

Pan African Animal Health Yearbook



2007



**African Union
Inter-African Bureau for Animal Resources**

Pan African Animal Health Yearbook 2007



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MESSAGE FROM THE COMMISSIONER FOR RURAL ECONOMY AND AGRICULTURE: AFRICAN UNION COMMISSION

Africa has an estimated livestock population of 224 and 447 million cattle and goats respectively, with about 34 million equines and camels. With an annual production of US\$ 13.3 and \$ 5.3 billion worth of beef and milk, respectively, livestock provides 36% of Africa's Agricultural Gross Domestic Product. The sub-sector thus forms a major part of African agricultural production and consumption system playing an important role in food and economic security through provision of a variety of products and services including hides and skins, meat, draught power, manure, fiber, fertilizer, traction, fuel and capital accumulation that can be traded. Sales from livestock products generate income and, thus, increase the purchasing power of livestock owners. Moreover, livestock and livestock products are the main 'cash crop' in many smallholder mixed farming systems of the Sub-Saharan Africa (SSA).



H.E. Mrs. Tumusiime Rhoda Peace

My Office highly appreciates the efforts being undertaken by the Inter-African Bureau for Animal Resources (AU-IBAR) in collating animal resources data, and sharing the information thereof with various stakeholders, including principally Member States. In this era of globalization, to be able to support access of animals and their products to national, regional and international markets, our national veterinary services need to improve their ability to collect and rapidly disseminate national data on animal health. Furthermore, the information generated is the basis for good policy formulation for future programs and projects.

The Animal Health Yearbook will continue to be a very important resource material and we appreciate the quality and consistency of its production since its revitalization in 2002. I applaud all Member States for their contribution without which, this publication would not materialize. In the same breath, I urge for the full engagement of all Member States in this endeavor to ensure the annual publications are a true reflection of the zoo-sanitary status for the period under review. Likewise, this publication should be effectively used as a tool to enhance animal health services.

H.E. Mrs. Tumusiime Rhoda Peace

Commissioner for Rural Economy and Agriculture

AU/IBAR, as a specialized technical office of the African Union (AU) under the Department of Rural Economy and Agriculture (DREA), deals with all aspects of livestock development in Africa. Consolidation of information generation and knowledge management in the area of animal resources remains one of its core functions.

The Pan African animal Health Year book is an important output in line with AU/IBAR's mandate. Monthly and timely reporting to AU/IBAR therefore enables IBAR to generate timely and quality information for planning and decision-making for the benefit of all and especially member countries.

On the other hand, under-reporting of diseases is not useful for the compilation of the Pan African Animal Health Yearbook for it leads to gross under-representation of the zoo sanitary status for the continent. Moreover, late reports are not at all useful for risk management of diseases. Disease information especially of the epidemic type is only useful if it is communicated early enough.

The year 2007 saw a slight increase in the number of countries reporting, with 37 countries out of 53 member countries forwarding their reports to AU/IBAR, as compared to the previous year in which only 35 countries reported. The year also witnessed a major shift from paper based monthly reporting to electronic format submission, with all reporting countries doing so electronically. The presence of a wide range of animal diseases in Africa continued to constraint the development of the livestock sector. Emerging and Trans-Boundary Animal Diseases reported in the course of the year included: Highly pathogenic Avian Influenza (HPAI), Rift Valley Fever (RVF), Peste des Petits Ruminants (PPR), Foot and Mouth Disease (FMD) and Contagious Bovine PleuroPneumonia (CBPP).

As I appreciate all member countries that have been consistent in sharing their disease status with AU/IBAR as well as with the rest of international organizations such as the OIE, I would like to urge member countries not doing so to commit themselves to this noble exercise.



Ahmed Elsawalhy

Professor Ahmed Elsawalhy

Ag. Director, AU-IBAR.

Map 1: 53 Member Countries.



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1. ABBREVIATION AND ACRONYMS

AU/IBAR	African Union/Inter African Bureau on Animal Resources
AI	Avian Influenza
INAP	Integrated National action Plans
AHS	African Horse Sickness
AHSD	Animal Health Service Delivery Systems
ALIVE	African Livestock
ASALs	Arid and Semi-Arid Lands
ASF	African swine fever
BSE	Bovine Spongiform Encephalopathy
CAHWs	Community Animal Health Workers
CAR	Central Africa Republic
CBPP	Contagious Bovine PleuroPneumonia
CCPP	Contagious Caprine Pleuropneumonia
EZD	Emerging Zoonotic Diseases
EPPs/CPs	Emergency Preparedness Plans/Contingency Plans
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
GIS	Geographic Information Systems
GREP	Global Rinderpest Eradication Programme
HPAI	Highly Pathogenic Avian Influenza
IBR	Infectious Bovine Rhinotracheitis
INAP	Integrated National Action Plans
LSD	Lumpy Skin Disease
MCF	Malignant Catarrhal Fever
ND	Newcastle Disease
OIE	World Organization of Animal Health
PACE	Pan Africa Control of Epizootics
PARC	Pan Africa Rinderpest Campaigns
PDS	Participatory Disease Search
PPR	Peste Des petits Ruminants
RP	RinderPest
RVF	Rift Valley Fever
SES	Somali Ecosystem
SERECU	SomaliEcosystem Rinderpest Eradication Coordination Unit
SMR	Small Ruminants
WHO	World Health Organization

1. INTRODUCTION

Besides the roles of Livestock revolving around food security and source of income, at the household level, livestock has socio-cultural roles such as payment of dowry and source of prestige where owning livestock is an important status symbol. In addition, livestock also support livelihoods of traders along the value chain and herdsman. The potential for animal production is extremely high and varied in its composition of species and if properly developed, the animal production contributes significantly to the improvement of the nutritional status of the population. Hence, the constraints and incentives to the industry impact of these roles both at the national and household level cannot be over emphasized.

However, the presence of a wide range of animal diseases in Africa continues to constraint the development of the livestock sector. Trans-boundary Animal Diseases such as HPAI, RVE, PPR, FMD and CBPP are major constraints to profitable livestock operations as a result of the following: they cause catastrophic production losses; they impact negatively on food security; they disrupt trade in animals and animal products in the increasingly globalizing world; the presence of Trans boundary Animal Diseases (TADs) represents a major constraint in complying with SPS standards of the WTO which are implemented by the OIE. Under the SPS agreement, importing countries can employ science based sanitary measures to the extent necessary to protect human and animal life and health.

In the effort to monitor animal disease situation in African member states, the Pan African Animal Health Yearbook was born. This is a joint effort of member states and AU/IBAR.

The main objectives of the yearbook is to collect and analyze disease situation data from member countries and describe the status of animal diseases as clearly as possible to necessitate appropriate disease control and prevention measures to be undertaken. Interventions made towards preventing and controlling diseases at both global, continental and country levels are also described and lessons learnt analyzed and shared.

Quality, efficient and timely collection of epidemiological data and timely reporting of the same to the relevant authorities, and information sharing which forms a strong basis for epidemiological networks is emphasized to member states during technical workshops organized by AU/IBAR or its partners.

2. PROGRESS OF DISEASE REPORTING

In the year 2000, only 10 out of 53 (8.01%) African member states reported diseases to AU/IBAR. This called for lobbying for disease reports through awareness creation in member countries in the subsequent years, through presentation in workshops and conferences. The importance of reporting transparently, accountability and fulfillment of international obligations related to disease reporting was emphasized.

As a result, disease reporting rate improved significantly and by the end of the year 2004, the disease reporting rate of 8.01% (10/53 countries reporting) increased to 67.9% (40/53 countries reporting). However, this has been followed by a declining trend in the subsequent two years, with reporting declining to 56% (37/53 countries reporting) in the year 2005, and 52% (35/53 countries reporting) in the year 2006.

The year 2007 saw a slight increase in the trend with 56% (37 countries reporting). A major shift from paper based monthly reporting to electronic format submission was also witnessed and in the year, all reports submitted to IBAR were electronic. Within the same year, there was a decline in the number of countries reporting per month, with 37 (100%) of countries reporting in January to 28 (75%) countries reporting by the end of December. Chart 1 shows monthly disease reporting to IBAR in 2007, and table 1 the progress of monthly disease reporting to AU/IBAR (2002-2007).

Chart 1: Progress of monthly disease reporting to AU/IBAR in 2000 - 2007.

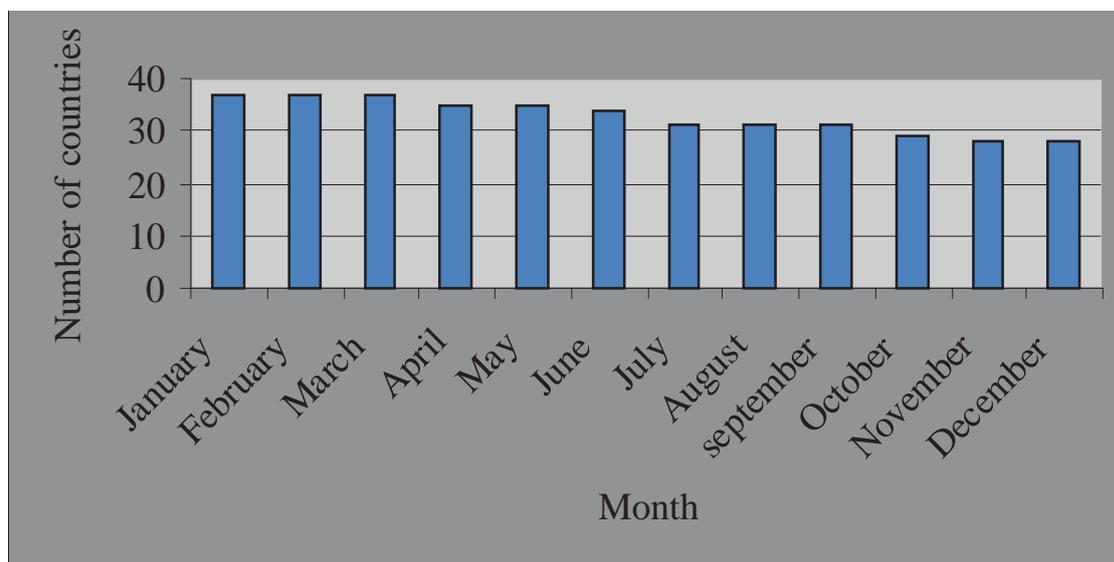


Table 1 Shows the progress of monthly disease reporting to AU/IBAR (2000-2007).

Year	Reporting rate (%)	No. of countries	Proportion of electronic reports (%)
2000	8	10	0
2001	12	11	9
2002	55	37	52
2003	66	40	83
2004	66	40	89
2005	55	37	65
2006	52	35	70
2007	55	37	100

In the course of the year, out of 53 member states, only 37 submitted disease reports to AU/IBAR with a reporting rate of 55%. A total of 11,917 disease outbreaks were recorded involving different domestic animals, wild animals and humans. Of the 11,917 disease outbreaks reported in 2007, the bovine species had the highest with 6312 (52.9%), followed by small ruminants with 2584 (21.6%). In total, the domestic ruminants accounted for 8896 (74.5%) of all outbreaks in 2007. Avian species accounted for 1701 (14.2%), Equines for 615 (5.1%), dogs and cats for 546 (4.5%), Wildlife for 80 (0.67%), Porcines for 49 (0.41%), humans for 26 (0.21%), and camels for 4 (0.033%) of the total disease outbreaks. Eighteen species of wildlife were affected including: Kudus, bushbuck, grey Suricate, Cape fox, wild cat, Mongoos, African buffalo, Lion, Eland, Aardwol, Eared, Fau (Fauve), Impala, cab, spotted Hyena, Ostrich, and Burchelis/Zebra.

Table 2 shows rates of infection in which different species of animals were involved in 2007 in Africa.

Table 2: Outbreaks rates of infection in which different species of animals were involved in 2007 in Africa.

Number	Species	Number of outbreaks	Rate of infection (%)
1.	Bovine	6312	52.9
2.	SMR (Ovi & Cap)	2584	21.6
3.	Avian	1701	14.2
4	Equine	615	5.1
5.	Canine &Feline	546	4.5
6.	Wildlife	80	0.67
7.	Porcine	49	0.41
8.	Human	26	0.21
9	Camel	4	0.033
TOTAL		11,917	100

Key: SMR = Small ruminants

3. GENERAL DISEASE SITUATION

Animal diseases and veterinary public-health (VPH) problems constitute a major constraint to livestock production and safe utilization of animal products worldwide (FAO, 2008). Moreover, the globalization of trade and the reduction in transportation times have created new possibilities of disease spread that must be taken into consideration in the epidemiology of TADS.

3.1 DETAILED DISEASE SITUATION IN 2006 BY REPORTING COUNTRIES

Table 3: Detailed disease situation in 2007 by reporting countries

NO.	Disease	Number countries of reporting	Outbreaks	Cases
1.	HPAI	5	Not established	Not established
2.	RVF	2	Not established	Not established
3.	LSD	20	6482	51551
4.	Rabies	19	2375	4473*
5.	BlackQuarter	16	1455	8263
6.	Sheep & Goat Pox	5	900	1803
7.	Trypanosomosis	12	861	5619
8.	Anaplasmosis	14	848	4973
9.	Brucellosis	12	679	5612
10.	Anthrax	16	630	5555
11.	Heart Water	13	628	2177
12.	Babesiosis	13	476	5949
13.	ND	19	415	368112
14.	FMD	14	296	24929
15.	AHS	5	286	2235
16.	ECF	10	276	3630
17.	CBPP	13	247	5517
18.	PPR	11	241	16917
19.	Bovine Tuberculosis	11	125	2389
20.	ASF	11	81	105003
21.	CCPP	5	68	10650
22.	Cystercosis	2	54	150
23.	Mange	5	50	454
24.	Infectious Bursa Disease	5	31	27357
25.	Dermatophillosis	6	20	874
26.	Pasteurellosis	4	20	1752
27.	Botulism	2	8	44
28.	MCF	5	5	539
TOTAL			29,756	666,527

* indicates number of bite

Various diseases of economic importance are discussed below.

3.2 EMERGING AND RE-EMERGING TRANS-BORDER DISEASES

The emerging and re-emerging diseases in the course of the year, that will be discussed in this chapter include:

- I. Highly pathogenic avian influenza (HPAI)
- II. Rinderpest
- III. Peste Des Petites de Ruminants (PPR)
- IV. Rift Valley Fever (RFV)

HIGHLY PATHOGENIC AVIAN INFLUENZA (HPAI)

INTERVENTIONS AND LESSONS LEARNT, AND THE WAY FORWARD

Overview: Current status

Highly pathogenic Avian Influenza (HPAI) was first detected in Hong Kong in 1997 caused by a type A influenza virus of the sub-type H5N1. The disease continued to be reported sporadically in China and Vietnam over the next few years, until 2003 when it spread first across other countries in Southeast Asia and then Europe. The year 2006 marked a dramatic deterioration of the global status when introduction of H5N1 HPAI was recognized in Africa for the first time. As of July 2006, eight (six sub-Saharan) were infected. In 2007, five countries recorded HPAI outbreaks in Africa. Among these countries Togo, Benin, and Ghana also experienced outbreaks for the first time whereas Egypt, and Nigeria continued to experience repeat outbreaks. There has been a widespread distribution of detections in Western Africa pointing to the likelihood that the virus continues to circulate in the bird populations there.

Further spread of HPAI in Africa presents enormous challenges of controlling it as well as preventing its spread to the clean areas. Where HPAI outbreaks have occurred, it has affected both backyard and commercial poultry production systems, as well as wild birds.

The origin of HPAI introduction in Africa has not been established and this causes serious concern on prevention and control strategies. This has been compounded by weak bio-security, lack of follow-up of avian breeding, unregulated movement of avian and avian products and lack of reliable epidemiological data. Table 4 shows summary of confirmed HPAI outbreaks in Africa by 2007.

Table 4: Summary of confirmed HPAI outbreaks in Africa in 2007

NO	Country	First Outbreak	Latest Outbreak	Numbers of outbreaks	Species of birds Affected	Human cases
1.	Nigeria	16 th Feb 2006	Dec 2007		Poultry	1
2.	Egypt	17 th Feb 2006	15 th March 2007		Poultry Wild birds	22
3.	Ghana	24 th April 2007	13 th June 2007	03	Poultry	
4.	Togo	6 th June 2007	20 th July 2007	05	Poultry	
5.	Benin	4 th Dec 2007	Outbreaks continued	05	Poultry	

Source: OIE, European Commission (EC), FAO and National governments, WHO for human cases/deaths

HPAI Prevention and Control Activities in 2007

Approaches HPAI prevention and control in Africa: Role of AU/IBAR

The Interafrican Bureau for Animal Resources (IBAR) is a specialized technical office of African union mandated to animal resources development in Africa. IBAR has undertaken in collaboration with different partners interventions on HPAI prevention and control, with the aim of enhancing the ability of African countries to secure its peoples livelihoods and health, and stem the threat of pandemic influence. The key strategic thrusts of these interventions have been to promote early detection of infection and rapid response against outbreaks by enhancing the capacities of national veterinary and public health systems. Additional support was given for emergency actions following outbreaks in a number of countries. Emergency interventions targeted actions to mitigate disease spread and enhance reporting and stamping out strategies.

