.1 kg (CIRAD-EMVT & BDPA-SCETAGRI, 1997).

- Heavy weight of agriculture and livestock: Agriculture represents 1/5th of the global GNP for SSA. Two out three Africans are peasants and most of them are subsistance farmers. However, the agriculture production per capita has decreased by 12% since the 1960's. Overall SSA livestock numbers have increased from 124 M in 1964 to 185 M in 1994 at an annual rate of 1.3%, lower than the 2.7% rate of the human demography growth rate. The trade in domestic meat in Sub-Sahara Africa is showing a deficit and remains marginal: the region imports 2.2% of the world meat imports and exports 1.4% of the world meat exports. The trend is worsening: the region used to export meat and is now importing it since 1980's. Exception for IGAD region which shows an surplus export/import.

- Strong dependance on natural resources: 70% of SSA populations remain rural and highly dependant on livestock and wildlife for food. Consumptive and con-consumptive use of biodiversity is a major livelihood. The dependence on the environment and natural resource for income, means the overall economy is vulnerable to the vagaries of climate, disease, etc (a very different scenario to the old and newly industrialised societies). e.g.:

* Kenyan tourism (based mainly on the wildlife resource) providing \$350 million annually in hard currency revenue (in the private sector this can mean with tourism and cropping

revenues reaching 15.1/ha. as compared to <1/ha from cattle ranching). Tanzania is also an example where the wildlife sector is second only to agriculture.

* the average bushmeat consumption in SSA has been assessed at 2.2kg/pers./year with large regional differences: 1.2 in savannah areas, 5.3 in forest areas (Chardonnet in CIRAD-EMVT & BDPA-SCETAGRI, 1997).

- Low health status: human and animal diseases which have increased in prevalence over the last 30 years in SSA are resulting in economies growing at 2.3% points more slowly on average than in temperate zones (Sachs 1997). Trans-boundary diseases are of particular concern. At the recent OIE Regional Commission (Africa) conference, the need for improved control of certain contagious diseases (e.g. CBPP, rinderpest, FMD) and spread of zoonoses (of concern to public health e.g. tuberculosis) were a major focus (Vet. Rec., 1997). Although the actual status in each country varies from year to year, most countries in the region suffer a high level of disease and mortality in (pastoral) livestock and epidemics are frequent. Which in turn has led to overstocking (as a survival strategy), overgrazing, poor productivity. This is contributing to land degradation, especially in arid and semi-arid zones (IGAD, 1997) and has been at the expense of wild ungulates who compete directly for the same food resource. Rather than keep pace with food needs, the poor land use practices will lead to a high economic cost, initially through the loss of wildlife and tourism.

The World Food Summit in 1997 (FAO 1997) confirmed that:

- over half of the world's population suffering malnutrition resides in sub-Sahara Africa.
- environmental degradation is contributing to this food insecurity and that there is an urgent need to combat the erosion of biological diversity.

and recommended that in addition to encouraging increased food production in a framework of sustainable management of natural resources there should be amongst other activities:

• increased surveillance for, early warning of and alertness to disease.

The development focus for the foreseeable future will remain on: poverty alleviation and improved security (political and food), control of population growth and gender issues, with maintenance of the environment and biodiversity as other key goals.

With the above scenario, the project proposed is, in the opinion of the authors, falling within the development priority needs for the region.

1.1.2. Disease questions

a. Wildlife and rinderpest

a.1. Relevance of the issue

A major focus of the feasibility study was rinderpest and the role of wildlife. This was identified (Rossiter, 1997) as the most serious issue affecting rinderpest eradication in Africa. The need for

a wildlife project to support regional disease surveillance was cited as urgent (PARC, 1996).

From the available history, it is vital during the last phase of eradication, to use every tool and means possible to ensure vaccination is adequate and properly targeted. This will depend largely on proper disease searching and serosurveillance in both cattle and wild ungulate populations.

A number of key reports were referred to and the expert opinion is as follows:

- The role of wildlife in the epidemiology of rinderpest is recognised (FAO, 1997) but not adequately understood¹. So far, very few and not enough investigations have been carried out on RP presence in wildlife. The present wisdom is that wild ungulates can contribute to the spread of infection but do not act as long term reservoirs of virus.
- The need to have regional cooperation for the control of trans-boundary diseases is evident, particularly where large migrating populations of wild animals exist, as well as pastoral migrations of domestic livestock (FAO, 1996).
- The need for surveillance of wildlife for disease and serologically for evidence of past infection is urgent (FAO, 1996).
- The recent epidemic in East Africa was diagnosed, the virus isolated, typed and the spread monitored through wildlife surveillance (almost exclusively in Kenya). This requires the integration of wildlife monitoring and serosurveillance into the overall program to monitor, control and eradicate the disease in Africa (PARC Epidemiologist Rossiter, 1997).
- Evaluation of the PARC project (Renard, 1996) makes only a few recommendations under the rinderpest component, and recommandation n°4 is: "Efforts will have to focus on continuing research, particularly into less virulent strains and the role of wildlife across the whole of the risk zone."... "research in greater depth the epidemiology of the ...virus ..for which wildlife could serve as an indicator." This was echoed in the recent PARC Technical Committee recommendations (PARC, 1997) including new strategies such as improved epidemio-surveillance (rinderpest and other diseases) in both East, West and Central Africa with wildlife a major focus.
- The disease is persisting in East Africa (maps 1 and 2) and the impact of rinderpest (lineage II) on wild ungulates is ecologically significant and a major contribution to the decline of this animal resource in epidemic areas. Consequent to this is a negative impact on biodiversity and environmental stability and health (Dobson, 1995; Kock, 1995; KWS reports). In addition the apparent mild effect in domestic cattle may not be consistent if the virus spreads into large unvaccinated herds of cattle.
- The use of serosurveillance of wildlife in the OIE pathway for declaration of freedom from rinderpest needs to be reviewed (PARC).

¹ "The origin of the RP outbreak which has decimated wildlife in Tsavo N.P. from April 1994 to April 1995 (...) raises again the problem of the RP virus circulation among wildlife and of the transmission ways at the interface wild/domestic animals." (Renard, 1996).

OUA - IBAR / PARC "AFRICAN WILDLIFE VETERINARY PROJECT" RINDERPEST OUTBREAKS IN 1997 (NON OFFICIAL MAP)



Map 1

EVOLUTION OF RINDERPEST DISTRIBUTION IN AFRICA 1980 -1997 (NON OFFICIAL MAPS)



It is the opinion of the experts that, at this stage, the RP eradication strategy cannot exclude the wildlidge component without risking possible future setbacks. The wildlife component needs to be a full part of the general strategy of PARC. Therefore, the project has been initiated to bridge the gap of the wildlife issue in the fight against bovine RP.

a.2. History of rinderpest in Africa

Rinderpest entered Africa through the horn of Africa in the last decade of the 19th Century causing massive mortality amongst the naïve ungulate population. Major epidemics affecting both wildlife and cattle occurred sporadically thereafter; in 1913-21 (South central and Eastern Africa), spreading on to West Africa up to 1924; 1929-1931 (Uganda Kenya and Tanzania to the Congo), 1937-45 an epidemic extended to southern Tanzania and another into Uganda and Congo from Sudan. In 1949 a major epidemic hit the Kenyan Tanzanian border area. From this time it was considered endemic in Masailand and outbreaks were reported (Robson, 1959; Prins, 1987). Another wave swept through the Northern Frontier districts in Kenya and Karamoja, Uganda from 1960-62 (Northern Kenya). The advent of widespread effective and safe vaccination lead to a reduction or near eradication from Masailand until 1979-82 (Tanzania) (Scott, 1970). The last virus in West Africa was in the early 1980's with one notable outbreak reported in wildlife in Nigeria in 1983 (Shantikumar et.al., 1985).

After the invasion of this exotic virus, attempts at eradication began in most countries where it persisted, until the present with considerable success. The virus now apparently isolated to East Africa. Two major campaigns have contributed to the eradication, the JP15 project in the 1970-80's and the PARC project of the 1980's and 90's. Recent studies (from wildlife material) have shown there are 2 lineages of virus surviving (I & II). Lineage I is resident in Sudan/Ethiopia, a strain which is present in cattle, with typical symptoms of diarrhoea, discharge and death. The second strain, Lineage II, again believed to reside in cattle, caused the recent outbreak in Kenya and probably Tanzania and is still ongoing. The latter causes severe mortality in wild ungulates (at least 60% in buffalo [Kock, 1995]) but "burns out" rapidly without persistence. In vaccinated or partially vaccinated herds of cattle it causes a mild disease which is often missed by herders and is of little economic consequence to them. There is, however, evidence that the virus can kill cattle and in certain circumstances can become more virulent and classical in its effect. It may be the very effort at eradication through vaccination of cattle that is encouraging the evolution of this low profile virus. This is true particularly where inadequate coverage occurs (which is common in the remote pastoral areas of East Africa). There is evidence from recent studies, anecdotal information (KWS Warden records, Kock in.prep.) and previous studies on wildlife (e.g. Thomas, 1944; Robson et.al., 1959; Scott, 1963) in Tanzania and Kenya that epidemics with this or a similar strain of virus have occurred before possibly on a 10-15 year cycle. However, as with the RGK1 strain from giraffe in the 1960's, it was not always mild in cattle.

b. Wildlife and other diseases

b.1. Interface "wild & domestic animals"

The interface between health of domestic animals and health of wildlife is very broad and diverse as shown in the following table:

Table 1:Diseases of livestock involving wildlife in Sub-Saharan Africa
(modified from Bigalke, R.D.: The important role of wildlife
in the occurrence of livestock diseases in southern Africa)

A : INDIGENOUS DISEASES

NAME OF DISEASE	MAIN WILDLIFE HOST(S)	MAIN LIVESTOCK HOST(S)	AETIOLOGICAL AGENT
Foot-and-mouth disease	African buffalo	Cattle	Aphthovirus: Family Picornaviridae
Nagana	Various antelope, other	Cattle, horses,	Trypanosoma spp.
(trypanosomiasis)	Worthog	sheep, goats	T Similar
Malignant actombal	warmog Dive wildebeest	Fig Cattle	1. Similae
fever/snotsiekte	black wildebeest	Cattle	virus 1: Family Herpesviridae
Corridor disease	African buffalo	Cattle	Theileria parva lawrencei
Rabies	Various carnivores	All species	<i>Lyssavirus</i> : Family <i>Rhabdoviridae</i>
African swine fever	Warthog	Pigs	Family Iridoviridae
African horsesickness	Zebra?	Horses	<i>Orbivirus</i> : Family <i>Reoviridae</i>
Bluetongue	Various artiodactylids?	Sheep	<i>Orbivirus</i> : Family <i>Reoviridae</i>
Heartwater	?	Cattle, sheep, goats	Cowdria ruminantium
Besnoitiosis (elephant skin disease)	?	Cattle	Besnoitia besnoiti
Anaplasmosis (gallsickness)		Cattle	Anaplasma marginale
Bovine babesiosis (redwater)	?	Cattle	Babesia bigemina
Porcine babesiosis	Warthog	Pigs	Babesia trautmanni
Rift Valley fever	?	Sheep, cattle,	Phlebovirus: Family
		goats	Bunyaviridae
Lumpy skin disease	?	Cattle	<i>Capripox</i> : Family <i>Poxviridae</i>

B: EXOTIC DISE A	ASES		
NAME OF DISEASE	MAIN WILDLIFE HOST(S)	MAIN LIVESTOCK HOST(S)	AETIOLOGICAL AGENT
Rinderpest	Artiodactylids (such as African buffalo, giraffe, kudu)	Cattle	<i>Morbillivirus:</i> Family <i>Paramyxoviridae</i>
CBPP	Wildlife supposed not involved; has to be confirmed?	Cattle	Mycoplasma mycoides mycoides
PPR	Antibodies found in wild species; what role?	Goats, sheep	Morbilivirus: Family Paramyxoviridae
Anthrax	Many species (such as artiodactylids, carnivores, elephant)	Many species (especially cattle)	Bacillus anthracis
Tuberculosis	Kudu, grey duiker, lechwe, African buffalo	Cattle	Mycobacterium bovis
Brucellosis	African buffalo, hippopotamus, other artiodactylids	Cattle, goats, sheep	Brucella abortus Brucella melitensis

Nevertheless, the pathological interface between wild and domestic animals has been poorly explored so far, especially in West and Central Africa. Thus, a lot of major questions remain unanswered, e.g.:

- African Swine Fever: a severe outbreak of ASF occured recently in Cote d'Ivoire, and other countries have declared being infected with ASF. We know the wild suids carry the virus without illness. But to what extent are they a reservoir? How can the wild suids, mainly warthog, be involved in the strategy to eradicate the disease?

- PPR: antibodies are found in wildlife: among 247 wildlife samples, one buffalo and one waterbuck from Comoé N.P., Côte d'Ivoire, showed PPR antibodies; in the same operation, PPR ADN has been isolated with RT-PCR from wildlife nasal swabs pools (CIRAD-EMVT et al., 1997). Even though the presence of PPR in wildlife has been proven, its role in PPR epidemiology remains unknown.

- CBPP: is wildlife really unaffected by CBPP? Does wildlife really play any role in the epidemiology of CBPP? "*Mycloplasma mycoides* <u>large colonies</u>" have been recently found in small ruminants which were known before as unaffected by CBPP (Thiaucourt F., pers. com.).

- FMD: wildlife (e.g. large mammals of Eastern Burkina Faso) is often considered as responsible of regular outbreaks in cattle, even though there is not always scientific evidence. To be efficient, any FMD strategy must be based on a better knowledge of the wildlife involvement.

- Anthrax: what role does wildlife play in the persistence of anthrax in domestic animals? Could wildlife be vaccinated to test new RP/PPR/PPCB/HW/etc. vaccines fixed on anthrax thermoresistant spores? etc.

- Heart water: are eland and other artiodactylids active reservoirs of HW? Is the HW recently found in tortoises the same as the bovine HW?

- Trypanosomiasis: what is the role of wildlife in the persistence of trypanosomiasis in domestic animals? Which wild animal species are hosts for *Trypanosomia evansi*? To what extent is wildlife a host and/or reservoir? More than half of the *Trypanosomia* collected in the tse-tse flies remain unknown (Cuisance, com. pers.). etc.

- etc.

The project will be focused on rinderpest. However, the value of collecting biological samples for rinderpest investigation would be enhanced by associating further investigations for other diseases. Split samples would not increase the cost and length of the field operations. Simple serum collection will allow serological analysis for PPR, CBPP, Trypanosomiasis, Heart Water, Echninococosis. Sterile full blood collection will permit culture of *Trypanosoma* for thorough identification and PCR examination.

b.2. Interface "wildlife & man" : zoonoses

"The surveillance, prevention and control of zoonoses and related food-born diseases are problems of considerable magnitude in Africa. The domestic and wild animal species cohabit with each other and with human populations in a variety of ecological niches which offer unparalleled opportunities for the transmission of zoonotic diseases." (Abdou, 1991).

Nevertheless, the pathological interface between man and wildlife has been very poorly investigated. Many problems are still unsolved, e.g.:

- Trypanosomiasis: the role of wildlife in human sleeping sickness is fairly well known for the East African form of the disease (*Trypanosoma rhodesiense*), but remains unclear for the West African form (*T. gambiense*): is wildlife a reservoir or a *cul-de-sac* for the human sleeping sickness in West Africa? Is the bushbuck (*Tragelaphus scriptus*) a reservoir in the West as it is in the East? How to differentiate the human *T. gambiense* from the animal *T. brucei*? etc. Valuable information could be brought to on-going projects like the FAC/OMS surveillance network on African human trypanosomisasis in relation with IPR Bouaké, OCEAC Yaoundé, etc.

- Anthrax: what role does wildlife play in the persistence of anthrax in man? Severe human anthrax outbreaks occur every year in such places like Northern Mali (e.g. Kayes), and in the surroundings of N'djamena for example.

- Rabies: this is the number one zoonotic disease of major public health importance in Africa. We know of the virus transmission to people by dogs; we know much less of the role of wild carnivores in the propagation of the virus among dog populations, either domestic or feral. Endemic all over Africa, rabies is particularly prevalent in the East and

the South. In Chad, many human cases are due to the cattle-dogs of pastoralists which are said to have been bitten by jackals.

- For many other zoonotic diseases, more knowledge is badly needed: which wild species are potential reservoirs of the human form of the disease, how does the transmission occur, what kind of measures may be taken? These questions are directly relevant particularly to the following:

- . Tuberculosis
- . Brucellosis
- . Leptospirosis
- . Leishmaniosis
- . Hydatidosis/Echinococcosis

. Emerging zoonoses: Marburg disease, Rift Valley fever, Plague, Monkeypox, Lassa fever.

It is not the intention of the project to work on zoonoses, but split samples may be sent to interested laboratories for relevant investigations, as it is planned for the pathology of domestic animals. Relationships may be established between the project and the Epidemiosurveillance Committee for Africa (WHO regional office in Central Africa based in Brazzaville) and information on zoonoses may be provided by the project to its epidemiosurveillance network for human diseases.

c. Other

Advantage might be taken of the project, by giving access to poorly known species, to study normal metabolic profiles. Some local institutions are able to carry out the appropriate analysis, like e.g. in Mali the CRZ de Sotuba or the INRSP de Bamako.

1.1.3. Veterinary needs

a. Recent history

Investigation of disease in wildlife has been ongoing in the region for the last 50 or so years. The work has been limited in scope, sporadic and focused on diseases carried by wild animals which can be transmitted to domestic livestock. Most work was laboratory-based and carried out in livestock disease research institutes and veterinary faculties at a relatively high cost. A recent (negative) assessment of the Wildlife Disease Research Project in Kenya, a Dutch-funded 10 year initiative led to its closure.

Little work has been carried out with a primary focus on wildlife diseases in free ranging populations in the region. The need for a more field-based approach was recognised in the late 1980's and a veterinary team within the Wildlife Management Authority of Kenya (KWS - PAWS) was set up. A review of PAWS considered the initiative to be a success and the achievements of the veterinary team to be positive. Similar inititives have been started or explored in the region.

