

Pan African Animal Health Yearbook



2008



African Union
Interafrican Bureau for Animal Resources

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Pan African Animal Health Yearbook

2008



Interafrican Bureau for Animal Resources (IBAR)

African Union (AU)

P.O.Box 30786 code 00100

Nairobi, Kenya

ibar.office@au-ibar.org

www.au-ibar.org

Pan African Animal Health Yearbook

An AU-IBAR Publication

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Applications for such permission should be addressed to:

The Director

African Union – Interafrican Bureau for Animal Resources (AU-IBAR)

Kenindia Business Park

Museum Hill, Westlands Road

P.O. Box 30786

00100, Nairobi, KENYA

or by e-mail to: ibar.office@au-ibar.org

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The African Union, Interafrican Bureau for Animal Resources (AU-IBAR) values disease reporting as key activity in achieving its goal of improving human wellbeing through enhanced animal health, production, trade and marketing. Animal disease reports are essential for tracking diseases in our countries. As many animal diseases also infect people, Veterinary Public Health uses the reports to better understand where and when diseases are occurring and the information can be used to educate veterinarians and physicians to better protect the health of animals and people. With the growing trend of competitiveness, timely provision of science-based evidence for complying with global standards is mandatory for African animals and animal products to penetrate and retain access to markets.



Professor Ahmed El-Sawalhy

I have observed with great satisfaction that 44 out of 53 representing 83% of the member countries have done a commendable job by submitting their disease reports to IBAR in 2008 and thus they have contributed to the successful production of the current edition of the Pan African Animal Health Yearbook. However, bearing in mind the importance of disease reporting in achieving IBAR's mandate, and in order to enable IBAR to publish pertinent scientific information in the Pan African Animal health yearbook, a lot still remains to be done and I would wish to urge countries not reporting to do so.

Disease reporting and information sharing can go a long way in minimizing the impact of serious animal health emergencies and this Yearbook provides a review of all the diseases reported in AU Members States during 2008 and provides information on spatial distribution, quantitative information on the number of cases and deaths observed and the control measures that were undertaken.

As you may notice, the 2008 animal health yearbook is long overdue. This is because reporting by some countries was delayed. For the countries that reported on time, I urge you to continue with the good work. On the same note, I would wish to call upon all member countries to continue reporting quality data regularly to enable AU-IBAR compile informative Yearbooks that will be distributed in a timely manner.

Professor Ahmed El-Sawalhy
Director, AU-IBAR

ACKNOWLEDGEMENT

The Director of AU-IBAR wishes to acknowledge the continuous support AU-IBAR receives from the Chief veterinary officers and staff members of veterinary services in the AU Member States and in particular the 44 member states who submitted reports during 2008. Without your active role in regular reporting, this Yearbook could not have been published. Many thanks also go to all those who participated, in one way or another, in the preparation of the Pan African Animal Health Yearbook 2008.

EXECUTIVE SUMMARY

During 2008, 44 of the 53 (83%) Member States of the African Union submitted their disease status report to IBAR. This was an improvement over 2007 where only 32 (60%) countries filed their report. Very few countries failed to submit all the 12 monthly reports as expected during the reporting period. Out of the expected 636 monthly disease reports from all countries, IBAR received a total of 505 (79.4%) reports during 2008. Five of the 44 countries filing their monthly disease status reports did not record the occurrence of any disease. This could be a true reflection of the situation on the ground or lack of capacity to monitor field events and detect disease.

During the reporting period, a total of 105 different diseases were reported to IBAR; among these were twelve Transboundary Animal Diseases (TADs), nine Zoonoses and eighty four other diseases. The 2008 issue of the Yearbook includes the detailed description of all TADS, six Zoonoses and nine other selected diseases.

TADs with high number of outbreaks as recorded during 2008 included Lumpy skin disease (LSD), *Peste des Petits ruminants* (PPR) and Newcastle disease (NCD). NCD outbreaks registered the highest number of cases and deaths during the reporting period. PPR, African swine fever (ASF) and Contagious Bovine Pleuropneumonia (CBPP) were diseases with highest number of cases and deaths among the larger species. NCD and PPR were the two most widely distributed TADs in Africa during 2008. Outbreaks of these diseases were reported from 32 and 29 countries, respectively.

Most of the the major Zoonoses were reported to IBAR during 2008 and among these were anthrax, brucellosis, cysticercosis, highly pathogenic avian influenza (HPAI), rabies, Rift Valley fever (RVF) and tuberculosis. Anthrax and rabies recorded over 2000 outbreaks each during 2008, making them the diseases with the highest number of outbreaks during the reporting period. Rabies and anthrax were the two Zoonotic diseases that were widely distributed in Africa during the period under consideration affecting 31 and 21 countries, respectively.

Regarding the spatial distribution, outbreaks of FMD, CBPP, ASF, LSD and NCD were recorded in all regions of Africa (i.e. central, eastern, southern and western) except the northern region during 2008 with anthrax, a zoonoses, following a similar pattern. However, outbreaks of rabies and tuberculosis were recorded in all regions of Africa, including the northern region. In fact, almost half of the outbreaks were recorded in Algeria and Tunisia. All regions of Africa recorded the occurrence of brucellosis outbreaks except the central region.

During 2008, there were no suspected cases of rinderpest across Africa. The last outbreak of the disease among wildlife was recorded in 2001 in Meru national park in Kenya. Since then, there has been no outbreak or confirmed case of rinderpest across the continent. The verification of rinderpest eradication effort and accreditation of African countries as free from disease and infection was well underway during the reporting period. Accordingly, African countries which declared their entire territory or zones provisionally free from the disease (in accordance with the terrestrial animal health code) included Djibouti (in October, 2003); Kenya (in March, 2007); and Somalia (in January, 2007). Members that have not declared themselves free from the disease as yet include Niger, Cameroon, Central African Republic (C.A.R.), Chad, Nigeria, Liberia, and Sierra Leone. By 2008, the rest of the 33 countries had been officially declared free from rinderpest.

Despite continuous improvement in the number and quality of disease status reports from AU Member States to IBAR, some challenges were still faced while compiling the 2008 reports. These

included deviation from the reporting format prepared and introduced by IBAR, delay in submission, submission of a summary report for several months instead of monthly breakdown of disease status, incomplete report with some key parameters missing (i.e. such as the number of susceptible animals (population at risk), cases, deaths, vaccinated, the name and geo-reference of the location where disease occurred, control measures, etc.). Some of these parameters are mandatory for epidemiological rate calculation, disease mapping and comparison of events for better understanding. It is hoped that reporting officers will adhere to IBAR reporting format, follow the guidelines for completing the forms and submit their reports in time. Improved data collection and reporting is crucial for the quality of outputs such as compiled reports and the Yearbook.

I. INTRODUCTION

The provision of information on disease status across Africa is among the mandate and function of the African Union, Inter-African Bureau for Animal Resources (AU-IBAR). Since its creation more than half a century ago, the institution strives to promote transparency in the control and eradication of diseases through the exchange of information among the Member States of AU on the disease situation and control methods.

To achieve this goal, IBAR has established a system of gathering disease status reports from Member States, data analysis and dissemination of information on a regular basis. The publication of the Pan African Animal Health Yearbook, as a medium for sharing information on Transboundary animal diseases (TADs) and Zoonoses, started more than two decades ago. The main objectives of the Pan Africa Animal Health Yearbook is to increase the level of information sharing on animal health in the continent, disease risk management and to influence policies, among others.

Inputs for the production of the Yearbook are the monthly disease status reports from AU Member States. The Veterinary Authorities in Member States are recognising more and more the importance of information exchange as a result of which reporting improved significantly during 2008 with monthly reports received from a total of 44 Member States of the AU as compared to 2007 where only 32 countries filed their reports. The remaining nine countries are encouraged to start submitting their monthly reports in order to further improve disease reporting by AU Member States. Adherence to agreed

reporting parameters and timely submission of the reports are some of the areas which require additional attention in order to enhance the quality and timeliness of the Yearbooks.

The 2008 issue of the Pan African Animal Health Yearbook starts by presenting the progress made by Member States in reporting their disease status (presence or absence). In the following section, the general situation of major TADs, Zoonosis and other important diseases is presented with some quantitative statistics. The third part of the Yearbook details the status of specific diseases by providing the list of Member States affected during the reporting period, quantitative data of the reported outbreaks, the species involved and the spatial distribution of the outbreaks. Descriptions are also provided of the control measures undertaken by the affected Member States and the related quantitative statistics. Charts and maps are extensively used to present the intensity and spatial distribution of disease outbreaks. Remarks are made where data quality issues are of concern and a chapter in the Yearbook is dedicated to challenges faced while compiling this report. The Yearbook includes also the progress made in verifying the eradication of rinderpest and accreditation of Member States as free from the disease during 2008. It is hoped that with the continuous efforts of data providers in timely submission of complete and good quality reports and comments from readers, the quality of the Yearbook will continue to improve.

2. STATUS OF DISEASE REPORTING DURING 2008

During 2008, a total of 505 out of 636 (79.4%) expected monthly disease reports from 44 out of 53 Member states were received (Table I). This was an improvement compared to the reports received from MS during 2006 and 2007 which were 57.4% and 29.4%, respectively.

The monthly breakdown of disease reporting from MS to IBAR during 2008 is presented in table I. The improvement both in reporting rate and the number of countries filing the

monthly report is a good sign of recovery of the information exchange between MS and IBAR.

An additional dimension on the coverage of national (in-country) reporting is not included in the Yearbook. That is because the proportion of districts or reporting units submitting their regular reports to the national veterinary authorities was not provided in the country reports. This could have illustrated the proportion of area within the country covered by passive surveillance.

Table I, monthly status of disease reports submitted to IBAR by MS during 2008

Member State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Algeria												
Angola												
Benin												
Botswana												
Burkina Faso												
Burundi												
Cameroon												
Cape Verde												
Central Africa Republic												
Chad												
Comoros												
Congo												
Cote d'Ivoire												
Djibouti	No disease reported to IBAR throughout the year											
D.R. Congo												
Egypt												
Equatorial Guinea												
Eritrea												
Ethiopia												
Gabon												
Gambia												
Ghana												
Guinea												
Guinea Bissau	No disease reported to IBAR throughout the year											
Kenya												
Lesotho												

Table I, monthly status of disease report submitted to IBAR by MS during 2008 (Cont.)

Member State	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Liberia												
Libya												
Madagascar												
Malawi												
Mali												
Mauritania	No disease reported to IBAR throughout the year											
Mauritius	No disease reported to IBAR throughout the year											
Mozambique												
Namibia												
Niger												
Nigeria												
Rwanda												
Saharawi												
Sao Tome & Principe												
Senegal												
Seychelles	No disease reported to IBAR throughout the year											
Sierra Leone												
Somalia												
South Africa												
Sudan												
Swaziland												
Tanzania												
Togo												
Tunisia												
Uganda												
Zambia												
Zimbabwe												

 Report received

Table I shows that five of the 44 MS which submitted their monthly disease reports indicated that there were no disease outbreaks¹ in their territories during 2008. The understanding of the importance of reporting even where there is no disease outbreak (Zero Reporting) in surveillance is gradually improving. Moreover, the monthly disease reporting is about declaring the presence or absence of disease and in case of

presence, the full description of the event. The zero reporting from the five countries during 2008 was either a true reflection of the situation on the ground or it was due to lack of capacity to detect and investigate disease occurrence.

¹ For the definition of an outbreak or other indicators discussed in the Yearbook, refer to section 3.1 and annex I

3. GENERAL DISEASE SITUATION IN AFRICA

3.1 Indicators used to describe disease status

This section lists the parameters used in the description of the disease status in African countries during 2008 and their rationale. The parameters selected for the description of disease status include, the number of outbreaks, cases and deaths. The selection of these quantitative parameters is to illustrate the intensity and the impact of diseases during the reporting period. Disease control measures such as vaccination to control outbreaks or preventive measures (prophylactic vaccination) and the number of animals slaughtered or destroyed are also described to show intervention methods applied by different countries in face of disease outbreaks. The diseases described in the Yearbook are categorised in two major groups namely TADs (those with serious impact and rapid and extensive spread) and other important disease (those not classified as TADs but have significant socio-economic impact). Zoonoses of serious impact and rapid transmission irrespective of international boundary (e.g. Highly Pathogenic Avian Influenza (HPAI) and Rift Valley fever (RVF)), are described under the TADs section while others (e.g. anthrax, brucellosis, rabies and tuberculosis), are presented under the section dedicated to *other important diseases*.

3.2 Disease outbreaks reported and quantitative data

During 2008, a total of 105 diseases, ranging from major TADs and Zoonoses to parasitic diseases and other infections, were reported from MS to IBAR. The complete listing of

these diseases with some quantitative data is presented in annex II. During the reporting period, Algeria was the only country that reported bee diseases. No report on fish and aquatic animal diseases was received despite the inclusion of fish diseases for regular reporting, and this was against our expectation that some countries would have started reporting. Similarly, wildlife diseases and Zoonoses or involvement of wildlife and humans in disease outbreaks were not reported as often as was expected.

The number of outbreaks of the different diseases reported from MS during 2008 may show the general picture but it is not as good an indicator of the intensity of diseases across the continent as the number of cases² or deaths. However, it provides a general picture of the magnitude of the problem. Hence, the following section presents the aggregated number of outbreaks of different diseases recorded by different African countries.

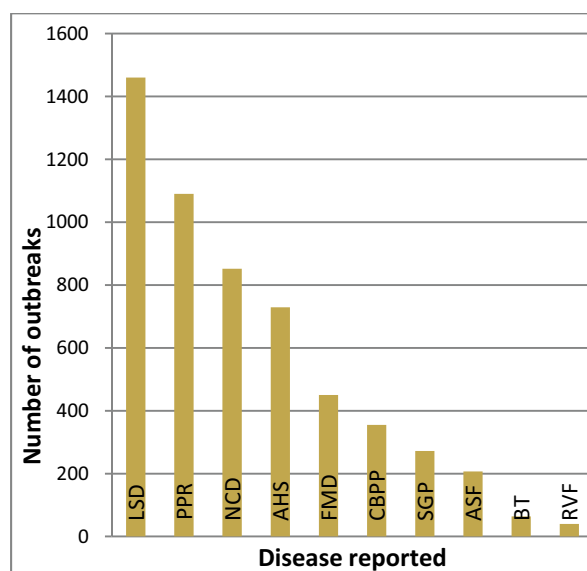
3.2.1 Transboundary Animal Diseases

Among TADs, 13 diseases namely; Foot and mouth disease (FMD), Rinderpest, Peste des petits ruminants (PPR), Contagious bovine pleuropneumonia (CBPP), Lumpy skin disease (LSD), RVF, Bluetongue, Sheep pox and goat pox, African horse sickness (AHS), African swine fever (ASF), Classical swine fever (CSF), HPAI and Newcastle disease (NCD) will be discussed. Except rinderpest, all the 12 major TADs listed above were reported in Africa during 2008. Outbreaks of CSF and HPAI were restricted to Madagascar and Togo

² For the definition of TADs, Zoonoses, cases, deaths and other indicators, refer to Annex 1

respectively, while the rest 10 TADs had higher number of outbreaks and wider distribution. Among these, LSD, PPR, and NCD were the three most frequently reported diseases with 1,460, 1,090 and 852 outbreaks respectively. The LSD outbreaks accounted for 6.8% of all outbreaks, while PPR and NCD recorded 5.1% and 4.0%, respectively. Figure 1 shows the number of outbreaks reported for each of the 10 TADs (except CSF and HPAI, with limited distribution) during 2008.

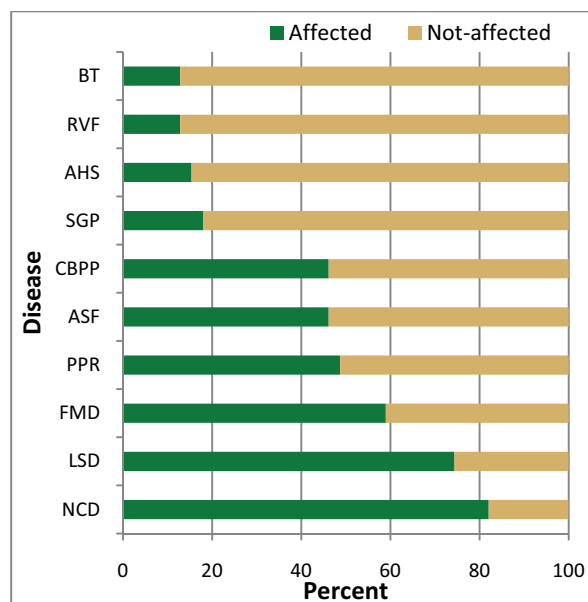
Figure 1, Outbreaks of TADs reported in Africa in 2008



During the reporting period NCD, LSD, FMD and PPR were reported in 32, 29, 23 and 19 MS, respectively making the four diseases the most widespread in Africa compared to other TADs. Out of the 39 countries that reported the occurrence of one or more diseases, 32 countries recorded occurrence of NCD. That makes NCD the most widely distributed (82.1%) among countries which filed their reports. Figure 2 shows the percentage of

countries reporting each of the 10 TADs as compared to those countries which did not report the occurrence of the diseases during 2008.