At the strategic level, AU-IBAR worked closely with other actors on HPAI to ensure Africa was fully covered in all aspects of preparedness. Initial efforts with FAO and OIE were sustained during the reporting period to ensure all African countries developed and set aside contingency resources through the INAP process. In collaboration with the ALIVE platform, AU-IBAR continued assisting African countries to refine their INAP documents for preparedness purposes and resource mobilization.

These interventions were made possible through the support of various donors to specific initiatives targeting vulnerable countries.

Through such support, various interventions have been commissioned to strengthen Africa's preparedness against HPAI.

The following are key highlights of interventions executed by AU-IBAR on HPAI singly and with other actors:

- Creation of 4 regional Animal health centers in collaboration with FAO and OIE to harmonize efforts against HPAI and other trans-boundary animal diseases.
- Advocacy and resource mobilization for specific actions in the fight against HPAI
- Coordination of international support with the FAO, OIE, WHO, World Bank, UNICEF and others
- Provision of capacity building support for veterinary and public health services through training, equipment and other investment
- Joint GTZ-IBAR-ILRI courses were organized for veterinary and medical laboratory staff (80 people from 37 African countries);
- FAO regional TCP Cooperation on HPAI supported western/Central, Eastern and Southern Africa;
- Alive platform on assessment of financial needs and gaps carried out and updated. All these projects aimed to boost an operational capacity for HPAI prevention and control, the human influenza preparedness and the coordination of communication strategies.

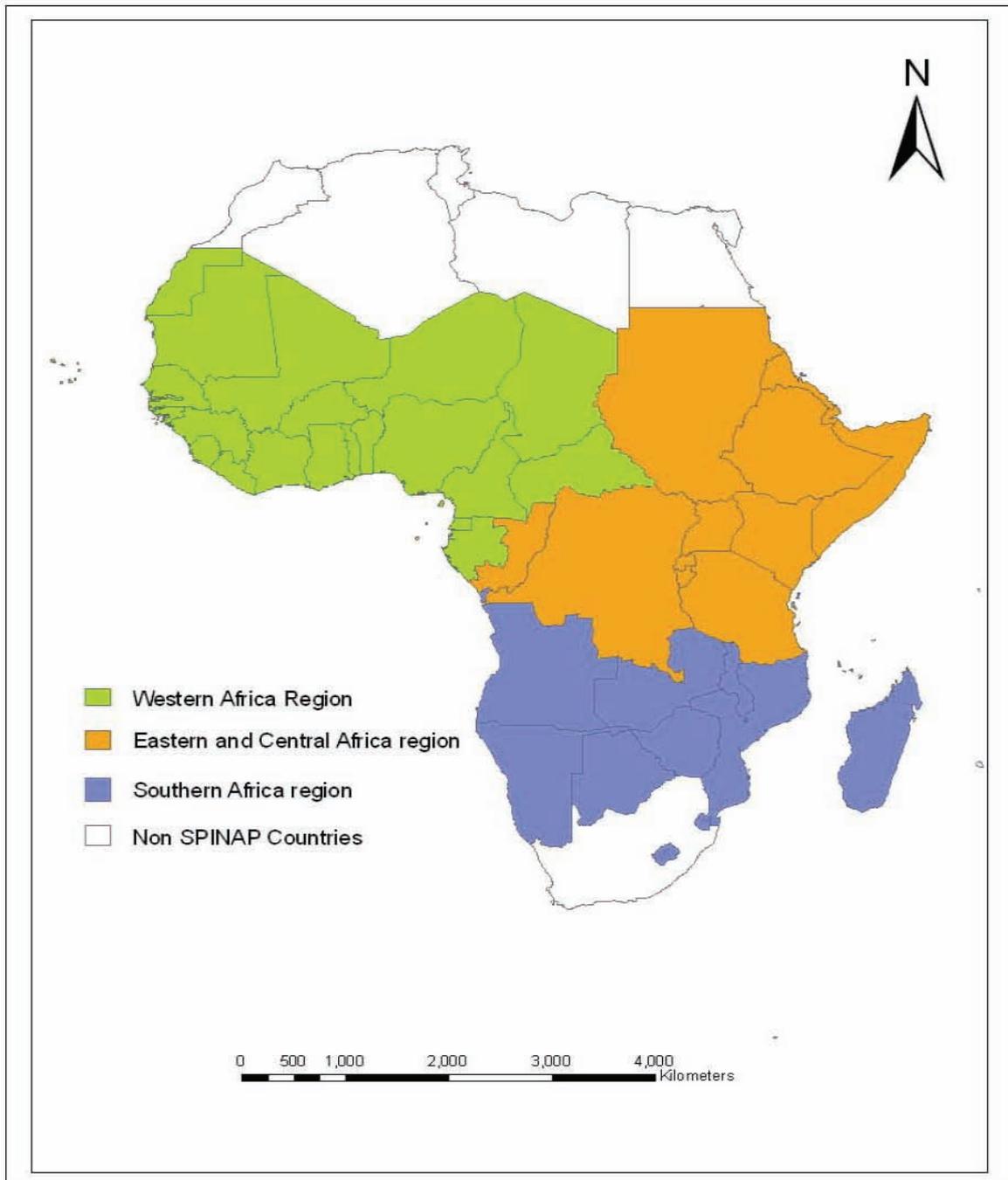
At the time reporting, IBAR was running two major projects on HPAI: AfDB and SPINAP

1. AfDB: Emergency Control of HPAI in affected countries (human & Avian) funding by African Development bank for 6.5 million US\$ and its main objective is to build capacity for each country to control and prevent AHI through implementation of emergency response activities such as development of compensation schemes to encourage early reporting of HPAI outbreaks.

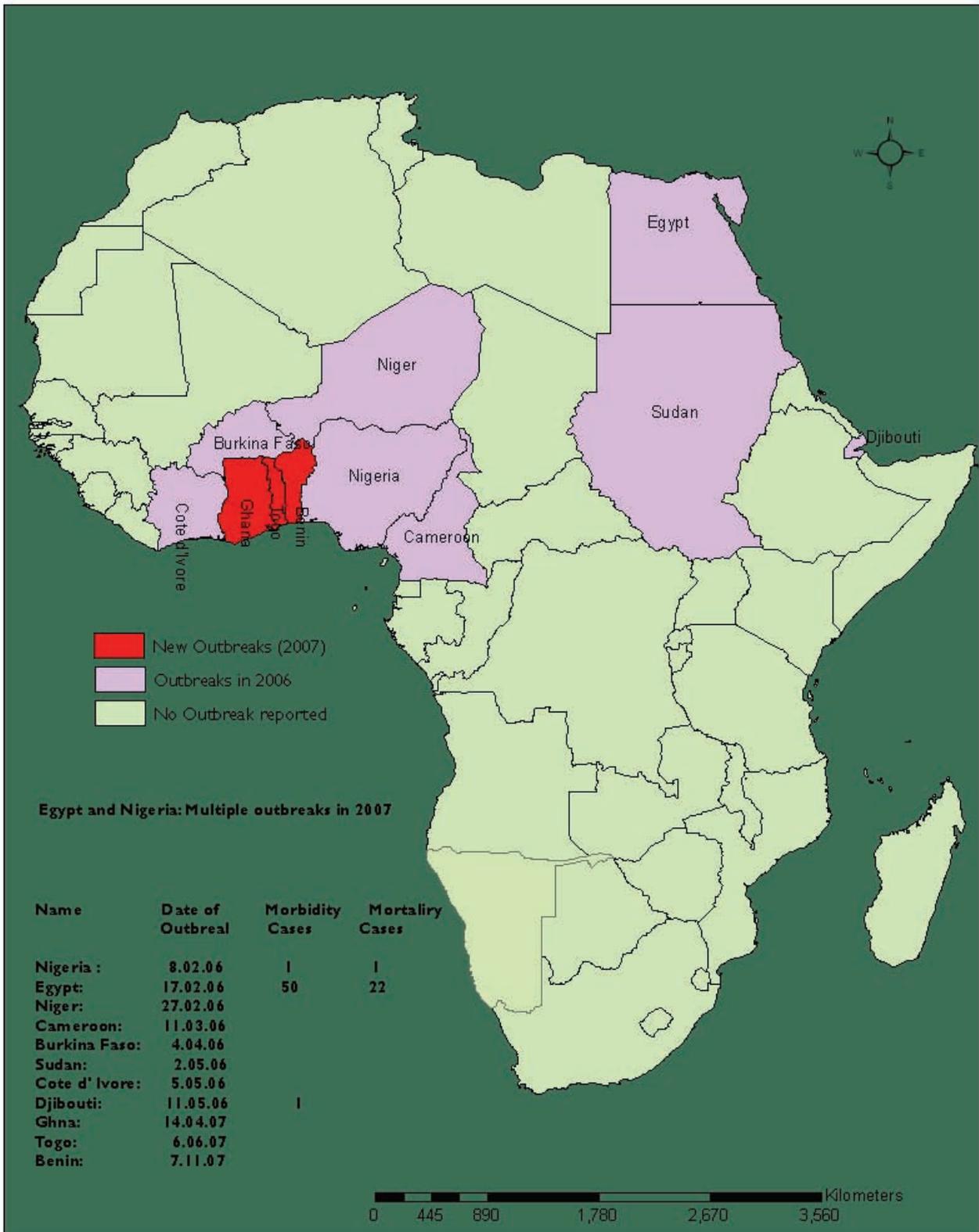
2. The Support Programme for Integrated National Action Plans-Avian&Human Influenza — SPINAP-AHI - funded by EU is designated to support the implementation of Integrated National Action Plans in Africa over a period of 36 months. This program targets 47 Africa ACP countries and seeks to enhance their capacities for early detection and rapid response against HPAI. It provides funds for the implementation of short to medium term emergency preparedness measures by veterinary and public health services in the target countries. Target countries receive funds ranging from \$300,000 to 1.9 Million for this purpose. Additionally, the program facilitates the provision of technical support to all target countries, especially those with weak veterinary and public health systems.

In the year also, IBAR and ILRI, with financial support from GTZ organized training courses on rapid detection of Avian Influenza virus for Veterinary and medical laboratory staff from African countries. A total of 80 laboratory technicians from 37 African countries were trained and they improved their capacities for their respective national and regional Laboratories.

Map 2: SPINAP-AHI Regions



Map 3: Distribution of HPAI in Africa as reported in 2006 – 2007



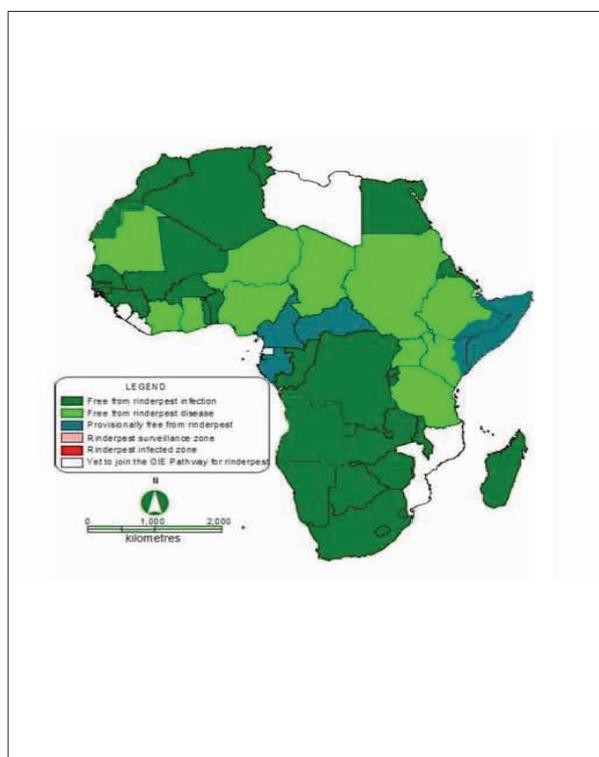
RINDERPEST

CURRENT STATUS, INTERVENTIONS AND LESSONS LEARNT, AND THE WAY FORWARD.

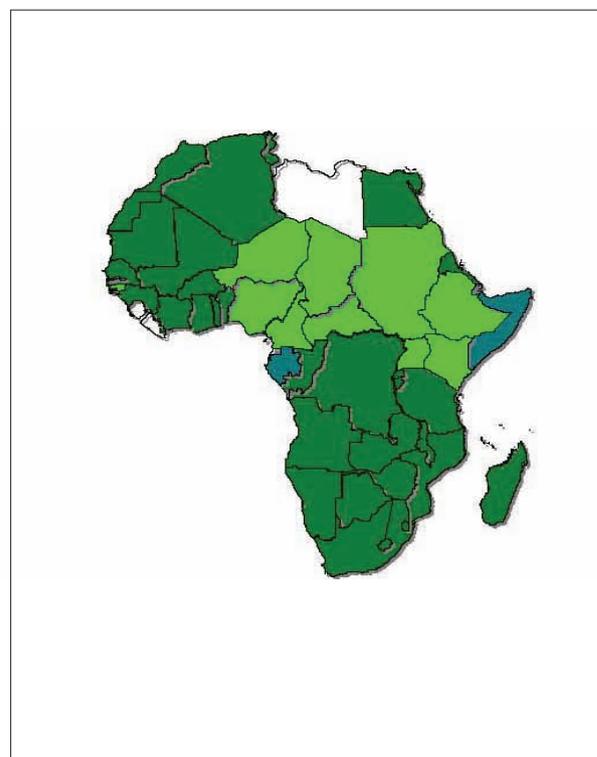
No suspicious disease events were reported anywhere on the continent; eradication and verification of absence were the main focus, with special emphasis on the Somali ecosystem under the aegis of Somali ecosystem Rinderpest Eradication Coordination Unit (SERECU) Project. The year under review marked a transition phase between SERECU Phases I and II and therefore rinderpest eradication activities were restricted to essential and critical coordination and surveillance ones such as technical coordination and harmonization; follow-up epidemiological investigations to areas with persistent sero-positivity and preparation of SERECU II Project.

More countries, among them Mozambique, Tanzania, Mauritania, Cote d'Ivoire and Ghana were recognized as free from infection. Within the Somali Ecosystem, Somalia declared provisional freedom countrywide, a very important step indeed for Africa and the rest of the whole world in the count-down to the GREP deadline of achieving global rinderpest freedom by 2010. AU-IBAR, FAO-GREP and OIE jointly organized a workshop in December 2007 to renew their commitment in assisting African countries in the accreditation process. Map 4 shows the progression of OIE pathway status in Africa in 2006 and 2007.

Map 4: Progression of OIE Pathway status in 2006



Map 5: Progression of OIE pathway status in 2007



RIFT VALLEY FEVER

STATUS, SOCIO-ECONOMIC IMPACTS, INTERVENTIONS AND LESSONS LEARNT, AND THE WAY FORWARD.

Rift Valley fever (RVF) is an arthropod-borne viral disease associated with high rates of abortion and neonatal mortality in ruminants and influenza like illness in humans that may progress to neurologic, ocular, or hemorrhagic disease and death. RVF is caused by a virus in the genus *Phlebovirus* of the Bunyaviridae family. The virus replicates in mosquitoes and in vertebrates (FAO Animal Health Manual on Preparation of Rift Valley fever Contingency Plans). Human infections result from direct or indirect contact with the blood or organs of infected animals. Human infections have also resulted from the bites of infected mosquitoes.

In the year 2007, the disease was reported in Tanzania and Kenya only.