As far as RP in wildlife is concerned, very few investigations have been carried out, especially in West and Central Africa where the only information available comes from three studies:

1. 30 years ago (1967), out of 100 blood samples of wild animals tested for RP by

IEMVT/Laboratoire de Farcha in Chad, 26 were positive. Even desert antelopes (dama & dorcas gazelles, scimitar-horned oryx) were found positive but with low prevalence (13 to 19%) (IEMVT, 1967).

2. From 1987 to 1990, 231 sera of wild animals from Northern Cameroon were tested for RP. Only one eland was found positive but it was born before the last RP outbreak. Thus, there was no evidence that the RP virus circulates in wildlife. Further investigations suggest that PPR plays the same role in wild small ruminants that it does in sheep and goats: sub-clinical PPR infection protects the animals aginst rinderpest (IEMVT, 1990).

3. In 1996, 247 wildlife sera (Buffon's kob, waterbuck, buffalo, hartebeest, roan, bushbuck, red-flanked duiker, Maxwell's duiker, warthog and elephant) from Côte d'Ivoire (Lamto, Marahoué, Comoé) were analysed for RP antibodies and were all negative. In the same operation, all the 96 lymphocytes samples tested for presence of RP ARN were negative (CIRAD-EMVT et al., 1997).

b. Veterinary Needs and Capacity

The value of the wild animal resource to people as food, through subsistence hunting/gathering (bush meat) and wildlife ranching is significant. Tourism is a vital sector of the regions economies. The health of this resource is therefore as important as that of livestock.

However, the veterinary capacity in wildlife health, in the region as a whole, is minimal.

In East Africa, there are few veterinarians or technologists involved in countries other than Kenya and none of these fully trained as wildlife veterinarians or wildlife lab. technicians. At least one vet is now attached to each of the wildlife authorities in Ethiopia, Tanzania and Uganda, with two technicians in Tanzania. There is a need to convince policy makers of the role and contribution trained² veterinarians and technicians can make and to support them.

In West and Central Africa, the needs in wildlife veterinary practice are huge. We may even say that no one veterinarian is presently specialised in wildlife veterinary medicine. One would find the main reason in the historical background. During the French colonial era, wildlife used to fall under the *Eaux et Forêts* administration, and such a situation is still in place in most of these countries. So, with a few exceptions, wildlife is usually managed by foresters and not by veterinarians. Among the 4,156 veterinarians censused by The World Bank (1992) in 1989 for the entire region of West and Central Africa, the directory of human resources in the livestock sector for the same region (IEMVT, 1991) quotes only one veterinarian under the heading of wildlife specialist (Dr Rui Miranda, Guinea Bissau). Some courses on wildlife are given at the Dakar-based Regional Veterinary School EISMV (Ecole Inter-Etats de Sciences et Médecine Vétérinaire) but there is no specialization as such. The Garoua-based Regional Wildlife School (Ecole de Faune de Garoua) gives a course on basic veterinary technics to the non-veterinarian students.

² To achieve competence in the manipulation of wildlife for veterinary reasons takes considerable technical training and field experience.

c. The role of wildlife veterinarians

The main role of the wildlife veterinarian is in recognising wildlife disease in an ecological context, judging its significance (to wildlife and others) and obtaining diagnostic material. With suitable knowledge gained from this activity, sound advice can be given to governments and private individuals on disease significance and what control or eradication measures are required. This can be applied on a single disease on a regional basis or focused even in a relatively small area or zone. This focus on disease control will be extremely important, not only regionally, but also for smaller private land developments with mixed wildlife-livestock systems in particular. This has been recognised in statements made regards future livestock and wildlife, conservation, production and trade (ODA, 1994; USDA, 1997).

Much of the work will depend on trained professionals able to safely and humanely manipulate wild animals in the free ranging state. There is a need to develop this competence in the region if diseases in wildlife, such as rinderpest, are to be studied and ultimately eradicated. The universities in the region provide some academic training in this area at undergraduate level, but no professional training is available. A greater input into this area will also help in the recognition early on of emerging diseases which, when unchecked, can and have cost the global economies billions of dollars. In addition there are other diseases which are a threat either to wildlife, domestic animals or humans, which are poorly understood and require competent veterinarians, technologists and other scientists to investigate. A spin off of an improved capacity is better physical management of wildlife for conservation purposes, at a time when the future of the region's Biodiversity is under threat.

Veterinarians experienced in wildlife and environment play a growing role in land use planning and evaluation of major diseases control methodology. They provide disease control programmes with appropriate advise to optimally balance (i) on one side the requirements for the control of pathogen agents and their vectors, as well as the human needs, (ii) on the other side the priority measures to conserve and sustainably manage the remaining biodiversity. The main cases concerned are:

- trypanosomiasis and tse tse control programmes by biological and chemical means,
- FMD control programmes using wildlife/cattle fences.

1.2. PROJECT CONTRIBUTION

1.2.1. Needs

A major justification for this project is that the financing of needed disease investigation and surveillance (rinderpest, etc...), in-service training and the creation of a small regional professional wildlife veterinary network will result in:

- improved and specialised veterinary capacity in the region, available to both public and private sectors
- contributions to the final eradication of rinderpest
- information on important diseases in Africa collected at relatively low costs, regionally and locally
- assistance to Governments in decisions relating to disease control and the OIE pathway for the declaration of freedom from disease using wild animal sentinel populations

- increased ability to chance of identifying emerging diseases present in the region
- improved public health through a better understanding of issues related to exposure of people to zoonotic disease associated with wildlife and wildlife products in wildlife use systems
- improved knowledge of diseases of significance to wild animal populations, ecological processes and environmental health

It is the opinion of the authors that the benefits of the project will not accrue from a focus on academic or experimental activities, but more on veterinarians working on the ground with free ranging wildlife and with the communities involved or affected. Laboratory-based research on wildlife disease needs to be carefully targeted and an institutional approach is not justified on costs alone.

1.2.2. Beneficiaries

The main beneficiaries will be:

- the communities where disease issues are of concern,
- the livestock,
- wild animals,
- the veterinarians and technologists directly involved,
- the wildlife and veterinary sectors, public and private.

1.2.3. Project acceptance

During the course of the missions to both East and West/Central Africa, the whole concept of the project has been welcomed by the relevant national authorities of the visited countries (7 countries).

The OAU/IBAR HQ is very much behind the project (OUAU/IBAR meeting of 03 July 1997 in Nairobi). The PARC national representatives have shown enthusiasm to see such a project implemented in their respective countries. They realized how much the wildlife issue had been formerly neglected in the strategy for RP eradication.

The national veterinary authorities welcomed the project as a way to build competent capacity for wildlife veterinary technology and medicine. In West Africa it has been mentioned that West Africa was far behind East Africa in this field. In West Africa, the project was often regarded as a pilot project where, for the first time in their countries, pathologists will officially deal with wildlife pathology. Some even see the RP as a means of according wildlife medicine appropriate recognition. As a pilot project, it is seen as a starting point of a longer process.

The national wildlife authorities subscribed to the project for the opportunity provided to bring proper wildlife veterinary technics into their wildlife management activities and to improve professionalism in wildlife capture, translocation, reintroduction, captive breeding, etc.

For authorities in charge of rural development, the main output of the project will be to reinforce the health security of the livestock industry in countries where sometimes as much as 50% of the agriculture GNP comes from pastoralism.

Finally, the OAU/IBAR recommendation for a project on wildlife veterinary medicine focusing on rinderpest has been endorsed by the OAU Conference of Ministers responsible for animal resources, Swaziland, 4-8 August 1997.

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2. OBJECTIVES AND RESULTS

2. OBJECTIVES AND RESULTS (Logical framework).

See table 2: logical framework of the project.

	INTERVENTION LOGIC	OBJECTIVELY VERIFIABLE INDICATORS	SOURCES OF VERIFICATION	ASSUMPTIONS
OVERALL OBJECTIVES	Improved means to control diseases at the interface between wild and domestic animals.	Tools provided to better control diseases of economic or public health significance through wild animal pathology.	OAU/IBAR/PARC reports. OIE reports. GREP reports.	
PROJECT PURPOSE	Wildlife vet. coordination units and activities developed under Organisation of African Unity/Inter African Bureau for Animal Resources (OAU/IBAR) with special focus on integration with Pan African Rinderpest Campaign (PARC) components.	Wildlife Veterinary Unit formed and operational under OAU/IBAR. Resource persons integrated into the project.	Project report. Project evaluation.	Institutional and political support at regional and national level. In particular OAU/IBAR, government veterinary and wildlife authorities etc.

RESULTS	1.Selected wild animal populations surveyed for known or emerging diseases including some zoonoses.	Rinderpest (RP) epidemiology clarified. Status assessed for some other diseases in sampled wild animal populations.	Samples analysed and providing results.	Adequate security/access to operational areas. Availability of helicopter and air support. Access to competent laboratories.
	2. Developed regional expertise for investigation of free ranging wildlife diseases.	Proper training, sampling procedures, sample storage and analyses established.	Several resource persons in training, procedures agreed, sample storage facilities established.	Resource persons achieve basic technical and field competence. Agreement from National Authorities for samples to be
	3. Reviewed Public Health issues from Wildlife products in the Bush meat and Ranch trade.	Local resource persons identified and microproject in place.	Technical report.	dispatched to regional and international laboratories. Collaboration from wildlife users.
	4. Updated information on biodiversity.	Better local information on status of some species of conservation concern.	Report to National authorities and other relevant bodies.	Not a specific task but compilation of field observations.

	 1.1 Organise and supervise field surveys and disease investigation. 1.2 Epidemiological wildlife surveillance systems explored. 1.3 Supervise storage, dispatch and analyses of samples. 1.4 Acquire and maintain necessary vehicles, equipment and consumables. 	 Operations take place in the following sites: 1.RP endemic areas. 2 Cordon sanitaire 3 Areas at risk. 4 Areas entering the OIE RP pathway. Veterinary networks identified: incentives provided, data processed. Samples processed - cold chain, materials, transport, dispatch, lab collaboration. Capture materials, project vehicles, communications equipment. 	ECU * 1,000 1. Technical inputs: 1,100 1.1. Technical assistance and running costs 1.2. Initial investment 1.3. Initial recurrent cost 1.4. Preparation of field operations	 Availability of helicopter. Seasonal factors not limiting. Presence of suitable accessible wildlife populations. Clearences for: customs and tax. operating: helicopter plane access to protected areas manipulating wildlife. international vet. staff permission to work professionally. firearms, dart charges and ammunition. dangerous drugs Adequate cash flow. Competent and effective resource persons identified.
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ACTIVITIES	2.1 Provide foreign expertise and establish coordinating units. 2.2 Select and support national resource persons. 2.3 Train and educate a selection of appropriate stakeholders.		 2.Field operations: 700 2.1 Local human resources. 2.2 Logistics. 2.3 Lab. support. 3. Training: 45 	 Political and Institutional Security in operational areas. Project has regional status and is accepted in each country. Detailed workplan and method accepted by both veterinary and wildlife authorities and other relevant bodies. Sample analyses in national regional and world reference labs. agreed. OAU status for TA's. TA's under direct and sole authority of Regional Coordinator in East, West 	
	3.1 Select and support national resource persons.3.2 Microprojects carried out.	EC: 1m/m Local: 16 m/m Running.	4. Microprojects: 30	Permission to investigate bush and ranch meat industry. Cooperation of individual land owners and stakeholders.	
	4.1 Evaluation	EC: 0.6 m/m Travel and expenses.	 5. Report publishing costs: 20 6. Evaluation: 12 7. Management fee: 60 		

PRECONDITIONS

Official approval of organisational setup by Regional Authorising Officers of OAU/IBAR. Sufficient regional political stability and cooperation.

3. IMPLEMENTATION

3. IMPLEMENTATION

3.1. PROJECT ORGANISATION

3.1.1. Project status

Funded by the EU, the project is a regional programme falling under the direct and sole authority of OUA/IBAR.

The project will be fully incorported within the OUA/IBAR/PARC organisation. The immediate purpose (Phase I) is to provide support to the overall on-going PARC to help reach the aim of RP eradication. The medium term purpose (Phase II) is to insert the project within the 8th EDF PARC. The long-term purpose is to establish a permanent Wildlife Veterinary Unit in the OUA/IBAR structure, either at Nairobi-HQ or elsewhere or both.

The project will benefit from the OUA/IBAR diplomatic status.

3.1.2. Project management

The project will be carried out by the agency holding the contract (selected tenderer) under the authority of OUA/IBAR which will provide full political and administrative support, with particular empasis on the official relationship with the states, national authorities and national PARC representatives. Scientific decisions will be taken in consultation with OUA/IBAR HQ, regional coordinators and respective national PARC representatives. The agency in charge will be responsible for logistics, accounting and management of the TA's. The project will run two components, one in East Africa, the other one in West and Central Africa.

3.1.3. Start and duration

The project may be launched early 1998. The first phase (the present project proposal) will last 18 months. The second phase is expected to fit with the next PARC phase.

3.1.4. Two regional coordinating units

a. Role

For each of the two components, a regional coordinating unit should be established with a TA in each location. These units would ensure:

- integration with other PARC components and in particular; PARC epidemiology and communications
- the proper international, regional and national links
- the development of wider regional activities in other than key countries and input into PARC Phase II
- regional coordination of sample storage and analysis, data processing and report preparation
- a central location for ordering, storage and maintenance of necessary operational equipment and materials, ensuring efficient regional use
- training opportunities for the national collaborators and others

a base from which aircraft-supported operations are organised

b. The East Africa unit

Will be based in Nairobi and will remain under the direct authority of the PARC Regional Coordinator for East Africa based also in Nairobi.

c. The West & Central African unit

Being regional also, the unit will remain under the direct authority of the Bamako-based PARC Regional Coordinator for West and Central Africa. The TA in charge of the unit will also work closely with the regional epidemiologist TA based at the PARC regional coordination in Bamako.

The location of the head-quarters of the West and Central African Wildlife Veterinary Unit is selected through a matrix approach (table 3). Three locations come first:

- Burkina Faso (Ouagadougou) gets the best score; it is quite well situated, being placed in a central position with easy access to a number of countries

- Chad (N'djamena) comes with the second score; its best advantage is to provide the project with the closest access to the sanitary cordon and the frontline of the rinderpest

- Mali (Bamako) comes next; the main interest lies in the presence of the PARC regional coordination.

3.1.5. Country involvement

a. General

For the operations in the various countries involved, both project components and TA's will be officially introduced to the relevant national authorities by the OUA/IBAR HQ and respective Regional Coordinations, as well as the PARC National Representative in each country.

In each country, the project activities will be carried out under the authority of the PARC National Representative.

b. East African component

* Kenya

Kenya has an established and competent unit of wildlife veterinarians and technologists within KWS. Its integration into the project activities should be relatively simple. The Director, KWS; CVO and Training Manager are fully in support of the project and would facilitate involvement of the Veterinary unit (and training facilities) in the project. Increased liaison and cooperation between the KWS unit and the MLD&M (DVS) is also important to the projects success and this can be facilitated by the regional coordinating unit under OAU/IBAR.

It is suggested therefore that formal local collaboration is established with the KWS veterinary unit. In addition, it is recommended that collaboration is sought with private sector veterinarians

0=low, 3=high Large wildlife		Biodiversity Infrastructure F		Relevance of rinderpest issues		People	Security	Proximity Bamako	Total	Priority
	resources	importance	minimum	Sanitary cordon	History	involvement		(PARC regional HQ)		order
Benin	2	1	1	0	2	1	3	1	11	
Burkina Faso	3	1	2	0	3	3	3	2	17	1st
Cameroon	3	3	1	2	1	0	1	0	11	
Centrafrique	2	3	1	3	and the second second	1	0	0	10	1 C
Chad	2	2	1	3	1	2	2	1	14	2nd
Congo	2	2	1	0		1	0	0	6	
Cote-d'Ivoire	2	3	2	0	1	1	3	1	13	
Equatorial Gu.	1	1	0	0		0	2	0	4	
Gabon	3	2	1	0		1	3	0	10	
Gambia	1	1	1	0		1	3	1	8	
Ghana	1	1	1	0	3	2	3	1	12	
Guinea	1	2	1	0		1	3	2	10	
Guinea-Bis.	1	1	1	0		1	3	1	8	
Liberia	1	2	0	0		0	0	1	4	
Mali	1	2	2	0	1	2	3	3	14	3d
Mauritania	0	1	1	0		1	2	2	7	
Niger	1	1	1	2	1	2	1	2	11	
Nigeria	1	2	1	1	2	1	1	1	10	
RDC (ex-Zaïre)	2	3	0	3		0	1	0	9	
Senegal	2	1	2	0		2	3	2	12	
Sierra Leone	1	2	1	0		0	1	1	6	
Τοαο	1	1	2	0	1	1	3	1	10	

SELECTION OF H.Q. LOCATION FOR THE REGIONAL WILDLIFE VETERINARY UNIT IN WEST & CENTRAL AFRICA
(2) in selected wildlife use areas for a pilot microproject discussed later in the proposal. It is suggested that consideration is given to supporting the wildlife health laboratory at KWS.

Support would be provided through:

- provision of an honorarium to the national collaborators (in this case the CVO KWS and two private veterinarians) and per diem for staff during operations
- operational expenses
- payment of a facility fee and sample processing fee to collaborating laboratories
- establishment of intensive short duration training workshops based at the KWS headquarters Langata and where required, in service training

Continued support is likely from government, NGO's and bilateral aid to the units suggested for this project which will help sustainability.

<u>* Tanzania</u>

The situation in Tanzania is complex, with a number of semi-autonomous bodies involved with wildlife. The Wildlife Department is the main umbrella organisation within the Ministry of Natural Resources & Tourism, under which authority, the Tanzania National Parks Authority, the Serengeti Wildlife Research Institute, the Ngorongoro Conservation Area Authority and the Tanzanian Wildlife Corporation function. The Ministry of Agriculture, Vet Services, also has an interest but the liaison with the wildlife sector is poor and its mandate as regards wildlife disease is weak. In addition there are numerous NGO's and private companies involved in conservation, hunting etc. A review of the institutions and activities in the sector (Wildlife Sector Review 1995) cited numerous institutional problems.

All authorities visited were in support of the project and would like the main focus on disease monitoring.