Figure 2, Percentage of countries affected by each TAD



The TAD with highest number of cases and deaths during the reporting period was NCD. Among TADs affecting larger species, cases of PPR, ASF and LSD were higher in number than that of other diseases. ASF, CBPP and PPR were TADs responsible for the highest number of deaths among larger species of animals in that order of importance. Figure 3 compares the number of cases and deaths of 10 of the 12 TADs reported. The outbreaks of FMD, CBPP, ASF, LSD and NCD were distributed throughout all regions of Africa (i.e. central, eastern, southern and western) except the northern region.

Figure 3, the number of cases and deaths recorded during outbreaks of 10 TADs reported during 2008

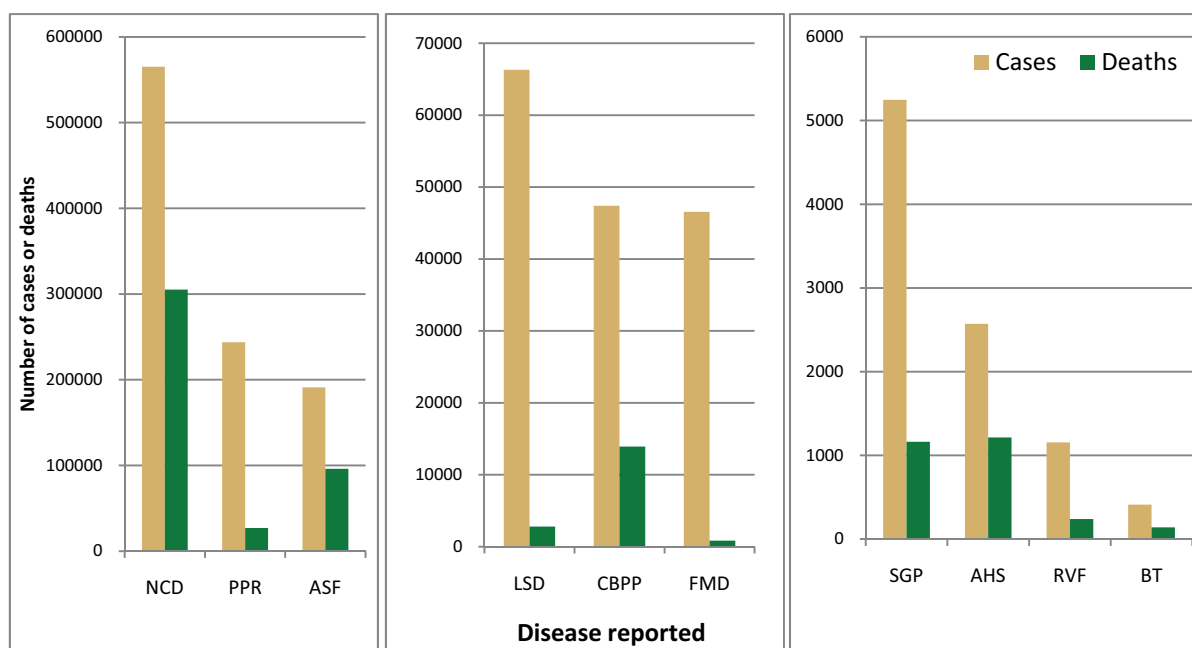


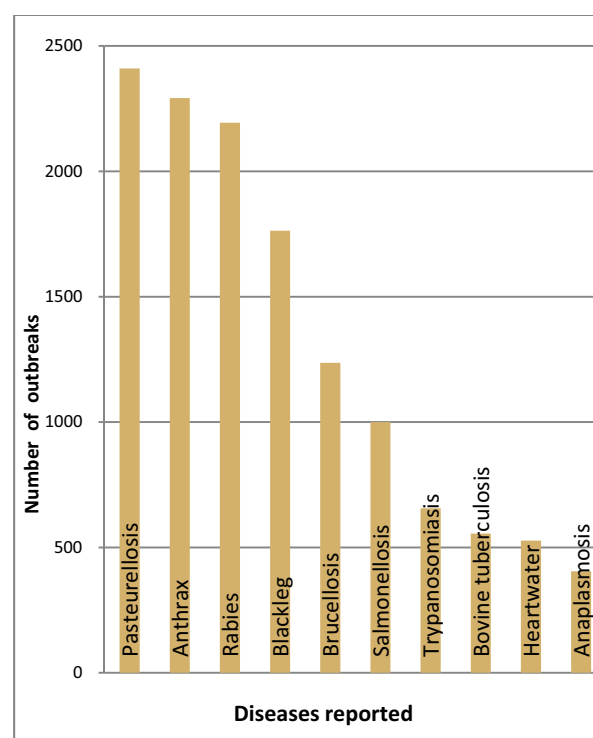
Figure 4, Ten other diseases with high numbers of outbreaks as recorded in countries which submitted their reports during 2008

As mentioned earlier, outbreaks of CSF and HPAI had a limited distribution in Africa. Classical swine fever was reported in Madagascar with 4,789 cases and 723 deaths while only Togo reported an outbreak of HPAI where 4,231 birds were involved. Details on both diseases are given in section 4.

3.2.2 Other animal diseases

This section presents information on ten other animal diseases (other than the TADs discussed in the previous section) that ranked high based on the number of countries affected or the number of outbreaks, cases or deaths during 2008.

Among these other animal diseases, pasteurellosis, anthrax and rabies had the highest number of outbreaks, 2,410, 2,292 and 2,194, respectively (Figure 4).

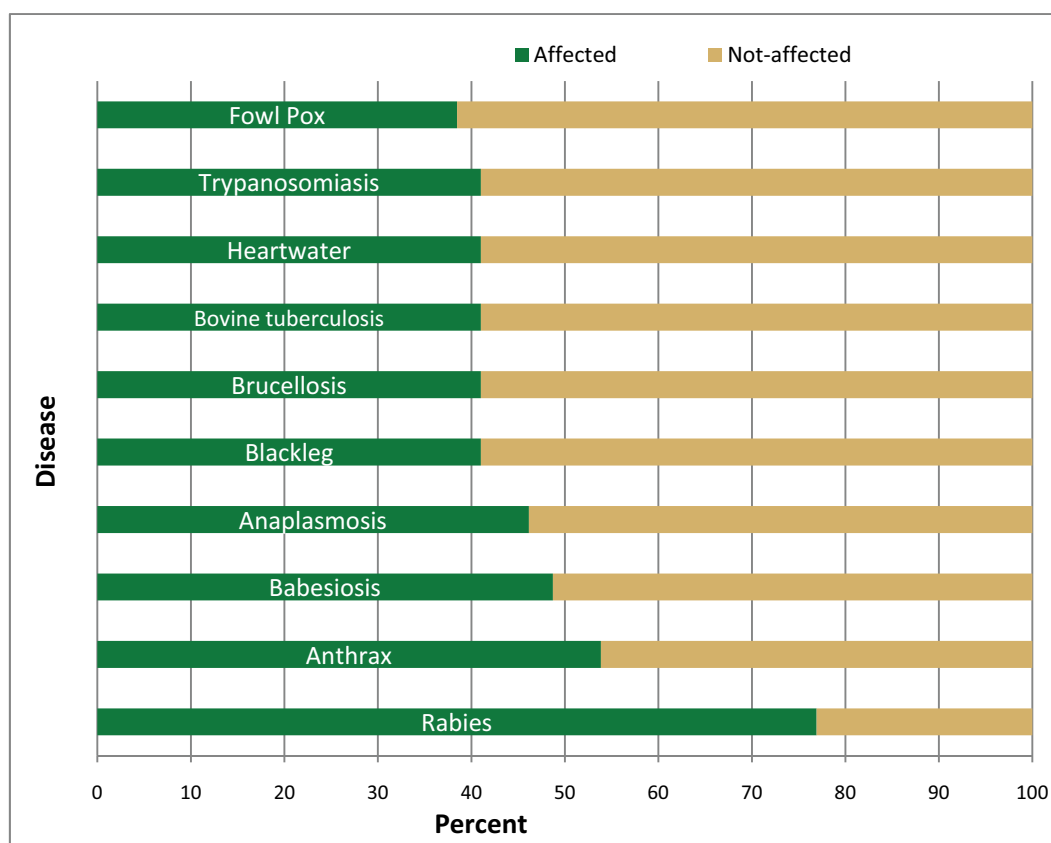


Diseases that were widely distributed among several countries included rabies, anthrax and babesiosis, which were reported in 30, 21 and 19 countries, respectively out of the 39 countries that reported at least an outbreak

of a disease during 2008. The 30 countries where outbreaks of rabies were reported were distributed in all the regions of Africa, showing that the disease was not limited to a specific geographical area. Unlike rabies, outbreaks of anthrax were absent from

northern African region, at least from the countries which submitted their reports. Figure 5 shows the percentage of countries reporting the 10 diseases other than TADs with a wider distribution during 2008.

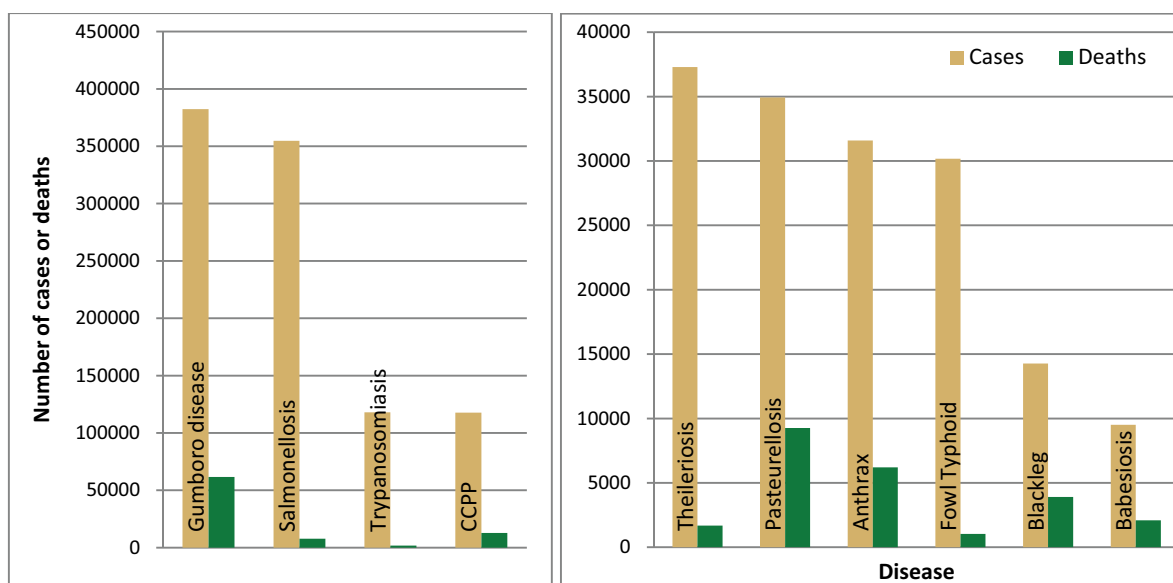
Figure 5, Percentage of countries affected by ten other diseases during 2008



During 2008, the highest number of cases among other diseases (not TADs) was recorded for Gumboro disease (infectious bursal disease), followed by salmonellosis and trypanosomiasis. The 14 countries reporting Gumboro disease during the period under consideration has recorded a total of 382,439 cases. Similarly, the outbreaks of Gumboro

disease during 2008 caused a high number (61,593 birds) of deaths. Other disease with high number of deaths included contagious caprine pleuropneumonia (CCPP) and pasteurellosis. Figure 6 compares the number of cases and deaths for the 10 other diseases.

Figure 6, the number of cases and deaths recorded during outbreaks of 10 other diseases reported during 2008



The reports received suggested that the highest case fatality rates were recorded during outbreaks of botulism, where 94.5% of the affected animals died. Other diseases with high case fatality rates included fowl cholera and rabies. For quantitative data regarding diseases not described under sections 3.1.1 and 3.1.2, please refer to annex 2.

3.3 The species affected by disease outbreaks reported during 2008

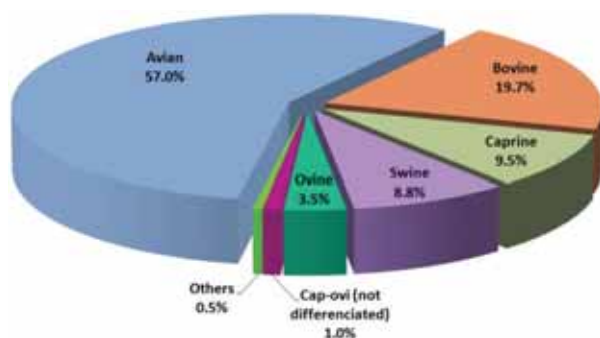
The outbreaks of different diseases reported from MS to IBAR during 2008 affected domestic and wild species of animals as well as human beings. Although reporting of the species involved in disease outbreaks is improving, some of the 2008 reports lacked this essential parameter or combined different species, as was the case mainly for sheep and goats. Furthermore, most countries do not specify the species of wildlife involved in a particular disease outbreak. The generic name *fauna* does not allow for further species-based analysis. Reporting human involvement in cases of Zoonotic diseases was not common

and the only reports where humans were affected were submitted by Kenya for sleeping sickness and Ethiopia and Zambia for rabies. Bee diseases were reported from Algeria during 2008. However, reports on diseases of fish and other aquatic animals are yet to be received. Specifying the name of the species of animal (including human) and the numbers involved in disease outbreaks assists in solving some of the shortcomings observed in the reports.

Out of all cases registered during disease outbreaks reported in 2008, the species of animal involved was not specified in some cases. However, the majority of the reports specified the species affected and those that died from the diseases being reported. The analysis of the species involved in different disease outbreaks showed that avian species, mainly due to NCD and Gumboro disease and given their dense population constituted more than half of all the cases (57.0%) followed by bovine (19.7%) and caprine (9.5%). Figure 7 shows the proportion contribution of different species to the overall number of cases involved in disease outbreaks during 2008. The category *others* includes equine,

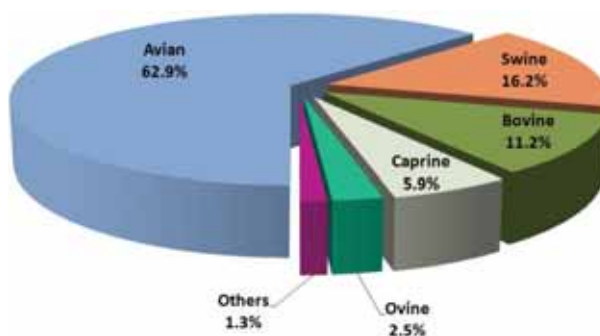
canine, fauna, feline, bees, camels, humans and rabbits.

Figure 7, the percentage contribution of different species to the overall number of cases involved in disease outbreaks during 2008



The proportion of species of animals that died during the disease outbreaks reported in 2008 is presented in figure 8. Avian species again were the majority (62.9%) for the reasons mentioned earlier among the mortalities recorded followed by swine (16.2%), mainly due to ASF and bovine (11.2%).

Figure 8, the percentage of species of animals that died during disease outbreaks as reported during 2008



3.4 Major diseases affecting each species

Bovine – From all diseases affecting cattle, cases involved in trypanosomiasis, LSD and CBPP outbreaks constituted 56% of all bovine cases. The number of cattle affected during trypanosomiasis outbreaks alone accounted for 28% of the cases reported.

Caprine – Among goats, CCPP was responsible for highest number of cases, nearly half of all cases (48.4%).

Ovine – The highest number of ovine cases were recorded during RVF outbreaks while ovine and caprine brucellosis caused high mortalities among this species.

Swine – The majority of swine cases and deaths during 2008 were attributed to ASF.

Avian – The poultry diseases responsible for most avian cases were NCD and Gumboro disease.

Bees – American foulbrood of honey bees and varroaosis are the two major bee diseases reported during 2008.

Wildlife – Among the diseases which affected wildlife, trypanosomiasis caused the majority of cases followed by anthrax.