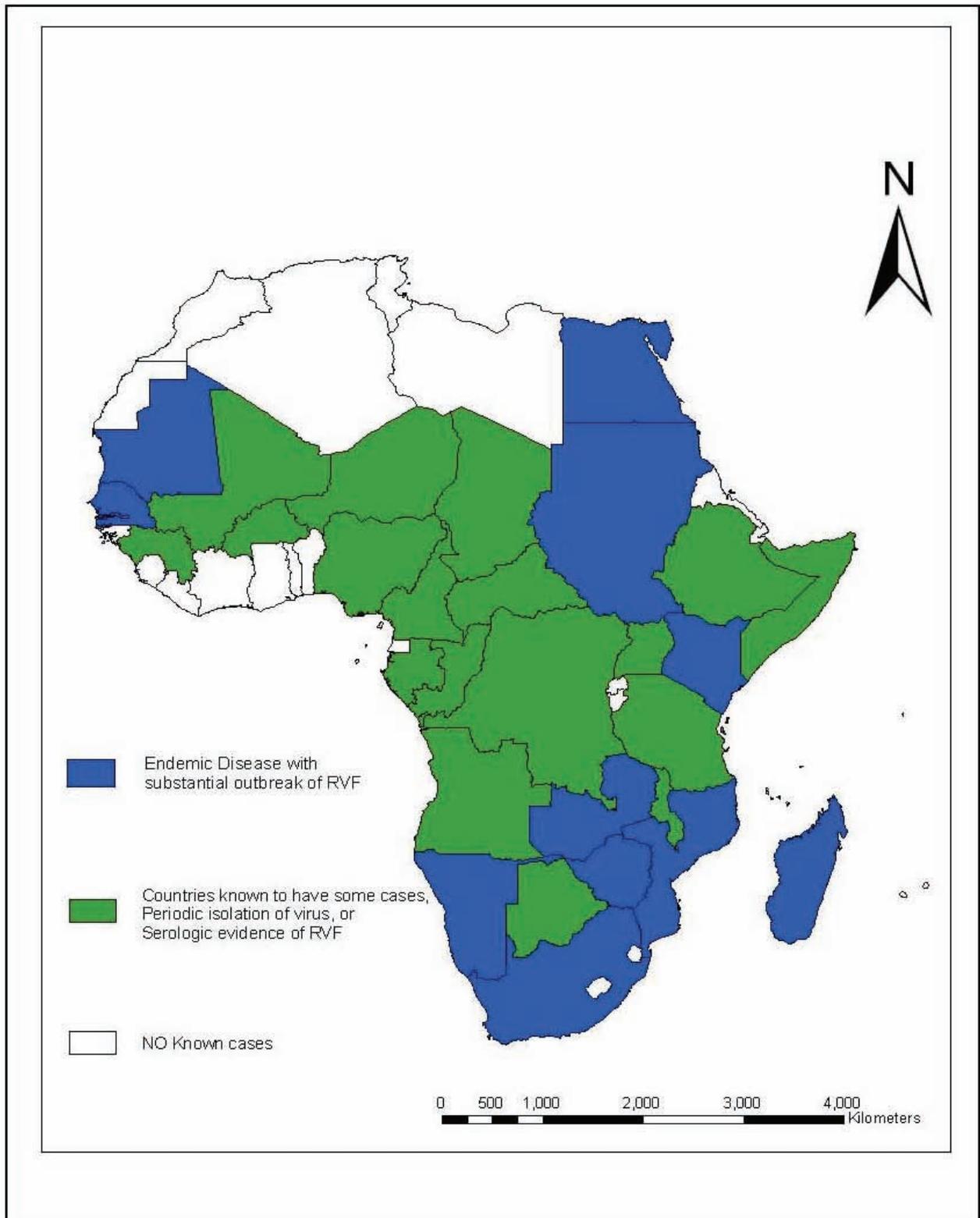
Impacts of RVF on trade

The 2007 RVF outbreaks in North Eastern province Kenya and later in Tanzania resulted in the imposition of livestock and meat export ban from Ethiopia by the UAE for about 9 months. Also, a drop of livestock price by about 30% was reported in the Somali region of Ethiopia as a result.

These are indicators that RVF is a disease that can seriously affect a country's export trade if detected in any neighboring country/countries despite its absence in that particular country. In year 2007, several outbreaks with human deaths were reported in Kenya and Tanzania, with the last and most recent outbreaks being reported in Madagascar. In all the cases, human cases preceded livestock cases.

It is clear that RVF causes serious socio-economic impacts. For example a socio-economic study done by Kenya on the socio-economic impacts of RVF indicated that each household lost on average Kenya Shillings Thirty Five Thousand (500 USD) due to low productivity and costs related to disease control during the last RVF outbreak. In previous outbreaks in all affected countries, losses have also been recorded in the airline and money transfer industries.

Map 6: Distribution of RVF in Africa



PESTE DES PETITS RUMINANTS (PPR)

STATUS, INTERVENTIONS AND LESSONS LEARNT, AND THE WAY FORWARD

Distribution of PPR in Africa

In 2007, eleven African countries reporting PPR to AU/IBAR recorded 241 outbreaks, 16, 917 cases, and 5980 deaths. The total number of animals destroyed or slaughtered as a result of the disease was 4730. Ethiopia reported the highest number of outbreaks (111/241), followed by Togo (45/241) and Guinea Conakry (30/241). Uganda reported the highest number of cases (8294/16917), followed by Ethiopia (3337/16917) and Togo (1461/16917). The highest number of deaths was recorded by Uganda (2401/5980), followed by Ethiopia (1083/5980), and Togo (597/5980).

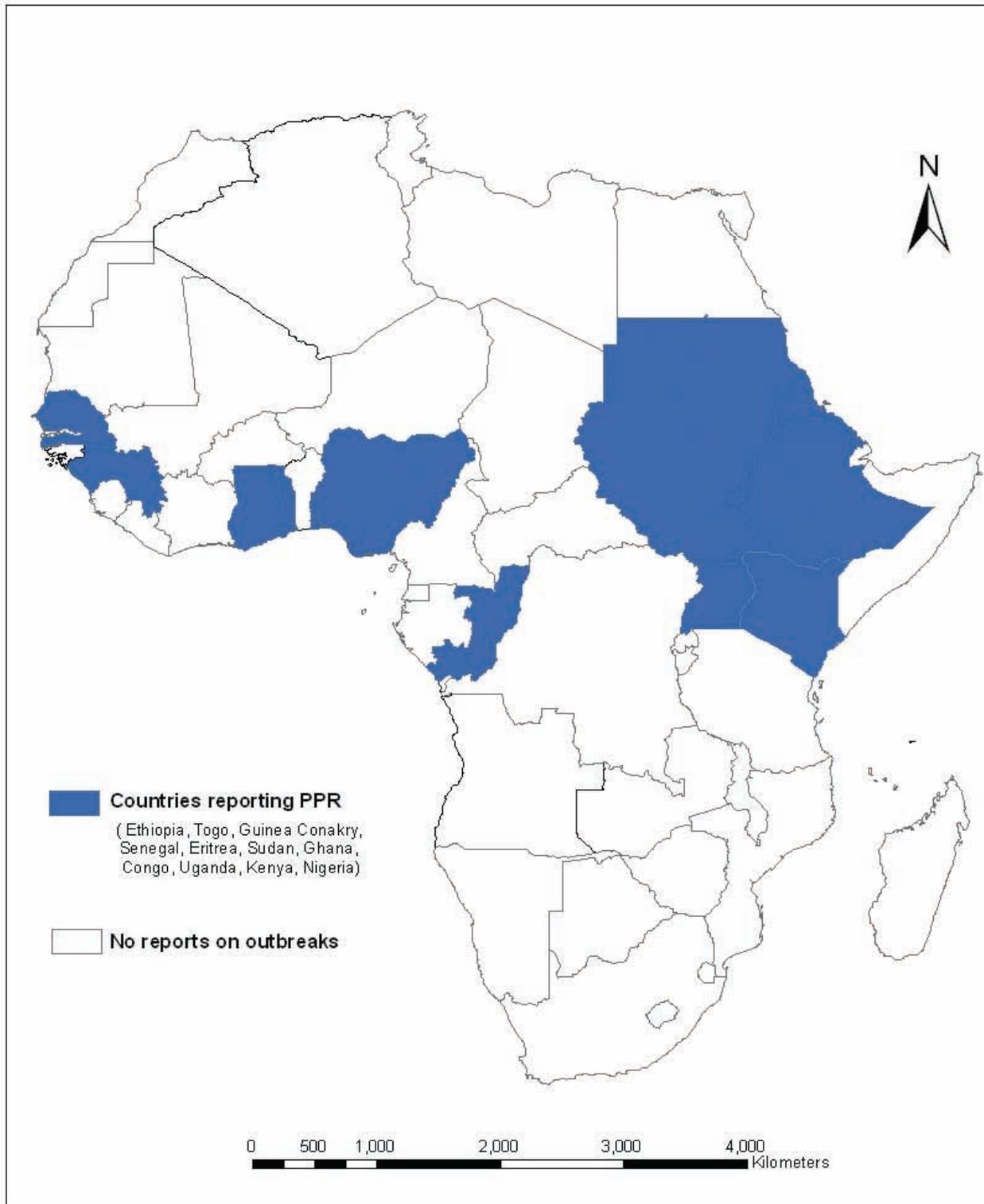
The disease that leads to bad economic impacts may soon spread to engulf the southern parts of the continent as well as the whole horn of Africa.

Table 7 and map 5 show the distribution of PPR in Africa in 2007.

Table 7: Distribution of PPR in Africa in 2007

No.	Country	Outbreaks	Cases	Deaths	Slaughter/ Destroyed
1.	Ethiopia	111	3332	1082	0
2.	Togo	45	1463	597	516
3.	Guinea Conakry	30	399	241	31
4.	Senegal	13	714	347	0
5.	Eritrea	11	877	440	8
6.	Sudan	9	496	224	0
7.	Ghana	6	356	30	0
8.	Congo	6	722	513	0
9.	Uganda	5	8291	2401	4175
10.	Kenya	4	255	105	0
11.	Nigeria	1	6	0	0
TOTAL		241	16917	5980	4730

Map 7: Distribution of PPR in Africa as reported in 2007



Situation of PPR in East Africa in 2007

Kenya

The first reports of serious disease in small ruminants were in March 2006 in Loima and Oropoi areas of North Turkana District. Samples collected were serologically positive. Subsequently the disease was reported in Kakuma, Loima, and Lokomarinyang of Kibish Division in North Turkana District. Further samples collected from Oropoi and Lokichokio in July 2006 were reported as antibody positive on ELISA and PCR positive at CVL Kabete in August 2006

Out of a population of 8,170, there were 5580 cases and 3755 deaths with morbidity rate of 68%, overall mortality rate of 46%, case mortality 67%. The origin of infection was reported to be illegal movement of animals and contact with infected animals at grazing/watering. The outbreak was spreading south, north and east of the first outbreaks reported. PPR spread from Turkana to West Pokot in July 2007 apparently from raiding in South Turkana. Ever since the disease has been spreading gradually through out Northern Kenya.

Uganda

In Uganda the PPR outbreak started in 2006 in the Karamoja sub-region in the northeast of the country. Kotido District experienced the first reported suspected outbreak in May 2006 when infected animals were raided from Kaabong District to the north, which had also experienced a similar disease in May 2006 that had apparently come from Turkana District in Kenya to the east. Samples were collected from Kotido and sent for lab analysis. The disease was apparently spreading southwards.

Suspected cases were reported in Moroto in January 2007. The disease appeared to have come from neighbouring Kotido. In July Uganda notified OIE of the first occurrence of PPR describing an outbreak that started on 3/4/07 in Moroto with laboratory confirmation on 16/7/07 by the National Diagnostic and Epidemiology Centre using immunocapture ELISA and by the Institute for Animal Health Pirbright, United Kingdom using PCR. The virus was typed as lineage 3.

Intervention strategy

Where PPR has occurred, interventions include vaccinations and sero-surveillance to assess the overall level of immunity in vaccinated and unvaccinated animals. Quarantine has also been imposed in affected areas.

In Kenya, the strategy is to eradicate the disease. Movement control measures have been applied in affected districts to curtail the spread of the disease and vaccination is going on in targeted areas.

3.3 OTHER TRANS-BORDER DISEASES ECONOMIC IMPORTANCE

Diseases that will be discussed in this chapter include:

- I. New Castle Disease (ND)
- II. Foot and mouth Disease (FMD)
- III. Lumpy Skin Disease (LSD)
- IV. Contagious Bovine PleuroPneumonia
- V. Contagious Caprine PleuroPneumonia
- VI. African Swine Fever (ASF)
- VII. African Horse Sickness
- VIII. Anaplasmosis
- IX. Babesiosis
- X. Trypanosomiasis
- XI. Heart Water
- XII. Blue Tongue
- XIII. Brucellosis
- XIV. Malignant Catarrhal Fever

FOOT AND MOUTH DISEASE (FMD)

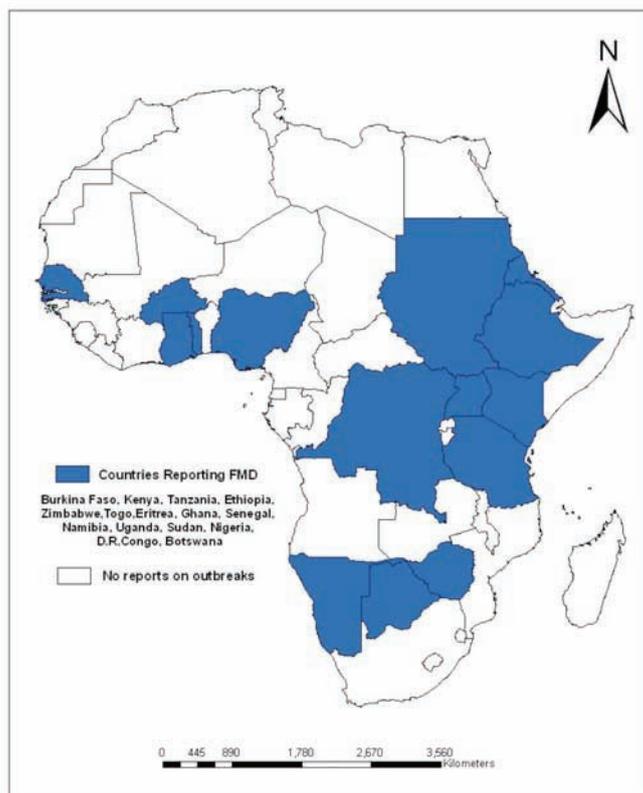
In the year under review, a total of 739 FMD outbreaks, 12,749 cases and 293 deaths were recorded. A total of 159 animals were destroyed as a result of the disease. The highest number of FMD outbreaks was recorded by Burkina Faso (420/739), followed by Kenya (140/739), and Tanzania (73/739). Tanzania recorded the highest number of cases (6010/12,749), followed by Ethiopia (1716/12,749) and Eritrea (1295/12,749). The highest number of deaths was recorded by Tanzania (145/292), followed by Ethiopia (40/292) and Nigeria (27/292). Table 8 shows the breakdown of the distribution of FMD in reporting countries in 2007.

TABLE 8: Breakdown of the distribution of FMD outbreaks in reporting countries in 2007

No.	Country	Outbreaks	Cases	Deaths	Slaughter/ Destroyed
1.	Burkina Faso	420	412	0	0
2.	Kenya	140	495	12	0
3.	Tanzania	73	6010	145	0
4.	Ethiopia	26	1716	40	0
5.	Zimbabwe	23	828	0	0
6.	Togo	15	320	28	157
7.	Eritrea	10	1295	2	0
8.	Ghana	7	707	7	0
9.	Senegal	7	142	17	0
	Namibia	5	243	12	0
10.	Uganda	4	177	2	0
11.	Sudan	3	24	0	0
12.	Nigeria	3	328	27	2
13.	D.R.Congo	2	0	0	0
14.	Botswana	1	52	0	0
TOTAL		739	12,749	292	159

To control FMD, countries free from the disease favour the stamping-out and ring vaccination, whereas in endemic areas the control is through movement restrictions of susceptible animals and good zoo-sanitary measures in outbreak conditions.

Map8: Distribution of FMD in Africa as reported in 2007



LUMPY SKIN DISEASE (LSD)

In the year under review, a total of 1580 outbreaks of LSD, 46,543 cases and 5919 deaths were recorded in member countries. Zimbabwe recorded the highest number of LSD outbreaks (340/1580), followed by Ethiopia(275/1580) and South Africa (216/1580). In the same year, Uganda recorded the highest number of cases (21,830/47543), followed by Zimbabwe (9184/46543) and Ethiopia (8821/46543). Burkina Faso recorded the highest number of deaths (2210/5919), followed by D.R. Congo (1702/5919) and Uganda (312/5919). Table 9 shows the breakdown of the LSD outbreaks in reporting countries in 2007.

Table 9: Breakdown of LSD outbreaks in reporting countries in 2007.

NO	COUNTRY	Outbreaks	Cases	Deaths	Destroyed/ slaughtered
1.	Zimbabwe	340	9184	2210	0
2.	Ethiopia	275	8821	840	0
3.	South Africa	216	4250	245	12
4.	Swaziland	138	1788	186	8
5.	Madagascar	131	2472	69	0
6.	Tanzania	128	841	141	6
7.	Zambia	54	1109	213	3
8.	Burkina Faso	53	4955	0	0
9.	Kenya	51	176	3	0
10.	Mozambique	38	3335	106	0
11.	Sudan	37	2052	59	0
12.	Namibia	25	410	9	0
13.	Botswana	25	190	6	61
14.	Malawi	23	476	87	0
15.	Angola	20	677	15	0
16.	Togo	11	48	6	23
17.	Uganda	11	21830	422	312
18.	D.R. Congo	2	3002	1300	1702
19.	Eritrea	1	36	1	1
20.	Lesotho	1	6	1	0
TOTAL		1580	46,543	5919	2128

Animals infected with LSD virus generally recover. Complete recovery may take several months and may be prolonged where secondary bacterial infection occurs. Generally, treatment is directed at preventing or controlling secondary infection. Administration of antibiotics to control secondary infection and good nursing care are recommended.

NEW CASTLE DISEASE (ND)

New Castle Disease is one of the most important viral disease of poultry. The history of ND is marked by at least three pandemics in domestic birds. The first began with emergence of the disease in fowl in the middle of the 1920s and spread slowly from Asia throughout the world. The second outbreak appeared to emerge in fowl in the Near East in the late 1960s, reaching all continents by the mid-1970s. A third outbreak in the 1970s, also starting in the Near East, was associated with mainly neurotropic and viscerotropic velogenic disease in pigeons. The current epizootic is the fourth one. Since 1991, there has been an increase in incidence with a series of related outbreaks affecting poultry in many European countries. Iran, India, and southeast Asia were hit by the worst epidemic ever reported. In 1999, the panzootic reached the American continent and Australia. Currently, ND is endemic or epidemic almost all over the world.