SWRI suggested the local collaborator should be from their institution and not TANAPA. This is not recommended as they have no active wildlife veterinarians in SWRI (although there are plans to bring in an expatriate). It is advised therefore, that a local coordination unit for the project is established under the Tanzanian Wildlife Department. As there is a functional veterinary section within TANAPA which has already contributed to disease surveillance (e.g. rinderpest) and a written policy on veterinary activities³ it is appropriate that this specific unit provides the national collaborator. On matters relating to the project it is important the collaborator has the authority of the Wildlife Department to work with any wildlife population and in all areas of the country. In addition, the Project activities should be carried out in close collaboration with the Ministry of Agriculture, Department of Veterinary Services which is mandated with National disease control.

Support to the local coordination unit should be achieved through:

• an honorarium and per diem provided to the selected Tanzanian wildlife veterinarian for

³"TANAPA will work closely with the regional and national veterinary authorities to examine the role of disease in the interaction of local people and their livestock with wildlife species and to work towards reducing conflicts between wildlife and domestic stock." (TANAPA 1994).

activities undertaken on behalf of the project.

- in-service training, grants for workshop participation and travel.
- in-country operational and material support for project activities as well other local expenses.

and to appropriate laboratories through:

• payment of a facility fee and sample processing fee.

The success of this project would be enhanced in Tanzania, if a National Project is also developed to provide sustained support to a Wildlife Veterinary (and laboratory) Unit. This concept has considerable support in Tanzania as evidenced by the establishment of a TANAPA unit at Serengeti and a firm recommendation from a Wildlife Health Management Workshop held in Arusha in June 1996, involving most interested parties under the auspices of the Ministry of Agriculture. In a draft report on an Animal Health Strategy for Tanzania (Division of Livestock Development. 1997) it was recognised that "..there will be a growing demand for veterinary involvement." in the wildlife sector and this sentiment is echoed by the Wildlife authorities themselves. Recent missions have also highlighted Tanzania's responsibility to the environment and transboundary issues such as wildlife and disease (World Bank Environment Mission 1996). Some support is possible from local NGO's and bilateral aid to this area of activity.

* Ethiopia

It must be noted that:

- regionalisation of government and general confusion as to the function of various national bodies creates obstacles to any project development
- the government does not give priority to the wildlife sector and with the general loss of wild animal populations, the scope of activities will be limited

Despite this situation;

- the PARC Ethiopia program has had considerable success in the area of rinderpest control
- the National Wildlife Authority with a vet already employed, is very supportive of the project and in areas under their influence, full cooperation can be expected

With the above in mind, activities in certain specific areas can be recommended.

A unit could be supported within EWCO in close collaboration with the PARC Ethiopia team, which also lies under the same Ministry (Agriculture and Forestry). The locations recommended for work need to be very specific and targeted to support the PARC (rinderpest) activities.

Support would be provided as in Tanzania. Collaboration with other bodies such as ILCA and ZSL, with an interest in this area should be developed and encouragement given for the establishment of a National Wildlife Veterinary Unit or network. Bilateral aid is unlikely to be available as the priorities in Ethiopia are strongly in favour of social (education), infrastructure (roads) and development of food security.

* Uganda

A review of the wildlife veterinary needs for Uganda was undertaken recently as part of Wildlife Sector Development Plans (UWA - PAMSU 1996). A veterinarian was employed with the wildlife authority to help develop a programme and there is considerable institutional support for this from both the wildlife and veterinary communities. In addition the veterinary authorities at Entebbe would like to help and establish a team to assist in wildlife disease monitoring in particular. Conditions therefore for implementation of this project in Uganda are excellent although the new UWA unit is inadequately financed and has inadequate personnel, equipment, material and laboratory support. It is recommended that a collaborator is selected from UWA but with close links with the veterinary services department at Entebbe. Local laboratory support at Tabora is sufficient for rinderpest but for other diseases links would need to explored.

Support should be provided as with Tanzania.

Some local support is likely from NGO's and bilateral aid to the UWA vet unit which should help sustainability and the activities of this project in Uganda.

c. West and Central African component

* Countries proposed:

Countries proposed for implementing the project activities have been selected through a matrix approach (see appendix 11.B) with the following criteria:

- situation re. PARC rinderpest eradication strategy (see table 4)

- situation of wildlife: presence, diversity and abundance of sepcies sensitive to RP, top 3 species, interface with cattle, etc.

- history of RP: most recent outbreaks with priority to known wildlife populations affected, former studies in this field

- accessibility of suitable areas.

10 countries are proposed (see appendix 11.B):

- 3 countries in the sanitary cordon in Central Africa: Centrafrique, Chad, République Populaire du Congo

- 6 countries entering the OIE RP pathway: Bénin, Burkina Faso, Côte d'Ivoire, Mali, Nigeria, Sénégal

- 1 country continuing vaccination: Cameroon.

* Relevant national authorities:

They vary from one country to another.

In most of the anglophone countries, there is a specific administration in charge of wildlife management and conservation, including protected areas, and there is often one or several wildlife veterinarians working within this administration. It is expected that the project will work preferentially with these wildlife vets (see §b.).

In most of the francophone countries, wildlife and protected areas fall under the so-called "*Eaux* et Forêts" (or equivalent) administration. As a general fact, there is no veterinarian working within this administration. In these countries, working with wildlife falls under the authority of one specific administration, while veterinary activities fall under another specific administration. Mali is an exception where the newly established *Ministère du Développement Rural et de l'Environnement* covers both domains of competence. Therefore, it is recommended for the project to involve both administrations. The national veterinarians involved will carry out the tasks dealing with specific veterinary matters, like manipulating dart-guns and dangerous drugs (in most countries, morphinics and other drugs can only be used by accredited veterinarians), while the tasks dealing with wildlife management, access to protected areas, non chemical methods of wildlife capture, etc. will be carried out by biologists, foresters and other people working with wildlife.

* Involvement of national expertise:

It is proposed that, in each proposed country, one national veterinarian and one national wildlife manager (e.g. forester with training at Garoua Wildlife School) will be national collaborators for the project. They may come from either private or public sectors and will be selected according to (i) their capacity in the practice of veterinary medicine and wildlife management, (ii) their ability to work in the bush and (iii) their personal interest in the issue. They would not be employed on a permanent assignment but would get support during their temporary involvment through (i) honrarium and per diem during operations, (ii) runing costs, (iii) partcipation in the regional training workshop. Local staff involved in the project operations will get standard/regular remuneration and per diem. The national laboratories willing to collaborate with the project will get payment of sample processing and of a facility fee.

* Case-studies (countries visited during the feasibility study):

* Mali

The country is entering into the OIE RP pathway. National and PARC authorities are willing to participate in the project to check the RP status in wildlife and hopefully confirm the complete absence of RP. Livestock in Mali is a major activity: more than 5 million cattle and 12 million ruminants, 42% of GDP is agriculture and about half of it is livestock. Every year, huge herds of livestock (sometimes one million head) are concentrated in the *delta central du Niger*, offering favourable conditions for potential epizootic diseases outbreaks. Wildlife has been severely depleted all over the country due to agriculture and livestock development, extensive hunting and desertification following drastic droughts in the 70's and 80's. Today, most large herbivores have reached the point of near extinction with a few notable exceptions:

- a herd of 600 elephants in the Gourma, the most northern population in Africa (no implication for the project),

- residual populations of gazelles (dorcas, red-fronted and dama) in Gourma and the northern part of the country; they interfere with livestock (must be taken into account in the project),

- locally abundant warthogs (which must be checked by the project).

The project will have a privileged link with Mali because of the location of the OUA/IBAR regional Coordination in Bamako. The Mali component of the project will be in direct relationship with the *Coordonateur national du PARC-Mali*. The in-country activities will be carried out under

the authority of the sole *Ministère du Développement Rural et de l'Environnement* which consider the project as appropriate and inovative. The Ministry covers both wildlife and veterinary domains. A partnership protocol will be discussed with the *Laboratoire Central Vétérinaire de Sotuba*. Other bodies may be interested to collaborate: Bamako zoo, CFPE, IPR, two *Fédérations Nationales des Chasseurs*, private veterinarians, various NGO's, etc.

* Burkina Faso

As Burkina Faso is willing to enter into the OIE RP pathway, the national veterinary authorities (*Direction des Services Vétérinaires, Ministère des Ressources Animales*) have shown great interest in the project. The national wildlife authorities (*Direction de la Faune et des Chasses, Ministère de l'Environnement et de l'Eau*) welcomed the project as a way to build up the national capacity in the field of wildlife capture, manipulation, ranching and health protection.

The livestock industry is a major component of the agriculture GNP (34% of the GNP). The volume of meat and live exports is rising with increased international movements of animals. Despite a growing pressure on wildlife, Burkina Faso is conserving substantial populations of large mammals and is developing innovative management methods including privatisation. An extensive network of protected areas, including hunting concessions, contains significant numbers of species sensitive to RP: buffalo, wide range of antelopes, warthogs. The interface with cattle is very clear, especially when/where the pastoralists stay or pass through protected areas, like in the W & Arly complex. Just next to the Ghana border, Nazinga Game Ranch is producing game meat on a 100,000 ha open area in close proximity to villages keeping livestock.

The Burkina Faso component of the project will be in direct relationship with the *Coordonateur* national du PARC-Burkina Faso. The in-country activities will be carried out under the double authority of the Ministère des Ressources Animales and the Ministère de l'Environnement et de l'Eau. It has been proposed to pass a formal agreement between both ministries to coordinate the project activities. A partnership protocol will be discussed with the Laboratoire National de l'Elevage. CIRDES (Centre International de Recherche-Développement sur l'Elevage en Zone Subhumide) has expressed its wilingness to collaborate in several issues like trypanosomiasis, heart water, helminthology, etc. Other bodies may be interested to collaborate: CONAGES, GEPRENAF, private ranchers, private veterinarians, private safari operators, private managers of Unités de Conservation de la Faune, various NGO's, etc.

* Chad

In the PARC strategy, Chad is recognised as a key country to prevent the rinderpest entering into the entire western part of the continent. The *cordon sanitaire* in Eastern Chad is a critical point to protect the country and the region against RP re-infection. Very much conscious of the challenge, the *Direction de l'Elevage et des Ressources Animales (Ministère de l'Elevage)* is fully in support of the project. The newly-established *Direction des Parcs Nationaux et Réserves de Faune (Ministère de l'Environnement et du Tourisme)* also expressed its interest in the project.

Animal husbandry is an exclusive or complementary livelihood for 40% of the Chadians. With 4.7 million cattle and 6 million small ruminants, livestock represents about 30% of the agriculture GDP which is 44% of the GDP. Extensive seasonal movements of pastoralists and domestic herds occur every year within the country and throughout borders, including Sudan where rinderpest is endemic. After 30 years of war, the widlife resource is much depleted and modern weapons are

present everywhere. Domestic ruminants, cotton and other crops do not leave much space for wildlife. Reasonable wildlife populations remain in a few National Parks and hunting concessions. Outside protected areas, there are substantial numbers of dorcas and red-fronted gazelles, smaller antelopes and warthogs. Contacts between wildlife and domestic animals occur in protected areas buffer zones, even within protected areas themselves and during transhumance of both wild and domestic herds together. Zakouma N.P. is considered as a very sensible sentinel site for rinderpest vigilence.

The Chad component of the project will be in direct relationship with the *Coordonateur national du PARC-Chad*. The in-country activities will be carried out under the double authority of the *Ministère de l'Elevage* and the *Ministère de l'Environnement et du Tourisme*. It has been agreed that a formal agreement should be passed between both ministries to facilitate efficient collaboration and implementation of the project. A partnership protocol will be discussed with the *Laboratoire de Recherches Vétérinaires et Zootechniques de Farcha*. Other bodies may be interested to collaborate: Zakouma N.P., ASETO, private veterinarians, private safari operators, private *exploitants d'aires de chasse contrôlée*, various NGO's, etc.

3.1.6. Status and role of TA's within OAU/IBAR

The TA's should be experienced wildlife veterinarians with a work history in the regions. Their role is primarily as coordinators for the project in each region under the supervision of the Director OAU/IBAR. They would be expected to provide a point of contact with other PARC activities and institutions involved with disease control, research and wildlife management. They would provide in service training to personnel who require it and ensure proper implementation of operations or microprojects and processing of samples. They would also have responsibility for the collation of data and reports. A full recommendation for the status and role is given in the terms of reference (appendix 11.A).

3.1.7. Non duplication

In the region there are few dedicated activities in the field of wildlife health. None is in conflict with the project proposed and some would be supported by (e.g. samples and data could be made available) or able to support (through improved laboratory capacity for diagnosis of wildlife disease), the project activities.

3.1.8. Constraints

Constraints and pre-conditions appear in the logical framework. It is the opinion of the authors that no current constraints, identified in the countries examined during the feasibility study, are sufficient to recommend exclusion of project activities. Somalia and Sudan were already excluded on advice from various authorities. In each country there are likely to be problems in the scope of work possible and some institutional difficulties. These have been mentioned in previous sections on organisation in each key country. As long as the project is regional and strongly supported within OAU/IBAR/PARC, there should be no major problem in implementation.

In addition, the legislation in each country was examined to ensure the suggested personnel status was appropriate. The key documents are the Veterinary Surgeons Act, Pharmaceuticals and Disease Acts or Ordinances. In most of the countries, only veterinary surgeons are legally able to handle the necessary drugs, carry out interventions on wildlife and implement disease control

activities without special permission. In Tanzania there is a loophole in the Animal Diseases Ordinance as Wildlife (free-living) is not subject to the act which would restrict the legal authority of the DVS in this area. This confirms that registered veterinarians are the appropriate national collaborators but that, in certain circumstances, non-veterinarians will necessarily be involved. In countries where wildlife health falls under two different authorities (Ministry in charge of veterinary medicine and livestock & Ministry in charge of wildlfe and protected areas), a preliminary agreement between both of them must be signed before the project starts.

Operational constraints are highlighted in the Logical Framework.

3.1.9. Relationship with international organisations

- * OIE: Working Group on Wildlife Diseases, Paris
- * WHO:
- Santé Publique Vétérinaire/Veterinary Public Health:
 - . WHO HO. Geneva
 - . WHO African Regional Office
 - Comité d'Epidémiosurveillance pour l'Afrique, Central African Regional Office, Brazaville

- Network of sub-regional zoonoses centres for technical cooperation:

- . East and central Africa: Nairobi
- . West and Central Africa: Ouagadougou
- . Southern Africa: Harare
- SSC/Veterinary Group Chairman, Washington, D.C. * IUCN:
- * SADC: Wildlife Management Bureau, Lilongwe

* other.

3.2. PROJECT ACTIVITIES

3.2.1. Field operations

a. Project strategy

See table 4.

	RINDERPES	Γ STATUS	SPECIFIC PURPOSE OF THE WILDLIFE SURVEILLANCE		
1	Endemic area		 investigate wildlife mortality for RP virus examine infection rate 		
2	Area at risk	sanitary cordon	determine status for RP antibodies & locate the RP frontline & establish sentinel populations		
3		outside sanitary cordon	 search for evidence of infection in wildlife population 		
4	Area regarded free either in or wishing to enter the OIE pathway		 confirm absence of RP virus (through age specific RP antibodies status of wildlife) after stoping RP vaccination to avoid resurgences 		
5	Area free		 use wildlife antibodies status as a confirmation of freedom in the absence of RP vaccination 		

b. Working season

- all the year round for East Africa;
- dry season only for West and Central Africa (end of December to end of May).

A schedule of activities (see § 3.6) gives a suggested scenario taking into consideration seasonal constraints especially in West Africa when rain can prevent all field activities due to poor road conditions and excess grass growth preventing visualisation and access to animals.

c. Species

Animal species are selected on the basis of their:

- susceptibility to rinderpest and other diseases
- epidemiological role
- abundance and availability (technically) for veterinary intervention
- social behaviour and organisation (preference given to herd species)
- seasonal movements with resident populations preferred as sentinels

Three taxa are considered of prime importance as they are the most suceptible to RP:

- buffalo (Syncerus caffer)
- elands (Taurotragus oryx & T. derbianus)
- kudus (Tragelaphus strepsiceros & T. imberbis)

The so-called "top 3" have thus been privileged in the selection of sampling sites.

d. Sites (map 3)

These are selected using a matrix method (detailed matrices in appendix 11.B) based on the following criteria:

- wildlife richness (diversity + abundance) with particular emphasis on the presence/absence of the top 3 species (see § c.)
- importance in relation to disease history (ancient/recent RP outbreak)
- interface of wildlife population with domestic livestock (resident, trade or migrant)
- logistics and accessibility
- rinderpest surveillance needs cordon sanitaire etc.

e. Sampling method

* The methods recommended for investigation and surveillance are as follows:

- Purposive sampling (serosurveillance) by immobilisation of individual animals of specific age from foot, vehicle or helicopter according to accessibility. Examining, marking and sampling from these animals and releasing them after anaesthetic reversal.
- Sampling opportunistically from individual animals taken through cropping or hunting.
- Specific intensive investigation of significant wildlife disease episodes and mortalities including analyses of samples taken from immobilised sick and dead animals in the population.
- Intensive sampling from wildlife during epidemics including in areas around confirmed cattle disease even where wildlife mortalities not reported.
- * Rationale for sampling methodology:

Wildlife sampling has proved to be the main tool in monitoring lineage II virus epidemics in recent years.

Diseases such as rinderpest are highly infectious and in the herd situation once the virus hits, it affects all individuals within a short time. The host either dies or recovers with an antibody response which is detectable from serology for life. The advantage for surveillance is (table 5):

- Selection of even a single individual in the herd (old adult) has a high chance of picking up evidence of past infection. If this is extended to individuals from a larger number of spatially separate herds across the ecosystem this will give a good indication of prevalence of antibodies in the whole population.
- Selection of a few individuals from a large herd grouping (contiguous population) of varying age will have a high chance of confirming past infection and will provide a temporal history of exposure in the population.