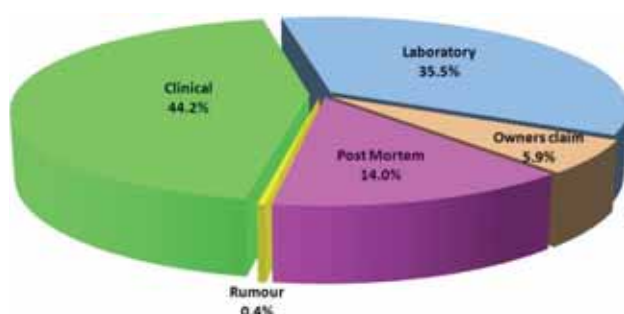
Human – Human cases were reported only during outbreaks of sleeping sickness and rabies, where 15 and two cases respectively were involved. The situation on the ground may be different as there is gross underreporting of Zoonoses.

3.5 The level of disease outbreak confirmation by laboratories

The investigation of disease outbreaks and subsequent confirmation of the disease or causative agent is important in making the correct decision on the type of intervention required. If confirmation of disease outbreaks is not supported by scientific evidence, there is no guarantee that the control measures will be effective and reports filed without such evidence may not be Complete. Therefore, using scientific methods for confirmation of outbreaks and include these in the monthly disease reports is essential. However, during 2008 not all reporting officers completed the column on methods used to investigate and confirm disease outbreaks, making it difficult

to analyse the laboratory involvement in supporting field disease investigations and the reliability of diagnostic methods used. From all the disease reports IBAR received during 2008 from MS, only one-third (29.4%) specified the diagnostic methods used during outbreak investigations. Among the reports for which diagnostic methods were specified, almost half (44.2%) had relied on clinical diagnosis. Outbreaks supported by laboratory diagnosis accounted for only 35.5%. The rest of the diagnostic methods used for disease outbreak investigations during 2008 are presented in Figure 9.

Figure 9, percentage of diagnostic methods used for investigating disease outbreaks reported during 2008



The level of laboratory involvement or other scientific diagnostic methods in outbreak investigations and confirmation varied from country to country and from disease to disease. For instance, the majority of CBPP outbreaks were diagnosed using post-mortem methods, while a large proportion of LSD outbreaks was diagnosed on clinical grounds. Details are provided in table 3. The findings here suggest two issues. Firstly, it is very important to document and report the diagnostic method employed to arrive at the conclusive diagnosis while investigating an outbreak. The present situation of lack of

information on which diagnostic methods were used for two-thirds of all the disease outbreaks needs to be addressed. Specifying disease diagnostic methods in the reports assists to understand the trends in disease outbreak investigations and plan appropriate interventions. The second and the most important aspect is the need for laboratory involvement in disease outbreak investigations and confirmation. Reports supported by scientific evidence improve the quality of services and target the right interventions. It further creates confidence in the disease outbreak investigation, surveillance and control systems of the country as credible among trading or other partners.

Table 3, percentage of each of the diagnostic method used for some disease outbreak investigation during 2008

Disease	Clinical	Laboratory	Post Mortem	Owners claim	Unspecified
ASF	13.5%	13.5%	6.8%	0.0%	66.2%
CBPP	11.5%	9.6%	26.8%	0.0%	52.1%
FMD	13.8%	7.8%	0.0%	0.0%	78.4%
LSD	34.0%	1.0%	0.5%	6.7%	57.7%
NCD	8.7%	1.6%	30.6%	0.4%	58.7%
BT	15.5%	1.6%	0.0%	0.0%	82.8%
PPR	17.3%	4.0%	0.2%	0.0%	78.4%

4. DETAILED DISEASE SITUATION IN AFRICA

This section presents the detailed analysis of the disease situation across Africa during 2008 for selected major diseases (first the major TADs and later other important diseases of socio-economic importance and trade sensitive diseases). For diseases not described in full in this section, readers are referred to annex 2 for the complete list of diseases reported during this period with some quantitative data. Before starting the description of specific diseases, it is important to make two more general remarks. The first remark is regarding the number of outbreaks of some diseases presented as Zero. Although it is clear that there are no cases or deaths without at least one outbreak, there may be situations where the outbreak was reported in the previous month (which may fall in the previous year) and the figures given were just a follow up to the outbreaks reported earlier. The figures containing Zero outbreaks are presented as reported by MS and imply that there was no NEW disease outbreak and the figures for cases, deaths and other statistics are results of FOLLOW-UP of disease outbreaks reported earlier. The second remark is about the spatial distribution map of outbreaks. Not all monthly disease reports are accompanied with spatial data on the exact or at least approximate location of the outbreaks. Attempts were made to get the central point of the districts where disease outbreaks occurred for reports which specified the district name. Disease outbreaks for which either the geo-reference or the district name was not available were depicted on the disease distribution map inside the country's boundary as total numbers.

The description of most TADs and other important diseases in this section includes detailed disease situation, quantitative data and spatial distribution. Where possible, comparisons between the disease situations in 2008 and 2007 are made and the different

control measures implemented to contain the disease outbreaks for each disease are highlighted.

4.1 The detailed description of Transboundary Animal Diseases

4.1.1 African horse sickness (AHS)

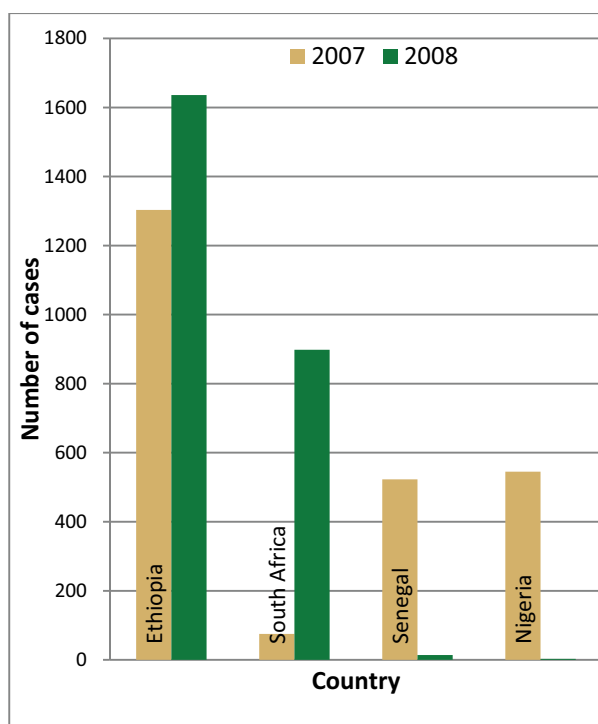
During 2008, six countries reported outbreaks of AHS. A total of 729 outbreaks affecting 2,574 horses were recorded. The disease ranked among the top ten on the basis of the number of outbreaks recorded. The majority of outbreaks and cases were reported from Ethiopia and South Africa. The details are presented in table 4.

Table 4, African countries reporting AHS outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Ethiopia	319	1636	748
South Africa	401	898	443
Senegal	3	14	4
Gambia	2	12	12
Namibia	3	11	4
Nigeria	1	3	3
6 countries	729	2,574	1,214

There were five countries reporting AHS in 2007 compared to six during 2008. Comparison between the two years showed that there was a substantial increase in the number of AHS outbreaks in two of the countries reporting the disease in both 2007 and 2008 while there was a decrease in the other countries (see figure 10).

Figure 10, comparison between AHS cases in 2007 and 2008



The six countries reporting AHS during 2008 were from the Southern, Eastern and Western regions of Africa. Map 1 shows the detailed spatial distribution of the disease outbreaks.

The main control measure applied by MS to contain outbreaks of AHS during 2008 was vaccination. In Ethiopia where the highest number of cases were recorded, control vaccination to stop the progress of the disease outbreaks and prophylactic vaccination as preventive measure were administered. Ethiopia vaccinated a total of 306,454 horses, the majority of this (90.2%) being vaccination following outbreaks of the disease.

4.1.2 African swine fever (ASF)

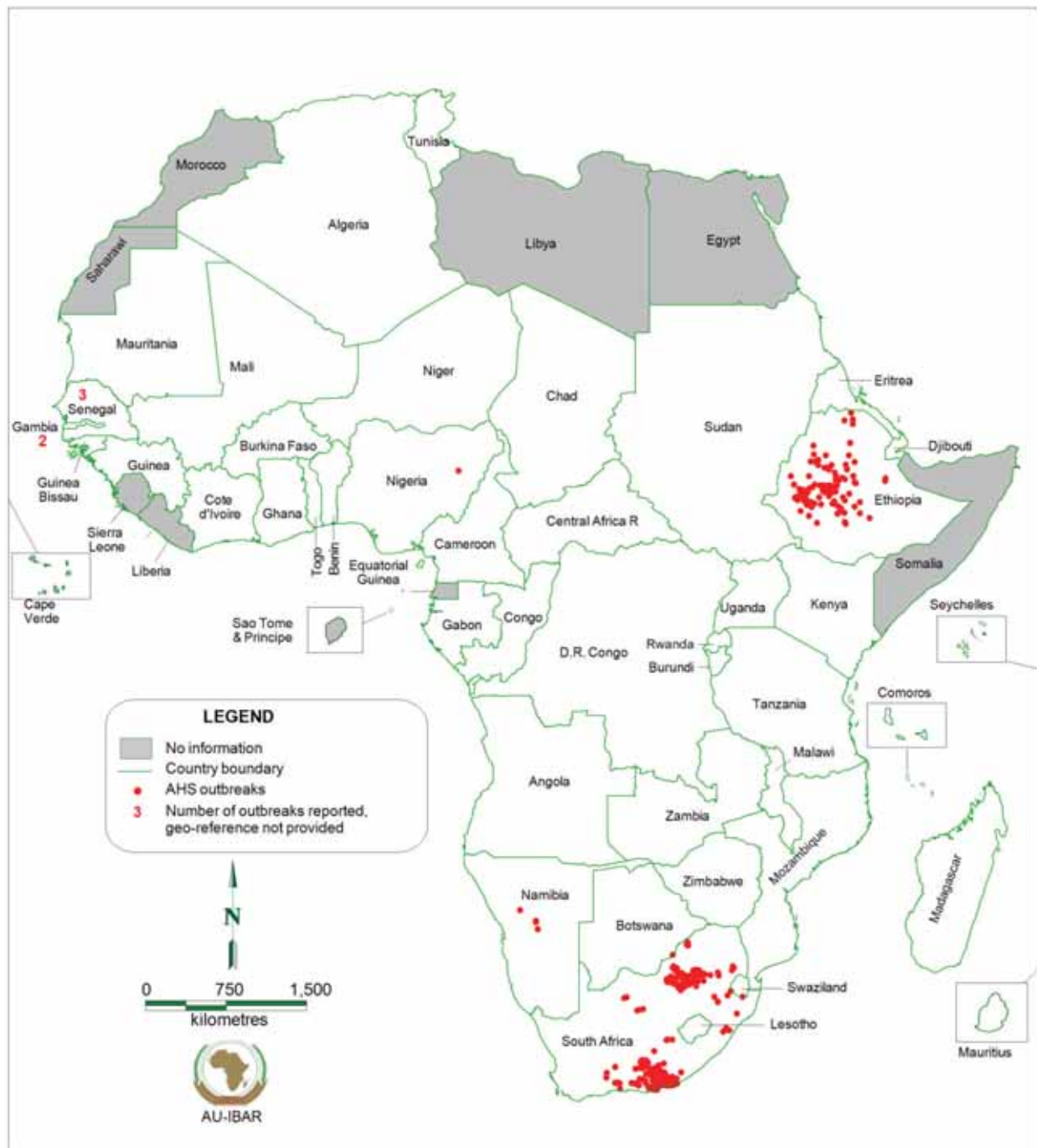
During 2008, outbreaks of ASF were widely distributed covering a total of 18 countries. The two neighbouring central African countries, Democratic Republic of Congo (D.R. Congo) and Burundi recorded the highest number of cases, accounting for 80.7% and 9.2% of all ASF cases during 2008. Note that the number of new outbreaks of ASF in D.R. Congo is reported as **Zero** and presumably all the cases were recorded as a follow-up of the previous outbreaks. Similarly, the number of deaths due to the outbreaks in Burundi was not reported (Table 5).

Table 5, countries affected by ASF during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
D.R. Congo	0*	155189	84084
Burundi	1	17779	
Malawi	27	5764	4317
Nigeria	3	2448	629
Rwanda	29	1666	996
Benin	30	1601	1412
Togo	24	1153	669
Uganda	10	1106	346
Ghana	28	977	738
Burkina Faso	26	850	516
Zambia	4	792	703
Madagascar	0*	598	598
Angola	1	400	400
Mozambique	9	315	236
Tanzania	6	293	275
Cameroon	6	186	175
South Africa	2	17	11
Namibia	1	3	3
18 countries	207	191,137	96,108

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

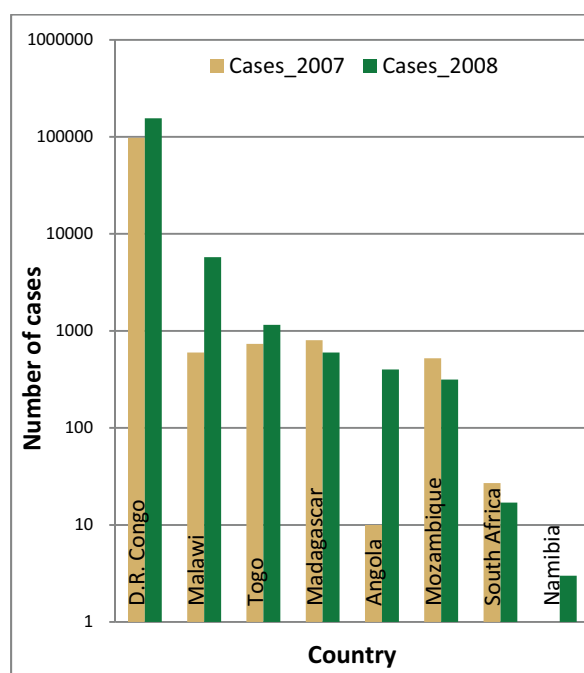
Map 1, the spatial distribution of AHS in Africa in 2008



From the 2008 outbreak data compiled in table 5, it was clear that the outbreaks of ASF had high case fatality rates (50.2%) During the previous year, 10 countries reported the occurrence of 101 outbreaks of ASF. The number of countries reporting and the number of cases of the disease increased in

2008 while there was a decrease in the number of deaths during ASF outbreaks. Figure 11 compares the number of cases in countries where ASF outbreaks occurred during 2007 and 2008.

Figure 11, comparison between ASF cases in 2007 and 2008



Except for the northern African region, countries from the remaining four regions reported the occurrence of ASF during 2008. Map 2 shows the detailed spatial distribution of the disease during the reporting period.

The ASF control measures used by most countries are stamping out, disinfection and destruction of infected material. Table 6 shows the number of pigs slaughtered and destroyed in each of the affected countries as part of the control measures for the disease during the reporting period.