In Africa alone in 2007, eighteen member countries reported a total of 520 outbreaks of ND, 453,634 cases, and 266, 1393 deaths. Birds destroyed as a result of ND were 11,196. In the same year, South Africa reported the highest number of outbreaks (145/520), followed by Zambia (80/540) and Madagascar (69/540). The highest number of cases was reported by South Africa (316,398/453,634), followed by Uganda (79,934/453,464) and Ghana 14,675/453,464). South Africa recorded the highest number of deaths (240129/266125), followed by Zambia (6489/266125) and Ghana (4818/266125). Table 10 shows the breakdown of ND by reporting countries in 2007.

Table 10: Breakdown of New Castle Disease outbreaks by reporting countries in 2007

No.	COUNTRY	Outbreaks	Cases	Deaths	Slaughtered/ Destroyed
1.	Tanzania	145	3531	2838	0
2.	Zambia	80	13,299	6489	129
3.	Madagascar	69	971	332	0
4.	South Africa	67	316,398	240,129	4872
5.	Zimbabwe	25	4753	2982	0
6.	Togo	21	1053	769	483
7.	Ghana	19	14,675	4818	0
8.	Namibia	14	306	165	0
9.	Ethiopia	16	756	531	0
10.	Kenya	15	286	112	0
11.	D.R Congo	12	3190	1305	630
12.	Lesotho	11	857	449	212
13.	Uganda	10	79,934	1846	4749
14.	Guinea Conakry	7	8655	604	0
15.	Mozambique	4	90	73	0
16.	Malawi	2	3	2	2
17.	Angola	2	248	248	100
18.	Eritrea	1	39	18	19
19.	Burkina Faso	Not stated	4590	2415	0
TOTAL		520	453,634	266,125	11,196

ND is a differential diagnosis for HPAI. False alarms due to misdiagnosis of HPAI cost countries a lot of money in investigations. Moreover, poultry producers especially in countries that are still free from HPAI may not pay a lot of attention to HPAI campaigns since HPAI is not their immediate concern. It is therefore recommended that prevention and control of ND in the region should be brought on board as an entry point to HPAI Emergency Preparedness Plans.

CONTAGIOUS BOVINE PLEUROPNEUMONIA (CBPP)

The combination of poor financial resources and an inadequately organized national veterinary service has often led to deterioration in animal-health services, with epidemic diseases frequently spreading unchecked. The resurgence of CBPP in many parts of Africa can often be related to the breakdown of national veterinary services.

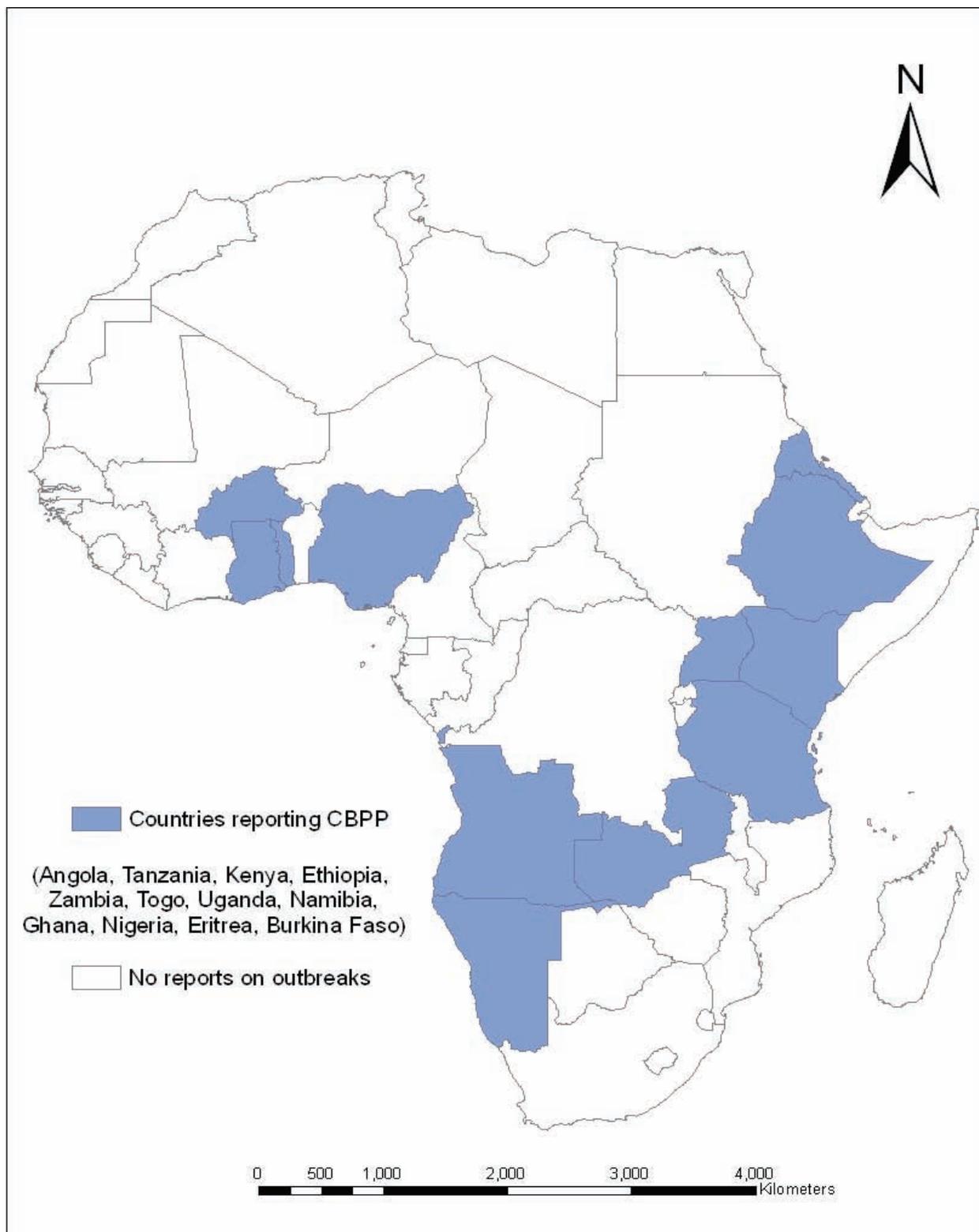
CBPP is a serious mycoplasmal disease of cattle. There has been a catastrophic spread of CBPP over the last few years in Africa where it causes losses estimated at US \$ 2 billion annually (FAO: Trends in animal health: problems and challenges; Pan African animal Health Yearbook 2006). The disease was reintroduced to Botswana for the first time in 46 years in 1995, where as part of the eradication campaign, all cattle (approximately 320,000) in an area of northern Botswana had to be slaughtered at a direct cost of US \$ 100 million with indirect losses of over US \$ 400 million.

In 2007, ten member countries reported a total of 247 outbreaks of CBPP, 5517 cases, and 1956 deaths. A total of 1077 animals were destroyed as a result of the disease. Angola and Tanzania reported the highest number of CBPP outbreaks (80/247 outbreaks each) followed by Kenya (25/247). Angola registered the highest number of cases (2299/5517), followed by Tanzania (1288/5517) and Ethiopia (269/5517). The highest number of deaths was recorded by Uganda (911/1956), followed by Angola (62/1956) and Togo (26/1956). Table 11 shows the breakdown of CBPP outbreaks by reporting countries in 2007.

TABLE 11: Breakdown of CBPP outbreaks by reporting countries in 2007

No.	Country	Outbreaks	Cases	Deaths	Slaughtered/ Destroyed
1.	Angola	80	2299	544	62
2.	Tanzania	80	1288	544	22
3.	Kenya	25	140	49	0
4.	Ethiopia	19	269	86	0
5.	Zambia	15	491	115	33
6.	Togo	7	32	6	26
7.	Uganda	7	646	502	911
8.	Namibia	5	14	4	0
9.	Ghana	4	41	2	2
10.	Nigeria	2	15	2	2
11.	Eritrea	2	14	12	13
12.	Eritrea	1	7	6	6
13.	Burkina Faso	Not recorded	261	84	0
TOTAL		247	5517	1956	1077

Map 9: Distribution of CBPP in Africa as reported 2007



AFRICAN SWINE FEVER (ASF)

ASF is a generalized viral disease affecting pigs. It is endemic in southern and eastern Africa, where it is maintained in an endemic cycle involving soft ticks (*Ornithodoros porcinus*) and wild suidae (warthogs and bushpigs).

Impact

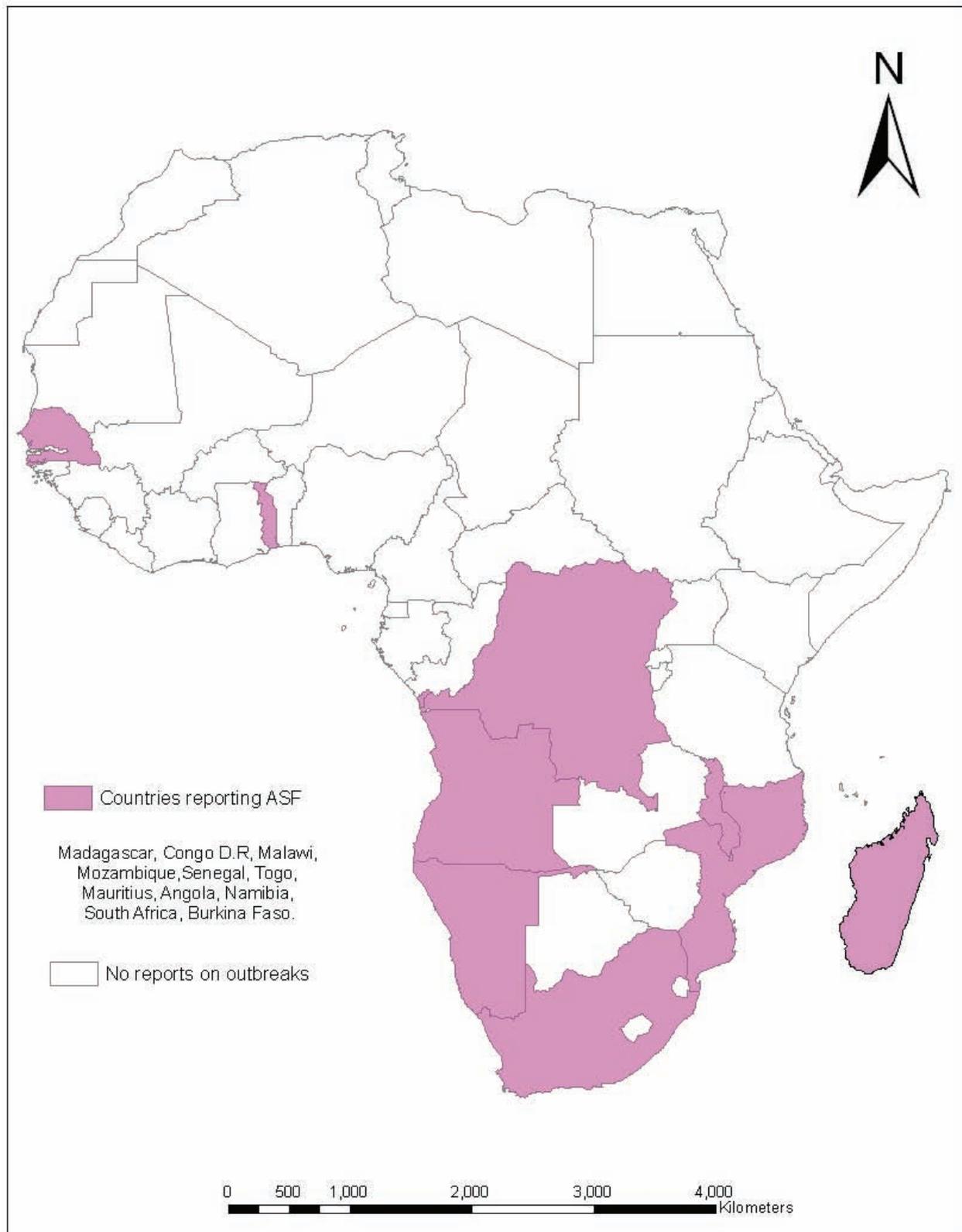
The disease has been causing serious outbreaks in areas which either had never experienced ASF before or had not had outbreaks for a long time. In 1994, for example, ASF moved from the endemic area in northern Mozambique to Maputo and devastated the pig population, killing 80 per cent of the estimated 4000 pigs in the area. In 1996 it occurred for the first time in Côte d'Ivoire, where it killed 25 percent of the pig population and, according to various estimates, cost the country between US \$ 13 million and US \$ 20 million in direct and indirect losses and eradication costs. There has since been serious spread of ASF to Togo, Benin, Gambia and Nigeria. In 1999 the disease spread to Ghana, where it has been eradicated.

In 2007, ASF was reported in ten African member countries, recording a total of 101 outbreaks, 101,823 cases, and 100,188,532 deaths. A total of 1340 pigs were destroyed as a result of the disease. In the year, Madagascar recorded the highest number of ASF outbreaks (33/101), followed by D.R. Congo (21/101) and Malawi (17/101). D.R. Congo recorded the highest number of cases (97,815/101,823), followed by Burkina Faso (4279/101,823) and Mauritius (931/101,823). D.R. Congo registered the highest number of deaths (96,473/100,188), followed by Burkina Faso (4270/100,188) and Mauritius (931/100,823). Table 12 shows the breakdown of ASF in reporting countries in 2007.

Table 12: Breakdown of ASF in reporting countries in 2007.

No.	Country	Outbreaks	Cases	Deaths	Slaughtered/ Destroyed
1.	Madagascar	33	802	796	0
2.	D.R Congo	21	97815	96473	0
3.	Malawi	17	599	518	7
4.	Mozambique	10	522	371	123
5.	Senegal	8	381	325	0
6.	Togo	6	735	765	275
7.	Mauritius	3	931	931	930
8.	Angola	1	10	5	5
9.	Namibia	1	1	1	0
10.	South Africa	1	27	3	0
11.	Burkina Faso	Not recorded	4279	4270	0
TOTAL		101	101,823	100,188	1340

Map 10: Distribution of ASF in Africa as reported in 2007



EAST COAST FEVER

East Coast Fever (ECF) is one of the major disease constraints to cattle development particularly in Eastern Africa. First experiments on the disease were initiated in 1967 (41 years ago) and prior to this, the disease, being controlled through tick control, was enzootic. Little progress in control was made until the discovery of Oxytetracyclines (TLC) in 1970s. Up to date, Infection and Treatment Method (ITM) still remains the best ECF control option. Nevertheless, ITM suffers a complex history of development and use, its adoption varying in different countries.

Initially, it was only livestock farmers who recognized and felt effects and importance of the disease, and later, affected countries realized how much economic loss the disease caused. Much later, ECF had the misfortune of becoming a political disease and this has caused a lot of complications in its control/management over the years – to date.

In 2007, four member countries reported a total of 926 outbreaks of ECF, 9370 cases and 2026 deaths. Animals destroyed as a result of the disease were 196. Tanzania recorded the highest number of ECF outbreaks (531/926), followed by Kenya (263/926) and Zambia (65/926). The highest number of cases was recorded by Tanzania (3380/9370), followed by Uganda (2067/9370) and Zambia (1980/9370). D.R Congo and Uganda recorded the highest numbers of deaths, each registering 80/2026 deaths, followed by Kenya (28/2026). Table 13 shows the breakdown of ECF outbreaks by reporting countries in 2007.

Table 13: Breakdown of ECF outbreaks by reporting countries in Africa in 2007

No.	Country	Outbreaks	Cases	Deaths	Destroyed/ Slaughtered
1.	Tanzania	531	3380	990	0
2.	Kenya	263	1005	124	28
3.	Zambia	65	1938	458	1
4.	Malawi	44	106	36	0
5.	D.R.Congo	6	506	268	84
6.	Sudan	6	239	72	0
7.	South Africa	4	107	7	0
8.	Uganda	4	2067	71	84
9.	Mozambique	2	21	0	0
10.	Swaziland	1	1	0	0
TOTAL		926	9370	2026	196

ANAPLASMOSIS

Anaplasmosis is a disease of major economic importance to the cattle industry. It is an infectious disease of cattle that causes destruction of Red Blood Cells. The disease is caused by a minute parasite, *Anaplasma Marginale*, found in the red blood cells of infected cattle. It can be transmitted from infected animals to healthy animals by insects or by surgical instruments.

Disease outbreaks are related to the lack of a control program, the ratio between anaplasmosis carriers and susceptible animals in the herd, and the amount of vector transmission. An increase in the ratio of carriers susceptible animals or an increase in vector transmission can influence the severity of an outbreak.

In the course of the year, 14 countries reporting the diseases recorded a total of 848 outbreaks, 4973 cases, and 1143 deaths. Tanzania recorded the highest number of outbreaks (441/848) followed by Zimbabwe (173/848) and Zambia (90/848). Tanzania recorded the highest number of cases (2781/4973), followed by Zambia (910/4973 and D.R. Congo (552/4973). Tanzania recorded the highest number of deaths (696/1143), followed by Zambia (173/1143) and Zimbabwe (115/1143). A total of 11 destructions due to the disease were recorded, 5 in Tanzania, 4 in Botswana and 2 in Lesotho. Table 14 shows the breakdown of anaplasmosis outbreaks by reporting countries in 2007.

Table 14: The breakdown of Anaplasmosis outbreaks by reporting countries in 2007.