OUA - IBAR / PARC "AFRICAN WILDLIFE VETERINARY PROJECT" SELECTED SITES FOR COLLECTION OF WILDLIFE SAMPLES

Map 3

WILDLIFE SAMPLING STRATEGY : PURPOSIVE SAMPLING

Proposed scheme			For a given population made of:			
			large herds species e.g. buffalo	small groups or individual species e.g. warthog		
< 9 months		0	0			
		1-2 year	1	0		
Age of sampled animals 4-5 year 7-8 year		4-5 year	1	0		
		7-8 year	1			
		> 10 year	1	5		
very o		very old	1	1		
	groups sampled		1	5		
Number of :	samples	per group	5	1		
		total	5	5		

f. Capture method

* Live capture:

Most samples are expected to be taken from live animals after capture by:

- chemical immobilisation: dartgun from the ground (vehicle and foot) and from helicopter;

- physical restraint: nets from the ground (ground-nets) and from helicopter (net-gun).

Recommendations for the use of ground or helicopter techniques are based on experience with different populations of animals and the advantages of each approach. In certain circumstances it is impractical to dart from the ground without considerable risks to vehicle and personnel. With ground techniques frequently the sampling requirements cannot be met when only one individual can be sampled from a herd due to rapid dispersal of the remainder after disturbance. All areas proposed for ground and helicopter work are logistically feasible.

* Dead capture:

- Some veterinary technicians will be posted in hunting camps in full accordance with the hunting company in place. They will collect, process, store and forward samples taken from animals cropped by the hunters.

- It is agreed that a small proportion of warthogs may be shot where they are abundant.

g. Number of samples

A minimum number of 1,000 samples is expected to be collected during the course of the project (detailed matrices in appendix 11.B):

- minimum of 600 samples in East Africa

- minimum of 400 in West and Central Africa

About 2/3 of samples will be taken in endemic areas and sanitary cordon, 1/3 in other areas.

h. Technical constraints

- security in selected countries, regions and sites
- availability of materials and drugs
- access to selected sites
- availability of wild animals of appropriate species
- flight distance of selected animals
- appropriateness of terrain to capture method
- season and weather
- capacity of staff

Table 6: Some differences between technical constraints for (i) East Africa and (ii) West & Central Africa

Constraints		East Africa	West & Central Africa		
	abundance	generally quite abundant, at least in protected areas	generally quite rare, even in protected areas		
Wildlife	flight distance	often quite long, making approaching animals rather easy	generaly quite short, making approaching animals quite difficult		
	suitability of vegetation for darting animals	generally short grass making darting rather easy	generally long grass before burning (burning not before December)		
Terrain	road access	often quite extensive road network in protected areas	often quite poor (quality and extension) road network everywhere		
Working season		all the year around	dry season only (five months time: January to May)		
Local expertise in wildlife veterinary medicine		exists in some countries like Kenya	quasi non-existant		

3.2.2. Laboratory analyses

a. Sample processing

Blood and tissue samples should be taken according to the circumstances (live, dead, diseased, etc.) and placed in appropriate marked storage vessels and preservatives, refrigerated or frozen as necessary. A detailed protocol should be drawn up for each and every circumstance. Samples appropriately stored can be transported to a local laboratory for simple tests and further processing. At least three samples of each material should be taken and stored.

b. Sample analyses

With proper packaging samples can then be shipped to the main national, regional or international laboratory for analysis.

c. Laboratories

The analysis for RP will be carried out by both (i) the national veterinary laboratory in each country where samples have been collected, if appropriate technologies are already in place, and (ii) international OIE/FAO reference laboratories for RP: CIRAD-EMVT, France and Pirbright, UK.

The analysis for diseases other than RP will be carried out by both (i) the national veterinary laboratory in the country where samples have been collected, if appropriate technologies are already in place and

(ii) the international reference laboratory for the given disease.

Selection of laboratories should be decided during the early phase of the project, based on the disease under consideration and acceptable standards attained for the tests recommended. For rinderpest, specific reference laboratories are used for the PARC programme and the wildlife samples should follow the same procedures.

Laboratory fees and costs would be negotiated with individual laboratories.

3.2.3. Training

a. General considerations

One of the purpose of the AWVP is to develop the national capacities, either to create national expertise in the field of wildlife veterinary medicine or to improve the alreaday existing national expertise.

National veterinarians will be trained by the TAs by participating to the field operations. To be consistant with the OAU-IBAR policy, these national veterinarians may be either civil servants or private. Biologists, foresters and other persons working with wildlife may follow the training for all the matters which are not specific to veterinary medicine. However, given the technical and financial constraints of the field operations, a limited number of people will be involved.

b. In-service training

The most valuable professional training for wildlife veterinarians is in field-training. The activities of the veterinarian require knowledge and experience of the target animals, their ecology and ethology. Competent "bush craft" is essential for successful and safe working practices in the field. Successful immobilisation will depend on this and competence in the application of appropriate veterinary techniques. A major role of the TA's will be to supervise and train the national veterinarians and technical staff during field operations to ensure proper procedures are carried out at all stages.

c. Regional technical workshop

To provide a theoretical background in wildlife disease, wildlife veterinary techniques and utilisation (veterinary considerations), a 10 day intensive course is recommended during the period of this project. The target group (up to 20 individuals) will be the selected veterinarians (and other key staff) from each country who will implement field operations. Having examined alternatives in each country, the recommended location for the course is the Veterinary Facility at the Kenya Wildlife Service, which has appropriate lecturing, clinical and lab facilities and proximity to a National Park. Nairobi is central and/or easily accessible for travel and has adequate accommodation. Resource persons for the course should involve expertise from the regions, the TA's and some internationally recognised wildlife vets from outside the region. All costs will be covered from the project.

It is recommended that the course is designed on a modular basis so other key decision makers from the wildlife and veterinary sectors in the regions can be invited to attend appropriate sessions. This will expose key persons to wildlife health issues.

d. National Animal Serosurveillance Networks

The project proposes to organise a 1 or 2 day(s) course on wildlife health for the persons involved in the National Animal Serosurveillance Networks during the annual training workshops. For example the REPIMAT (Chad) involves 82 persons (including 20 private vets) whose task is to collect information on 9 diseases⁴: all these persons could receive this special training in 4 groups of about 20 people at the end of the annual workshop financed by PARC-Chad and managed by DEFRVZ/ME. Other networks like e.g. RENASE-PB-Mali would follow a similar procedure.

An educational package will be prepared: pamphlets on what RP in wildlife looks like (chart with pictures), what kind of samples to collect and what to do with it, etc. When available, experienced experts from regional bodys with competence in wildlife veterinary medicine would be invited to participate, for example the Ecole de Faune de Garoua, the Ecole Inter-Etats de Sciences et Médecine Vétérinaire de Dakar (EISMV).

Links will be established with already existing projects in related fields, especially EU-funded projects such as PDRN (Centrafrique), Zakouma NP (Chad), ECOFAC (7 countries), etc.

3.2.4. Microprojects

a. Support to the private sector for sustainable wildlife utilisation

Recognising that community level participation in management of the wildlife resource is now highly recommended but implementation is difficult especially in the poorest areas (IFAD 1995); and that the value of wildlife to communities is high, if appropriate use of the resource can be made in a sustainable consumptive or non-consumptive manner, it is recommended that this project carries out one pilot project in each region. The rationale being that, in order for this sort of activity to succeed, considerable professional input will be required. One of the identified constraints to successful management, especially of mixed species (including livestock) systems, is disease (ODA 1996). The impact of disease is through:

- reducing populations and therefore potential take off
- reducing carcass quality for cropping
- preventing export of meat and products due to disease control regulations
- creating consumer resistance due to public health aspects of zoonotic disease (Veterinary Public Health = VPH)
- decreasing the loss of bushmeat due to poor processing and conservation
- creating food hygiene problems (VPH)

It is recommended that the following be started:

- East Africa: a pilot project in managed private sector game ranches and community-run group ranches with an interest in or active wildlife utilisation.
- West and Central Africa: a pilot project with the bush meat industry.

⁴ RP, anthrax, blackleg, pasteurellosis, FMD, poxvirosis, PPR, trypanosomiasis, blood parasites and gastro-intestinal parasites.

* East Africa:

Consumptive wildlife utilisation projects in the countries visited were few (involving e.g. crocodile, guinea fowl, civet and ostrich farming and hunting in Tanzania). Most initiatives were also in a poor financial state and with need for improvements in management. There is scope for veterinary input into some of these schemes e.g. improved management and husbandry of civet farming in Ethiopia which is based on individual ownership. Techniques are crude, losses great and therefore profits low. Improvements would have a direct benefit to the individual farmer as well as improved animal welfare and conservation of the species which suffer from over harvesting.

It would not be feasible within the time frame of this project to cover many areas of need but on examination of the options one pilot project in each area was considered worthwhile.

A micro-project is recommended in East Africa in the Laikipia ranches and the Samburu group ranches Il Ngeusi and Namanyak. Discussions with the forum and other stakeholders in the area were positive and full cooperation can be expected. The area has an advanced game cropping policy managed through a wildlife forum. There is a laboratory available in the district and three slaughter facilities processing wild animals are operational. The project would support two local private veterinarians who would work under supervision of the TA and do the following activities:

- i. Survey the agreed zone for known diseases and record the history and incidence
- ii. Set up sampling procedures during cropping and meat inspection
- iii. With assistance from the TA do selective immobilisation of target species in specific areas within the zone
- iv. Ensure proper storage and shipping of samples to the regional coordinating unit in Nairobi for further processing
- v. Record data and make this available in a timely manner for analyses
- vi. Provide liaison with the community and local veterinary services and provide information on the projects findings

* West and Central Africa:

The bushmeat industry is particularly developed in several countries of West and Central Africa, especially in countries of the Congo Basin and the Gulf of Guinea. As a general rule, the industry belongs to the informal sector and is not taken into account in the national accounting nor in the development plans. In several instances it is an illegal activity. The industry is based on the traditional consumption of bushmeat by the populations. But the bushmeat industry is changing: commercial trade is taking over subsistance consumption due to (i) the rising demand due to the demographic growth and the urbanization, (ii) the spread of modern weapons and ammunitions, (iii) the decreasing prices of cash crops, the resulting decrease of living standards and the increasing dependance on natural resources, (iv) the resulting depletion of the wildlife resource increasing the price of bushmeat and thus the financial incentive to hunt. Decades of poor consideration led to a considerable lack of knowledge and investigation of the bushmeat industry.

A micro-project is recommended in West and Central Africa, in countries with bushmeat tradition wanting to improve the industry. An already experienced national collaborator will be recruited by the project to work with the TA. A preliminary investigation will describe the industry with particular emphasis on food hygiene and zoonotic diseases (Veterinary Public Health) which has not been studied at all so far. Trust-based relationship will be established with key persons in the industry. All kinds of constraints will be identified, investigated and discussed on a consensual basis with the stakeholders. Solutions will be proposed and discussed with the same. Some of the issues adressed will be (i) food hygiene and zoonoses, (ii) improvement of processing, transport and conservation of the products, (iii) industry organisation, e.g.: producers, traders and consumers organisations, (iv) self control of the private sector, (vi) regalian implication of public administration, (v) sustainability of the resource and its level of exploitation, (vi) conservation of threatened species, (vii) problem animal control and pest species, etc.

Links will be established with already existing projects in this field, such as ECOFAC (7 countries), Okapi Wildlife Reserve (RDC), PEPG (Gabon), Dja NP (Cameroon), etc.

Furthermore it is worth noting that, in Burkina Faso, there is a lack of expertise in the field of game ranching, an emerging sector. Nazinga game ranch is in a phase of rehabilitation and three more game ranches have recently been established: Boulon-Kouflandé, Singou and Bontioli. They all are attributed to private entrepreneurs who have no professional competence in this field. Twenty six "wildlife management blocks" have been established to be run by the private sector which needs adequate expertise.

b. Biodiversity and conservation

During the course of the project, especially the sampling operations, direct observations on wildlife in general will be collected in the field by the project teams, e.g.: distribution, abundance, population structure, body condition, behaviour, reaction to people, habitat, exploitation, etc. It is well understood that such observations would represent a major activity within the project, but would be a valuable side-ligne particularly in areas where little is known. The information will be gathered and transmitted to the relevant authorities, in particular the National Conservation bodies.

Where outbreaks of disease occur and are investigated through the project, an assessment will be made of the impact on the populations. This will involve recording of census data prior to the epidemic and after.

3.2.5. Data processing and reports

* Animal, sample and site data

All field and laboratory data should be collated at the regional coordination units.

* Data analyses

Epidemiological analyses would be carried out in the case of rinderpest by the PARC epidemiology project and for other diseases, by appropriate units specialising in the particular disease regionally or internationally.

Both components will work closely with the respective regional PARC epidemiologists (Nairobi and Bamako) to process the data and draw conclusions. The products of the AWVP must be compatible with and augment the global strategy of PARC.

* Reports

Quarterly short reports should be provided on activities and results from each National collaborator. These will be compiled by the respective TA's and a report on the regional project made available.

A final report should be compiled at the end of the 18 month of activities.

* Accounts

This would be arranged with the OAU/IBAR accounts section with all regional and national expenditure summaries and associated paperwork submitted through the TA's.

* Communications

In close liaison with the PARC unit TA's to provide information for other PARC components and interest groups on the wildlife disease situation through newsletters and preparation of reference materials. provide liaison on wildlife issues with OIE etc.

3.6. TIMING

- East African component: table 7

- West and Central African component: table 8.

African Veterinary Wildlife Project - Proposed Schedule of Activities 1998-1999 for East African Component



Training course Nairobi KWSSetting up coordination unitsField operations + TA visits to regionMicroproject activitiesData processing and report writing+ TA preparation of 1999 PARC ComponentTA visit to West Africa

WEST & CENTRAL AFRICAN COMPONENT TIME SCHEDULE

		CENTRAL		WEST							
		CHAD	CAR	DRC*	BURKINA	BENIN	COTE D'IV.	MALI	SENEGAL	NIGERIA	CAMEROON
1998	J	set-up regional coordination unit									
	F	prepare sampling season, set-up vet. technicians in hunting camps & launch micro-project									
	M	Ouaddaï, Biltine, Zakouma			Nazinga, Arly						
	A	air ope	ration						1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -		
	Μ	air operation									
	J	regional training workshop									
	J			C	ollect, process, f	orward sa	mples and dat	a			
	A										
	S										
	0	coordination with labs, & PARC regional epidemiologist									
	N	follow-up microproject									
	D	prepare sampling season & set-up vet, technicians in hunting camps									
1999 	J	Zakouma, Salamat						Niger, Gourma		Yankari	
	F	Salamat, Aouk	•			1. 3. 4		air opera	tion		
	M		Manovo, Sangba			Pendjari				1000	Waza
	A				and the second				1.200 1.200		air operation
	M	collect, process, forward samples and data									
	J	J project evaluation									

* DRC = ex-Zaïre

4. SUSTAINABILITY

4. SUSTAINABILITY

4.1. WILDLIFE EPIDEMIO-SURVEILLANCE SYSTEM

The project through:

- the establishment and support of a trained network of collaborators
- sample analyses and information flow from disease outbreaks and active field surveillance
- liaison with the PARC components, veterinary services and wildlife authorities
- provision of reports on results

would de facto provide a regional wildlife epidemio-surveillance system.

All the many contacts made during the course of the project will establish a network of sensitized **people.** A exhaustive inventory of resource persons will be provided at the end of Phase I and a core of most dedicated people selected as Wildlife Health correspondants for OUA/IBAR. At the same time a system of simple and efficient bilateral communication will be proposed by the project to maintain incentive and accuracy of the network.

It is envisaged that the project will lead on to a fully active component of PARC PHASE II and these activities will be sustained at least for as long as PARC exists and hopefully longer as national and regional veterinary and wildlife bodies recognise the value of the personnel and the network.

Furthermore, the project will carefully identify a restricted **network of key sentinel sites with key sentinel herds of key sentinel species** for a rinderpest vigilence system. For exemple, young buffaloes of Zakouma NP may receive special attention for being:

- . (i) indicators of a new RP outbreak
- . (ii) in large numbers
- . (iii) relatively easy to observe and manipulate
- . (iv) exposed to contacts with large and very mobile livestock herds with a low vaccination coverage (about 20% in 1996)
- . (v) members of an abundant community of diverse species sensitive to RP
- . (vi) within the cordon sanitaire
- . (vii) in the middle of a critical region between the infected part of the continent (East) and the non-infected part (West).

4.2. CAPACITY

By focusing on the development of national veterinarians and technicians in the region as opposed to the use of short term TA's in each country, a long term capacity for wildlife health monitoring will be achieved. A project aim is to train small specialised teams for wildlife health surveillance, as this is practical and can be realised within the time frame and scope of the project. In the authors' opinion there are no major obstacles to achieving this in the region.

Provision of samples to various laboratories will help develop the capacity for analyses of wildlife blood and tissues. Some lab techniques are not affected by species variation but frequently there are problems and species-specific reactions or pathology occur. This warrants specialisation by pathologists and laboratory scientists and a more individual attention to wildlife materials would be required in many instances. It is clear at this stage that there is minimal capacity for this in the region but through use of international wildlife laboratories and support to local laboratories the gap can be filled. Fortunately for rinderpest the standard virus isolation, antigen, PCR, immunohistochemistry and serological diagnostic tests work for virus from all the ungulate species, but interpretation of gross and histopathological findings needs specialists.

5. MONITORING AND EVALUATION

5. MONITORING AND EVALUATION

A record of activities and expenditure will be maintained throughout the project by each of the regional coordination units. The activities of each country will be closely supervised and monitored by the TA's.

Results and data should be made available to other PARC components and available for scientific scrutiny by other bodies.

An independent evaluation of the project is recommended at the end and prior to full integration into PARC PHASE II.

6. PROPOSAL FOR PHASE II

6. PROPOSAL FOR PHASE II

The feasibility study concentrated on an initial 18 month project and detailed proposals and financing needs are given for this. It is envisaged that this pilot period would satisfy the urgent need for regional information on rinderpest in wildlife, as well as ensure the key steps in establishing a more sustained network were put in place and tested.

A detailed proposal for the initiation of a full PARC component to deal with wildlife disease would be an activity of the TA's during the project lifetime. This would ensure a fit with the time schedules set for planning PARC II. The planning would have the advantage of its feasibility being tested at the time of planning through results from the initial project. The areas of activity would be similar but more refined and expanded into other countries in the regions.

In addition it is recommended that a high level regional meeting is set for the early part of the next phase of the wildlife project (PARC II) to achieve regional policy decisions on how to proceed on matters of wildlife disease.