Table 6, ASF control measures undertaken by some affected countries during 2008

Country	Slaughtered	Destroyed
D.R. Congo	9630	0
Malawi	133	0
Nigeria	26	0
Rwanda	5649	749
Benin	84	0
Togo	70	418
Uganda	94	600
Ghana	114	17
Angola	133	400
Mozambique	0	20
Tanzania	92	0
11 countries	16,025	2,204

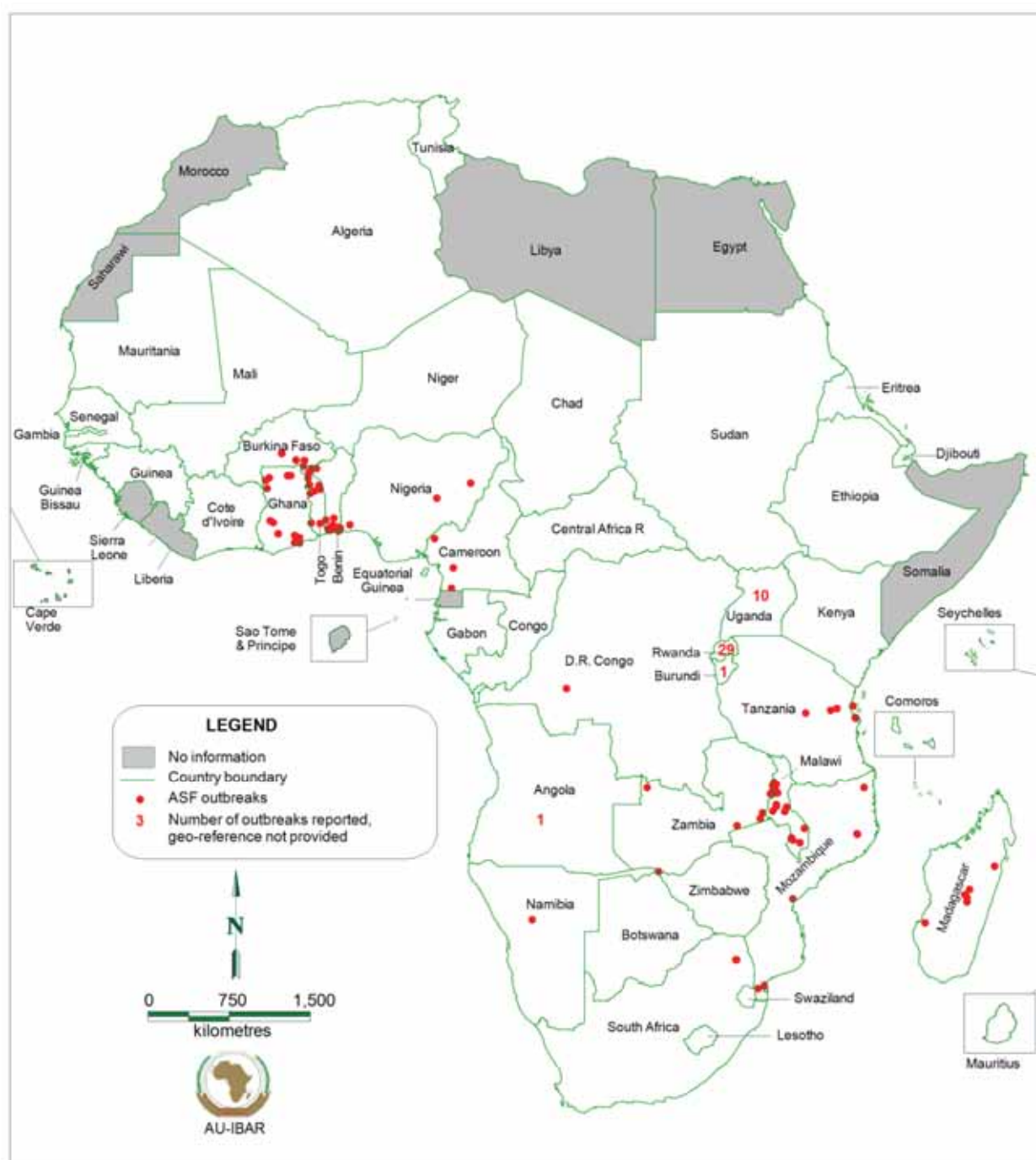
4.1.3 Bluetongue

During 2008, five countries, mainly from the Southern African region reported the occurrence of outbreaks of bluetongue. The majority of the outbreaks (78.1%), the highest number of clinical cases (87.1%) and almost all the mortalities (91.5%) due to the outbreaks were reported from South Africa. The list of countries reporting Bluetongue outbreaks and related quantitative data are shown in table 7.

Table 7, list of African countries reporting bluetongue outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
South Africa	50	359	129
Lesotho	8	39	11
Zimbabwe	2	10	1
Comoros	3	3	0
Botswana	1	1	0
5 countries	64	412	141

Map 2, the spatial distribution of ASF in Africa in 2008

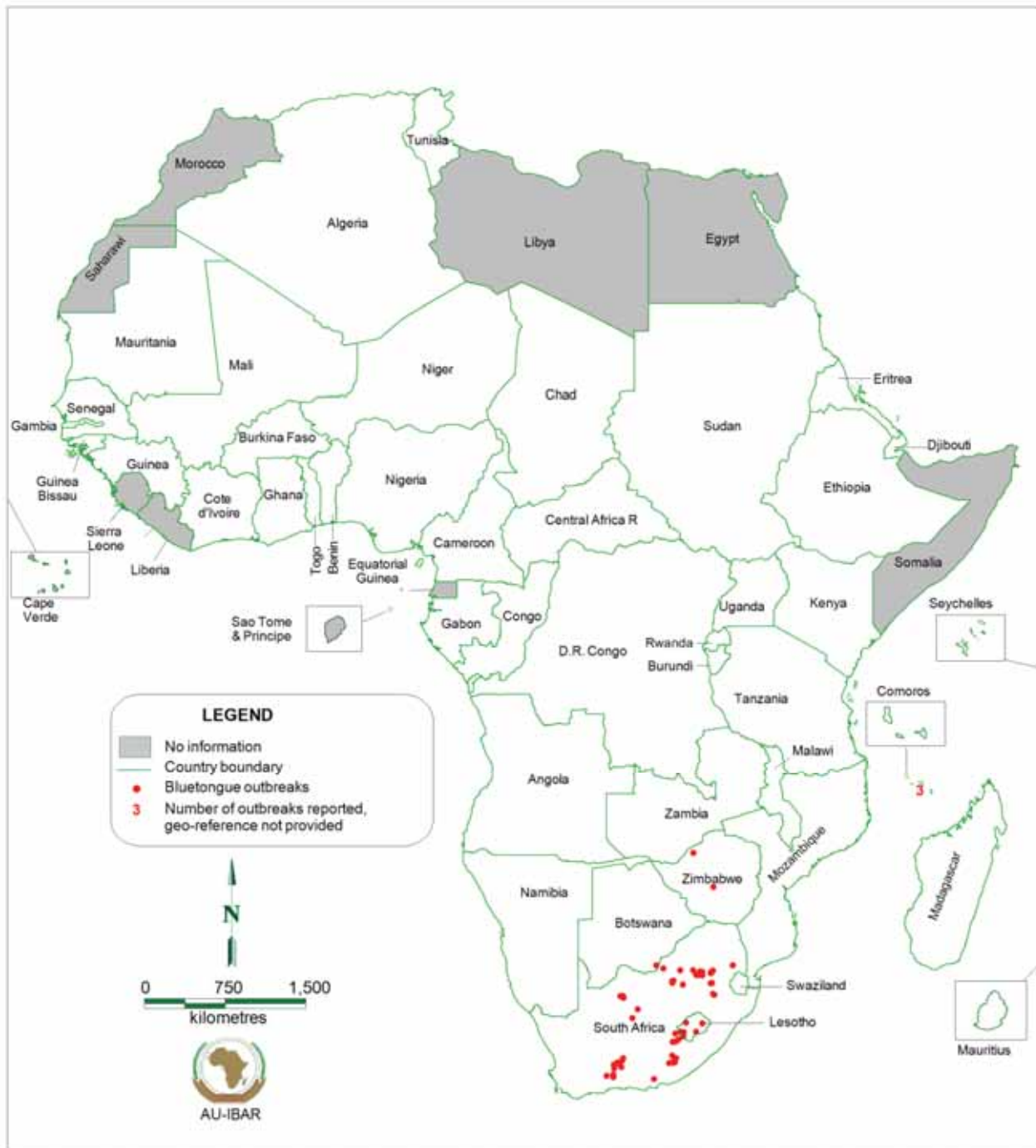


Although the ovine species was most affected (92.7%), by the bluetongue outbreaks some goats (7.3%) were also involved.

During 2007, three countries reported the occurrence of 23 outbreaks of bluetongue.

Unlike the 2008 situation where almost all outbreaks of the disease were confined to the Southern African region, in 2007 Tunisia reported 16 outbreaks of the disease. Map 3 shows the spatial distribution of the bluetongue outbreaks during 2008.

Map 3, the spatial distribution of bluetongue in Africa in 2008



The control measure frequently used in face of bluetongue outbreak during 2008 was vaccination. However, the number of animals vaccinated is not available for all the five countries affected. Only Lesotho reported the vaccination of 323 animals.

4.1.4 Classical swine fever (CSF)

Madagascar is the only African country which reported 723 cases and 656 deaths among pigs due to CSF during 2008. The 12 outbreaks of the disease apparently started during the previous year (2007) and continued

during 2008. The cases and deaths due to CSF were recorded throughout 2008 in Madagascar except for the month of February. Although figures for the number of pigs vaccinated were not provided, vaccination was the control measure used in the country against CSF outbreaks.

4.1.5 Contagious bovine pleuro-pneumonia (CBPP)

During 2008, a total of 18 countries from all the regions of Africa, except the northern region, reported a total of 355 outbreaks of CBPP. The outbreaks affected 47,405 cattle and caused the death of 13,928 animals. The two worst affected countries were Uganda and Ethiopia in the eastern Africa region, which accounted for 82.4% of all CBPP cases and 86.7% of the deaths due to outbreaks of the disease. The details are presented in table 8.

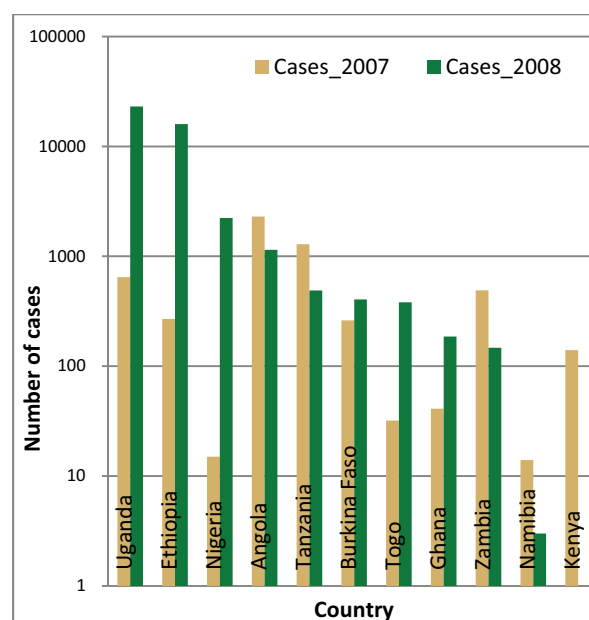
Table 8, African countries reporting CBPP outbreaks during 2008

Country	Outbreaks	Cases	Deaths
Uganda	7	23087	5479
Ethiopia	104	15985	6595
Nigeria	19	2228	196
C.A.R.	55	1933	427
Angola	2	1144	446
Cote d'Ivoire	1	1139	214
Tanzania	0*	489	215
Burkina Faso	23	405	119
Togo	23	382	110
Mali	5	188	50
Ghana	91	186	0
Zambia	0*	147	41
Benin	8	47	3
Niger	14	40	33
Namibia	1	3	0
Cameroon	1	1	0
Kenya	1	1	0
17 countries	355	47,405	13,928

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

During the previous year, 12 countries reported a total of 247 outbreaks of CBPP affecting 5,517 cattle. The number of countries reporting the disease, the number of cases and the number of deaths all increased during 2008 in the majority of the countries (figure 12).

Figure 12, numbers of CBPP cases in 2007 and 2008



The CBPP control measures used in affected countries vary from treatment and vaccination (i.e. Ethiopia, Nigeria, Angola, Tanzania, Burkina Faso and Mali) to slaughter and destruction of clinical cases and in-contact animals (i.e. Uganda, C.A.R., Togo, Ghana, Benin and Cameroon). Table 9 shows the different CBPP control measures used by different countries and quantitative data for each type of intervention.

Table 9, CBPP control measures undertaken by affected countries during 2008

Country	Slaugh-tered	Destro-yed	Control Vac.	Prophy. Vac.
Uganda	70911	200	0	0
Ethiopia	1	0	234459	108434
Nigeria	17	0	10592	7897
C.A.R.	70	8	0	0
Angola	0	474	0	83417
Tanzania	8	0	0	4386
Burkina Faso	0	0	0	150
Togo	52	0	0	0
Mali	18	0	6944	0
Ghana	182	0	0	0
Benin	24	0	0	0
Cameroon	1	0	0	0
12 countries	71,284	682	251,995	204,284

The 17 countries which recorded the occurrence of CBPP during 2008 were from all the regions of Africa except from the northern region. Map 4 shows the locations of CBPP outbreaks during the reporting period.

4.1.6 Foot and mouth disease (FMD)

During 2008, FMD was reported in 53.5% of the countries that submitted their monthly reports to IBAR. The number of cases recorded makes FMD one of the ten diseases with the largest number of cases. Among the countries reporting FMD in 2008, Burkina Faso was the worst affected, with the highest number of outbreaks, cases and deaths (table 10).

Table 10, African countries reporting FMD outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Burkina Faso	90	22137	223
Zambia	0*	5954	26
Senegal	66	5000	130
Benin	34	2952	119
Ethiopia	56	2405	52
Nigeria	27	2207	172
Tanzania	0*	1332	30
Cameroon	23	1060	19
Namibia	30	1035	1
Botswana	3	562	0
Niger	39	400	5
Cote d'Ivoire	9	296	4
Eritrea	13	274	4
Sudan	11	272	21
Mali	1	185	6
Chad	8	164	7
Togo	13	116	16
Ghana	5	108	2
South Africa	12	52	1
Malawi	1	41	0
Rwanda	6	4	1
Zimbabwe	1	4	4
Kenya	2	2	0
23 countries	450	46562	843

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

During 2007, 14 countries reported a total of 739 outbreaks involving 12,749 cases and 292 deaths. The number of cases recorded in these countries during 2007 and 2008 were compared and in seven of these, FMD cases were higher during the reporting period while in the remaining six, it was lower (Figure 13).

Map 4, the spatial distribution of CBPP in Africa in 2008

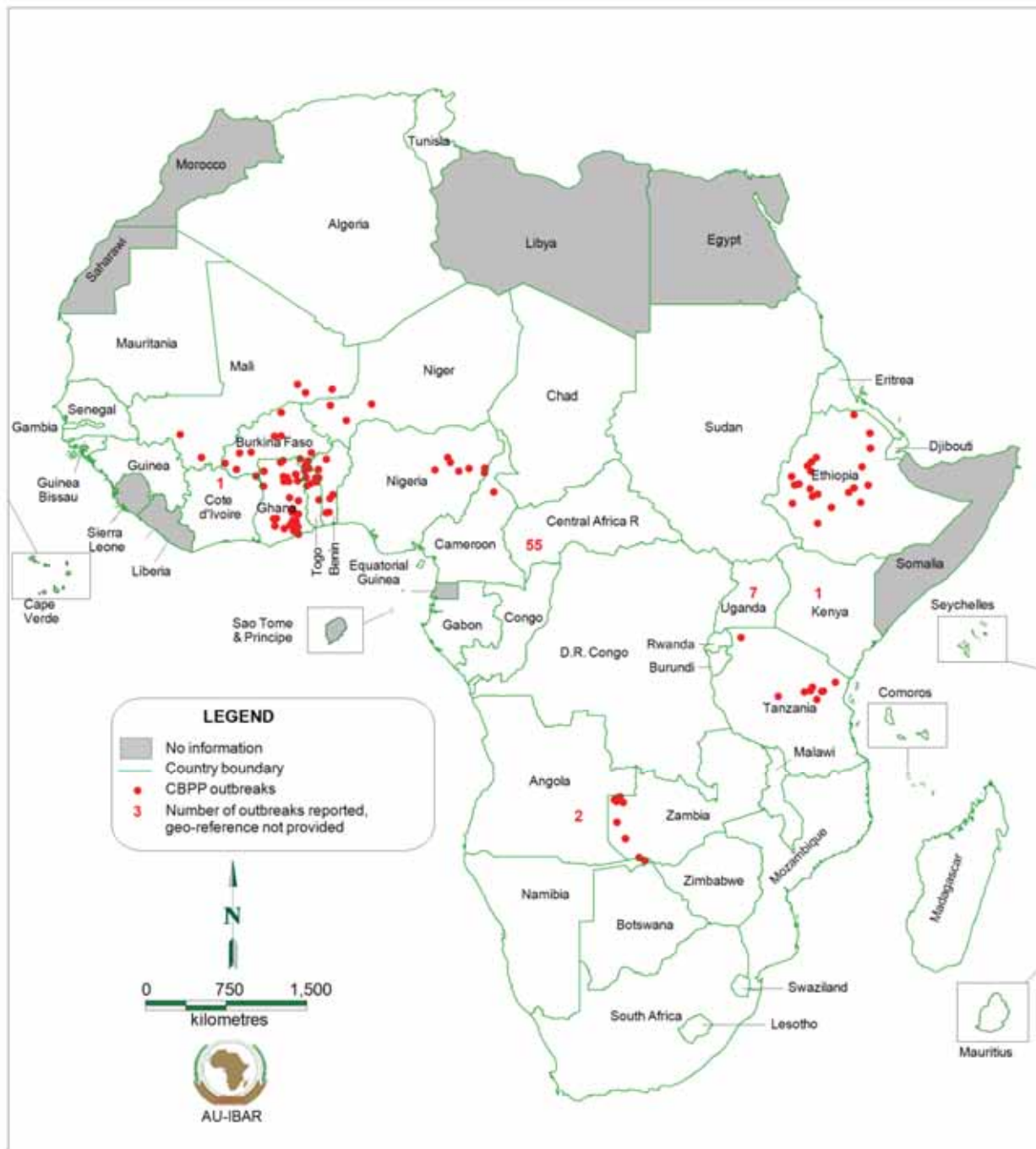
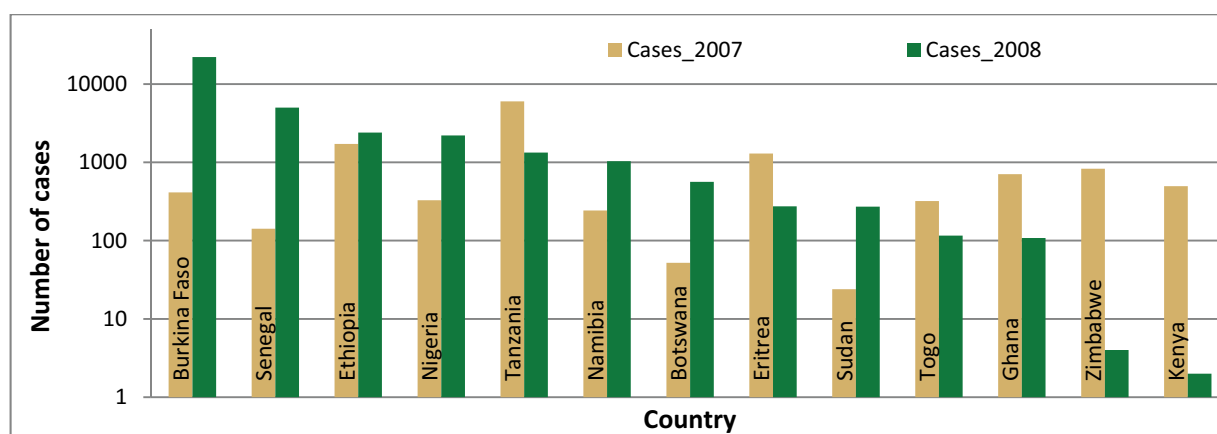