NO	Country	Outbreaks	Cases	Deaths	Destroyed
1.	Tanzania	441	2781	696	5
2.	Zimbabwe	173	328	115	0
3.	Zambia	90	910	173	0
4.	South Africa	60	155	35	0
5.	Kenya	31	29	0	0
6.	Lesotho	15	111	6	2
7.	Swaziland	15	24	6	0
8.	Namibia	8	28	33	0
9.	Botswana	6	32	26	4
10.	Mozambique	5	19	1	0
11.	Angola	1	2	0	0
12.	D.R. Congo	1	552	52	0
13.	Madagascar	1	1	0	0
14.	Malawi	1	1	0	0
TOTAL		848	4973	1143	11

Control of anaplasmosis involves reducing vector transmission, developing control programs to prevent outbreaks, eliminating the carrier state, and using treatment or management options available to stop an outbreak of the disease.

AFRICAN HORSE SICKNESS

African Horse sickness is a non contagious viral disease, transmitted by *Culicoides* midges and affecting all species of Equidae. It is characterized by alterations in respiratory and circulatory functions and is endemic in sub-Saharan Africa. The disease is of major economic importance and a lot of resources are used in treatment, vaccinations, and quarantines and in vector control.

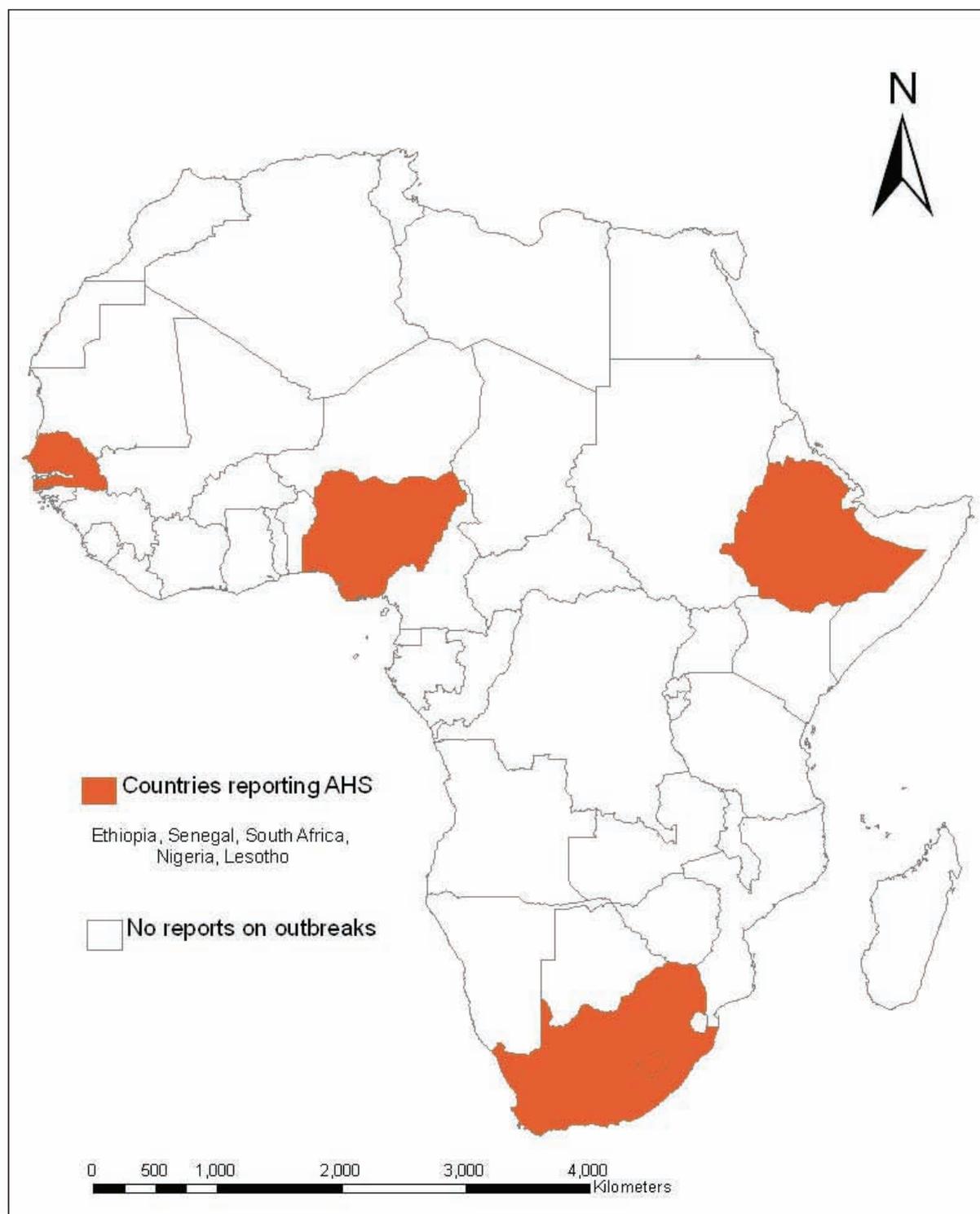
In 2007, 5 countries reporting AHS to AU/IBAR recorded a total of 287 outbreaks, 2447 cases, and 1355 deaths. A total of 118 animals were destroyed Ethiopia recorded the highest number of outbreaks (140/287), followed by Senegal (89/287) and South Africa (52/287). Ethiopia also recorded the highest number of cases (1303/2447), followed by Nigeria (545/2447) and Senegal (523/2447). Ethiopia recorded the highest number of deaths (617/1355) followed by Nigeria (388/1355) and Senegal (313/1355). Table 15 shows the breakdown of AHS outbreaks in African countries reporting AHS in the year 2007.

Control of the disease involves vector control, vaccinations and imposition of quarantines.

Table 15: Breakdown of AHS outbreaks in African countries reporting AHS in the year 2007

NO	Country	Outbreaks	Cases	Deaths	Destroyed
1.	Ethiopia	140	1303	617	0
2.	Senegal	89	523	313	0
3.	South Africa	52	75	37	1
4.	Nigeria	5	545	388	117
5.	Lesotho	1	1	0	0
TOTAL		287	2447	1355	118

Map 11: Distribution of AHS in Africa as reported in 2007



BLUETONGUE

Bluetongue is a disease of ruminants livestock that is caused by the Bluetongue virus. The virus is transmitted to livestock by biting midges (*culicoides*) in some areas called sand flies or punkies. The virus is widely distributed throughout the subtropical and temperate regions of the world wherever different competent species of *culicoides* occur.

Impact

Bluetongue can have severe impact on the livestock economy of a country or region. The disease causes catastrophic losses to sheep populations but the natural hosts include domestic ruminants, wildlife ruminants as well as some carnivores. Mortality rates range between 50 and 100% in susceptible flocks, and there are other losses associated with morbidity and the need to provide care for sick animals. Costs associated with morbidity of sick animals include weight loss, reduced milk yield, abortion and associated veterinary costs. Moreover, disease outbreaks can result in millions of dollars in losses due to the impact on livestock health notably in the loss of markets for livestock due to regulatory restrictions on animal movement.

The most effective preventive measure to protect livestock from Bluetongue Virus (BTV) is through vaccination. In the year, two countries reporting to AU/IBAR recorded 23 outbreaks of Bluetongue, 56 cases and 11 deaths. Tunisia recorded the highest number of outbreaks and cases (16 and 37 respectively) whereas Lesotho recorded the highest number of deaths (10). Table 16 gives a breakdown of Bluetongue outbreaks by reporting countries in Africa.

TABLE 16: Breakdown of Bluetongue outbreaks by countries in Africa in 2007

NO.	Countries	Outbreaks	Cases	Deaths
1.	Tunisia	16	37	0
2.	Lesotho	6	18	10
3.	South Africa	1	1	1
	Total	23	56	11

TRYPANOSOMOSIS

African Trypanosomosis is a zoonotic disease caused by protozoan parasites of the genus trypanosome and transmitted cyclically by the Tsetsefly (*Glossina* spp). The disease is one of the main constraints to livestock production on the African Continent, preventing full use of the land to feed the rapidly increasing human population. The disease puts 65 million people and 50 million livestock at risk with total losses worth US\$ 4.5 million to agricultural production annually. Sleeping sickness, the disease caused in humans by some species of trypanosomes, is an important disease which poses a threat to millions of people in tsetse infested areas.

AU-IBAR statutory International council for Trypanosomiasis Research and Control (ISCTRC) coordinates research related to the disease control. ISCTRC coordinates its activities with other International Organizations such as FAO, WHO, and IAEA.

The ISCTRC Executive Committee comprises Sudan and Tanzania (representing East Africa), Botswana and Angola (representing South Africa), and Ghana and Mali (representing west Africa). Mauritania represents non-tse-tse transmitted trypanosomiasis in Northern Africa. The Pan African TseTse and Trypanosomiasis Campaign (PATTEC) is a project resulting from the recommendations of one of the ISCTR Executive Committee meetings.

In the year, 12 member countries reporting to AU/IBAR recorded a total of 856 outbreaks, 14,993 cases, and 2372 deaths due to the disease. Kenya recorded the highest number of outbreaks (578/856), followed by Tanzania (200/856) and Zambia (28/856). Tanzania recorded the highest number of cases (9581/14,993), followed by D.R. Congo (2765/14,993) and Kenya (897/14,993). Tanzania also recorded the highest number of deaths (1348/2372), followed by D.R. Congo (420/2372) and Ghana (300/2372). Table 17 shows the breakdown of Trypanosomosis outbreaks by countries in 2007.

Table 17: The breakdown of Trypanosomosis outbreaks by countries in Africa in 2007

No.	Country	Outbreaks	Cases	Deaths
1	Kenya	578	897	130
2	Tanzania	200	9581	1348
3	Zambia	28	904	38
4	Zimbabwe	26	45	5
5	D.R. Congo	7	2765	420
6	Mozambique	6	80	49
7.	Ethiopia	5	207	25
8.	Angola	2	7	2
9.	Botswana	2	6	5
10.	Malawi	1	1	0
11.	Uganda	1	200	50
12.	Ghana	Not recorded	300	300
TOTAL		856	14,993	2372

Current Trypanosomosis control relies on Trypanocidal drugs, use of Trypanotolerant cattle breeds and control of the vector, the Tsetsefly. Trypanocidal drugs are heavily relied on and this has led to an increasing problem with resistance in the target organism.

Within the AU/IBAR mandate to enhance AU member states and their regional economic communities to sustainably improve the contribution of animal resources to the nutrition and incomes of their communities, the International Council for Trypanosomiasis Research and Control (ISCTRC), a statutory council of AU/IBAR that collaborates with international agencies engaged in the field of Trypanosomiasis was formed. The council aims to stimulate progress and coordinate research on the problems of tsetse and Trypanosomiasis in Africa and to enable the research to keep pace with the progress being made by the regional and international organizations, which are the main forum for information dissemination and strategic planning.

BRUCELLOSIS

Brucellosis, also called undulant fever, or Malta fever is one of the most important zoonotic disease world wide that is of veterinarian, public health and economic importance. It is a highly contagious bacterial zoonosis caused by members of the *Brucella* genus that can infect humans but primarily infects livestock. The disease occurs mainly among individuals who regularly work with livestock. Brucellosis spreads through direct contacts with infected animals and animal products and through ingestion of contaminated dairy products prepared from unpasteurized milk. The disease can also be transmitted through close contact with the discharges of cattle and goats during miscarriages.

Brucellosis in livestock causes a range of problems including abortions, weak offsprings and reduced productivity. In the year, 12 member countries reporting the disease recorded a total of 679 outbreaks, 5612 cases, and 1208 deaths. South Africa reported the highest number of outbreaks (618/679). South Africa also reported the highest number of cases (3256/5612) followed by D.R Congo (1262/5612). D.R Congo recorded the highest number of deaths (957/1208), followed by south Africa (123/1208) and Namibia (112/1208). Table 18 shows the breakdown of brucellosis outbreaks by reporting member countries in 2007.

Table 18: Breakdown of brucellosis outbreaks by reporting member countries in 2007

No.	Country	Outbreaks	Cases	Deaths	Slaughter/ Destroyed
1.	South Africa	618	3256	123	187
2.	Namibia	12	155	112	0
3.	Mozambique	12	41	4	0
4.	Algeria	8	707	0	707
5.	Lesotho	5	31	2	1
6	Tanzania	4	5	0	0
7.	Uganda	4	81	2	0
8.	Zambia	4	21	6	0
9.	Botswana	4	12	0	11
10.	D.R Congo	4	1262	957	0
11.	Uganda	2	37	2	0
12.	Zimbabwe	2	4	0	0
TOTAL		679	5612	1208	906

RABIES

Rabies is a zoonotic viral disease which infects domestic and wild animals. It is transmitted to other animals and humans through close contact with saliva from infected animals (i.e. bites, scratches, licks on broken skin and mucous membranes). The disease is widely distributed and present on all continents of the world. Most human deaths follow a bite from an infected dog and once signs and symptoms of rabies start to appear, there is no treatment and the disease is almost always fatal to both animals and humans.

Reliable data on rabies is scarce in many areas of the globe, making it difficult to assess its full impact on human and animal health. In 2007, 19 member countries reporting the disease recorded a total of 2375 outbreaks, 4473 cases, and 2245 deaths, with Algeria recording the highest number of outbreaks 9893/2355), followed South Africa 9607/2355) and Namibia (201/2355) Lesotho recorded the highest number of bites 9921/4355), followed by D.R. Congo (902/4355) and Tanzania (9535/4355). D.R. Congo registered the highest number of deaths (837/2366), followed by South Africa (325/2356) and Namibia (233/2356).

Canine/feline species were the most affected, registering 592/946 (60.3%) outbreaks, followed by the bovine species, 160/946 (16.6%) and the Small ruminants, 100/964 (10.3%). Table 19 shows the breakdown of Rabies outbreaks by reporting member countries whereas table 20 shows breakdown of rabies outbreaks by species in 2007.

Table 19: Breakdown of Rabies outbreaks by reporting member countries in 2007.

No	Country	No. outbreaks	No. Bites Case	Deaths
1.	Algeria	893	287	17
2.	South Africa	607	528	325
3.	Namibia	201	233	233
4.	Zimbabwe	114	20	9
5.	Tanzania	104	535	188
6.	Tunisia	67	137	43
7.	Swaziland	61	66	66
8.	Botswana	56	57	36
9.	Zambia	51	234	103
10.	Kenya	42	130	0
11.	Angola	38	145	113
12.	Lesotho	35	921	302
13.	Ghana	28	27	1
14.	Sudan	25	8	0
15.	Mozambique	14	12	11
16.	D.R Congo	8	902	837
17.	Uganda	6	91	52
18.	Eritrea	3	15	13
19.	Nigeria	2	7	7
TOTAL		2355	4355	2356

Table 20: Breakdown of Rabies outbreaks by species in 2007

NO	Species	No. Outbreaks	Infection rate (5%)
1.	Canine & Feline	592	60.3
2.	Bovine	160	16.6
3.	SMR	100	10.3
4.	Wildlife	62	6.4
5.	Equine	36	3.7
6.	Humans	10	1
7.	Porcine	2	0.2
8.	Camel	2	0.2
TOTAL		964	100

BABESIOSIS

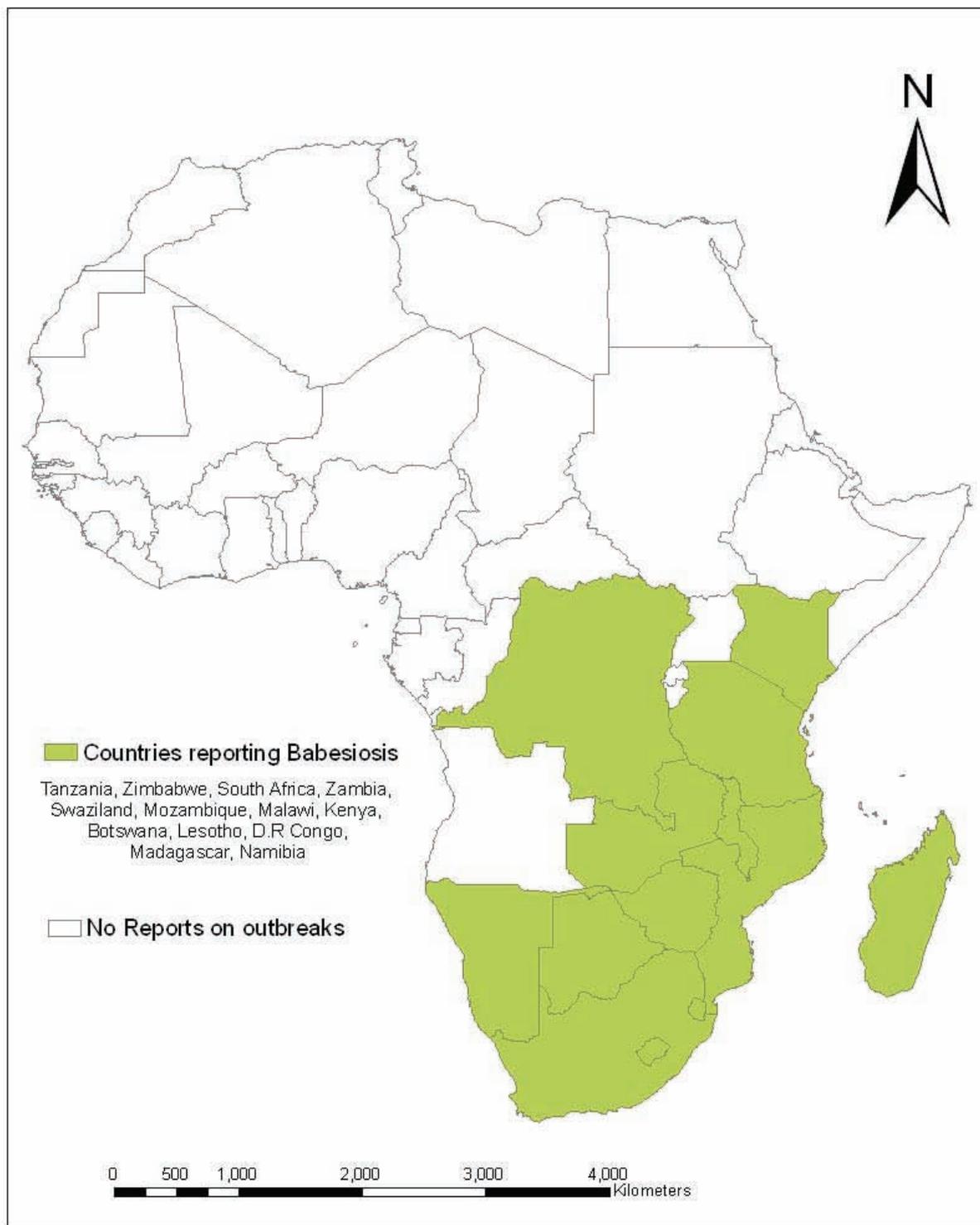
Members of the genus *Babesia* occur throughout the world and may cause a wide range of clinical syndromes in most domestic animals and humans due to differences in virulence within each *Babesia* SPP. The disease is transmitted by hard ticks (*Ixodidae*) during blood meals, and is characterized by an acute febrile reaction, jaundice, hemolytic anaemia, hemoglobinuria and variable mortality.