7. SUMMARISED FINANCING PROPOSAL FOR PHASE I

7. SUMMARISED FINANCING PROPOSAL FOR PHASE I

See table 9.

7.1. PROPOSED BUDGET

See table 9.

7.2. OBERVATIONS

Explanations of budgetlines by order of presentation:

1. Technical inputs

1.1 Technical assistance and running costs

Includes:

- 48 man/months EC TA's including accomodation
- 48 man/months national direct and permanent collaborators of the two TA's

- vehicle running costs including drivers

1.2. Initial investment

Comprises the purchase of:

- two 4x4 vehicles
- three computers
- communication material
- cold storage material
- equipment for two permanent offices
- field equipment
- capture equipment and dartguns

1.3. Initial recurrent costs

Includes:

- rental and complete running of the offices of the two TA's

- purchase of drugs and sampling material

1.4. Preparation of field operations

Incorporates into the § $n^{\circ}1$: 25% of the total § $n^{\circ}2$, in order to allow the project to begin as soon as possible after the anticipated conditional tender is attributed.

2. Field operations

2.1. Local human resources

- 84 man/months for national temporary high-level collaborators (veterinarians or ingeeners) in 14 the countries selected

- 42 man/months for national temporary support staff

- incentives for providing information and samples

- community support (local temporary employment in villages nearby sampling sites)

2.2. Logistics

- helicopter rental and fixed wing rental (figures given in matrices being only indicative)

- purchase of two additional 4x4 vehicles to increase the number of samples and the opportunities for field experience of the national collaborators, especially when working season is short (only 5 months a year in West and Central Africa)

- vehicle rental for transport of material (truck) and samples

- purchase of material and equipment in support to some selected national teams: cold storage material, office equipment, sampling material, and field equipment

- one more dartgun, one more computer and one more communication set for the West and Central African component

- fret for material and samples

- a special fund for emergency disease investigation

2.3. Laboratories support

Cost of samples analysis

3. Training

- expenses for organizing the regional workshop (one workshop in Kenya for the entire project) including lectures and translation for french-speaking participants

- travel expenses for participants

4. Microprojects

- additional expertise :

. EC expertise: two 15 days long missions (1 for East Africa, 1 for West Africa) = 1 m/m

. national collaborators: two 3 months long collaborations (1 for East Africa, 1 for West Africa) - vehicle transport for the national collaborators

- samples analysis

5. Report publishing

- data capture, processing and analysis
- mapping and Geographic Information System

- edition

6. Evaluation

One 2 week-long mission of a EC assessor

AFRICAN WILDLIFE VETERINARY PROJECT

SUMMARISED FINANCING PROPOSAL FOR PHASE I (ECU*1,000)

		SUB TOTAL	TOTAL
1. TECHNICAL INPUTS*		Sector 1	1 100
	1.1. Technical assistance & running costs	620	
	1.2. Initial investment	180	
•••	1.3. Initial recurrent costs	80	
	1.4. Preparation of field operations**	220	
2. FIELD OPERATI	ONS		700
	2.1. Local human resources	100	
	2.2. Logistics	530	
	2.3. Lab support	70	
3. TRAINING			45
4. MICROPROJECT	rs	Sec.	30
5. REPORT PUBLISHING			20
6. EVALUATION			12
TOTAL=1+2+3+4+5+6			1 907
Management fee 3%	6		57
GRAND TOTAL			1 964

* subject to an anticipated conditional tender

** this item is 25% of field operations cost (§ 2) including local human resources

to enable implementation from the begining of the project

8. FINANCIAL PROCEDURES

8. FINANCIAL PROCEDURES

8.1. AVAILABILITY OF FUNDS

In view of financing this project, for which the estimated budget amounts to 1.964.000 ECU, two alternatives exist. One calls for the use of funds still available on the 7th EDF (A), the other calls for the use of the 8th EDF funds (B) of which the provision seems to become available shortly.

A) Use of the funds available in the 7th EDF

For this purpose, funds in the regional budgets (PIR) of the three regions concerned must be drawn: Coastal Western Africa (ACO ROC) Eastern Africa (ACP ROR) Central Africa (ACP RCE)

Since this project has a higher impact in the Coastal Western Africa and Eastern Africa regions and due to the funds still available, the contribution of the funds related to these regions should be proportionally higher.

Therefore and in accordance with the funds available, the contribution of the Coastal Western Africa region should be 1.305.000 ECU, of the Eastern Africa 651.000 ECU and for the Central Africa 8.000 ECU⁵.

These figures may have to be reconsidered at the time of the Financing Proposal due to changes on the balance of the funds of the 7th EDF.

B) Use of the funds of the 8th EDF

In this case, the project can be entirely financed on one Regional Indicative Programme (PIR), namely the one entitled "Multi Regions" (ACP MIR).

8.2. AUTHORITIES MANAGING THE RESOURCES

A) Use of the funds still available in the 7th EDF

According to this scenario, three sources of financing would have to be managed at the same time. Although for each region, there should be a Regional Authorising Officer and a Leader Delegation, it is advisable to concentrate these roles under the lead of the Authorising Officer of the OAU/IBAR and Delegation of the European Commission in Kenya. This would have to be done on the basis of the agreement of the National Authorising Officers of the beneficiary countries concerned by the project. Such an organisation would facilitate the synchronisation of the actions, which will have to run in parallel in these three regions.

B) Use of the funds of the 8th EDF

According to this scenario, only one source of financing would have to be managed. Consequently, only one Regional Authorising Officer supported by a Delegation of the Commission as a Leader would be necessary.

⁵ Funds available in the PIR for the Central Africa are 10.168,06 ECU.

Within this project, the Authorising Officer of the OAU/IBAR would be responsible of the tasks of launching all the procedures, with the support of the Delegation of the European Commission in Kenya acting as the Leader Delegation.

8.3. PROCEDURES TO BE APPLIED

This paragraph is a guide for the administrative procedures to be followed throughout out the preparation and lifetime of the project, with the aim to minimise the time allocated to the bureaucratic tasks and to maximise that allocated to the management of the project.

Procedures will be developed successively relating to:

- credit commitment ("1. Primary Commitment procedure"),
- calls for tenders ("2. Launching procedure of Call for Tenders"),
- commitment of contracts ("3. Secondary Commitment procedure") and
- payments ("4. Procedure relating to the Payments").

8.3.1. Primary Commitment Procedure

A) Use of the funds still available in the 7th EDF

The procedure to be followed consists of:

Regional Authorising Officer & Delegation

1°) On the basis of the final report of this mission, establishment of a project of Financing Proposal and DTA.

Head Office - DG VIII

2°) Technical finalisation of the draft Financing Proposal:

(a) consultation of Associated Technical Service - DG VIII G/3

(b) consultation of the concerned	Geographical Services
Coastal Western Africa	- DG VIII D/1
Eastern Africa	- DG VIII E/2
Central Africa	- DG VIII D/4

- 3°) Financial checking and record of three primary commitments in the accountancy of the EDF (temporary) DG VIII C/2
- 4°) Financial checking of Financial Control (physical & electronic OLAS visas) DG XX
- 5°) Drawing up of the Financing Agreement on the basis of the financing Proposal and DTA -DG VIII/ 7
- 6°) Notification of the EDF Committee (project <2MECU) DG VIII 7
- 7°) Financing decision by the Commission and notification of the EDF Committee.
- 8°) Accounting operation finalised by the Deputy Director General for DG VIII.
- 9°) Signature of the Financing Agreement between the Commission and the Regional Authorising Officer.

B) Use of the funds of the 8th EDF

The procedure to be followed in this case is equal in every way to that described above, except that only one primary commitment on the financial accountancy of the EDF is created.

8.3.2. Launching procedure of Call for Tenders

The procedures described in this point are common to both types of methods of financing of the project.

As described in this report, the establishment of this project requires to the recourse to technical assistance, to the supply of equipment (item A) and to direct labour (item B).

A) Launching of call for tender for technical assistance and purchase of equipment

From the estimated budget of the project, the mission considered that for the contracts to be subject to a call for tender, these can be done by restricted call for tender without preselection⁶. Indeed, for the services contracts, the threshold of the 2 MECU will not be exceeded. For the supply contracts, this type of call for tender is justified by the fact that there will be supply of specialised equipment. For both types of contracts, the procedure to be followed is identical:

Regional Authorising Officer & the Commission Services

1°) Establishment by the services of the Regional Authorising Officer of a "short list" of candidates in agreement with the Commission services.
 (In the case of a services contract a PACN has to be established by the Delegation / Technical Unit and launched in the circuit for approval.)

Regional Authorising Officer

2°) Drawing up of the Tender documents by the Regional Authorising Officer's services. For that purpose, the Unit of Call for Tenders and Contracts, has standard documents (DG VIII C/3).

The file has to include:

a) One invitation letter to tender which should mention several points such as the period of tender (a 2 month period seems to be the best choice), the conditions and for the service contracts, the maximum amount planned for the contract.

b) The instructions to tender.

c) The special conditions relating to the contract (conditions which amend or supplement the General Conditions)

d) The terms of Reference / technical Specifications according to the type of contract.

[•] This is, without a call for an expression of interest before establishing the "shortlist".

For Services contracts, the qualifications and experience required have to be included.

e) The price breakdown to be used by the tenderers. All tenderers will submit the same minimal degree of financial information in such a way that the various bids can be easily compared at the time of the evaluation.

Head Quarters - DG VIII

3°) Submission of the tender file to the Head Quarters for approval:

- Associated Technical Unit DG VIII G/3
- Unit responsible for the Calls for Tender and Contracts DG VIII C/3

Regional Authorising Officer & Delegation

- 4°) The Regional Authorising Officer's services
 - launch the Calls for Tender,
 - receives the bids,
 - evaluate tenders.

After the evaluation of the bids, the Regional Authorising Officer establishes a selection proposal, which is submitted to the Delegation for approval.

- 5°) Notification of the winners/loser of the evaluation by the Regional Authorising Officer.
- 6°) Signature of the contract between the Regional Authorising Officer and the Tenderer selected.
- 7°) Endorsement of the contract by the Delegation (which has 30 days to do so) and transmission of the contract to the Head Quarters (see item "3. Secondary commitment procedure")

It is important to point out that supply contracts lower than 5,000 ECU can be allowed by direct agreement.

B) Procedure to be followed for the setting up of Direct Labour

In order to take profit from the position of the OAU/IBAR, it was considered convenient to adjudicated Direct Labour to this organisation. It is important to point out that this has to be mentioned in the Financing Agreement.

In this case, the procedure to be followed is:

Imprestholder (project director appointed by the R.A.O.)

1°) The imprestholder draws up a proposal containing the detail of the work to be carried out and their costs, the amount of the advance necessary as well as the administrative and financial procedures which will be followed.
Regional Authorising Officer & Delegation

- 2°) Approval of the proposal by the Regional Authorising Officer and submission of the project to the Delegation.
- 3°) Treatment of the file by the Head of the Delegation and establishment of a report mentioning: the observations of the Head of the Delegation,
 the estimated funds to be committed.
 Transmission of the file to Head Quarters.

Head Quarter - DG VIII

4°) The Associated Technical Service (DG VIII G/3), analyses the file. Following the approval of the file, the Delegation is notified.

Regional Authorising Officer

5°) The regional Authorising officer draws up a final project including the financing provisions and transmits it to the Head of the Delegation (1 original + 4 copies)

Delegation

- 6°) The Delegation:
 - approves the final project after a positive comparison with the proposal accepted by the Associated Technical Service,
 - notifies the Regional Authorising Officer of the total amount of the financing by returning two copies of the final project,
 - notifies the Associated Technical Service DG VIII G/3 by sending a copy of the final project,
 - notifies the Financial Management Service of the EDF DG VIII C/2 by sending the original of the final project,

Head Quarter - DG VIII

7°) Accounting – booking of the Direct Labour, see item "3. Secondary Commitment procedure").

8.3.3. Secondary Commitment Procedure

When a contract or Direct Labour is awarded, an appropriation provision in the EDF accountancy has to be made to cover expenditure due to the commitment of the Commission materialised at the time of the endorsing of the contract or direct labour.

The procedure here described is common for the contracts and direct labour. However, for direct labour, the "3°" stage is suppressed.

Delegation

1°) The Head of the Delegation transmits the contract to be committed at the secondary level by the head quarter by adding to it a "commitment request" duly filed in and signed.

Head Quarter - DG VIII

- 2°) Submission of the file to the financial Unit of the EDF DG VIII C/2 for agreement and accounting introduction of the data related to the contract (OLAS visa E2CO)
- 3°) Submission of the file to the Unit of Call for Tenders and Contracts DG VIII C/3 for agreement and electronic visa of the accounting movement (OLAS)
- 4°) Submission of the file to the Technical Unit DG VIII G/3 for agreement and electronic visa of the accounting movement (OLAS)
- 5°) Final approval of the accounting movement DG VIII C/2 (OLAS visa E2OR)

8.3.4. Procedure relating to Payments

In this project, three major types of payment will be used:

- Semi-direct payments (in currencies)
- Local payments (in currencies) and
- Direct payments (in local currency)

A) Semi-direct Payments

The procedure to be followed is:

Regional Authorising Officer

1°) The Regional Authorising Officer receives the request for payment by the holder of the contract, analyses the request and establishes a "Payment Order" on the basis of the received documents and the related contract. Transmission of the file to the Delegation.

Delegation

2°) Analyses the received file, draws up a "Control Card" (signed by advised of the Delegation) and signs the "payment order" (by the Head of Delegation).

Transmission of the file to the Head Quarter (DG VIII C/2)

Head Quarter - DG VIII C/2

- 3°) Checks the payment file and books the payment in the accountancy of the EDF (Country-Officer).
- 4°) Checks the file, checks the accounting movement and approves it in the accountancy of the EDF (Delegate Authorising Officer electronic visa).
 Transmission of the file to Financial Control.

Head Quarter - DG XX

5°) Checks the file and approves of the accounting movement (electronic visa). Transmission of the file to the Accountancy of the Commission.

Head Quarter - DG XIX

6°) Records the payment and requests the Commission Paying Agent (bank) to execute the payment.

Commission Paying Agent (bank)

7°) Executes the payment and transmits to the Head Quarter the document attesting the operation.

B) Local payments

In the case of payment in local currency, the first two stages described above are the same. The difference comes from the fact that the "payment order" is sent from the delegation to the local Commission Paying Agent (local bank).

The file is then sent to Head Quarters (DG XIX - Accountant) for recording of the fund disbursement in the Commissions accountancy. It is then sent to the Financial Management Service of the EDF (DG VIII C/2 - Booking of the operation in the accountancy of the EDF) after which, the file is sent to Financial Control (DG XX).

C) Direct payments

In this case, the difference is that the request for payment is transmitted directly to the Associated Technical Service (DG VIII G/3), which replaces the roles of the Regional Authorising Officer and of the Delegation in the procedure described above.

The file is then sent to the service of the accountancy of the EDF and follows the procedure as described from item "3°".

8.4. CONCLUSIONS

Because of the limitation of the availability of funds under the 7th EDF, the only possibility of financing this project is to distribute its financing by the three regions (Coastal Western Africa, Eastern Africa and Central Africa). For that purpose and taking into account on one hand the availability of funds of these three regions and in the other the countries which this action covers, it is difficult to find an adequate weighting especially due to the fact that for the Central Africa region, the funds still available, exceed only slightly 10,000 ECU. Moreover, with this type of financing, three primary commitments would have to be recorded in the accountancy of the EDF.

This latter point allows the mission to advise the recourse to the funds of the 8th EDF, which will be shortly available. In this case, only one source of funds would be necessary and only one primary commitment would be recorded in the accountancy of the EDF.

Regarding the launching of a call for tenders for technical assistance and for the equipment necessary for effective operational activity, it is important to point out that these can be launched after approval of the final report of this mission, with a suspensive clause.

In order to facilitate certain procedures, the mission also should recall that it is possible, for the services contracts, to have a delegation of powers from the Regional Authorising Officer to the Chief Authorising Officer (the Commission - Head Quarter)⁷. In this case, the procedure is simplified due to the fact that the drawing up of the tender documents is established by the Associated Technical Service and that the contract is signed by the Commission (acting on the behalf of the Regional Authorising Officer). At the time of the payments, those will be carried out according to the direct payment procedure.

⁷ Article 302 of the Lomé IV Convention.

9. SELECTIVE BIBLIOGRAPHY

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10. ACKNOWLEDGMENTS

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11. APPENDICES

11. APPENDICES

APPENDIX A: TERMS OF REFERENCE FOR TECHNICAL ASSISTANTS

AFRICAN WILDLIFE VETERINARY PROJECT

1. GENERAL CRITERIA

Nationality: Citizen of the EU.

General Professional status: Registered Veterinarian (Specialist in Wildlife Health).

Qualifications: Professional Affiliation to a European Veterinary College and Qualification in Veterinary Medicine DVM/BVM or Equivalent. Recognition by National Authority of Specialist Status. Degree or Diploma with course work in Applied Sciences preferably with Wildlife component.

Valid driving licence, PPL an advantage.

Medically and physically fit.

No convictions or adverse status e.g. persona non grata in the East or West African regions.

Experience: A minimum of 10 years as a full time Wildlife Veterinarian with a minimum of 5 years experience in sub-Saharan Africa. Experience in and good working knowledge of wildlife veterinary priorities in either East or West Africa. Extensive hands on experience with wildlife health problems, disease investigation, serosurveillance and seromonitoring techniques, intervention management, wild animal capture, translocation, introductions, species conservation and sustainable wildlife utilisation. Administrative, training and management experience, preferably in a wildlife context. Field experience with rinderpest outbreaks preferably with wildlife.

Languages: English and/or French.