Figure 13, number of FMD cases in 2007 and 2008



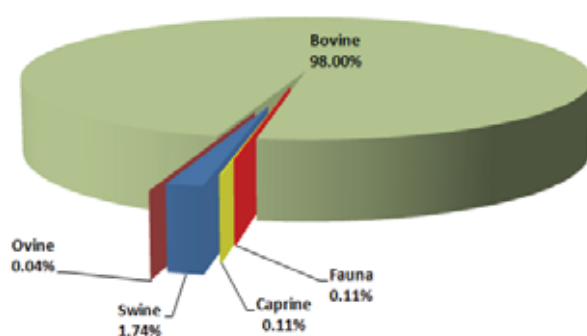
The sero-types of FMD virus involved in the outbreaks reported during 2008 were not specified in the majority of the reports. The distribution of FMD serotypes recorded from a few of the country reports is summarised in table 11.

Table 11, the distribution of FMD virus sero-types in some African countries during 2008

No.	Country	Serotype
1	Botswana	SAT 2
2	Benin	O, SAT 1 & SAT 2
3	Rwanda	A, O, SAT 2
4	Togo	O, SAT 1

The species most affected by FMD outbreaks reported in 2008 was the bovine, with 98.0% of all cases. As shown in figure 14, the involvement of other species was insignificant.

Figure 14, the proportion of species involvement in FMD outbreaks reported during 2008



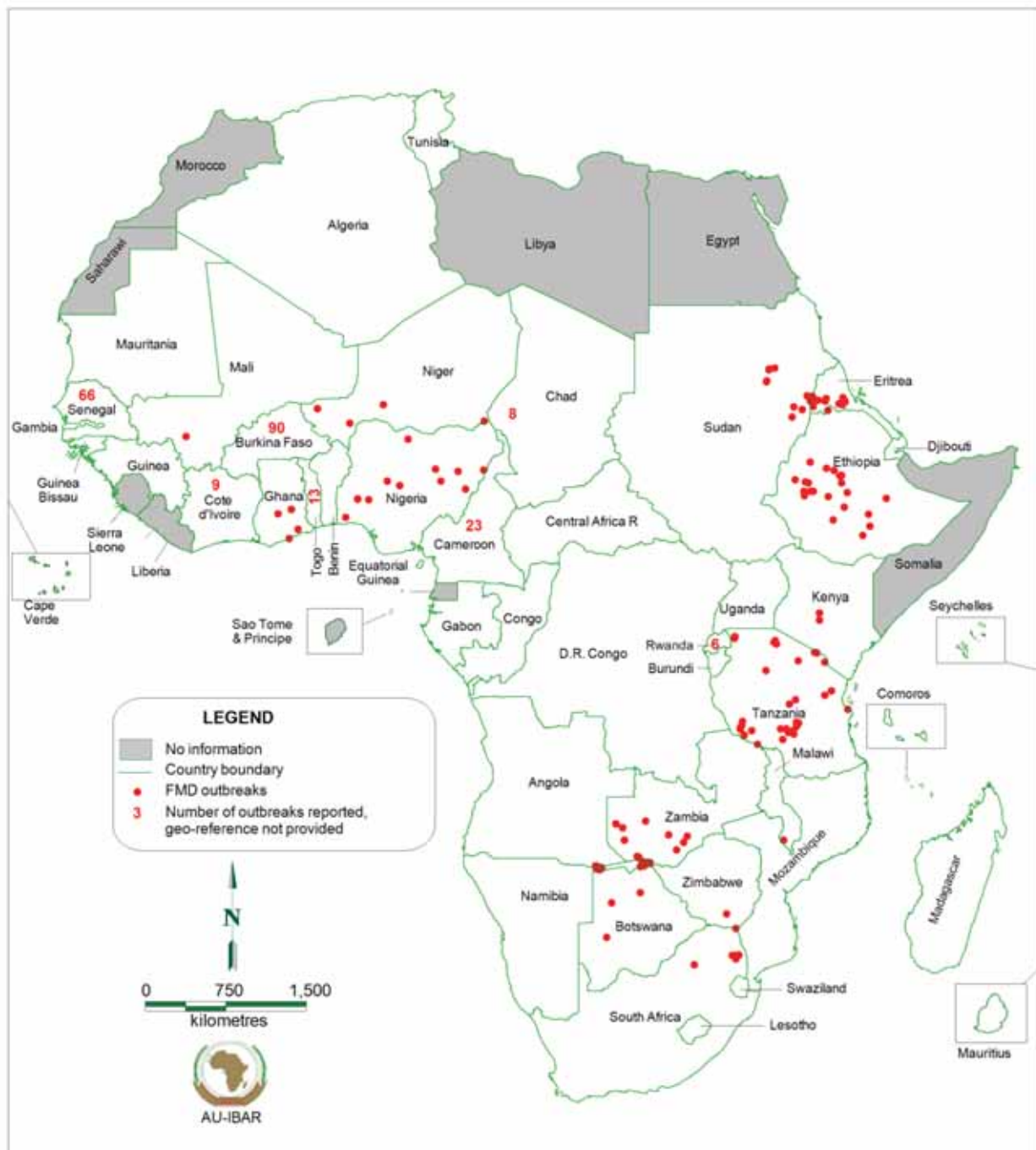
As shown on table 10, 23 countries from all regions of Africa except for the northern region, reported FMD outbreaks in 2008. This makes the disease one of the four most widespread diseases in Africa during the reporting period. The detailed spatial distribution is shown in map 5.

The measures applied for the control of FMD outbreaks included vaccination, slaughter and destruction of infected and in-contact animals. In some countries a combination of control measures were used. Table 12 shows the methods used by different countries to contain outbreaks of FMD and the related quantitative data.

Table 12, FMD control measures undertaken by affected countries during 2008 and some related quantitative data

Country	Slaugh-tered	Destroyed	Control Vac.	Prophy. Vac.
Botswana	44	32	0	0
S. Africa	0	8	0	0
Tanzania	193	7	0	7
Nigeria	19	5	60	1669
Rwanda	12	4	363768	0
Togo	33	3	0	0
Benin	27	2	0	0
Ethiopia	0	0	1868	612
Mali	0	0	860	0
Sudan	0	0	0	26729
10 countries	328	61	366556	29017

Map 5, the spatial distribution of FMD in Africa in 2008



4.1.7 Highly Pathogenic Avian Influenza (HPAI)

Only Togo reported a single outbreak of HPAI in Maritime region in September 2008. According to the report, the outbreak affected

4,231 chicken and all died. A stamping out policy was implemented and the remaining 3,540 in contact chicken were destroyed.

4.1.8 Lumpy skin disease (LSD)

According to the disease status reports received during 2008, LSD was one of the three most widespread diseases in Africa, affecting 29 of the 44 (65.9%) countries which submitted their reports to IBAR. The three countries most affected by the disease outbreaks were Senegal, Ethiopia and Zimbabwe. The number of LSD cases in these countries accounted for 74.9% of all LSD cases and 81.5% of all deaths due to the outbreaks during 2008. Senegal alone recorded 40.4% of all LSD cases and 31.5% of deaths due to the disease during the same period. The details are presented in table 13.

Table 13, African countries reporting LSD outbreaks during 2008

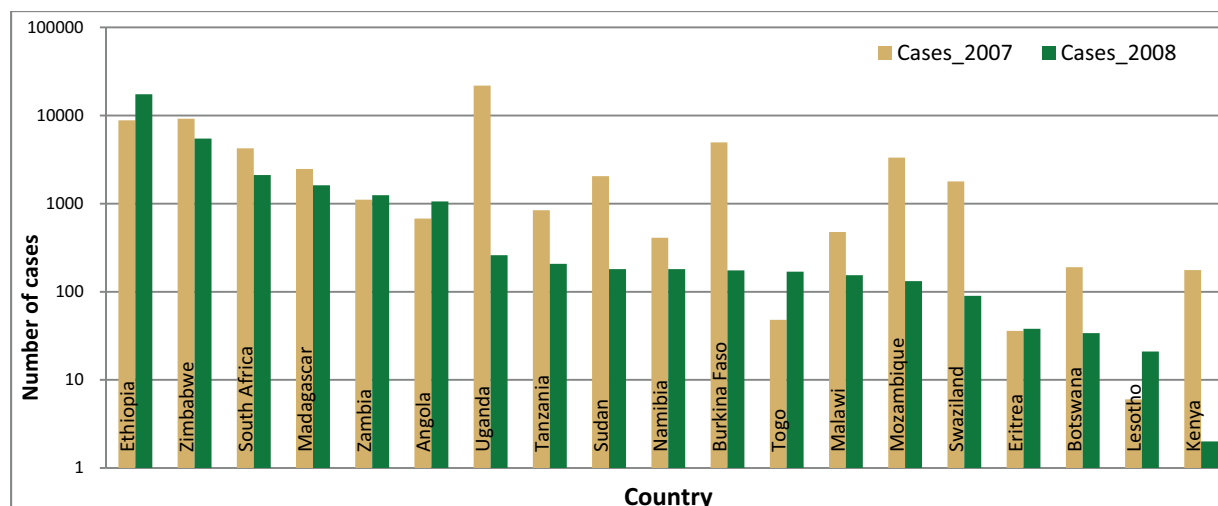
Country	Outbreaks	Cases	Deaths
Senegal	190	26818	883
Ethiopia	420	17412	733
Zimbabwe	489	5467	670
Burundi	1	4194	0
Nigeria	7	4040	16
South Africa	149	2115	128
Madagascar	0*	1614	80
Zambia	11	1246	71
Angola	2	1059	56
Mali	11	300	21
Uganda	7	260	4
Tanzania	0*	207	28

Namibia	43	181	35
Sudan	8	181	12
Burkina Faso	19	175	0
Togo	30	169	2
Malawi	0*	154	0
Mozambique	7	132	9
Ghana	1	120	1
Rwanda	12	96	30
Swaziland	19	90	3
Gambia	2	78	6
Cameroon	3	75	7
Eritrea	5	38	0
Botswana	9	34	4
Niger	7	28	5
Lesotho	5	21	0
Benin	2	8	0
Kenya	1	2	0
29 countries	1460	66,314	2,804

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

During 2007, 20 countries reported the occurrence of LSD. Nineteen of the 20 countries which reported the disease in 2007 also reported it in 2008. The detailed comparison shows that there were more LSD cases in countries like Ethiopia, Zambia, Angola, Togo, Eritrea and Lesotho during 2008 than in 2007. The details are presented in figure 15.

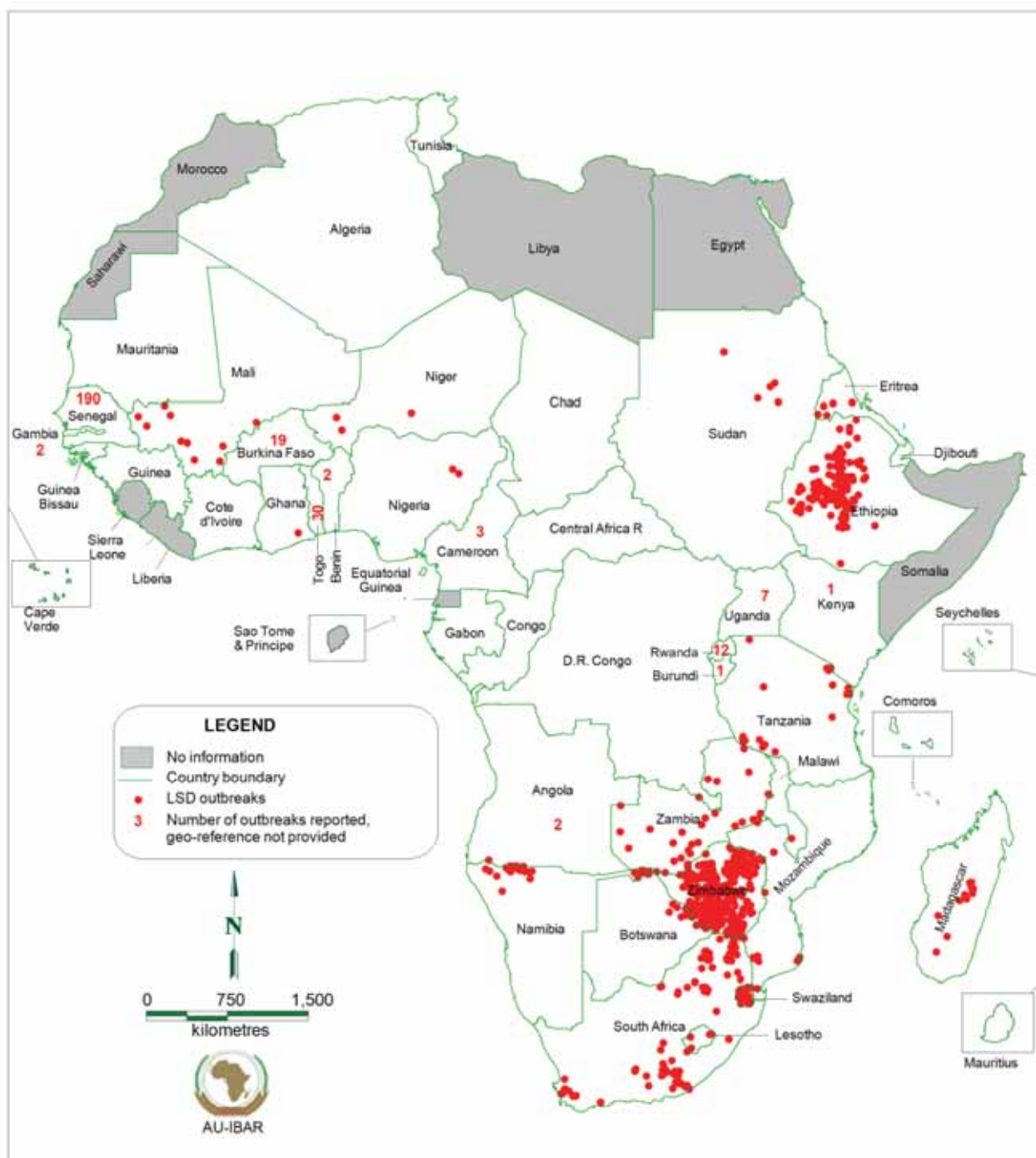
Figure 15, comparison of LSD cases during 2007 and 2008 in affected countries



The 29 countries reporting LSD outbreaks were from all the regions of Africa, except for the northern region. The detailed spatial

distribution of LSD during the reporting period is shown in map 6.