In the course of the year, 13 member countries reporting the disease reported a total of 476 outbreaks, 5949 cases, and 988 deaths. Tanzania recorded the highest number of outbreaks (9210/4760, followed by Zimbabwe (109/476) and South Africa (85/476). Zimbabwe registered the highest number of cases (2423/5949), followed by Tanzania (92286/5949), and D.R. Congo (690/5949). The highest number of deaths was recorded in Tanzania (812/988), followed by Zimbabwe (59/988), and South Africa (47/988). Table 21 shows the breakdown of Babesiosis outbreaks by reporting member countries in 2007.

Table 21: The breakdown of Babesiosis outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths	Destroyed
1.	Tanzania	210	2286	812	0
2.	Zimbabwe	109	2423	59	0
3.	South Africa	85	220	47	0
4.	Zambia	36	218	10	2
5.	Swaziland	12	64	23	0
6.	Mozambique	6	18	8	0
7.	Malawi	5	6	2	0
8.	Kenya	5	11	1	0
9.	Botswana	3	9	6	1
10.	Lesotho	2	2	0	0
11.	D.R Congo	1	690	20	0
12.	Madagascar	1	1	0	0
13.	Namibia	1	1	0	0
TOTAL		476	5949	988	3

Map 12: Distribution of Babesiosis in Africa as reported in 2007



ANTHRAX

Anthrax (also known as wool sorters disease, malignant pustules, milz brand, charbon and splenic fever) is one of the oldest and most destructive zoonotic diseases. It is a disease of public health importance since it also affects man and its infection can be fatal. Besides heavy losses of livestock due to the disease, the export trade in meat and animal products such as bones, hides and skins is affected because importing countries will not accept animal products from anthrax-active areas. The disease is also of environmental importance because when material or carcasses containing anthrax bacilli are exposed to the air, heat resistant spores are formed which remain potentially ineffective in the environment for decades.

The disease is caused by the bacterium *Bacillus anthracis*. The bacterium forms spores that are extremely resistant to temperature, sunlight, drying and chemical disinfectants. These spores can live in the environment for years. Outbreaks occur when spores enter an animal mainly by ingestion and changes to the disease causing form, multiplying and releasing potent toxins. Secondary outbreaks occur when animals and people come into contact with contaminated animal hides, milk, meat, wool, or feed or fertilizer that contain animal products.

In the course of the year, 16 member countries reporting the disease to AU/IBAR recorded a total of 630 outbreaks, 5555 cases, and 2160 deaths. Ethiopia recorded the highest number of outbreaks 9478/6300, followed by Guinea (44/630), and Guinea Conakry (28/630). Ethiopia also recorded the highest number of cases (3932/5555), followed by Kenya (538/5555), and guinea Conakry (364/5555). The highest number of deaths was also recorded in Ethiopia (1281/2160), followed by Guinea Conakry (318/2160) and Zimbabwe (113/2160). Table 22 shows the breakdown of Anthrax outbreaks by reporting member countries whereas table 23 shows the breakdown of the disease by species in 2007.

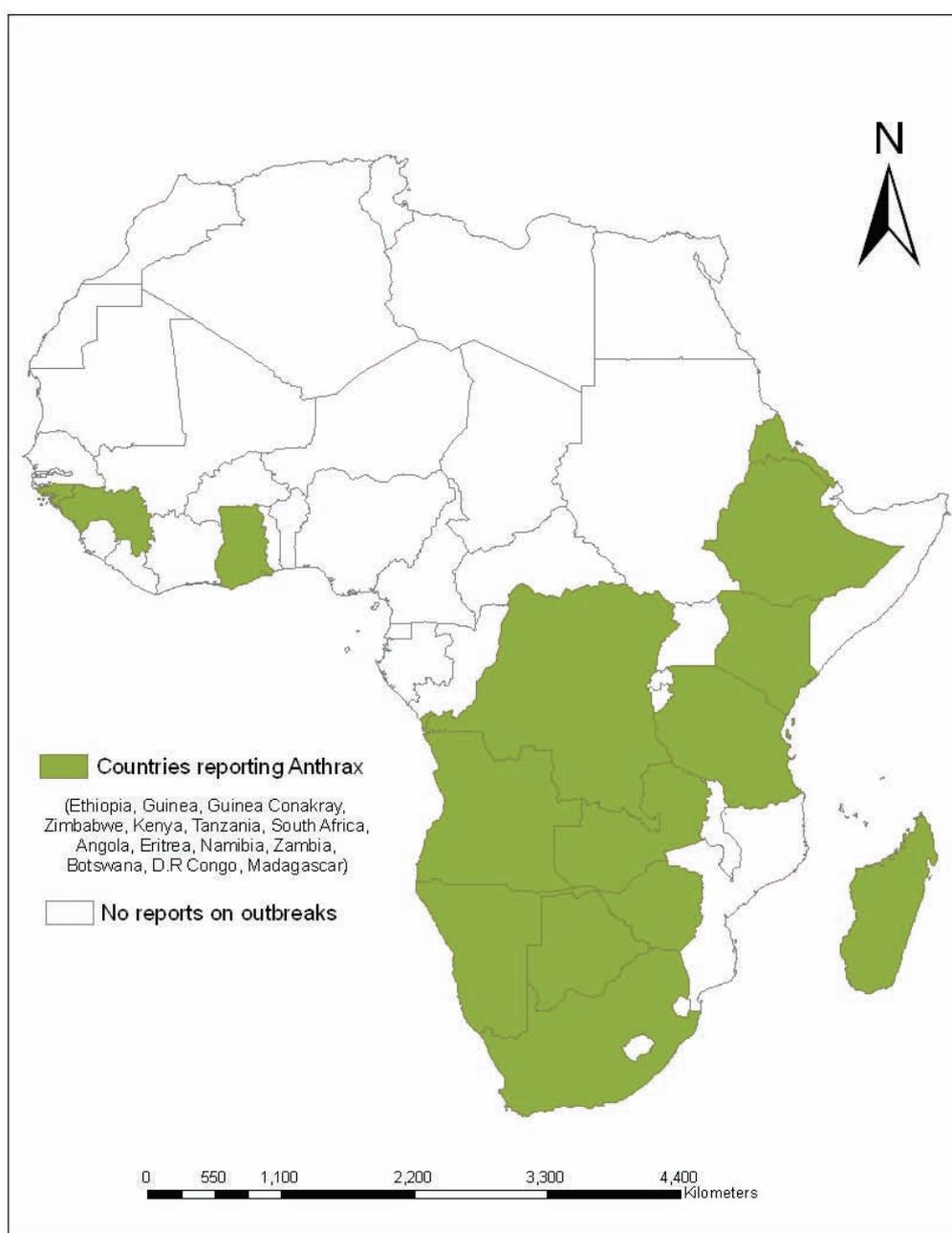
Table 22: Breakdown of Anthrax outbreaks by reporting member countries in 2007

No	Country	No of outbreaks	Cases	Deaths
1.	Ethiopia	478	3932	1281
2.	Guinea	44	273	257
3.	Guinea Conakry	28	364	318
4.	Zimbabwe	19	118	113
5.	Kenya	18	538	40
6.	Tanzania	12	74	7
7.	South Africa	9	18	13
8.	Angola	4	27	26
9.	Eritrea	4	137	82
10.	Namibia	4	8	8
11.	Zambia	4	15	12
12.	Botswana	2	2	2
13.	D.R Congo	2	0	0
14.	Madagascar	2	1	0
15.	Ghana	Not recorded	4	0
16.	Botswana	Not recorded	44	1
TOTAL		630	5555	2160

Table 23: Breakdown of Anthrax by species in 2007

No	Species	No. Outbreaks	Infection rate
1.	Bovine	785	49.9
2.	Caprine	465	29.5
3.	Equine	272	5.6
4.	Camel	50	3
TOTAL		1572	100

Map 13: Distribution of Anthrax in Africa as reported in 2007



BLACKLEG

Blackquarter disease also known as blackleg is a soil borne clostridial infectious disease of cattle and sheep, ranked high in terms of economic importance. The disease affects normally hind quarters and is characterised by myonecrosis, accumulation of gases with sound, severe toxemia and high mortality. The affected animal exhibits lameness, painful hot swelling, very high temperature, anorexia, dullness and death. Excessive distension of abdomen, blood stained frothy discharge from the nostril and anus, rancid odour, gas bubbles and blackened musculature are some of the characteristic findings which help in diagnosis of the disease in the field conditions.

In the year, 16 member countries reporting the disease recorded a total of 1251 outbreaks, 8467 cases, and 2791 deaths. Ethiopia recorded the highest number of outbreaks (547/1251), followed by Zimbabwe (249/1251), and Uganda (130/1251). Ethiopia also recorded the highest number of cases (4363/8467), followed by Zimbabwe (1032/8467), and Zambia (871/8467). The highest number of deaths was also recorded by Ethiopia (1397/2791), followed by Zimbabwe (576/2791), and Lesotho (127/2791). Table 23 shows the breakdown of Black quarter outbreaks by reporting member countries. 2007.

Table 23: Breakdown of Black quarter outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths	Destruction
1.	Ethiopia	547	4363	1397	0
3.	Zimbabwe	249	1032	576	0
2.	Uganda	130	334	0	0
4.	Tanzania	113	408	120	0
5.	Zambia	51	871	306	7
6.	Swaziland	42	128	63	2
7.	South Africa	24	56	41	0
8.	Lesotho	19	461	127	0
9.	Namibia	15	54	35	0
10.	Angola	13	195	28	529
11.	Senegal	10	477	49	0
12.	Madagascar	8	35	2	0
13.	Kenya	7	6	1	0
14.	Botswana	6	9	8	3
15.	D.R. Congo	6	0	0	0
16.	Malawi	4	38	38	0
TOTAL		1251	8467	2791	538

Most of the Blackquarter outbreaks, 1708/1715 (99.59%) were recorded in Bovines whereas the remaining 7/1715 (0.4%) were recorded in small ruminants. Effective vaccines are available to protect the animals against the disease.

INFECTIOUS BURSA (GUMBORO) DISEASE

Infectious bursal disease (IBD) is a highly contagious disease of young chicken caused by *infectious bursal disease virus* (IBDV), characterized by immunosuppression and mortality generally at 3 to 6 weeks of age. The disease was first discovered in Gumboro, Delaware in 1962. It is economically important to the poultry industry worldwide due to increased susceptibility to other diseases and negative interference with effective vaccination.

In the course of the year, 5 African countries reporting the disease to AU/IBAR recorded a total of 31 outbreaks, 27357 cases, and 5466 deaths. Ghana recorded the highest number of outbreaks (15/31), followed by Kenya (6/31), and Uganda (5/31). Uganda recorded the highest number of cases (16,907/27357), followed by Ghana (8464/27357), and Seychelles (1550/27357). The highest number of deaths was recorded in Ghana (3184/5466), followed by Uganda (1199/5466), and Seychelles (920/5466). Table 24 shows the breakdown of Infectious Bursa Disease outbreaks by reporting member countries in 2007.

Table 24: Breakdown of Infectious Bursa Disease outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths
1.	Ghana	15	8464	3184
2.	Kenya	6	330	57
3.	Uganda	5	16907	1199
4.	Seychelles	3	1550	920
5.	Swaziland	2	106	106
TOTAL		31	27357	5466

Control can be achieved through effective vaccination.

CONTAGIOUS CAPRINE PLEUROPNEUMONIA

International trade in livestock and animal products is subject to controls relating to public safety, animal health and cross-border movement, particularly relating to risks associated with transmission of disease. Contagious Caprine PleuroPneumonia (CCPP), a disease of major economic importance, poses substantial economic losses to goat production. The direct losses are due to high mortality, reduced milk and meat yield, cost of treatment, preventive vaccination, disease vaccination and surveillance, whereas additional, indirect losses result from trade restrictions.

In the course of the year, 5 African member countries reporting the disease recorded a total of 68 outbreaks, 10650 cases, and 1488 deaths. Tanzania recorded the highest number of outbreaks (25/68), followed by Kenya 919/68), and Eritrea (18/68). Uganda recorded the highest number of cases (6403/10650), followed by Tanzania (2893/10650), and Eritrea (1107/10650). Table 25 shows the breakdown of CCPP outbreaks by reporting member countries in 2007.

Table 25: Breakdown of CCPP outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths	Destroyed
1.	Tanzania	25	2,893	791	0
2.	Kenya	19	154	67	0
3.	Eritrea	18	1107	327	202
4.	Ethiopia	5	93	7	0
5.	Uganda	1	6403	296	1446
TOTAL		68	10650	1488	1648

The disease is effectively controlled through vaccinations.

HEART WATER

Heart water, the name given to the acute, febrile disease of ruminants is an infectious, non contagious, rickettsial disease of domestic and wild ruminants in areas infested by ticks of the genus *Amblyomma* and caused by *Ehrlichia ruminantium*. The effects and losses associated with Heart water are important constraint to the sustainable use on non-indigenous breeds. In the course of the year, 5 member countries reporting the disease recorded a total of 628 outbreaks, 2177 cases and 679 deaths. South Africa recorded the highest number of outbreaks (191/628), followed by Tanzania (119/628) and Zimbabwe (116/628). Tanzania recorded the highest number of cases (755/2178), followed by Zimbabwe (298/2178), and Madagascar (278/2178). The highest number of deaths was recorded by Tanzania (159/679), followed by Botswana (143/679) and South Africa (97/679). The highest number of outbreaks was recorded in the Bovine species followed by the small ruminants. Table 27 shows the breakdown of Heart Water outbreaks by reporting member countries in 2007.

Table 27: Breakdown of Heart Water outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths	Destroyed
2.	South Africa	191	321	97	2
3.	Tanzania	119	755	159	12
4.	Zimbabwe	116	297	117	0
5.	Botswana	87	144	143	16
6.	Zambia	41	232	49	0
7.	Madagascar	36	278	41	0
8.	Kenya	36	33	16	0
9.	Swaziland	26	134	47	0
10.	Mozambique	8	13	9	2
11.	Lesotho	3	3	2	0
12.	Namibia	1		0	0
13.	Angola	1	17	15	0
TOTAL		628	2178	679	32

3.4 OTHER DISEASES OF ECONOMIC IMPORTANCE

SHEEP AND GOAT POX

Sheep and goat pox are contagious viral diseases of small ruminants caused by sheep pox virus and goat pox virus. The diseases may be mild in indigenous breeds living in endemic areas, but are often fatal in newly introduced animals. The disease is transmitted by the respiratory route during close contact or the virus may also enter the body through other mucous membranes or abraded skin.

Economic losses result from decreased milk production, damage to the quality of hides and wool, and other production losses. Moreover, Sheep and Goat pox can limit trade and prevent the development of intensive livestock production.

In the course of the year, 5 member countries reporting the disease to AU/IBAR recorded a total of 13099 cases and 1803 deaths. Kenya reported the highest number of cases (6579/13099), followed by Eritrea (5336/13099) and Sudan (1037/13099). The highest number of deaths was recorded by Tunisia (725/1803), followed by Eritrea (573/1803) and Sudan (260/1803). A total of 324 animals were destroyed as a result of the disease. Table 28 shows the breakdown of Sheep and goat Pox outbreaks by reporting member countries in 2007.