2. SPECIFIC CRITERIA

2.1. TA 1

Coordinator for the Project - East African Region under the direction of the Director OAU/IBAR carry out the following activities:

Year 1

- 1 Set up an office under OAU/IBAR in Nairobi with secretarial support, a computer and communications including e-Mail.
- 2 Establish links with "Key Country" personnel (Country coordinators) and confirm the work plan to achieve the following:
- 3 Establish a wildlife health surveillance network in each country including an emergency response protocol. Assist in coordinating any emergency activities and investigate with the assistance of local coordinators emerging disease phenomena in the region.
- 4 Establish a serosurveillance protocol for specific wildlife populations.
- 5 Equip, train and supervise selected country vets/technicians and complete agreed serosampling programme (primarily for rinderpest) in key wild ruminant populations in the region for year 1.
- 6 Supervise submission of samples with agreed protocols and collate data.
- 7 Develop a regional workshop and short courses on Wildlife health and veterinary management for the region with an emphasis in infectious diseases.
- 8 Attend appropriate regional and international meetings.
- 9 Assist in development of basic infrastructure and networking for wildlife health monitoring in each country within National Wildlife Authorities and linked to Government Veterinary Services, Veterinary faculties and interested NGO's.
- 10 Liaise regularly with other members of the PARC programme and address any needs identified as urgent by the Director OAU/IBAR in relation to wildlife health and livestock disease.
- 11 Work in close collaboration with the PARC epidemiologists.
- 12 Supervise the development of other agreed micro-projects in each country.
- 13 Complete regular reports of activities.
- 14 Provide an annual report of achievements and recommendations for year 2 as per agreed logical format.

Year 2

- 15 Continue activities listed for year1 and in addition:
- 16 In collaboration with the West African coordinator prepare a proposal for a further 4 year programme under the next phase of PARC activities.

2.2. TA 2

Coordinator for the Project - West & Central African Region under the direction of the Director OAU/IBAR and the Regional Coordinator of OAU/IBAR for West and Central Africa carry out the following activities:

Year 1

- 1 Set up an office under OAU/IBAR in West and Central Africa with secretarial support, a computer and communications including e-Mail.
- 2 Establish links with "Key Country" personnel (Country coordinators) and confirm the work plan to achieve the following:
- 3 Establish a wildlife health surveillance network in each country including an emergency response protocol. Assist in coordinating any emergency activities and investigate with the assistance of local coordinators emerging disease phenomena in the region.
- 4 Establish a serosurveillance protocol for specific wildlife populations.
- 5 Equip, train and supervise selected country vets/technicians and complete agreed serosampling programme (primarily for rinderpest) in key wild ruminant populations in the region for year 1.
- 6 Supervise submission of samples with agreed protocols and collate data.
- 7 Develop a regional workshop and short courses on Wildlife health and veterinary management for the region with an emphasis in infectious diseases.
- 8 Attend appropriate regional and international meetings.
- 9 Assist in development of basic infrastructure and networking for wildlife health monitoring in each country within National Wildlife Authorities and linked to Government Veterinary Services, Veterinary faculties and interested NGO's.
- 10 Liaise regularly with other members of the PARC programme and address any needs identified as urgent by the Director OAU/IBAR in relation to wildlife health and livestock disease.
- 11 Work in close collaboration with the PARC epidemiologists.
- 12 Supervise the development of other agreed micro-projects in each key country.
- 13 Complete regular reports of activities.
- 14 Provide annual report of achievements and recommendations for year 2 as per agreed logical format.

Year 2

- 15 Continue activities listed for year1 and in addition:
- 16 In conjunction with the East African Coordinator prepare a proposal for a further 4 year programme under the next phase of PARC activities.

APPENDIX B : DETAILED MATRICES

WEST & CENTRAL COMPONENT: WILDLIFE AREAS SUITABLE FOR SAMPLING WITHIN THE RINDERPEST SANITARY CORDON

COUNTRY	The she was do	PROTECTED ARE	AS	OUTSIDE		SELECTIO	N CRITERI	A		PRIC	RITY
	NATIONAL	FAUNAL	HUNTING	PROTECTED	SPECIES	SENSITIVE TO RIM	DERPEST	RP	SUM	OR	DER
and the second	PARKS	RESERVES	AREAS	AREAS	TOP 3*	OTHER WILD SP.	CATTLE	HISTORY		1st.	2nd.
CHAD	Zakouma		1 1 1 4 THE ANY	and the second second second	2	3	3	1	9	1	
131.00		Fada Archeï				1	1	1	3	100	
1		Ouadi Rimé-O.A.				2	1	1	4	5. 34	19.14
		Aboutelfan			1	1	1	1	4	1.200	S. and
		Bahr Salamat			1	1	3	1	6	11.23	4
		Siniaka Minia			2	1	2	1	6	100	4
		Goz-Beida		1	1	1	2	1	5	1.204	5
			Aouk-Aoukale		2	3	3	1	9	1	
				Biltine	_	2	3	1	6		4
				Ouaddaï		2	3	1	6		4
				Guera		1 1	2	1	4	199	
				Salamat	1	2	3	1	7	3	
CAR	André Felix				1.1.1.1.1.1.1.1.1	1	2	1	4		
	Manovo-Gounda				2	3	2	1	8	2	26.5
		Aouk-Aoukale			2	1	3	1	7	3	
1.12		Ouandija-Vakaga			2	1	2	1	6		4
		Yata-Ngava				1	2	1	4		20.000
1		Zemongo			2	1	1	1	5	100	5
5			Sangba		2	3	1	1	7	3	
			Yalinga	5	2	2	1	1	6	100	4
			Other hunting ar.		2	2	1	1	6	장님님	4
				Sergobo	3	1	2	1	7	3	2.00
				Haut-Mbomou	2	2	2	1	7	3	
RDC	Garamba				1	3	2	1	7	3	
(ex-Zaïre)		Bomou	Contractor and		2	1		1	4	F	1.1.1
(Azande	1 1636	1	2	2	1	6	2	4
			Gangala na Bodio		1	2	2	1	6		4
	Sec. Sec.	12 July 14 44 18	Mondo-Missa		1	2	2	1	6		4

*: top 3 species (most sensitive sp to RP) = buffalo, giant eland, greater kudu (the figure gives the number of top species present in the area).

COUNTRY	UNTRY COUNTRY AREAS		Contraction of the	SELECTIO	N CRITERI	A		PRIC	DRITY
RINDERPEST		OF	SPECIES	SENSITIVE TO RIM	DERPEST	RP	SUM	OR	DER
STATUS		INTEREST	TOP 3*	OTHER WILD SP.	CATTLE	HISTORY		1st.	2nd.
	GAMBIA	Kiang West NP	0	1	2	1	4	144.000	
입학원 그 가격 공부를	GHANA	Mole NP	1	1	1	3	6		
물감 전 문화 문화 방송		Bui NP	1	1	1	2	5		
	SENEGAL	Niokolo Koba NP	2	3	1	1	7		4
COUNTRIES	같은 것 같아?	Ferlo FR	0	1	3	1	5		
DECLARED	Sec. Sec. Sec.	Senegal Valley	0	1	3	1	5		
TEMPORARILY	COTE D'	Comoe NP	1	3	1	2	7		4
RP FREE	IVOIRE	Geprenaf project	1	2	1	2	6		
	GUINEA	Badiar NP		1	1	1	3		
		Mali border		1	2	1	4		
	NIGERIA	Sambisa GR	0	1	2	3	6		
		Lake Chad Basin NP	0	1	2	3	6		
		Yankari GR	1	2	3	3	9	2	
	TOGO	Keran NP & Oti Valley FR	1	1	2	2	6		
	BURKINA	WNP	1	1	2	3	7		4
	FASO	Arly complex	1	3	3	3	10	1	
		Nazinga Game Ranch	1	3	2	3	9	2	
		Geprenaf project	1	1	1	3	6		S. 1.1
COUNTRIES ABOUT		Sahel FR	0	1	3	3	7		4
TO BE DECLARED	GUINEA	Boe	1	1	3	1	6		
TEMPORARILY	BISSAU	Corubal	1	2	2	1	6		
RP FREE	MALI	Elephant FR & Gourma	0	2	3	2	7		4
	1911 - A. S. S. S. S.	Niger delta	0	1	3	2	6		2 . j. od
		Boucle du Baoulé NP	0	2	2	2	6		21 Los 1
	1	Bafing FR	2	1	1	2	6		5.91
	Section Se	Kayes area	0	1	3	2	6		1.1.2
COUNTRIES	MAURITANIA	Senegal valley	0	1	3	1	5		
INTENDING TO STOP	BENIN	Pendjari NP	1	3	1	3	8	3	
RP VACCINATION		Pendjari hunting areas	1	2	2	3	8	3	
IN 1998	the second second	W NP	1	1	2	3	7		4

WEST & CENTRAL COMPONENT: WILDLIFE AREAS SUITABLE FOR SAMPLING WITHIN RINDERPEST FREE PROCEDURE AREA

*: top 3 species (most sensitive sp to RP) = buffalo, giant eland, greater kudu (the figure gives the number of top species present in the area - no figure = uncertain), given there is no greater kudu in any of these countries

COUNTRY	AREAS	and the second	SELECTION	CRITERI	A		PRIC	DRITY
	OF	SPECIES	SENSITIVE TO RIN	DERPEST	RP	SUM	OR	DER
	INTEREST	TOP 3*	OTHER WILD SP.	CATTLE	HISTORY		1st.	2nd.
NIGER	W NP	1	2	2	2	7		1. J.
CAMEROON	Waza NP	0	3	2	3	8		2
	Bouba Ndjidah NP	2	3	1	3	9	1	1997.63
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Benoue NP	2	2	1	3	8	1.0	2
	Faro NP	2	1	1	3	7	1.1.19	
	Hunting areas	2	2	2	3	9	1	11-11-11-1

WEST & CENTRAL COMPONENT: WILDLIFE AREAS SUITABLE FOR SAMPLING IN COUNTRIES CONTINUING VACCINATION

*: top 3 species (most sensitive sp to RP) = buffalo, giant eland, greater kudu (the figure gives the number of top species present in the area - no figure = uncertain), given there is no greater kudu in any of these countries

WEST & CENTRAL COMPONENT

WILDLIFE POPULATIONS SUITABLE FOR SAMPLING WITHIN THE RINDERPEST SANITARY CORDON

PRESENCE & ABUNDANCE (abundance: 3 = common, 2 = significant, 1 = rare, 0 = absent, nothing = unknown)

Priority order (se	1	1	2	3	3	3	3	3	3	3		
Selected site		Zakouma	Aouk	Manovo	Salamat	Aouk	Sangba	Sergobo	Yalinga	Haut-	Garamba	species
			Aoukalé	Gounda	3.2.	Aoukalé		1. 20 1.		Mbomou		richness"
Country		Chad	Chad	Centraf.	Chad	Centraf.	Centraf.	Centraf.	Centraf.	Centraf.	RDC	index
	Bongo	0		1	0	1000	2	0	1	2	1	7
-	Bushbuck	2	2	2	2	1	2	1	2	2	1	17
	Giant eland	0	1	2	0	1	3	1	2	2		12
	Greater kudu	2	0	0	1	0	0	2	0	0	0	5
	Sitatunga	0	1	0	0	0	0	0	1	1	1	4
- KI	Blue duiker	0	1	1	0	1	2		1	2	1	9
	Grev duiker	3	1	2	2	2	2	1	2	2	1	18
	Yellow-backed duiker	0	1	1	0	1	2		1	2	1	9
	Red-flanked duiker	0	1	2	0	1	2		1	2	2	11
WILD	Bohor reedbuck	2	1	2	2	1	2		1	1	2	14
SPECIES	Waterbuck	3	. 1	3	1	1	1		1	1	3	15
SENSITIVE TO	Kob (Buffon's & Uganda)	3	2	2	3	1	1		1	1	3	17
RINDERPEST	Roan	3	1	2	1	1	2	1	2	2	1	16
&	Scimitar-horned orvx	0	0	0	0	0	0	0	0	0	0	0
PRESENT	Addax	0	0	0	0	0	0	0	0	0	0	0
IN THE	Lelwel hartebeest	3	3	3	2	2	3	1	2	2	3	24
SANITARY	Korrigum	3	2	2	3	1	0			1.1.1	0	11
CORDON	Dorcas gazelle	0	0	0	0	0	0	0	0	0	0	0
	Slender-horned gazelle	0	0	0	0	0	0	0	0	0	0	0
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Red-fronted gazelle	3	1	2	1	1	0		0	0	0	8
	Dama gazelle	0	0	0	0	0	0	0	0	0	0	0
	Oribi	2	2	2	2	1	2	1	1	1	3	17
	Klipspringer	0	0	0	0	0	0	1	0	0	0	1
1	Warthog	3	2	2	2	2	2	2	2	2	2	21
	Bushpig	1	1	1		1	2	1	2	2	2	12
	Giant forest hog	0	0	1	0	0	1		1	1	12221	4
	Giraffe	3	1	1	1	1	1		1		2	11
1	Buffalo	3	1	3	1	1	3		2	2	3	19
	Aoudad?	0	0	0	0	0	0	0	0	0	0	0
	wildlife "richness" index	39	26	37	24	21	35	11	27	30	32	

	rinderpest status				IN THE	SANITARY	CORDON	23. J.Y		Sec. Sec.		EN	TERING THE		RPEST PATHW	/AY		VACCIN	NATION ON	N° of sites	
Selected	number	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	1.	2	18	100
sites	country	1	Chad				CAR		Statt.	RDC	Nigeria	Cote d'I.	Burkir	na Faso	Mali	Sénégal	Benin	Car	neroon	Number	%
	position	Ouaddaï Biltine	Zakouma	Salamat & Aouk	Manovo Gounda	Sangba	Sergobo	Yalinga	Haut Mbomou	Garamba	Yankari	Comoé	Arly complex	Nazinga ranch	Niger delta & Gourma	Niokolo Koba	Pendjari	Waza	Bénoué complex	of samples per spec.	per sp.
	Bushbuck										5									5	1
	Giant eland	San S			5	5		10	5		1861				i shi i sa	5	1.1.1	7	5	35	4
	Greater kudu		5				5					entral l		1	1					10	1
	Bohor reedbuck		5					1.1.1.1.1.1		1.1.1							5			10	1
	Waterbuck		5		5						5		5	5	1.14 - 1.54		5			30	3
Selected	Buffon's kob		5	5	5			731 .					5			1.12	5	5	A. 2051	30	3
species	Roan		5		5		19. J.			1.5	1.00			5			5	5		25	2
	Hartebeest		5	5	5			5.00		5. 5. 807		Sec. 24	5	5	The second		5	1		30	3
	Korrigum		5	5	5										1.11	1.1		5		20	2
	Dorcas gazelle	10	1. A.								10.00		1.1		5					15	1
	Red-fro. gazelle	10	5										L. C. Sta		5			5	10000	25	3
	Warthog	5	5	5	5						5	20	5	5	10					65	7
	Giraffe						1.2.5		1.1.1.1.1				1000	1000		10	100	5		5	1
	Buffalo		10	5	10	5	1.	10	5	20	5	1.1	5	5		5	5	1	5	95	11
N° samples	s per site	25	55	25	45	10	5	20	10	20	20	20	25	25	20	10	30	25	10	400	50
Total nº sa	mples per status					215	×				1111			150		0.000			35	10000	
% samples	per status	54								3 M			38	2 L.	1			9	all in the		
Samples ta	aken on the ground	nd 25 35 20 25 10								20	20	20	20	10	1.4	20	25				
N° samples	s on the ground	121.25			1.11.1.1.1	115	1.1.1	1.5.11.	Sec. Sugar	1.6.1.2.4.1			100.000		135		S. 6. 6. 1		1.1.1.1	250	1
Samples ta	aken by helicopter		20	5	20	1. S	5	20	10	20	L. Comercia		5	5	10	10	10		10		144
N° samples	s by helicopter	pter 100								2001	. 11 Mar			Section 1	50				172.18	150	

WEST & CENTRAL COMPONENT / SAMPLING PROGRAM: PRIORITY SAMPLES

	rinderpest status	Contraction of the	1.0.1	s	ITES WITHIN	THE SAN	TARY CORD	ON				SITE	ES WITHIN T	HE OIE RIND	ERPEST PATH	WAY		VACCIN	ATION ON	N° of sites
	number	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	1	2	18
Sites	country		Chad	4			CAR			RDC	Nigeria	Cote d'Iv.	Burkin	na Faso	Mall	Sénégal	Benin	Can	neroon	Sampling
	position	Ouaddaï Biltine	Zakouma ecosyst.	Salamat & Aouk	Manovo Gounda	Sangba	Sergobo	Yalinga	Haut Mbomou	Garamba	Yankari	Comoé	Arly complex	Nazinga	Niger deita & Gourma	Niokolo Koba ec.	Pendjari ecosyst.	Waza	Bénoué complex	methods & time
	Bushbuck										N			1						N
	Giant eland				н	VF		н	н					1.1.1.1.1.1		н			н	HF
1	Greater kudu		HVF				н													н
Species	Bohor reedbuck		v		v					No. Y							VF	V&F		VF
sensitive	Waterbuck		v		v	a series			1.24		VF		VF	VF			VF			VF
to RP	Buffon's kob		v	VF	v								VF				VF	VF		VF
present	Roan		HVF	100	HVF				1.1.1.1				a fairth	VF			HVF	VF		HVF
area	Hartebeest		v	VF	v					12.30			VF	VF			VF		1	VF
	Korrigum		v	VF	v													VF	1	VF
	Dorcas gazelle	VF	1			s Bin				N 12.51					HNVF					HNVF
	Red-front. gazelle	VF	v		V&F										HNVF			VF		HNVF
	Warthog	VFS	VF	VF	V&F						VF	VFNS	VFS	VF	VFS		-		1.1.1.1	VFNS
	Giraffe																219.00	VF		VF
	Buffalo	11	н	н	н	F		н	н	н	VF		н	н		н	н		н	HVF
Sampling r	nethods per site	G	HĠ	HG	Hđ	G	н	н	н	н	G	HG	HG	HG	HG	н	HG	G	н	HG
N° days gr	ound catching work	18	18	17	17	30					15	10	15	15	15	10	15	18		213
N° days gr	ound transit	4	4	4	4	4			1.5.361	1.1.1	5	4	4	2	4	4	4	4		51
N° days gr	ound operation		in the second		1	120		54 178		1.4.1					144			-		264
N° Hrs heli	copter catching work		10	4	10	128.6	5	10	8	10			3	3	8	10	5		5	91
N° Hrs heli	copter catching work				1	57		1. OK		1.1.2					34		1 Junior			91
Nº Hrs heli	copter transit		6	3	3		6	6	6	12			4	10	14	8	2	- Contraction	10	90
N° Hrs heli	copter operation		1	1		99	1-12-1	Sugar		1.1	Sec. 16	S. S. Sec.			82	1 Carlos				181
N° days he	licopter operation		1.1.1.1.1.1			19,8									16,4					36,2
Nº Hrs fix	wing survey work					71,3			40512			11039			42,5					113,8
Nº Hrs fix y	wing transit		1.11.01	See.	N. E.L.	99,0	2.201	S. 18.64		1		See. 2	and the	1	123,0	in the second	1000	1.181	-11.	222,0
Nº Hrs fix v	wing operation				and in the	170,3	a subsection	Con use		Sec. 1		alling	Sec. Sec.	S. Ale	165,5				N RALL	335,8