Map 6, the spatial distribution of LSD in Africa in 2008



The countries where LSD outbreaks were recorded applied mainly vaccination as disease control measure. As a result of this, a total of 1.3 million head of cattle were vaccinated in

12 countries. Table 14 shows details of vaccination and other control measures applied by affected countries during 2008.

Table 14, LSD control measures undertaken by affected countries during 2008 and some related quantitative data

Country	Slaugh-tered	Destro-yed	Control Vac.	Prophy. Vac.
Angola	0	56	0	33776
Ethiopia	25	0	953281	125446
Lesotho	0	0	50	0
Madagascar	1320	0	0	0
Mali	14	0	13310	10100
Nigeria	0	0	0	233
Rwanda	0	52	336582	0
Sudan	4	0	1236	7538
Swaziland	0	1	1697	0
Tanzania	18	0	0	3565
Togo	103	0	0	0
Zimbabwe	0	0	0	1683
12 countries	1484	109	1306156	182341

4.1.9 Newcastle disease (NCD)

In 2008, outbreaks of NCD were reported in 31 of the 44 countries (70.5%), which submitted their monthly disease reports to IBAR. That makes it one of the most widespread diseases across the continent during the reporting period. The D. R. Congo, Ghana and South Africa were the three most affected countries, accounting for 65.3% of all NCD cases and 72.1% of all deaths due to outbreaks of the disease. Table 15 presents the list of countries affected and some quantitative data on the outbreaks of Newcastle disease.

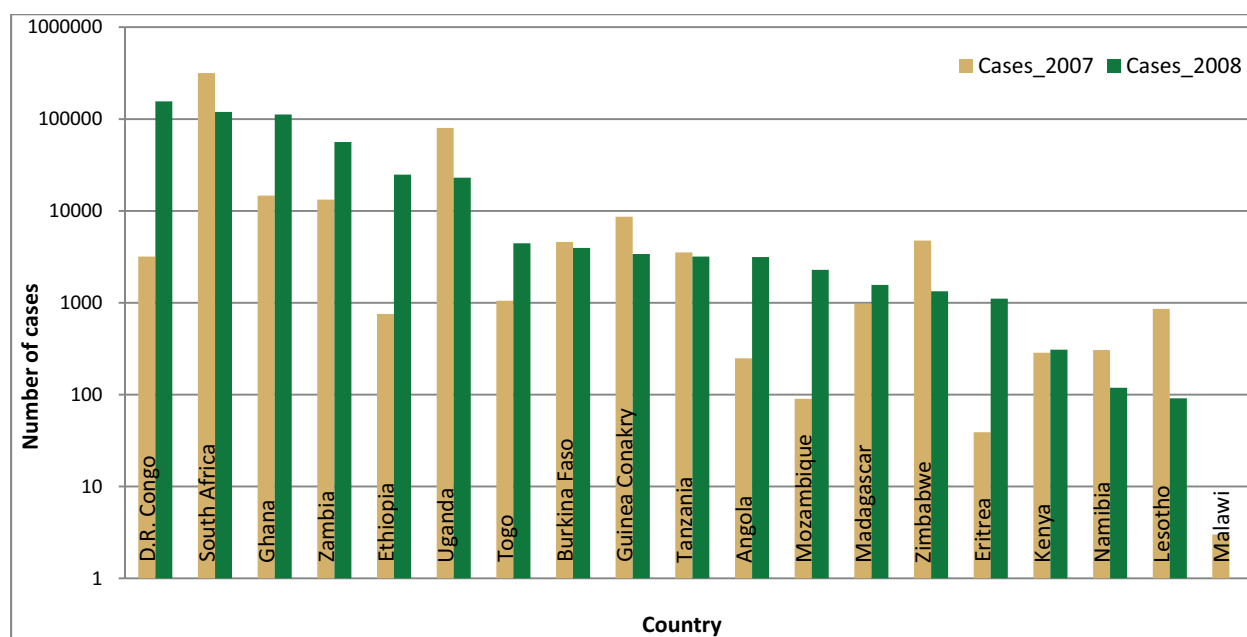
During 2007, outbreaks of NCD were reported in 19 countries. As shown in figure 16, all the 19 countries reported the disease again in 2008 and there was a slight increase in the total number of cases in 2008. Countries recording higher numbers of NCD cases during 2007 included South Africa, Uganda and Ghana.

Table 15, African countries reporting Newcastle disease outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
D.R. Congo	0*	156085	86294
Ghana	245	112292	21208
South Africa	62	119471	112850
Zambia	33	56239	6244
Cote d'Ivoire	3	31000	19316
Ethiopia	139	24814	23636
Uganda	9	22996	4160
Benin	79	10096	3989
Rwanda	68	9529	593
Nigeria	38	9323	1912
Burundi	0*	8926	0
Cameroon	13	6776	5750
Togo	55	4441	3061
Burkina Faso	38	3958	1994
Guinea	19	3397	1098
Tanzania	0*	3183	2576
Angola	0*	3142	3142
Mozambique	6	2281	2006
Madagascar	2	1565	1382
Zimbabwe	1	1335	1132
Eritrea	2	1110	818
Sudan	2	1000	994
Congo	5	330	323
Kenya	4	308	87
Swaziland	9	176	163
Namibia	5	119	104
Mali	2	96	70
Lesotho	6	91	85
Niger	3	70	225
Senegal	3	10	10
Malawi	1	1	0
31 countries	852	594,160	305,222

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

Figure 16, number of Newcastle disease cases during 2007 and 2008 in affected countries



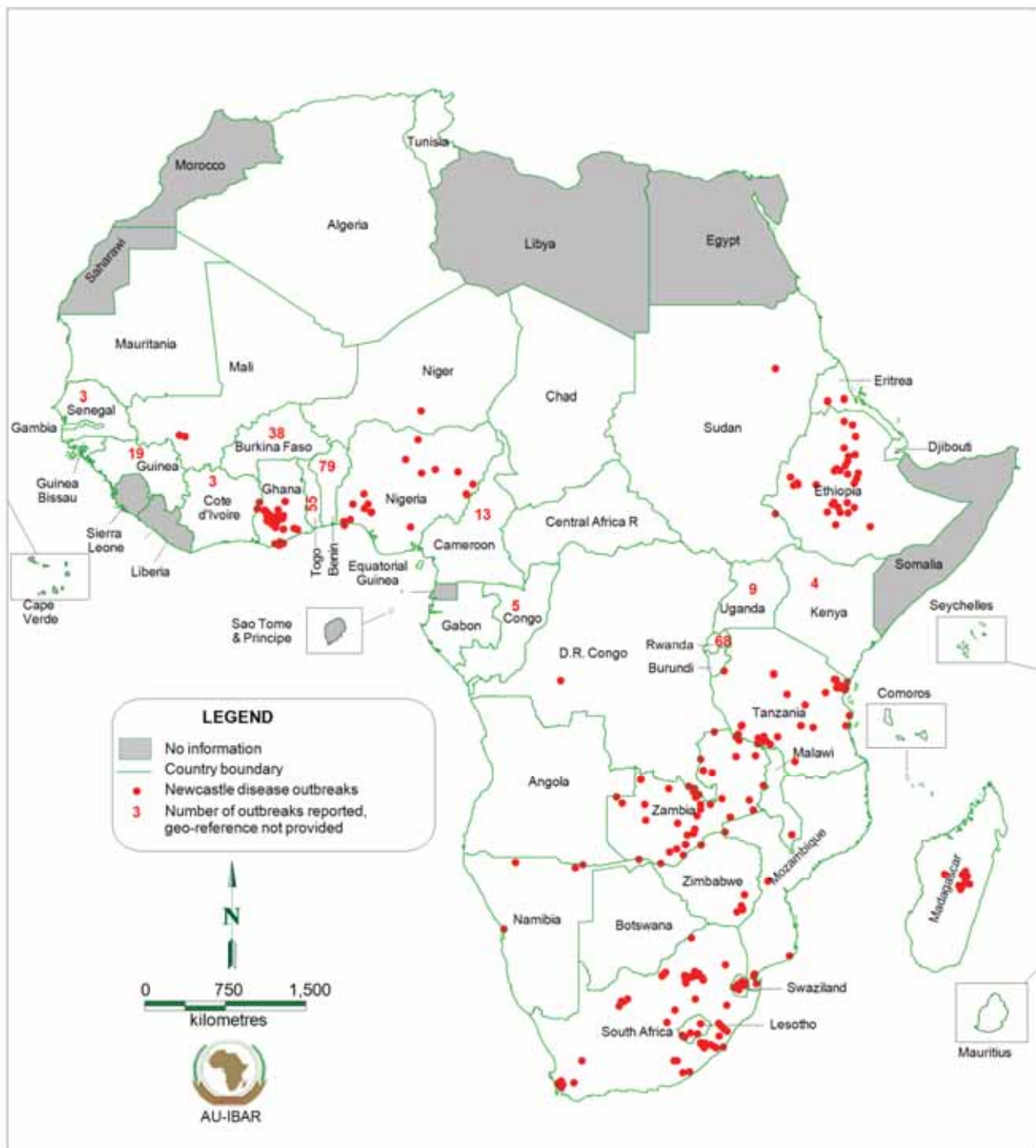
As mentioned earlier, almost two-thirds of the countries which submitted their reports to IBAR during 2008 recorded the occurrence of NCD outbreaks. The 31 countries reporting the disease were from all regions of Africa except the northern region. The detailed spatial distribution of NCD is presented in map 7.

Affected countries used control measures such as quarantine, vaccination, slaughter and destruction of infected and in-contact flocks to contain the NCD outbreaks. Table 16 shows quantitative data of some of the above listed control measures undertaken by affected countries during 2008.

Table 16, Newcastle disease control measures undertaken by affected countries during 2008 and some related quantitative data

Country	Slaught- tered	Destro- yed	Control Vac.	Prophy. Vac.
Angola	538	3142	0	6227
Benin	298	0	13289	0
Burkina Faso	0	0	0	7178
D.R. Congo	40191	0	0	0
Eritrea	10	750	0	0
Ethiopia	0	0	112499	19136
Ghana	0	754	964	0
Guinea	271	30	689	0
Lesotho	0	2	3000	0
Madagascar	104	0	0	0
Mali	15	0	17300	0
Nigeria	224	2	904	12502
Rwanda	17876	982	1048012	1048012
S. Africa	0	22200	0	0
Sudan	0	0	0	7599
Swaziland	10	0	0	0
Tanzania	0	100	0	45129
Togo	150	1343	0	0
Uganda	395	3	0	0
19 countries	60082	29308	1196657	1145783

Map 7, the spatial distribution of Newcastle disease in Africa in 2008



4.1.10 Peste des Petits Ruminants (PPR)

During 2008 PPR was recorded in 19 (43.2%) of the 44 countries, which submitted their reports to IBAR. According to the report, Uganda, Ethiopia and Nigeria were the three most affected countries with almost 90.9% of all PPR cases reported. Table 17 shows the details of PPR outbreaks throughout Africa in 2008.

Table 17, African countries reporting PPR outbreaks during 2008 and related quantitative data

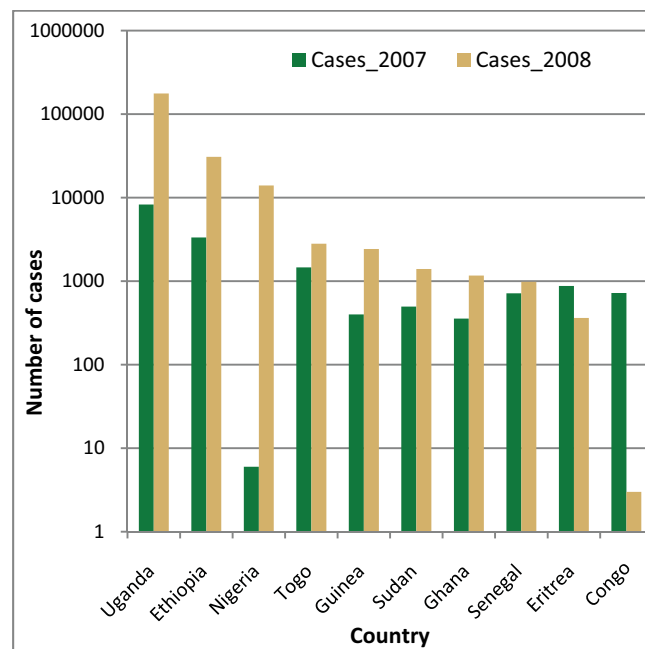
Country	Outbreaks	Cases	Deaths
Uganda	2	177000	617
Ethiopia	252	30768	15935
Nigeria	116	13995	1310
Benin	187	9825	2919
Togo	163	2808	1329
Guinea	75	2426	1265
Sudan	25	1399	730
Ghana	46	1166	758
Senegal	31	981	589
Burkina Faso	12	923	541
C.A.R .	40	559	222
Mali	3	553	66
Niger	106	488	65
Eritrea	6	363	112
Cameroon	12	212	130
Gambia	10	429	303
D.R. Congo	0*	108	90
Chad	3	48	30
Congo	1	3	2
19 countries	1,090	244,054	27,013

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

Only 11 countries mainly from the Western and Eastern Africa regions reported the occurrence of PPR outbreaks in 2007. When figures for the number of PPR cases reported during 2007 are compared with those for

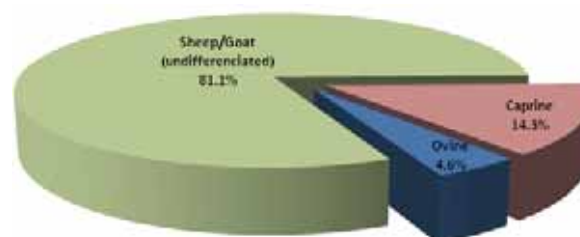
2008 for countries which reported the disease during both years, there was an overall increase (92.7%) in the number of cases during 2008. The comparison of PPR cases during 2007 and 2008 is presented in figure 17.

Figure 17, comparison of PPR cases during 2007 and 2008 in affected countries



Most of the reports (88.1%) did not specify which of the two small ruminant species were involved in the PPR outbreaks, marked as “Undifferentiated” in figure 18. From the reports where the species level involvement is recorded and quantified, it was clear that goats were more affected (14.3%) compared to sheep (4.6%).

Figure 18, the proportion of species involvement in PPR outbreaks reported during 2008



The outbreaks of PPR in 2008 affected mainly the Western and Central Africa regions. Out of the 19 countries which recorded PPR, ten were from the Western and five were from the Central Africa regions. The remaining four countries were from Eastern Africa region (Map 8).

The control measures implemented by countries affected by PPR included quarantine, slaughter and vaccination. Table 18 shows the measures some of the affected countries used to control the outbreaks.