Table 28: Breakdown of Sheep and Goat Pox outbreaks by reporting member countries in 2007.

No	Country	Cases	Deaths	Slaughtered/destroyed
1	Kenya	6579	244	15
2.	Eritrea	5336	573	246
3.	Sudan	1037	260	2
4.	Tunisia	137	725	61
5.	Algeria	10	1	0
TOTAL		13099	1803	324

BOVINE TUBERCULOSIS

Tuberculosis (TB), one of the most widespread infectious diseases, is the leading cause of death due to a single infectious agent among adults in the world. *Mycobacterium tuberculosis* is the most common cause of human TB, but an unknown proportion of cases are due to *M. bovis*. Most cases of TB occur in developing countries. Zoonotic TB (caused by *Mycobacterium bovis*) is present in animals in most developing countries where surveillance and control activities are often inadequate or unavailable; therefore, many epidemiologic and public health aspects of infection remain largely unknown.

In the year, 11 countries reporting bovine tuberculosis to AU/IBAR recorded a total of 125 outbreaks, 2389 cases and 95 deaths. A total of 2979 carcasses were destroyed as the result of the disease. Algeria recorded the highest number of outbreaks (39/125), followed by Angola (18/125) and Malawi (18/125). Tunisia recorded the highest number of cases (1296/2389), followed by Algeria (444/2389) and Angola (243/2389). The highest number of deaths was recorded by South Africa (61/95), followed by D.R. Congo (19/95) and Tanzania 98/95). Table 29 shows the breakdown of bovine tuberculosis outbreaks by reporting member countries in 2007.

Table 29: Breakdown of bovine tuberculosis outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths	Destroyed
1.	Algeria	39	444	2	357
2.	Angola	18	243	1	206
3.	Malawi	18	164	0	0
4.	South Africa	15	62	61	0
5.	Tunisia	12	1296	0	0
6.	Mozambique	6	7	2	3
7.	Tanzania	6	31	8	0
8.	D.R Congo	5	133	19	2410
9.	Ghana	3	6	0	6
10.	Madagascar	2	2	1	0
11.	Zambia	1	1	1	0
TOTAL		125	2389	95	2979

In industrialized countries, animal TB control and elimination programs, together with milk pasteurization, have drastically reduced the incidence of disease caused by *M. bovis* in both cattle and humans. In developing countries, however, animal TB is widely distributed, control measures are not applied or are applied sporadically, and pasteurization is rarely practiced.

MALIGNANT CATARRHAL FEVER

Malignant catarrhal Fever (MCF) is a serious often fatal disease affecting many species in the family Artiodactyle (even toed ungulates) including cattle, bison, deer, moose, exotic ruminants and pigs. The disease is caused by several viruses in the genus Rhadinovirus of the family Herpes viridae. The viruses are transmitted mainly by wildebeest calves, which become infected *in utero* by direct contact with other wildebeests, or in aerosols during close contact. Contamination of pasture contributes to transmission.

The economic impact due to the disease varies widely. However, the losses due to MCF have never been systematically determined, partly because there is no organized, enforced reporting system for the disease and partly because MCF is seriously under-reported. MCF outbreaks occasionally reach severe proportions however, resulting in death of many animals over a period of a few weeks or months. In Africa, it is responsible for very significant losses to domestic cattle herds each year.

In the course of the year, 6 countries reporting the disease to AU/IBAR recorded a total of 5 outbreaks, 539 cases and 283 deaths. South Africa recorded the highest number of outbreaks (57/75), followed by Kenya (8/75). The highest number of cases was recorded by Kenya (217/838) followed by South Africa (152/838). Kenya recorded the highest number of deaths (145/283) followed by south Africa (80/283). Table 30 shows the breakdown of MCF outbreaks by reporting member countries in 2007.

Table 30: Breakdown of MCF outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths	Destroyed
1.	South Africa	57	127	86	5
2.	Kenya	8	217	145	0
3.	Ethiopia	3	24	12	0
4.	Senegal	3	152	10	
5.	Eritrea	2	9	9	9
6.	Botswana	2	9	21	0
TOTAL		75	539	283	14

The disease can be prevented by separating susceptible animals from sheep, goats, wildebeest or any other suspected reservoir host. Wildebeest should always be separated from cattle. Besides, cattle should not be allowed on pastures where wildebeest have recently grazed, particularly near the time wildebeest calve.

PASTEURELLOSIS

Also known as Hemorrhagic septicemia (HS), Pasteurellosis is an acute disease caused by particular sero-types of *Pasteurella multocida* and manifested by an acute and highly fatal septicemia principally in cattle and water buffaloes. Animals are infected by direct or indirect contact.

In the year, 4 member countries reporting the disease recorded a total of 27 outbreaks, 471 cases and 219 deaths. Senegal recorded the highest number of outbreaks (15/27), followed by Lesotho (8/27) and Swaziland (2/27). Senegal recorded the highest number of cases (292/471), followed by Swaziland (81/471) and Botswana (63/471). The highest number of deaths was recorded by Senegal (139/219), followed by Botswana (59/219) and Lesotho (22/219). Table 31 shows the breakdown of Pasteurellosis outbreaks by reporting member countries in 2007.

Table 31: Breakdown of Pasteurellosis outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths
1.	Senegal	15	292	139
2.	Lesotho	8	35	22
3.	Swaziland	2	81	0
4.	Botswana	2	63	59
TOTAL		27	471	219

FOWL (AVIAN) POX

Fowl pox is a common disease of chickens and turkeys with substantial economic importance to the poultry industry. It is caused by a family of viruses collectively known as avipox virus.

During the year, 6 member countries reporting the disease recorded a total of 20 outbreaks, 1752 cases and 391 deaths. Uganda recorded the highest number of outbreaks (11/20), followed by Botswana (4/20), and Zambia (2/20). Uganda also recorded the highest number of cases (1509/1752), followed by Botswana (103/1752), and Zambia (85/1752). The highest number of deaths recorded by Botswana (156/391), followed by Uganda (132/391) and Senegal (80/391). Table 32 shows the breakdown of Fowl Pox outbreaks by reporting member countries in 2007.

Table 32: Breakdown of Fowl Pox outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	Cases	Deaths
1.	Uganda	11	1509	132
2.	Botswana	4	103	156
3.	Zambia	2	85	0
4.	Senegal	1	12	80
5.	Ghana	1	6	3
6.	Eritrea	1	37	13
TOTAL		20	1752	391

BOTULISM

A total of 8 outbreaks, 144 cases, and 22 deaths due to Botulism was reported by two countries only, reporting the disease to AU/IBAR in course of the year, Swaziland and Senegal.

CYSTICERCOSIS

Just like in the previous year, the disease was reported by two countries, South Africa and Angola. The two countries recorded a total of 54 outbreaks, 140 cases, 29 deaths and 5129 carcasses destroyed.

MANGE

Mange is an ectoparasite disease produced by mites. It can be a very stubborn condition, particularly in goats, causing much damage to the skin. During the year, 5 member countries reporting the disease to AU/IBAR recorded a total of 50 outbreaks, 454 cases and 48 deaths. Ghana recorded the highest number of outbreaks (24/50) followed by Swaziland (10/454). Ghana also recorded the highest number of cases 130/454), followed by Nigeria (157/454). The highest number of deaths was recorded in Ghana (23/48). Table 33 shows the breakdown of mange outbreaks by reporting member countries in 2007.

Table 33: Breakdown of mange outbreaks by reporting member countries in 2007

NO	Country	Outbreaks	cases	Deaths
1.	Ghana	24	130	23
2.	Swaziland	10	93	15
3.	Nigeria	8	157	10
4.	Kenya	6	66	0
5	Lesotho	2	8	0
TOTAL		50	454	48

DERMATOPHILOSIS

Mycoses of animals are of great economic and social importance, even when they do not directly cause human pathology. Their economic importance is the result of decreased production by animals infected with the disease. Other problems, on which we do not possess sufficient data but which might probably be or becoming emerging diseases, are mycotic mastitis, mycotic ruminitis, and mycotic abortions.

Therefore, the Mycotoxicoses are of extreme economic importance and therefore the surveillance of mycotic diseases should be done more efficiently. The social significance of the animal mycoses include the obvious problems connected with their transmission to man, mainly due to the detrimental psychological consequences associated with working or living with sick animals, especially when they are afflicted with skin lesions, where appearance may cause revulsion. Zambia recorded the highest number of outbreaks (10/20), followed by Botswana (5/20) and Ghana (2/20). Zambia recorded the highest number of cases (822/874), followed by Lesotho (21/874) and Ghana (16/874). The highest number of deaths was recorded by Zambia (26/48), followed by Lesotho (21/48). Table 33 shows the breakdown of Dermatophilosis outbreaks by reporting countries in 2007.

Table 33: Breakdown of Dermatophilosis outbreaks by reporting countries in 2007

NO	Country	Outbreaks	Cases	Deaths
1	Zambia	10	822	26
2	Botswana	5	9	0
3	Ghana	2	16	0
4	Lesotho	1	21	21
5	Mozambique	1	2	0
6	Kenya	1	4	1
TOTAL		20	874	48

The increase in the frequency of fungal infections over the past decade is significant and this calls for early diagnosis and treatment.

4. CONCLUSION

Epidemic diseases including Rinderpest (RP), Foot and Mouth Disease (FMD), CBPP, CCPP, Peste Des Petits Ruminants (PPR) continue to threaten national industries. Their direct effects include high levels of morbidity and mortality, control or eradication program costs and restrictions to trade in livestock and livestock products.

Trans-boundary Zoonotic Diseases (TZDs) among them the Rift Valley Fever (RVF) and Highly Pathogenic Avian Influenza are a major cause of morbidity and mortality in both animals and humans. They cause catastrophic losses in animal production and productivity despite inducing serious constraints to trade of animals and animal products. TZDs cause far-reaching socio-economic consequences in developing countries in Africa, they sometimes turn into true natural disasters, throwing into question the fragile economies and reversing development gains made over several decades. HPAI caused by H5N1 influenza virus is an emerging Transboundary zoonotic disease at the global level with disaster implications. On the other hand, Rift Valley Fever is a re-emerging transboundary zoonotic disease in Eastern Africa.

Endemic production limiting diseases which include on the other hand mastitis, Pneumonia, and parasitic diseases such as Trypanosomosis and Helminthosis, are less dramatic but tend nonetheless to make livestock farmers vulnerable to external shocks.

All the above diseases reinforce the vicious circle of poverty because livestock assets do not grow and products for home consumption or sale are not harvested. All these diseases and conditions have impacts on livestock keepers and consumers because of productivity losses, control costs and indirect losses.

Timely reporting of diseases to relevant authorities can reduce the above costs since action will be taken in good time before a lot of losses have occurred. However, the year saw a further drop in the number of countries reporting diseases to AU/IBAR. In the course of the year, only 31 out of 52 (59.6%) member states made reports to IBAR. All the reports received 100% were in the electronic format.

Information being an important tool to decision making, there is need for member countries to try and commit themselves to disease reporting.

5. ACKNOWLEDGEMENT

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AU/IBAR appreciates the effort made by livestock owners, community based programs, field staff and the private sector in disease reporting.

- Annex I:** **References**

- Annex II:** **Monthly Breakdown of Disease Reports received from member countries in 2007**

- Annex III:** **Baseline Information of AU IBAR countries**

- Annex IVa:** **Disease reporting form-completing guidelines**

- Annex IV b:** **Disease reporting form complete guidelines**

- Annex V:** **Competent Authority contacts in member countries**

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Annex II: Monthly Brakdown of Disease Reports received from member countries in 2007

Monthly Disease Reports Inventory – 2007												
Country	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Algeria												
Angola												
Benin												
Botswana												
Burkina Faso												
Burundi												
Cameroon												
Cape Verde												
CAR												
Chad												
Comoros												
Congo Brazzaville												
Cote d'Ivoire												
Djibouti												
DR Congo												
Egypt												
Equatorial Guinea												
Eritrea												
Ethiopia												
Gabon												
Gambia												
Ghana												
Guinea Conakry												
Guinea Bissau												
Kenya												
Lesotho												
Liberia												
Libya												
Madagascar												
Malawi												
Mali												
Mauritania												
Mozambique												
Namibia												
Niger												
Nigeria												
Rwanda												
Sao Tome & Principe												
Senegal												
Seychelles												
Sierra Leone												
Samalia												
South Africa												
Sudan												
Swaziland												
Tanzania												
Togo												
Tunisia												
Uganda												
Zambia												
Zimbabwe												

Annex III: Baseline Information of AU IBAR countries

	GENERAL INFORMATION				HUMAN POPU. (Million)	AREA [1000 sq km]	ANIMAL POPULATION ('000)						
	FLAGS	CAPITAL CITY	CURRENCY				CATTLE	SHEEP	GOATS	PIGS	CHICKENS	CAMELS	BUFFALO
ALGERIA		Algiers	Algerian Dinar		32.8	2382	1 300	16 800	3 400	6	132 000	136	X
ANGOLA		Luanda	Kwanza		15.9	1247	3 900	336	2 000	800	6 650	X	X
BENIN		Porto - Novo	CFA Franc		8.4	113	1 550	645	1 270	500	29 000	X	X
BOTSWANA		Gaborone	Pula		1.7	582	2 380	250	1 850	7	3 500	X	X
BURKINA FASO		Ouagadougou	CFA Franc		13.2	274	4 800	7 000	9 000	600	23000	X	X
BURUNDI		Bujumbura	Burundian Franc		7.5	28	400	330	920	80	4 400	X	X
CAMEROON		Yaounde	CFA Franc		16.3	475	5 900	3 880	4 400	1 430	31 000	X	X
CAPE VERDE		Praia	Escudo		0.5	4	22	9	112	640	480		
CENTRAL AFRICAN REP		Bangui	CFA Franc		4	623	3 200	211	2 900	649	4 600	X	X
COMORES		Moroni	Comoro Franc		8	2	51	20	170	X	490	X	X
CONGO		Brazzaville	CFA Franc		3.9	342	800	900	4 100	1 000	22 000	X	X
COTE D'IVOIRE		Yamoussoukro	CFA Franc		18.1	323	1 400	1 400	1 100	300	31 100	X	X
D.R.C		Kinshasa	Congolaise franc		48	2345	900	930	4 400	1 100	21 000		
DJIBOUTI		Djibouti	Djiboutien Franc		0.7	23	269	470	513	X	X	66	X
EGYPT		Cairo	Egyptian Pound		78.8	1001	3 500	4 400	3 300	X	99 000	100	3 400

	AFRICAN COUNTRIES SURVEY					ANIMAL POPULATION ('000)						
	FLAGS	CAPITAL CITY	CURRENCY	HUMAN POPU. (Million)	AREA ['000 sq. KM]	CATTLE	SHEEP	GOATS	PIGS	CHICKENS	CAMELS	BUFFALO
EQUATORIAL GUINEE		Malabo	CFA Franc	0.5	28	2 368	687	864	54	8 900	X	X
ERITREA		Asmara	Nakfa	4.4	118	2 200	1 600	1 700		4 600	80	X
ETHIOPIA		Addis Ababa	Birr	75	1104	35 095	22 000	16 950	25	55 400	X	X
GABON		Libreville	CFA Franc	1.3	268	39	198	91	213	3 200	X	X
GAMBIA		Banjul	Dalasi	1.5	11	364	195	270	14	780	X	X
GHANA		Accra	Cedi	22.1	239	1 300	2 700	3 000	400	20 000	X	X
GUINEA BISSAU		Bissau	CFA Franc	1.5	36	520	285	325	345	850	X	X
GUINEA CONAKRY		Conakry	Guinean Franc	9.4	246	2 368	687	864	54	8 900	X	
KENYA		Nairobi	Kenyan Shilling	34	583	13 392	5 800	7 600	110	30 000	X	X
LESOTHO		Maseru	Loti	1.7	30	510	720	560	63	1 700	X	X
LIBERIA		Monrovia	Liberian Dollar	3.2	111	36	210	220	130	4 200	X	X
LIBYA		Tripoli	Dinar	5.8	1760	220	4 125	1 265	X	248	72	46
MADAGASCAR		Antananarivo	Malgache franc	18.6	587	10 400	800	1 400	900	25 900	X	X
MALAWI		Lilongwe	Kwacha	12.8	119	750	110	1 450	240	15 000	X	X
MALI		Bamako	CFA Franc	13.5	1240	6 600	6 200	9 800	65	24 500	500	100
MAURITANIA		Nouakchott	Ouguiya	3.07	1031	1 500	7 500	5 000	20	4 100	1 200	X
MAURITIUS		Port Louis	Mauritius Rupee	1.2	2	27	7	94	20	4 427	X	X