WEST & CENTRAL COMPONENT / SAMPLING PROGRAM: TENTATIVE TIMING REQUIREMENTS FOR SAMPLING

Code: G = working on the ground; V = darting from vehicle; F = darting on foot; H = darting from helicopter; S = shooting; N = netting from ground or helicopter

EAST AFRIC	CAN COMPONEN	T/SAMPLI	NG PR	OGRA	MITENT	ATIVE	SAMPL	ETIMINO	REQUIR	REMENT	S ESTIMA	TED	1997 28
	RP status	Areas	at high	risk of	an outbi	reak (ep	oidemic	area)					
	Risk (3 high)	3	3	1	1	1.5	3	1.5	3	3	1	1.5	
SITES	Country	KENYA		The last			n da si si si			La second			
	Position	Tsavo	Meru	Mara	Mars.	Laik.	Sib.	Garissa	Nairobi	Ambos.	Samburu	North	FREQ.
								Lamu		Kimana	Shaba	East	INDEX
	Lesser Kudu	20	5			5	3	5			5	5	43
	Bushbuck		2						2	12.00			4
	Eland		2						5	3			10
	Greater kudu					5			a de la contra de la				5
	Wildebeest								10	10			20
	Kongoni/Tiang						5		5				10
	Waterbuck	2	2										4
WILD	Oryx	2	de la serie				3					5	5
SPECIES	Gerenuk	2											2
SENSITIVE	Impala	2							5				7
TO	Hirola	10											10
INDERPES	Gazelle	5							5				10
	Warthog	5					the first		5	3	5	15	18
	Giraffe	5	5					5	5		5	10	25
	Buffalo	20	5	5	5	15		10	10	10	10		90
Total sample	s per site	73	21	5	5	25	11	20	52	26	25	35	298
Ground Catc	h (days)	15	4	3	2	3	1	0	20	7	2	4	61
Ground Tran	sit (days)	2	2	2	4	3		0	0	2	2	4	21
helicopter ca	tch (hrs)	21	7	0	0	9	4	10	0	0	10	7.5	68.5
Helicopter tra	insit (hrs)	7	4	0	0	4	3	8	0	2	3	7.5	38.5
Fixed wing 1.	35	13.8	0	0	16.3	8,75	22.5	0	2.5	16.25	25	140	

African Veterinary Wildlife Project - July 1997 Helihr.wq1

	RP Status	Epidemic a	Ireas										
	Risk (3 high)	1.5	3	1.5	1.5	1.5	1	3	1	1	1.5	3	
Sites	Country			Uganda					Ethiopla				Spls
	Position	Mburo	Kidepo	Karam	Murch	Aswa	Того	Omo	Senkell	Awash	Bale	Yang	per
_							Seml.	Mago					spec.
	Les&Gr. Kudu			2						3	5		10
	Bushbuck/impala	5		2									7
Species	Eland			3							5		8
	Kob/Nyala			3			5		5		5		18
	Oryx									2			2
	Roan/Sable			1									1
	Hartebeest			2					5	3			10
	Wart/Forest Hug			5					5	5		60	65
	Buffalo	5	10	2	10	5	5	20					57
Total No. s	amples per site	10	10	20	10	5	10	20	15	13	15	50	178
Ground Ca	tching (days)	7	3	0	0	0	0	0	5	4	Q	10	29
Ground Tra	ansit (days)	2	4	4	2	3	3	4	2	2	4	0	30
Helicopter	catching (hrs)	0	0	10	5	2.5	5	10	0	3.5	6	0	42
Helicopter	transit (hrs)	0	0	3	2	1	2.	2	0	2	8	0	20
Helicopter	days	0	0	3	1.5	1	1.5	3	0	1	3	0	14
Fixed Wing	1.25*heli total	0	0	16.25	8.75	4,375	8.75	15	0	4	20	0	77.1

African Veterinary Wildlife Project - July 1997 Helihr.wq2

EAST AF	RICAN COMPONEN	T/SAMP	LING	PROG	RAM:T	ENTAT	IVE SA	AMPLE	TIMING	REQU	JIREM	ENTS ES	TIMATE	D
	RP Status	Sites	in th	e areas	at risk	Lineag	e 2 Vi	ruses			1000			A STAR
	Risk (3 high)	1.5	3	3	3	1	1	1	3	1	1	1	3	
Sites	Country	Т	anza	nia										Samp.
	Position	Ser.	NC	Many.	Taran.	Ruaha	Miku	Ugalla	Mkom.	Moyo	Bihar	Uwand	Arush.	per
									Umba					spec.
	Les&Gr. Kudu					5			5			5		15
	Impala						1.1.1.1.1							
	Eland			100		e e e e e								
	Nyala				1.1.1.1.1.1	11.16								
	Warthog			to the state		1.1.1.1								0
	Buffalo	30	10	10	10	15	10	10	10	10	5	10	10	140
Total No.	samples per site	30	10	10	10	20	10	10	15	10	5	15	10	155
Ground c	atching (days)	5	2	2	2	0	3	0	0	0	0	0	3	17
Ground tr	ansit (days)	2	1	1	1	3	2	1	1	1	1	2	2	18
Helicopte	r catching (hrs)	5	0	3	2.5	10	2.5	5	5	5	2.5	5	0	45.5
Helicopte	r Transit (hrs)	2	0	0.5	1	3	3	2.5	1	1	1	1.5	0	16.5
Helicopter days		2	0	0.75	0.5	3	1	1.5	1	1	0.7	1.5	0	13
Fixed Win	ixed Wing 1.25*Hell (hrs)		0	6	5	20	7	12	7	9	5	10	0	89.8

African Veterinary Wildlife Project - July 1997 Helihr.wq3

LAST RINDERPEST OUTBREAKS

	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
Ethiopia					347													
Kenya										-		1.00				1		
Somalia							5											
Sudan		Sec.	1.1.1	1.00			1250			1								
Tanzania		Contraction of the	1.1	6		11	1.1.1.1					1						
Uganda				42			11.3											
Burkina Faso				94. T. L.				1.2.2										
Ghana	100 10	1.1				12.0	1.1.1.1							1.1				
Benin						1.1								12				
Nigeria							1.1			1.00								
Cameroon	1.1	1.1					1.50						1			1.1		
Cote d'Ivoire	12-19-5	1.1.1	1.00		Sec. 2.1	1.1				1.2								
Mali	1.5			1.5	1.0													
Togo	100				1													
Niger		1. 1. 1																
Chad	1.5.7																	
Centrafrique		1																
Senegal				1.55														

APPENDIX C : FEASIBILITY STUDY MISSIONS

1. Institutions visited and persons interviewed

EAST AFRICAN COMPONENT

INTERNATIONAL/REGIONAL

Office In ternational des Epizooties Food and Agricultural Organization - Representative East Africa - Norton International Union for the Conservation of Nature - Howard World Resources Institute -World Bank - Kiss OAU/IBAR/PARC - Director; Masiga, Haile-Mariam, Saunders, Rossiter, Thompson, Bessin, Honinen,... Inter Government Agency for Desertification and Development - Ghebray International Center for Insect Physiology and Ecology - Mihok International Livestock Research Institute - Perry World Wildlife Fund - D'huart Friends Of Conservation - Kinyanjui

KENYA

Kenya Wildlife Service - Director; Western, Training Manager; Amayo, Vet Unit; Wambua, Mwanzia, Wambwa, Kamau, Manyibe.

European Union - Delegate, Darrazo, Viallette

United States Overseas Assistance - United States Department of Agriculture - Cavanaugh, Do Querioz.

Japanese International Cooperation Agency - Kambe

Netherlands - Zack

Overseas Development Administration - Harvey

African Wildlife Foundation - Stanley-Price

World Wildlife Fund - Dublin

African Conservation Centre - Gachohi

Ministry of Livestock Development and Marketing - DVS - Deputy Director, CFVO, PARC coordinator Kenyan Agricultural Research Institute - Director Animal Health - Wafula University of Nairobi - Kabete - Chiromo - Ogara, Jumba

Private sector: laikipia; Chairman Forum; Powys, Heath, Craig, Dyer, Georgiadis, Hobbs, Bakkus, Wafula, Mayole, Makalah, Gallmann, Obanda, Carr-Hartley, Nchumo, Erickson (ASAL). Vet; Rottcher, Muchemi, Olubayo, Wells. Academic; Coughenour.

Етніоріа

European Union - Prankherd, Nippold.

National Authorizing Officer - not available

Ethiopian Wildlife Conservation Organisation - Director (General Manager), EU rep; Graham, Vet; Fekadhu

Ministry of Agriculture and Forestry - DVS - PARC - Van t' Klooster, Marriner, Coordinator;

International Livestock Research Institute/Cirad - Bonnet

Zoological Society of London - Zelealem Tefera

TANZANIA

Wildlife Department - Acting Director; Lyimo.

Tanzanian National Parks - Director; Melamari. Director Management; Bigurube.

Tanzanian Wildlife Research Institute - Director; Mlay.

Serengeti Research Institute - Director; Nkya, Hoffer, East.

Ngorongoro Conservation Authority - Director;

Tanzanian Wildlife Corporation - Orio

Ministry of Agriculture and Forestry -DVS - Director Melwas, PARC coordinator; Mtei, PARC Adviser; Van den Ende.

African Wildlife Foundation - Rep.

Ministry Of Health - Egwaga

Tanzanian Wildlife Conservation Monitoring Centre FZS - Borner, Cleaveland, Viljoen.

European Union - Sabbatucci

United States Overseas Assistance USAID - Ruybal

National Authorizing Officer - not available

UGANDA

Ministry of Tourism Wildlife and Antiquities - EU adviser; Else

Uganda Wildlife Administration - Director; Edroma, Director Park Management; Otokat, Human Resources Director; Ndawalu, Vet; Kalema, Director Planning; Mozini, Community; Nasasa

Ministry of Agriculture Animal Resources and Fisheries - DVS - Director Animal Resources; Bamusonighe, Deputy Director Animal Health; PARC coordinator; Rwaymushwa.

Makarere University - Vet Faculty - Dean; Riwakishaya, GTZ rep Dahlhelm.

United States Overseas Assistance USAID - Moore

Overseas development Administration - Brown

European Union - not available

National Authorizing Officer - not available

SOMALIA

European Union -Somalia Unit - Loher

WEST AND CENTRAL AFRICAN COMPONENT

MALI

Délégation de la Commission Européenne

Mr Hans-Peter Schadek	Conseiller Développement Rural, Délégation de la Commission Européenne au Mali
OUA-IBAR	
Dr Amadou Samba Sidibe	Coordonnateur Régional Afrique de l'Ouest et du Centre, PARC, OUA-IBAR
PARC-Mali	
Dr Karamoko Woguë	Coordinateur National du PARC-Mali
Mr Ibrahima Ba	Responsable vaccins et logistique, Projet PARC-Mali
Dr André Martin	Expert CIRAD-EMVT en mission pour l'évaluation du PARC-Mali
Mr Alfredo Benites	Expert BDPA en mission pour l'évaluation du PARC-Mali
Ministère du Développement Rur	al et de l'Environnement
Dr Mamadou Camara	Conseiller Technique, Ministère du Développement Rural et de l'Environnement
Mr Mory Coulibaly	Directeur National de l'Appui au Monde Rural
Dr Mamadou Kané	Chef de Division Prévention des Risques et Protection des Animaux et des Végétaux
Dr Demba Dia	Chef de Section de Surveillance et Protection des Animaux

Mr Salim Diarra	Chef de Section de Surveillance et Protection des Végétaux
Mr Namory Traoré	Chef de la Section de l'Aménagement et de la Gestion de la Faune Sauvage, DNAER
Dr Amadou Diallo	Directeur Régional de la DNAER à Mopti
Mr Mamadou Baga Samake	Chef du Service de Contrôle et de la Règlementation du Cercle de Douentza (Réserve des Eléphants)
Mr Hamid Ag Mohamed Lamine	Chef de Division du Contrôle de la Législation Forestière
Mr Amadou Maïga	Forestier, Chef de Division, DNAER
Dr Mamadou Kambene Keita	Chef de Division du Parc Biologique de Bamako, Vétérinaire du jardin zoologique de Bamako, DNAER
Mr Mamoune Doumbia	Chef de Section Zoo, jardin zoologique de Bamako
Laboratoire Central Vétérinaire	de Sotuba
Dr Oumar Diall	Directeur du Laboratoire Central Vétérinaire de Sotuba
Dr Cheick Simbé	Directeur adjoint du LCV
Dr Karim Tounkara	Chef de la Section Microbiologie Médicale, LCV
Dr Boubacar Kouyaté	Chef de la Division Diagnostic et Recherche, LCV
Santé humaine	
Dr Philippe Dembele	Chef de la Division de l'Epidémiologie, Direction Nationale de la Santé Publique
Dr Adama Berthé	Division de l'Epidémiologie
Dr Issa Degoga	Responsable du Programme d'éradication du vers de Guinée (draconculose)
Secteur privé	
Dr Habib Coulibaly	Vétérinaire représentant de l'Ordre des Vétérinaires auprès de la Cellule technique d'appui à la privatisation
Mr Hamadoun Sow	Agrostologue, CRZ Sotuba & Agefore
UICN	
Mr Adama Daou	Conseiller technique de l'UICN-Mali
Coopération française	
Dr Pierre Richez	Chef de la Mission Française de Coopération à Bamako
Dr Philippe Shedan	Vétérinaire coopérant, Camopa
Dr Vincent Pfister	Vétérinaire coopérant, DNEAR
CIRAD	
Mr Yves Nouvellet	Ingénieur forestier, CIRAD-Forêt, Représentant du CIRAD au Mali

BURKINA FASO

Délégation de la Commission Européenne

Mr Andrea Pozza Conseiller à la Délégation de la Commission Européenne au Burkina Faso Autorités nationales Dr Marcel Nagalo Directeur des Service Vétérinaires, Ministère des Ressources Animales Dr Hamidou Tiam Directeur de la Santé Animale Dr Michel Ouedraogo Directeur de la Production et des Industries Animales Dr Bernard Doulkom Responsable du Service Santé Publique Vétérinaire Dr Mamadu Sidibé Directeur du Laboratoire National de l'Elevage Mr Issa Zampaligré Directeur de la Faune et des Chasses Mr Lassana Traoré Coordonnateur national du projet GEPRENAF, Banfora CIRDES Dr Touré Directeur du CIRDES (rencontré à l'OIE à Paris) Dr Burkhard Bauer Directeur adjoint du CIRDES, responsable de l'Unité Lutte Antivectorielle Vétérinaire helminthologiste Dr Ouattara Lassina Dr Issa Sidibé Responsable de l'Unité Epidémiologie et Biotechnologies Dr Patrice Grimaud Vétérinaire nutritionniste, responsable de l'Unité Santé/Environnement. Dr Frédéric Stachurski Vétérinaire spéialiste des tiques et maladies transmises Dr Stéphane de Laroque Vétérinaire, Santé/environnement Chercheur en génétique des trypanosomes Mr Solano Philippe Mr Jean-François Michel Chercheur en recensement du bétail Mr Idrissa Kaboré Responsable de l'élevage des glossines Mr Jean-Baptiste Rayaisse Chercheur en odeurs attractives pour les glossines Secteur privé Mr Urbain Belemsongo Expert biodiversité, GEPRENAF, Banfora Dr Aristide Bambara Vétérinaire privé, consultant, Sophavet Directeur de Yeryanga Safari, Guide de Chasse professionnel Mr Nicolas de Lesguern Mr Charles Gasset Guide de Chasse professionnel UICN Mr Ousmane Ouedraogo Chargé de Programme, Bureau national de l'UICN au Burkina Faso

ТСНАД

Delegation de la Commission El	iropeenne
Mr Dirk Pottier	Conseiller Développement Rural et Agriculture
Mr Jean-Luc Temporal	Conseiller du Conservateur du Parc National de Zakouma
Ministère de l'Elevage	
Dr Djoudi Ouzane	Directeur Général adjoint
Dr Jacques Charray	Conseiller du Ministre
DERA	
Dr Patchili Bouzabo	Directeur de la Santé Animale (DSA)
Mr Djoubdourna Madibo	Chef de la Division Statistiques
Direction de l'Enseignement, de	la Formation et de la Recherche Vétérinaire et Zootechnique
Mr Olivier Pruneaux	Conseiller du Directeur de la DEFRVZ
PARC-Tchad	
Dr Goudja Adoum	ex-Directeur du PARC-Tchad, Ministre de l'Enseignement supérieur et de la Recherche
Dr Florence Morin	Coordonateur national
Dr Alessandra Casu	Conseiller à la privatisation vétérinaire
Mr Radjab Moussa	Chef comptabe du PARC
Laboratoire de Recherches Vété	rinaires et Zootechniques de Farcha
Dr Idriss Alfarouk	Directeur
Dr Bidjeh Kebkiba	Chef de Division Santé Animale et Chef du Service Virologie
Dr Vounparet Zeuh	Chef de Division Productions Animales et Génétique des Populations
Dr François Colas	Chargé de Mission auprès du Directeur
Dr Maho Angaya	Chef du Service Bactériologie
Ministère de l'Environnement et	de l'Eau
Mr Bemadjim Ngakoutou Etie	enne Chef de Division Biodiversité, Direction des Parcs et Réserves de Faune
Mr Chey-Soeun	Conseiller Technique du Ministre
Coordination du Plan	
Mr Abdel Wahab Cherif	Coordinateur du Plan
Coopération française	
Mr Nicolas Fornage	Conseiller Agriculture et Environnement à la Mission de Coopération et d'Action Culturelle