Map 8, the spatial distribution of PPR in Africa in 2008

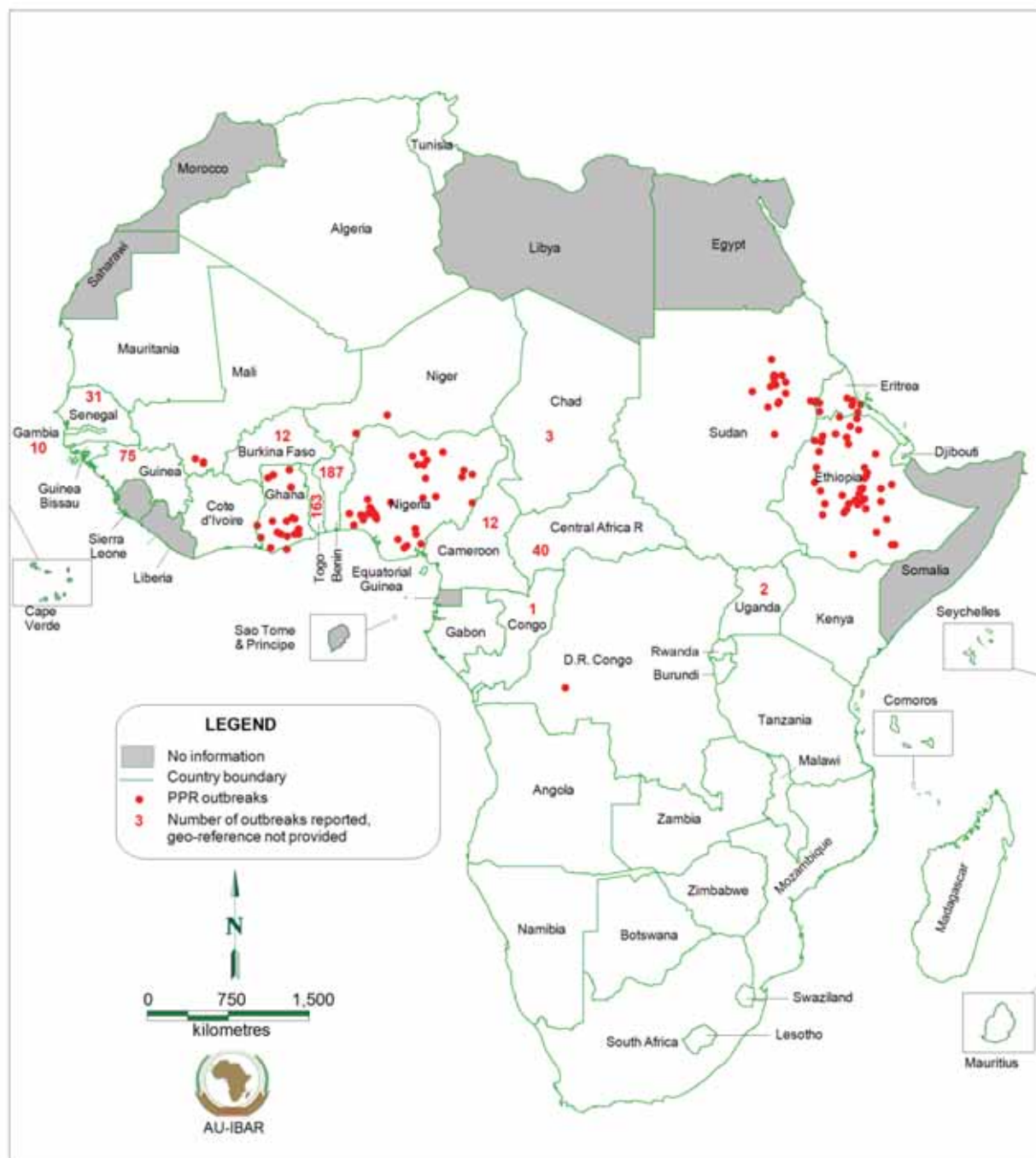


Table 18, PPR control measures undertaken by affected countries during 2008 and some related quantitative data

Country	Slaughter	Destroyed	Control Vac.	Prophy. Vac.
Benin	536	11	21522	0
C.A.R .	168	0	0	0
Congo	1	3	0	0
D.R. Congo	17	0	0	0
Eritrea	0	5	0	0
Ethiopia	36	0	424543	53742
Ghana	95	0	1538	0
Guinea	96	26	2307	0
Mali	50	0	4660	0
Nigeria	367	29	141763	78143
Sudan	0	0	952	59789
Togo	616	404	0	0
12 countries	1982	478	597285	191674

4.1.11 Rift Valley fever (RVF)

In 2008, five countries reported the occurrence of 40 outbreaks of RVF. The outbreaks affected 1,155 animals with a total of 240 deaths. The highest numbers of cases and deaths were recorded in the D.R. Congo and South Africa (table 19).

Table 19, African countries reporting RVF outbreaks during 2008 and related quantitative data

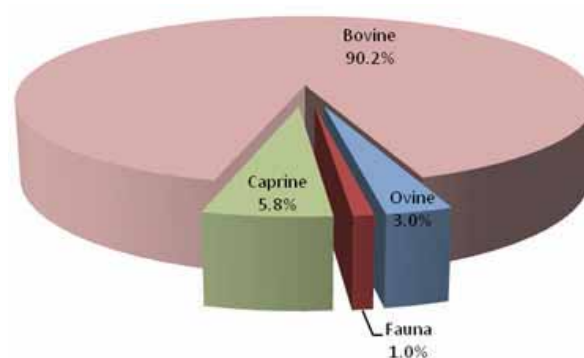
Country	Outbreaks	Cases	Deaths
D.R. Congo	0*	607	50
South Africa	34	502	178
Swaziland	2	30	10
Comoros	3	16	0
Madagascar	1	0	2
5 countries	40	1,155	240

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

During the previous year (2007), outbreaks of RVF involving human cases were reported in Kenya, Tanzania and Madagascar while during 2008, only Madagascar reported the continued occurrence of the disease.

The animal species most affected during the RVF outbreaks reported in 2008 was the bovine, accounting for 90.2% of all cases. Caprine and ovine cases followed with 5.8% and 3.0% involvement respectively. During the reporting period, there were reports of involvement of some African Buffaloes in the RVF outbreaks in South Africa. No official report is available whether or not human cases were involved during these outbreaks. The species involvement in RVF outbreaks during 2008 is shown in figure 19.

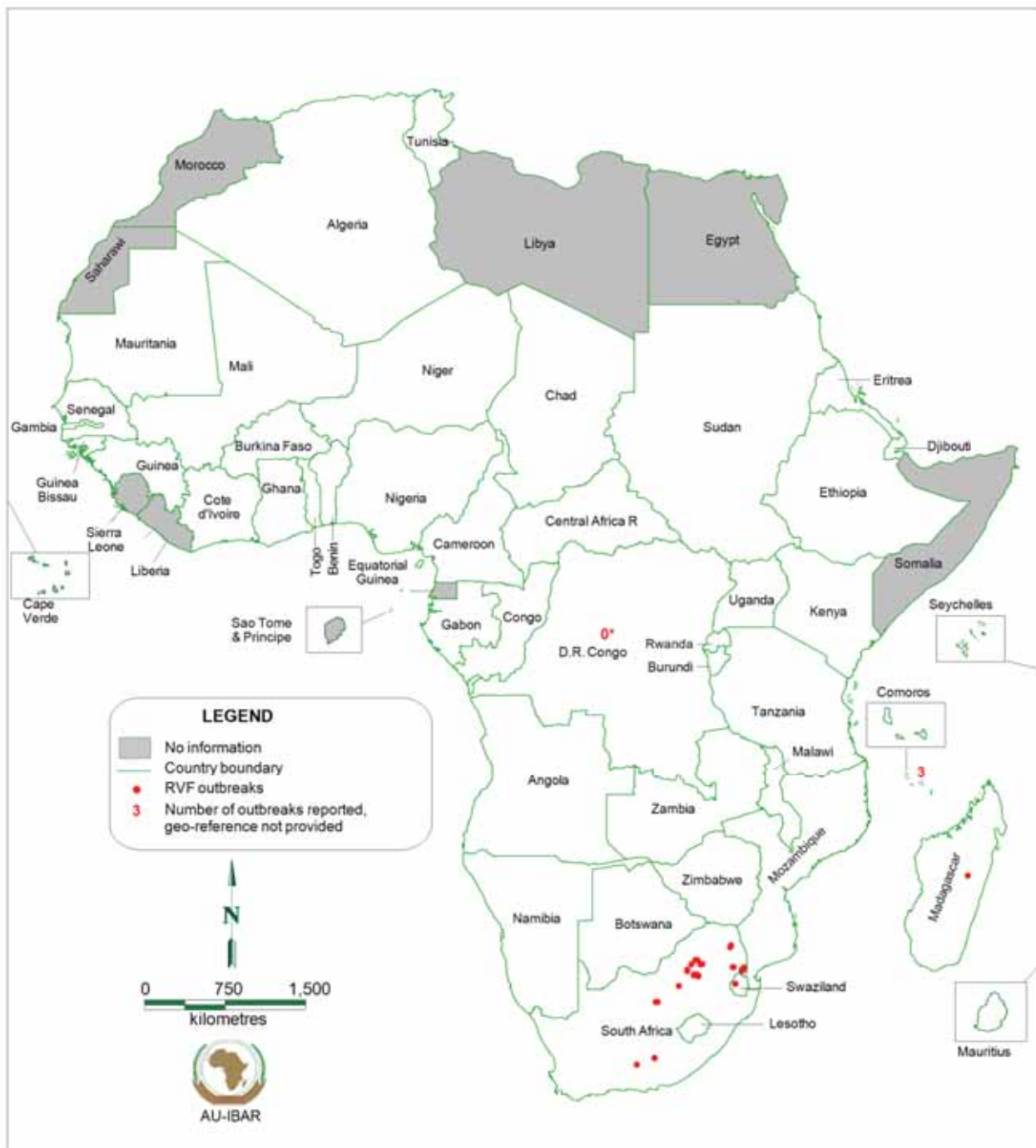
Figure 19, the proportion of species involvement in RVF outbreaks reported during 2008



All the five countries where the RVF outbreaks occurred during 2008 are located in the Southern African region. The spatial distribution of the reported outbreaks is presented in map 9.

The measures applied for the control of RVF outbreaks included movement control, quarantine and vaccinations. The details on numbers and species of animals vaccinated were not provided in the country reports.

Map 9, the spatial distribution of RVF in Africa in 2008



4.1.12 Sheep and goat pox

In 2008, a total of 272 outbreaks of sheep and goat pox were reported from seven countries. The disease affected 5,247 sheep and goats resulting in the death of 1,163 animals. Tunisia and Sudan reported the

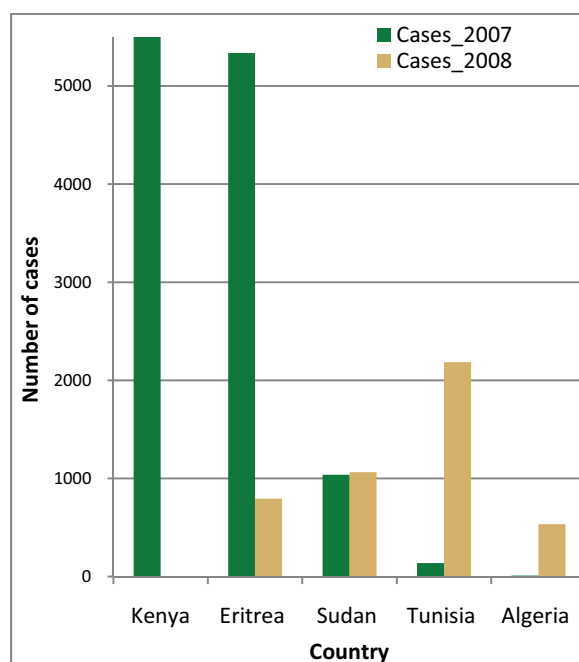
highest numbers of outbreaks and cases. The countries reporting outbreaks of sheep and goat pox and the data on the number of cases and deaths during the reporting period is shown in table 20.

Table 20: African countries reporting sheep and goat pox outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Tunisia	110	2186	264
Sudan	17	1063	364
Eritrea	12	794	294
Niger	72	617	186
Algeria	53	533	46
Senegal	5	42	5
Ethiopia	3	12	4
7 countries	272	5,247	1163

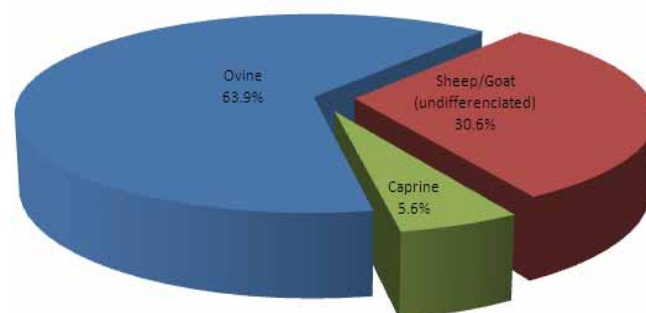
The number of countries reporting sheep and goat pox cases increased from five in 2007 to seven during 2008. The disease was not reported from Kenya this year, despite the fact it was the country with the highest number of cases during 2007. Figure 34 shows the comparison of sheep and goat pox cases in 2007 and 2008.

Figure 34, comparison of sheep and goat pox cases during 2007 and 2008 in some affected countries



From all the reports received on sheep and goat pox, 30.6% did not specify the species of small ruminants involved in the outbreaks. Reports in which the species involved were specified show that the majority (63.9%) of the cases were sheep (see figure 35 for details).

Figure 35: The proportion of species involvement in outbreaks reported during 2008



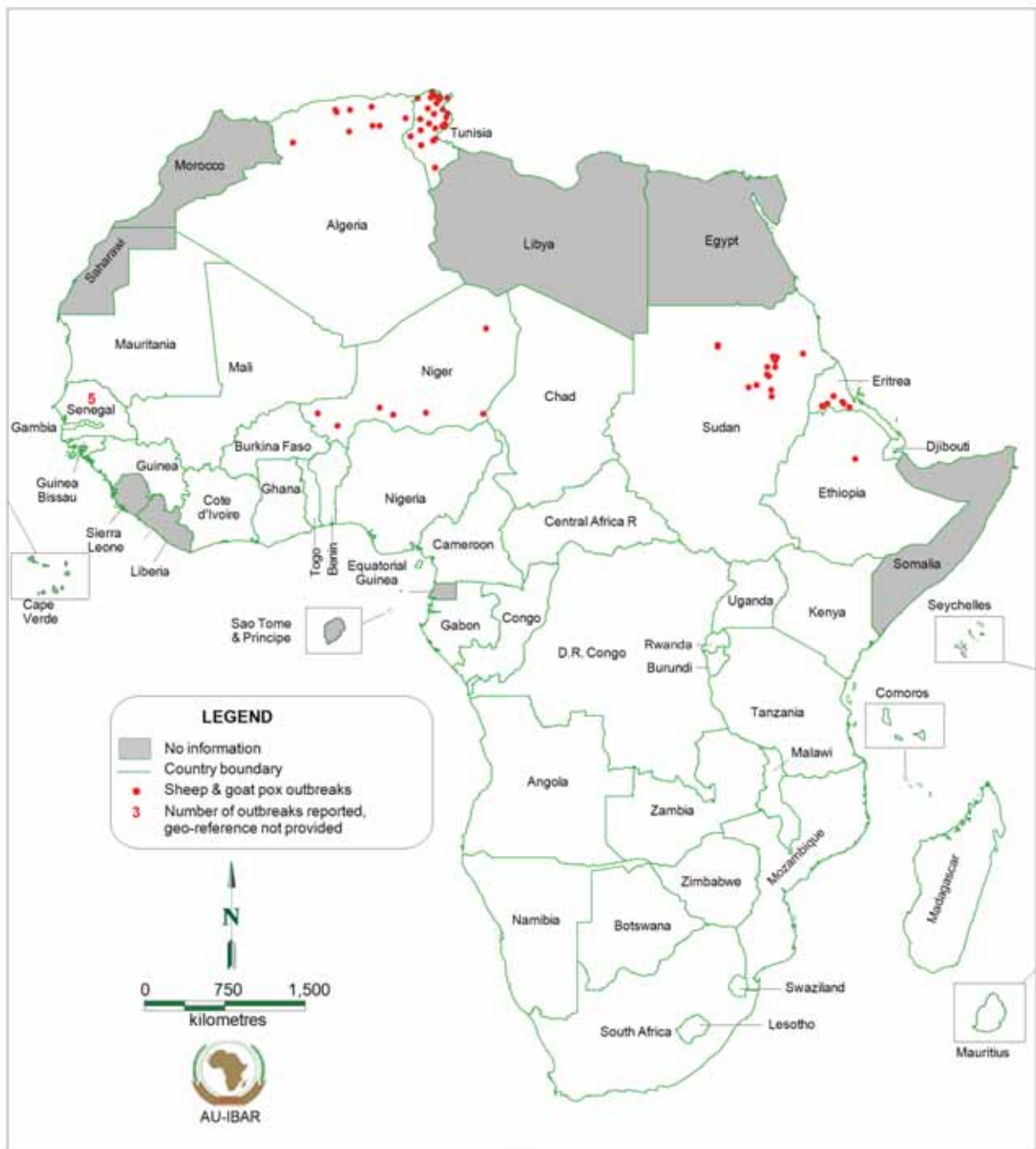
The outbreaks of sheep and goat pox during 2008 were reported from countries in the northern, western and eastern regions of Africa. Map 10 shows the spatial distribution of the disease.

Affected countries mainly vaccinated susceptible small ruminants to control sheep and goat pox. As shown in table 21, some countries slaughtered or destroyed affected animals.

Table 21: Sheep and goat pox control measures undertaken by affected countries during 2008 and some related quantitative data

Country	Slaugh-tered	Destro-yed	Control vac.
Algeria	0	26	0
Eritrea	59	210	0
Sudan	0	0	4500
3 countries	59	236	4500

Map 10, the spatial distribution of sheep and goat pox in Africa in 2008



4.2 Other diseases

This section deals with the description of economically or socially important diseases which were not covered under TADs. Similar to the previous section, the description here

focuses on the numbers of outbreaks, cases and deaths recorded per disease as well as the spatial distributions for Zoonotic diseases. Comparisons of the disease situation during 2007 and 2008 are also made where data was available.