	AFRICAN COUNTRIES SURVEY						ANIMAL POPULATION ('000)						
	FLAGS	CAPITAL CITY	CURRENCY	HUMAN POPU. (Million)	AREA [1000 SQ KM]	CATTLE	SHEEP	GOATS	PIGS	CHICKENS	CAMELS	HORSES	
MOROCCO						2 700	17 300	5 100	10	135 000	X	150	
MOZAMBIQUE		Maputo	Metical	19.7	802	1 320	122	392	180	280	X	X	
NAMIBIA		Windhoek	Namibian Dollar	2	824	2 294	2 174	1 732	19	2 250			
NIGER		Niamey	CFA Franc	13.9	1267	2 200	4 312	6 700	39	20 000	400	80	
NIGERIA		Abuja	Naira	131.5	924	19 830	20 500	24 300	4 855	126 000	X	X	
RWANDA		Kigali	Rwandan Franc	9	26	732	254	750	177	1 090	X	X	
SAHRAWI		El Aaiun	Dirham/ Tala	34.1	266	X	X	X	X	X	X	X	
SAO TOME & PRINCIPE		Sao Tome	Dobra	0.1	1	232	1 172	22 905	34 905	103 441	X	X	
SENEGAL		Dakar	CFA Franc	11.6	196	3 100	4 500	3 900	330	4 500	X	500	
SEYCHELLES		Victoria	Seychelles Ruppe	0.1	0.4	1 400	X	5 000	18 300	1 000	X	X	
SIERRA LEONE		Freetown	Leone	5.5	72	420	365	200	52	6 000	X	X	
SOMALIA		Mogadishu	Somali Shilling	8.2	638	1 400	13 000	5 000	18 300	1 000	X	X	
SOUTH AFRICA		Pretoria	Rand	47.4	1220	13 500	28 600	6 700	1 500	119 700	X	250	
SUDAN		Khartoum	Dinar	27.9	2506	35 000	42 500	37 500	X	41 000	X	X	
SWAZILAND		Mbabane	Lilangeni	1	17	660	26	438	31	1 000	X	X	
TANZANIA		Dodoma	Tanzanian Shilling	38.3	945	14 350	4 150	9 900	345	28 000	X	X	
TCHAD		N'Djamena	CFA Franc	9.7	1284	1 330	1 370	1 070	275	29 000	X	X	
TOGO		Lome	CFA Franc	6.1	57	223	740	1 110	850	7 500	X	X	
TUNISIA		Tunis	Tunisian Dinar	10.1	164	800	6 600	1 400	X	43 000	200	X	
UGANDA		Kampala	Ugandan Shilling	27.6	236	5 700	1 970	3 650	960	23 000	X	X	
ZAMBIA		Lusaka	Kwacha	11.6	753	2 273	120	1 069	324	28 000	X	X	
ZIMBABWE		Zimbabwe	Zimbabwe Dollar	13	391	5 500	525	2 770	278	15 000	X	26	

X Data not available Please CVO update their data

Annex V: Competent Authority Contacts in member countries

NO	COUNTRY	NAME OF DIRECTOR	POST OFFICE AND PHYSICAL ADDRESS
1.	ALGERIA	Dr. Rachid Bouguedour Directeur des Services Vétérinaires Ministère de l'Agriculture et du Dévelop. Rural	12, Boulevard Colonel Amirouche 16000 ALGER, Algérie Tel: (213-21) 743 434/711712 Fax: (213-21) 743 434/7463 33 Email: dsva1@wissal.dz or rbouguedour@yahoo.fr
2.	ANGOLA	Dr Filipe Vissesse Directeur général des services vétérinaires Ministério da Agricultura do Desenvolvimento Rural	Av. Comandante Gika-Largo Antonio Jacinto No. 55-56 C.P. 10578 LUANDA-ANGOLA Tel: (244-222) 324 067/323 217/321 429 Fax: (244-222) 324 067 Email: dnap@ebonet.net
3.	BENIN	Dr. Christophe Boni Monsia Directeur de l'élevage Ministère de l'Agriculture, de l'élevage et de la Pêche	BP 2041, COTONOU, Benin Tel: (229) 21 330 285/21331 665/21331768 Email: delevage@intnet.bj or pacebeni@intnet.bj or bonimonsia@yahoo.fr
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5.	BURKINA FASO	Dr. Marcel Nagalo Directeur général des services vétérinaires Ministère des ressources animaux Direction générale des services vétérinaires	09 Ouagadougou B.P 907 Burkina Faso Tel: (226) 5032 4584/307650/326053 Mobile no. (226) 70200670 Fax: (226) 5031 3529 Email: dvs@fasonet.bf or mamadou_p@hotmail.com
6.	BURUNDI	Dr. Maurice Ntahijara Directeur générale de l'élevage Ministère de l'agriculture et de l'Elevage	BP 161 Gitega Bujumbura BURUNDI Tel: (257) 402 192 Fax: (257) 402 092 Email: ntamaurice@yahoo.fr
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8.	CAPE VERDE	Dr. Giberto C.C Silver	DGASP-MA

		Directeur des Services d'Elevage	B.P 50 PRAIA, Cap-vert Email: dgasp@mail.cvtelecom.cv
9.	TCHAD	Dr. Adam Hassan Yacoub Directeur des Services de Vétérinaires Ministère de l'Elevage,	BP 750 N'DJAMENA, TCHAD Tel: (235) 520 797 Fax: (235) 52 1 777/520797 Email: adam_hyacoub@yahoo.fr or pacechad@intnet.td
10.	CONGO	Dr Valentin Okombo-Ngassaki Direction Général de l'Elevage Ministère de l'Agriculture, de l'Elevage et de la Pêche	B.P. 83 Brazzaville-Congo Tel: + 242 66 118 81 Fax: + 242 5274743 Email: cyrillelougouedi@yahoo.fr or valentin_okombo@yahoo.fr
11.	DRC	Dr. Honoré Robert N'Lemba Mabela Directeur Chef des Services de la production et la santé Animales DPSA Ministère de l'Agriculture, la pêche et l'Elevage	Rue Ponzi NO. 65 Quartier Ngansele Commune Mount. Ngafula C/O FAOR B.P. 16096 KINSHASA/GOMBE CONGO (REP. DEM.DU) Tel: + 243 815 126 564/999902 967 Fax: 176 322 62145 Email: dr_nlemba@yahoo.fr or pace.rdc@micronet.cd
12.	COTE D'IVOIRE	Dr. Charles Kouame Kanga Directeur des Services Vétérinaires et de la Qualité Ministère de la Production Animal et des ressources Halieutiques Direction des Services Vétérinaires Cité, Administrative	B.P. V 84 ABIDJAN Tour C, 11 ^e Etage, CITAD ABIDJAN Tel: (225) 2021 8972 Fax: (225) 20219085 Email: kcem1@yahoo.fr , dsvq@aviso.cj or phyenyd@yahoo.fr
13.	DJIBOUTI	Dr. Mouassa Ibrahim Cheick Directeur général de l'élevage et des Services Vétérinaires Ministère de l'agriculture, de l'Elevage et de la mer	B.P. 297, DJIBOUTI Tel: (253) 351 301/351 025 Fax: (253) 357 061 Email: pace@intnet.dj
14.	EGYPT	Dr. Hameid Abd EL-Tawab Samaha Chairman of the General Organization of Veterinary Services (GOVS) Ministry of Agriculture and Land Reclamation	1 st nadi El Seid Street-Dokki Giza 12618-CAIRO, Egypt Tel: (202) 7481750 Fax: (202) 336 17 27 Email: samahahyg@hotmail.com or samahahyg@claes.sci.eg
15.	ERITREA	Dr. Ghebreiwet Teame Mahru Director of Veterinary Services Ministry of Agriculture APOD	P.O Box 4114/1048 ASMARA ERYTHREE

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16.	ETHIOPIA	<p>Dr. Berhe G/Igziabher Head, Animal Health Department Head, Animal & plant Health Regulatory Department Ministry of Agriculture and Rural Development</p>	<p>P.O Box 62347, Addis Ababa Ethiopia Tel: Mobile: (251) 911254 374 Tel: Office: +251 116 460119 Fax: 251 116 478591 Email: berheg@gmail.com Physical Address: Lamberet (Near ILRI)</p>
17.	GABON	<p>Dr. Jean-Félix Ibouesse Directeur de l'Élevage et des Industries Animales</p>	<p>B.P. 136, Libreville Tel: 241 0668 8076/720382 Email: ibouess@yahoo.fr</p>
18.	GAMBIA	<p>Dr. Kebba Daffeh Director of veterinary services Department of Veterinary services</p>	<p>ABUKO, The Gambia Tel: (+220) 4390 820/7575 Tel Mobile: (+220) 990 2441 Email: kebbadaffeh@yahoo.co.ke Fax: (220) 4397 575</p>
19.	GHANA	<p>Dr. Enoch Boye-Mensan Koney Chief Veterinary Officer, Veterinary Services Directorate Ministry of Feed and Agriculture</p>	<p>P.O Box M161, ACCRA, Ghana Tel: (233-21) 775 777 Mobile: (233-246 493 139 Fax: (233-21) 776 021 Email: vsdghana@gmail.com; vsdghana@yahoo.com; vetsdept@africaonline.com.gh</p>
20.	GUINEE CONAKRY	<p>Dr. Sory Keita Directeur National de l'Élevage Ministère de l'Agriculture, de l'Élevage, de l'Environnement et des Eaux et Forêts Direction Nationale de l'Élevage)</p>	<p>MAE/DNE B.P. 5585, CONAKRY REBLIQUE DE GUINEE Tel: (224) 60436107 Fax: (224) 30 45 20 47 Email: k.sory@yahoo.fr</p>
21.	GUINEE BISSAU	<p>Dr. Ivo Mendes Directeur de Service Vétérinaires Ministério da Agricultura e Desenvolvimento Rural</p>	<p>C.P. 26, BISSAU, GUINEE-BISSAU Tel: 245 7222 980 Fax: 245 72 21 719 Email: imendes@yahoo.fr or pacegbissau@hotmail.com</p>
22.	GUINEE EQUAT	<p>Dr. Gabriel Martin Esono Mdong Micha Director General de Ganaderiary limentacion Ministerio de Agricultural Desarrollo Rural</p>	<p>Apartado 1041 MALABO, Guinee Equatoriale Tel: 240 27 39 24 Fax: 240 09 33 13/240 09 31 78</p>
23.	KENYA	<p>Dr. Peter Ithondeka Director of Veterinary Services Ministry of Livestock Department of Veterinary Services</p>	<p>Veterinay Research Laboraty P.O KANGEMI-00625, Nairobi-KENYA Tel: 254 20 2700575/254 20 631 567 Fax: 254 20 631273 or 4765586 Email: vetdept@todaysonline.com</p>
24.	LESOTHO	<p>Dr. Malefane Moleko</p>	<p>Private Bag A 82</p>

		Director General of Veterinary Services Department of livestock Services	Maseru, 100 Tel: 266 223 123 18 Fax: 266 223 115 00 Email: molekomp@yahoo.co.uk
25.	LIBERIA	Dr. Kpadeh K. Koikoi Director of Veterinary Services	P.O Box 10-4094 MONROVIA, Liberia
26.	LIBYA	Dr. Giuma EL Aarf Elhafi Chief Veterinary Officer	P.O Box 7344, Tripoli-Aen Zara Libya Tel: 00218 214 831015/00218 21 4831016 Fax: 00218214832123 Email: Giuma109@hotmail.com
27.	MADAGASCAR	Dr Raymond Directeur de la Santé Animale et du Phytosanitaire Ministère de l'Agriculture, de l'Elevage et de la pêche	AMPANDRIANOMBY B.P 291 ANTANANARIVO 101, MADAGASCAR Tel: (261-20) 24 636 38 or (261-20) 22 665 36 Fax: (261-20) 22 665 34 Email: maillard@cirad.mg
28.	MALAWI	DR. Wilfred Lipita Director of Animal Health and Livestock Development Ministry of Agriculture	P.O Box 2096 LILONGWE, Malawi Fax: (265-1)75 13 49 Email: wilipita@yahoo.com
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31.	MAURITIUS	Dr Deodass Meenowa Lewis Prayag Principal Veterinary Officer Ministry of Agro Industry and Fisheries Division of Veterinary Medicine	REDUIT, Mauritius Tel: (230) 466 66 62 Fax: (230) 464 2210 Email: dmeenowa@mail.gov.mu or moadvs@mail.gov.mu

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34.	NAMIBIA	Dr. Otto J. B. Hübschle Chief Veterinary Officer Ministry of Agriculture, Water and Rural Forestry	Private Bag 12022 Ausspannplatz, Government park Windhoek 9000, NAMIBIA Tel: (264-61) 208 7513 Fax: (264-61) 208 7779 Email: huebschleo@mawrd.gov.na
35.	NIGER	Dr Alzouma Maïga Zourkaleïyi Directeur de la Santé Animale Ministère de Ressources Animale B.P. 12091	NIAMEY, Niger Tel: (227) 733 184 or 227 207 331 84 Fax: (227) 733 186 / 738486 or (227) 20732692 Email: dvsniger@yahoo.fr ; alsouma_maiga@yahoo.fr
36.	REPUBLIC OF CENTRAL AFRICA	Dr. Emmanuel NAMKOISSE Directeur santé Animal/coordonnateur National SPINAP Agence Nationale de Développement de L'élevage (ANDE)	BP: 1509 Bangui Tel: (236) 7504 2978/70011721 Fax: (236) 21617425 Email: nam_emma@yahoo.fr
37.	NIGERIA	Dr. Junaidu Ahmed Maina Director Federal Ministry of Agriculture and Rural Development Department of Livestock and Pest control services	New Secretariat, Area 11, P.M.B. No. 135, Garki, Abuja, FCT NIGERIA Tel: (234-9) 3142319/ 08037044433 Fax no. (234-9) 314 23 19/5240126 Email: pacenigeria@microaccess.com
38.	RWANDA	Dr. Rutagwenda Théogène Ministère de l'Agriculture et des Ressources Animales Directeur de l'Office Rwandais du	P.O. Box 621 MINAGRI KIGALI, Rwanda Tel: (250) 084 75 493

		Développement des Ressources Animales (RARDA)	Tel/fax: (250) 589 71 6 / 585057 Email: rutagwendat2006@yahoo.com
39.	SAO TOME ET PRINCIPE	Dr. Vicente Dos Ramos José Barretoho Vera Cruz Directeur de l'Elevage Ministère de Economia	Avenida Marginal 12 de Julio Caixa Postal 718 SAO TOME et Principe
40.	SENEGAL	Dr. Malick Faye Directeur de l'Elevage Ministère de l'Elevage	37, Avenue Pasteur BP 67, DAKAR Tel: (221) 821 3228/639 3848 Fax: (221) 821 3228 Email: mfaye@refer.sn
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42.	SIERRA LEONE	Mr. Francis A-R Sankoh Director of Livestock Services Division Ministry of Agriculture, Forestry and Food Security	Youyi Building FREETOWN, Sierra Leone Tel: (232) 242 167 (232) 076 734 580 Email: farsankoh@yahoo.com
43.	SOMALIA	Dr. Abdirahman Nur Qeiliye Director General Ministry of Livestock, Forestry and Range TFG- Somalia	MOGADISHU, SOMALIA E-mail garish01@hotmail.com Tel. +252 15132463
44.	SOUTH AFRICA	Dr Botlhe Michael Modisane, Chief Director: Food, Animal Health and Disaster Management Department of Agriculture Director of Veterinary Services	Private Bag X 250 Pretoria 0001 Gauteng Province South Africa Tel. no. (27-12) 3196500/3 Fax: (27-12) 319 6281 E-mail: CDFAHDM@nda.agric.za OR DVS@nda.agric.za
45.	SUDAN	Dr. Mohammed Abdel Razig bdel Aziz Director General, Animal Health and Epizootic Disease control Ministry of Animal Resources and Fisheries	PO Box 293, KHARTOUM SUDAN Tel. no. (249) 912 305 573 Fax: (249-) 154 29 89 36 Email: pacesud@yahoo.com or marazig@hotmail.com
46.	SWAZILAND	Dr Robert S. Thwala Director of Veterinary and Livestock Services re and Cooperatives	PO Box 162 MBABANE, Swaziland Tel: (268) 404 2731-9/404 6948 Fax: (268) 404 9802

		Or sd-fangr@realnet.co.sz	Email: thwalari@gov.sz ; sd-fangr@realnet.co.sz
47.	TANZANIA	Dr. Win Mleche Acting Director of Veterinary Services Ministry of Livestock Development and Fisheries	PO Box 9152 Dar Es Salaam, Tanzania Fax: (+ 255-) 784358549/+ 255222862592 Email: dvs@mifugo.go.tz or wcmleche@yahoo.co.uk
48	TOGO	Dr. BATAWUI Komla Batssé Directeur de l'Elevage et de la Pêche Ministère de l'Agriculture, de l'Elevage et de la Pêche	9, Avenue des Nîmes BP 4041, LOME TOGO Tél 228 221 36 45/ 221 60 33 Mobile 228 909 27 30 Fax 228 221 71 20 E-mail : dbatawui@yahoo.fr
49.	TUNISIA	Dr. Malek Zrelli Directeur Général des Services Vétérinaires Ministère de l'Agriculture et des ressources hydrauliques,	30 Rue Alain Savary Tunis 1002 TUNISIA Tel : 216 717 945 86 Fax : 216 717 879 06 Zrelli.malek@iresa.agrinet.tn
50.	UGANDA	Dr William Olaho-Mukani Director Animal Resources Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)	PO Box 513 ENTEbbe, Uganda Tel: (256-41) 320 825 Or. Mobile no. 256-772-653139 Fax: (256-41) 320 428/321 070 Email: dar.maaif@infocom.co.ug Or wolahomukani@yahoo.com
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