Délégation de la Commission Européenne

Dr Thierry de Ruytter	Chef de Projet ASETO, Abéché	
Dr Jérôme Gauthier	Projet PRASAC, CIRAD-EMVT	
Mr Marc Lutz	CSN au Parc National de Manda	
Organisation Mondiale de la Santé		
Dr Allarangar Yokouide	Conseiller, N'djaména	
Secteur privé		
Dr Djembete Le Soromian	Vétérinaire privé à Bousso, Chari-Baguirmi	
Dr Mahamat Tahir	Vétérinaire privé à Haraze, Salamat	
Dr Mamadou Jim-Madjim	Vétérinaire privé directeur d'une boucherie-atelier de transformation de viande	
Mr Marc Daoudi	Pilote d'avion pour les comptages aériens de faune, René Mary Aviation	
Mr René Mary	Directeur de René Mary Aviation	
Mr Christian Cabibel	Amodiataire de zone de chasse, Aoukalé	
Mr Bernard Marotteaux	Amodiataire de zone de chasse, Aoukalé	
Mr Coutin	Amodiataire de zone de chasse, Douguia & Aouk	

CENTRAFRIQUE

Mr Gustave Doungoubé

Directeur Général de l'Environnement (rencontré à N'djaména)

KENYA

European Commission Delegation in Nairobi

Dr Philippe Vialatte	Conseiller
OUA-IBAR HQ Nairobi	
Dr Walter Masiga	Director (met at OIE in Paris)
Dr Solomon Hailé Mariam	Deputy Director
Dr René Bessin	Adviser
Dr Mukhebi	Economist
Dr Honinen	PARC Coordinator
Dr Jimmy Thompson	PARC Kenyan program
Dr Paul Rossiter	PARC epidemiologist
Dr Malcolm Saunders	PARC Adviser
Mr Peter Dhuys	PARC Communication officer

Kenya Wildlife Service John Wambua Dr Richard Kock

ILRI Dr Edith Authié Dr Georges Tacher Private sector Dr Fumi Wells Ian Craig Phil Mathews Chief Veterinary Officer Zoological Society of London, senior veterinary adviser, Kenya Wildlife Service

Researcher Administrator (met at OIE in Paris)

Wildlife & cattle rancher, Veterinarian specialized in wildlife Wildlife & cattle rancher, Lewa Downs Wildlife Conservancy Helicopter pilot specialized in wildlife capture

INTERNATIONAL/REGIONAL

PANVAC-Ethiopie

Dr Seck

Directeur du PANVAC

CIRAD-EMVT HQ (France)

Dr Joseph Domenech	Directeur, ex-conseiller OUA-IBAR
Dr André Martin	Directeur adjoint, évaluateur du PARC-Mal
Dr Jean-Jancques Tulasne	Chef du Programme PATHOTROP
Dr Adama Diallo	Chef du Projet Virologie
Dr Dominique Cuisance	Chef du Projet Santé & Environnement
Dr Gérard Duvallet	Chef du Service Enseignement-Formation

OIE (OFFICE INTERNATIONAL DES EPIZOOTIES) Paris HQ

Dr Reichard Robert	Chef du Service scientifique et technique
Dr Pierre-Chares Lefèvre	Chargé de mission

WHO (WORLD HEALTH ORGANISATION)

Dr F.-X. Mueslin

Chef de la Santé Publique Vétérinaire (met in Paris)

EUROPEAN UNION DGVIII HQ (Brussels)

Mr Enrico Pironio

2. Schedule of activities

WEST & CENTRAL AFRICAN COMPONENT

22.05.97	Bruxelles : Briefing à l'UE-DGVIII avec Mr. Enrico Pironio, en présence de Mme. Alexandra Dixon (Zoological Society of London) et Dr André Martin (Directeur adjoint du CIRAD-EMVT)
- 김 김 유민이는 것이 같이 많이 많이 많이 많이 했다.	
26.05.97	Paris : participation à la Session Annuelle du Comité
27.05.97	international de l'Office International des Epizooties
• • • • • • • • • • • • • •	
04.06.97	Montpellier-Bamako
05.06.97	RV Délégation de l'Union Européenne
	RV Coordinateur régional OUA-IBAR
à	RV Délégué national du PARC
	RV Autorités maliennes de l'élevage, de la santé, de 11.06.97 l'environnement, etc.
07.06.97	Bamako-Mopti
07.06.97	Visite nocturne de la Réserve des éléphants dans le Gourma
08.06.97	Mopti-Bamako
10.06.97	Réunion de restitution de l'audit du PARC-Mali
11.06.97	Bamako-Ouagadougou
11.06.97	RV Délégation de l'Union Européenne
12.06.97	RV Délégué national du PARC
"	RV Autorités burkinabe de l'élevage, de la santé, de
	l'environnement, etc.
13.06.97	Ouagadougou-Bobo Dioulasso

13.06.97	RV CIRDES
13.06.97	Bobo Dioulasso-Banfora-Bobo Dioulasso: projet GEPRENAF
14.06.97	Bobo Dioulasso-Bamako-N'djamena
15.06.97	RV Délégation de l'Union Européenne
	RV Délégué national du PARC
à	RV Autorités tchadiennes de l'élevage, de la santé, de l'environnement, du plan, etc.
21.06.97	N'djamena-Melfi-Sahr-N'djamena : survol de reconnaissance
21.06.97	N'djamena-Montpellier
24.06.97	Montpellier: réunion de travail au siège du CIRAD-EMVT
27.06.97	Montpellier-Nairobi
28.07.97	RV Dr P. Vialatte
29.07.97	
au	Travaux avec le Dr R. Kock/ZSL
06.07.97	
03.07.97	Réunion de présentation du préprojet au siège de l'OUA-IBAR
06.07.97	Nairobi- Montpellier
- 1994	
07.07.97	Montpellier : rédaction du rapport de présentation
à	
31.07.97	

3. TOR

African Veterinary Wildlife Resource Project: Preparation Mission for a European Union Funding Proposal Introduction

Background

The global objective of Community aid in the African Region is to promote regional integration and cooperation, particularly through efforts leading to the solution of common problems. One principle identified, is to promote sustainable socio-economic development, with particular emphasis on human resource development, gender issues, the fight against poverty and environmental protection.

East, West and Central Africa have benefited from European Union funding through Regional and National indicative Programmes under EDF 6-7. Environment, natural resource conservation and agriculture (with a focus on livestock and their diseases) were major areas of activity. Under EDF 8 there is a move to promote regional integration and cooperation. A major portion of this aid is to be directed towards conservation of natural resources. The proposed project will satisfy these criteria and could make a major contribution to sustainable development in the region.

The need is now acute for an East and West (inc. Central) African Wildlife Veterinary Resource Project concentrating on wildlife health, and its impact on (i) the livestock industry in particular and rural development in general; (ii) the conservation and potential utilisation of the wildlife resource itself.

Experience shows that wildlife health has not been
addressed sufficiently (or even at all in many instances) to achieve complete and proper livestock disease control programmes such as **rinderpest in cattle** or **african swine fever in pig**. The wildlife component is now recognized as crucial to the understanding of the epidemiology of livestock diseases. By adopting a more holistic approach (the health of the entire ecosystem inc. humans), rather than a more restricted livestock-oriented methodology, significant advances can be expected.

The same comment may apply to zoonoses with particular and recent emphasis on Ebola which is closely linked with wildlife.

Furthermore, the status of the natural resources of Africa is fragile and declining however the full potential of the wildlife resource has yet to be realised. In Southern Africa, it has been conclusively shown in theory and in practice that the conservation **and utilisation** of wildlife makes economic sense.

A detailed needs assessment and project proposal is required with a logical framework and financial projections.

The specific objectives of the mission are to:

- A. Produce the main justification and rationale behind the project, including how the activities support the goals of OAU-IBAR.
- B. Identify status, role and function of 2 permanent coordinators in relation to national, regional and international institutions, legislations and regulations in this field in order to establish the project's competence.
- C. Assess the validity and feasibility of the suggested location of regional offices in Nairobi and Bamako, and make proposals.
- D. Indicate the general wildlife veterinary needs relating to public health, animal diseases, livestock economy, conservation of natural resources and

Objectives of the Mission

utilisation. Special emphasis will be focused on two particular issues: (i) rinderpest, (ii) capacity building.

- E. Demonstrate the potential role of wildlife veterinarians in land use planning and evaluation of major disease control methodology for e.g. Trypanosomiasis (e.g. tsetse control programmes), Foot and Mouth Disease (e.g. wildlife/cattle fences), etc.
- F. Select areas of focus in terms of regions, topics, problems, species etc. and methods for the project (and specific microprojects).
- G. Detailed analyses should be made of an initial two year project (phase I) and more general recommendations for the continuation (phase II).
- H. Identify existing capacity if any and programmes already under development or ongoing to avoid duplication and ensure consolidation.
- I. Suggest personnel and training requirements.

Specific Terms of Reference

The final report should include:

1. Summary

The summary will be presented in a logical framework covering all aspects of the programme.

2. Background

The main features of the wildlife sub-sector in which the project will operate will need to be summarised and key components identified. The past, present and future activities of Government and Non-Governmental organisations in related fields should

Issues

be highlighted. The problems and innovations under the project should be analysed in relation to the overall goal, purpose and expected results.

3. Objectives and results

What the project wants to accomplish and the scale, location, time frame and beneficiaries of the project will be specified. The expected results should achieve the purpose and contribute to the overall goal of the programme.

4. Implementation

The methods and activities proposed should be listed and the logic for them explained. Inputs must be defined in terms of infrastructure, equipment, running costs, staff, services and contingencies. Different alternatives should be examined and justification for the final choice provided. Recommended procedures, timetable, cost estimates and a finance plan should be suggested.

5. Sustainability

Factors which will affect the long term programme prospects need to be identified such as the prevailing policy environment, financial and socio-economic conditions. Assumptions and risks must be highlighted. Inherent flexibility in the programme to cope with unforeseen circumstances should be shown and their financial implications delineated.

6. Monitoring and evaluation

Procedures required to evaluate the project should be recommended after discussion with the donors and regional authorities. Budgets for this must be incorporated in the overall financial projections.

7. Conclusion and proposals

Based on the analyses in items 2 - 6 above, a detailed proposal will be made with financial projections for phase I. In addition more general recommandations will be made for phase II.

Plan of Work

A practical way of functioning will be proposed for the project. The two components will have to work together closely, even though large differences are obvious between the wildlife priorities and infrastructural systems of the regions.

Component A : EAST AFRICA.

Tasks to be carried out:

1. After a briefing at EU in Brussels, select key countries by using a matrix approach.

2. Visit the key countries (+ Kenya for liaison with EU AND the OAU/IBAR-HQ). Begin with the presentation of the project to at least the appropriate national authorities, the EU Delegate, the contact person for OAU/IBAR. A representative of the wildlife veterinary community in each country will act as a counterpart.

3. **Review briefly** the historical situation regarding wildlife health, utilization, conservation and present (or proposed) wildlife policy in each key country. Examine briefly the present economics of both wildlife and agriculture with reference to the socio-cultural and wild animal demographic trends in addition to the status and importance of disease.

4. Discuss with relevant interest groups in the private and public sector in the East African region on:
* the areas of greatest need for wildlife veterinary expertise with particular focus on epidemic diseases including zoonoses, sustainable utilisation of the resource and species conservation. Identify a few

potential micro or pilot projects to service the needs.

5. Consult with interest groups on:

* the present institutional and legal constraints in this field,

* the capacity and training needs for national veterinarians in private or public service in wildlife veterinary medicine and techniques,

* the itineraries to liaise with relevant Southern African expertise (SADCC, RTTCP, etc.),

* the appropriatness of a high level regional meeting with regards to these issues.

Jointly with the West African component:

6. Develop logical framework analyses for the project.

7. Prepare the full project and financing proposal documents for submission. Discuss with relevant regional and local authorities prior to submission to EU.

Tentative resource centres:

* International at regional level: World Health Organisation (WHO), Office International des Epizooties (OIE), World Conservation Union (IUCN), United Nations Environment Programme (UNEP), Food and Agriculture Organisation (FAO),
World Resources Institute (WRI), World Bank, Inter African Bureau for Animal Resources (IBAR - OAU -PARC), Inter Government Authority on Development (IGAD), International Livestock Research Institute(ILRI), International Centre Insect Physiology and Ecology (ICIPE).

*Ethiopia; National Authorising Officer and Representative of the European Union. Ethiopian Wildlife Conservation Organisation (EWCO), Ministry of Agriculture (MAF), Veterinary School of Debra Zeit, University of Addis Ababa, NGO's. Resource persons; Zelealem, Shiferaw, Husein, etc.

* Kenya: Regional and National Authorising Officer and Representative of the European Union. Kenya Wildlife Service (KWS), Department of Remote Sensing Resource Surveys (DRSRS), Ministry of Livestock, Development and Marketing (MLD&M), Department of Veterinary Services, Kenya Agricultural Research Institute (KARI), Kenya Trypanosome Research Institute (KARI), Kenya Trypanosome Research Institute (KETRI), University of Nairobi Veterinary School (Kabete, Chiromo), Wildlife Forums (Private Sector), Non-Governmental Organisations (NGO's). Resource persons: Cavanaugh, Sayer, Rossiter, Rottcher, Perry, Grootenhuis, Muchemi, Olubayo, Somerlatte, Craig, Haile Mariam, Thompson, Bengat, Mugenyo, Wafula, etc).

* Tanzania: National Authorising Officer and Representative of the European Union. Wildlife Department, Tanzanian National Parks (TANAPA), Ministry of Agriculture - Department of Veterinary Services, Sokoini University - Veterinary School, NGO's. Resource persons: Majuva, Mlengeya, Van den Ende, Cleaveland, etc.

* Uganda: National Authorising Officer and Representative of the European Union. Ministry of Tourism, Wildlife and Antiquities (MTWA), Uganda Wildlife Authority (UWA), Wildlife Department (WD), Uganda Institute of Ecology (UIE), Ministry of Agriculture, Animal Resources and Fisheries (MAAFI), Makarere University. NGO'S; Resource persons; Kalema, Rwamushwa, Siefert, etc.

* Other countries: Burundi, Eritrea, Rwanda, Somalia, Sudan; appropriate government, wildlife and veterinary institutions or other bodies taking responsibility for these issues in the countries.

Component B : WEST CENTRAL AFRICA.

Tasks to be carried out:

1. After a briefing at EU in Brussels, select key countries by using a matrix approach.

2. Visit the key countries (+ Kenya for liaison and for co-writing the final report with the East Africa counterpart). Begin with the presentation of the project to at least the appropriate national authorities, the EU Delegate and the contact person for OAU/IBAR. In each country, a national veterinarian will act as a counterpart.

3. **Review briefly** what has been done and what is currently done in the field of wildlife health, utilization and conservation in the key countries. This will be more a synthesis than a detailed description. The purpose is to highlight the points of interest and the constraints which are worth working on during the project.

4. **Identify with** appropriate interest groups, both public and private, the greatest needs for wildlife veterinary expertise related to livestock/wildlife diseases with particular emphasis on rinderpest in phase I.

5. Explore other possible issues to be adressed in a phase II:

* public health:

- zoonoses like rabies, tuberculosis, trypanosomiasis, anthrax, trichinosis, Ebola, etc,

- sanitary aspects of the game meat industry.

* biodiversity conservation aspects: threats in situ, active management activities.

* wildlife utilisation aspects: sanitary issues of the (often *informal* sector of) bushmeat industry, technology transfer for improvement of sustainability, productivity and quality.

* support to research and training in this field.

6. Examine the feasibility of the following activities with reference to stakeholders:

*<u>establishment of a network</u> of national wildlife veterinarians and technicians throughout the region in order to collect prime field information on wildlife health,

* creation of a simple, practical and rapid <u>wildlife</u> epidemio-surveillance system using sentinel wild animal herds, even sentinel protected areas,

* well identified <u>microprojects</u> would be the core activity of the project; the selection of the microprojects would be done through a matrix method, bearing in mind the priority given to the rinderpest issue.

* support to and promotion of sustainable <u>wild animal</u> productions for contribution of wildlife to (i) the food security (ii) the local & regional economies (iii) biodiversity conservation,

* <u>capacity building</u> in the key countries, with particular emphasis on national wildlife veterinarians who are so far very few in this part of the continent,

* helping to solve institutional and legal <u>constraints</u> in this field,

* support to research bodies in this field,

* <u>liaising with</u> relevant Southern Africa expertise (SADCC, RTTCP, etc.),

* organisation of a high level regional meeting with

regards to these issues.

Jointly with the East African component:

7. Develop **logical framework analyses** for the project.

8. Prepare the full project and financing proposal documents for submission. Discuss with relevant regional and local authorities prior to submission to EU.

Tentative resource centres:

* International: WHO, OIE, IUCN, FAO, IBAR - PARC, Veterinary Group/SSC/IUCN.

* Regional: Veterinary School of Dakar, Wildlife School of Garoua, IUCN Bureau for West Africa, regional vet. lab. LANAVET-Garoua, CIRDES Bobo-Dioulasso.

* In some selected countries:

Ministries in charge of wildlife/environment, livestock/agriculture and public health, veterinary laboratories (LNERV-Dakar-Hann, LCPA-Bingerville, LNV-Farcha), relevant NGO's and private enterprises, donor agencies, ORSTOM-Dakar, PEPG-Libreville, etc.

A minimum of 2 experts are required, one for each region; East and West Africa.

A Bachelors or Masters degree with a wildlife component. A veterinary degree (DVM, BVM or equivalent) from an internationally recognised institution. At least 10 years full time work experience in wildlife veterinary activities, with both managed and free ranging wildlife. Experience in and good working knowledge of regional issues and wildlife veterinary priorities in either East or West Africa. Extensive hands-on experience with wildlife

Expertise required and Consultant criteria

health problems, disease investigation, interventive management; capture, translocation, introductions and wildlife utilisation. Training, administrative and management experience, preferably in a wildlife context.

Report preparation

The report (5 copies) to be in the English language, and submitted to the Regional Authorising Officer for approval prior to submission to EU.

Time frame

A minimum of 30 working days for each component.

Report to be submitted to OAU/IBAR within 3 months from confirmation of funding.

end