4.2.1 Anaplasmosis

Outbreaks of anaplasmosis were recorded in 18 countries during 2008, making this disease one of the most widely distributed across the continent. The affected countries were mainly from the Southern and Eastern regions of Africa. As an endemic disease, countries like Madagascar, Tanzania and Zambia reported quantitative data as a follow-up to outbreaks presumably reported in the previous year. According to the report, in 2008, Zimbabwe registered the highest number of outbreaks, while Uganda recorded 26.7% of all the anaplasmosis cases reported in Africa.

Table 22, countries reporting anaplasmosis outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Uganda	10	2151	101
Tanzania	0*	1595	210
Zambia	0*	1252	280
South Africa	102	1013	43
Burundi	1	644	0
Zimbabwe	184	485	110
Madagascar	0*	355	86
Sudan	7	245	145
Mozambique	15	97	20
Comoros	4	63	0
Swaziland	12	55	4
Lesotho	3	34	0
Kenya	57	26	1
Niger	2	25	17
Angola	3	9	1
Namibia	2	3	2
Botswana	2	2	0
Senegal	1	2	0
18 countries	405	8,056	1,020

**Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier*

4.2.2 Anthrax

Out of a total of 44 countries which reported their disease status to IBAR, 21 countries (48.8%) recorded outbreaks of anthrax in 2008. This makes the disease one of the five most widely distributed diseases in Africa during the reporting period. The outbreaks of anthrax affected 31,591 animals of different species with high mortalities. The countries reporting anthrax outbreaks and related quantitative data are presented on table 23.

Table 23, African countries which reported anthrax outbreaks during 2008 and related quantitative data

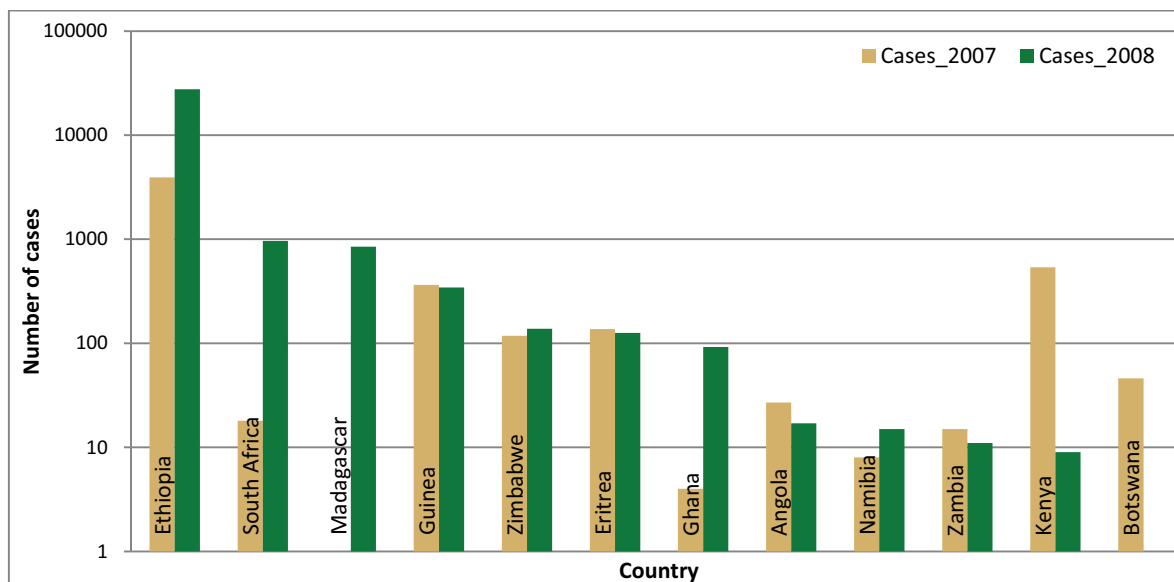
Country	Outbreaks	Cases	Deaths
Ethiopia	1997	27610	4760
South Africa	46	962	309
Madagascar	0*	847	85
Guinea	52	344	227
Burkina Faso	20	288	56
Senegal	15	259	66
Cote d'Ivoire	3	214	0
Lesotho	15	188	168
Chad	4	179	33
Zimbabwe	10	138	135
Niger	47	130	95
Eritrea	10	126	68
Rwanda	29	95	28
Ghana	22	92	92
Mali	5	46	18
Togo	8	20	14
Angola	1	17	17
Namibia	2	15	15
Zambia	0*	11	11
Kenya	5	9	9
Botswana	1	1	1
21 Countries	2,292	31,591	6,207

**Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier*

During 2007, 15 countries reported a total of 630 outbreaks of anthrax. The increase in the number of countries reporting the disease in

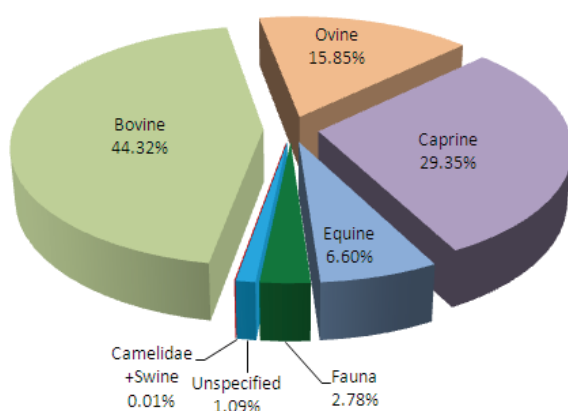
2008 was also reflected in increased numbers of cases and deaths. Figure 39 compares anthrax cases during 2007 and 2008.

Figure 40, comparison of anthrax cases during 2007 and 2008 in some affected countries



The anthrax outbreaks reported during 2008 affected bovine, caprine, ovine, equine, fauna, camels and swine in that order of importance. As shown in figure 40, the involvement of cattle in anthrax outbreaks accounted for 44.3% of all the cases.

Figure 41, the proportion of species involvement in anthrax outbreaks reported during 2008



During the reporting period, outbreaks of anthrax were reported in countries from all

but the northern African region. Map 11 shows the detailed distribution of anthrax outbreaks.

The main control measure used to contain anthrax outbreaks as reported by countries was vaccination. Ethiopia, with the highest number of outbreaks and cases in 2008, vaccinated more than a quarter million (287,346) animals.

4.2.3 Babesiosis

In 2008, 19 countries reported 281 outbreaks of babesiosis affecting 9,577 animals, out of which 2,094 died. More than one-third (40.9%) of the babesiosis cases were reported from Ethiopia. Likewise, 73.5% of all deaths attributed to babesiosis outbreaks occurred there. Details on countries reporting babesiosis outbreaks and quantitative data on the number of outbreaks, cases and deaths recorded are presented in table 24.

Map 11, the spatial distribution of anthrax in Africa in 2008

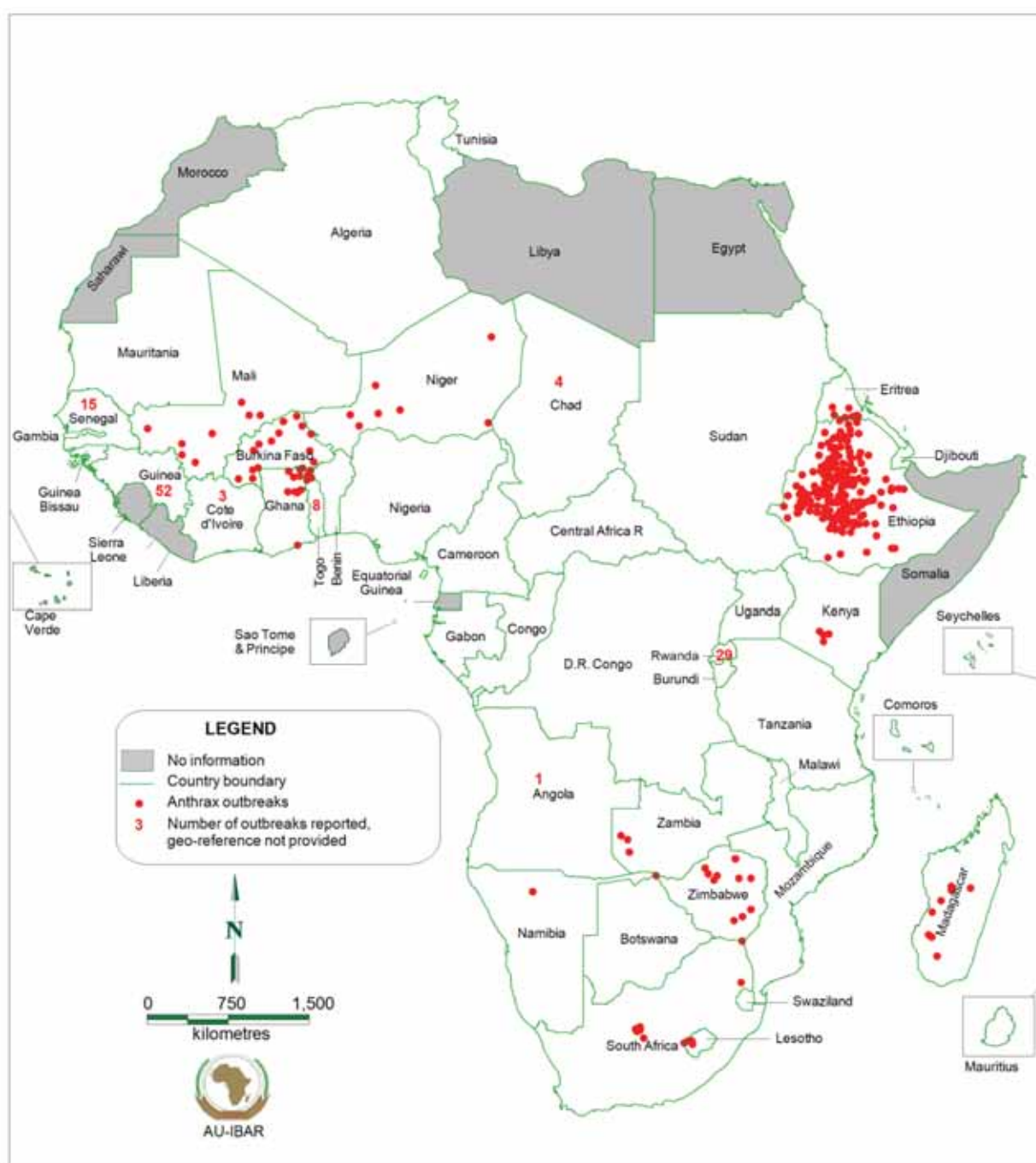


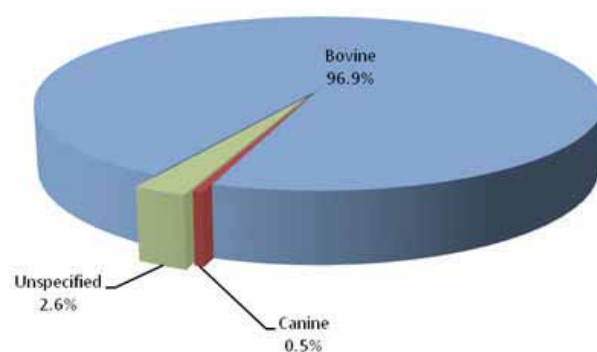
Table 24, African countries reporting babesiosis outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Ethiopia	9	3920	1540
Burundi	1	2714	0
South Africa	87	1132	137
Tanzania	0*	591	209
Zimbabwe	109	257	74
Zambia	0*	221	17
Niger	34	216	70
Uganda	7	183	22
Lesotho	3	80	3
Madagascar	0*	68	7
Comoros	8	58	0
Nigeria	7	43	2
Mozambique	2	37	10
Sudan	1	20	0
Angola	1	19	0
Swaziland	8	14	3
Kenya	2	2	0
Botswana	1	1	0
Senegal	1	1	0
19 countries	281	9,577	2,094

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

The species most affected during the 2008 outbreaks of babesiosis was the bovine, constituting almost 97% of all cases. Nigeria and Zambia reported few canine cases (Figure 42).

Figure 42, the proportion of species involvement in babesiosis outbreaks reported during 2008



4.2.4 Blackleg

A total of 16 countries reported 1,763 outbreaks of blackleg in 2008. The outbreaks affected 14,270 cattle, out of which 3,911 died. From all blackleg outbreaks reported, Ethiopia recorded 75.9% of all cases and 71.3% of deaths. Zimbabwe and Zambia also recorded high number of blackleg cases and deaths during the reporting period (table 25).

Table 25, African countries reporting blackleg outbreaks and related data during 2008

Country	Outbreaks	Cases	Deaths
Ethiopia	1529	10836	2787
Zimbabwe	129	1436	440
Zambia	0*	725	252
Uganda	7	367	120
Nigeria	4	270	10
Swaziland	36	214	112
S. Africa	22	111	53
Lesotho	15	83	24
Namibia	9	61	31
Eritrea	1	50	10
Burundi	1	40	0
Gambia	4	30	30
Malawi	2	22	22
Angola	0*	15	12
Botswana	3	9	8
Kenya	1	1	0
16 countries	1,763	14,270	3,911

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

4.2.5 Bovine tuberculosis

During 2008, 16 countries from all regions of Africa reported 555 outbreaks of bovine tuberculosis. The outbreaks affected a total of 3,644 cattle out of which 74 died. Tunisia recorded the highest number of outbreaks and cases in 2008 compared to the rest of the countries (table 26).

Table 26, African countries reporting Bovine tuberculosis outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Tunisia	121	1607	0
Cote d'Ivoire	4	431	23
Benin	43	398	0
Ghana	118	346	0
Algeria	149	335	0
Togo	65	201	0
Angola	0*	112	5
C.A.R.	28	94	15
South Africa	16	57	4
Madagascar	1	24	22
D.R.Congo	0*	16	0
Mozambique	2	8	0
Uganda	1	7	1
Zambia	4	5	3
Cameroon	1	2	0
Nigeria	2	1	1
16 countries	555	3,644	74

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

In 2007, 11 countries reported a total of 125 outbreaks of bovine tuberculosis, involving 2,389 cases. Most of these countries reported the outbreaks of the disease again in 2008, with some registering higher number of cases than the previous year. Figure 43 compares the number of bovine tuberculosis cases during 2007 and 2008.

The outbreaks of bovine tuberculosis reported in 2008 mainly affected cattle (77.3%). Involvement of wildlife and pigs were also reported from South Africa and Benin respectively. Figure 44 shows the species involvement during the bovine tuberculosis outbreaks reported in 2008.

Figure 43, number of bovine tuberculosis cases during 2007 and 2008 in some affected countries

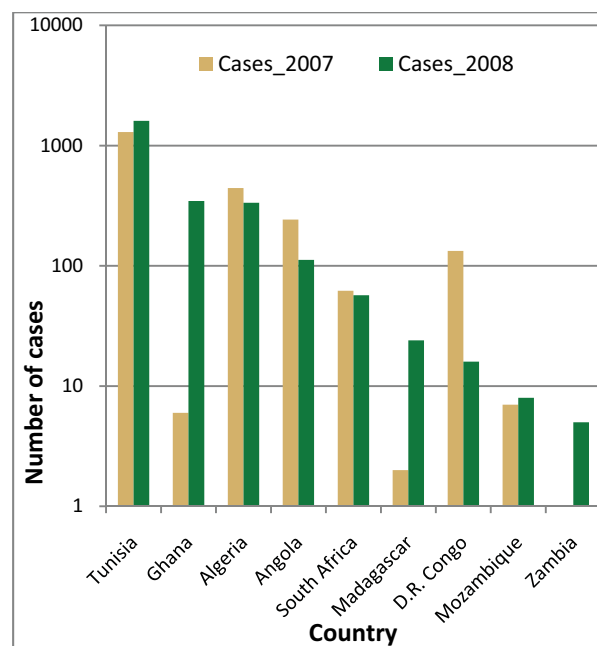
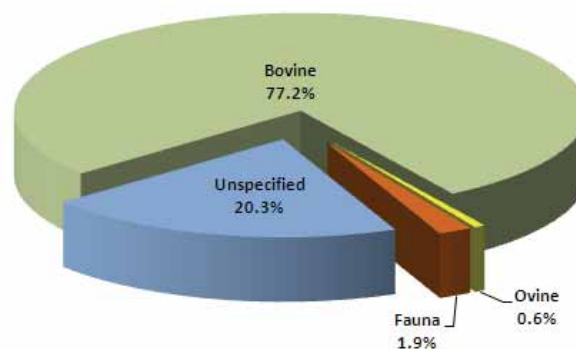


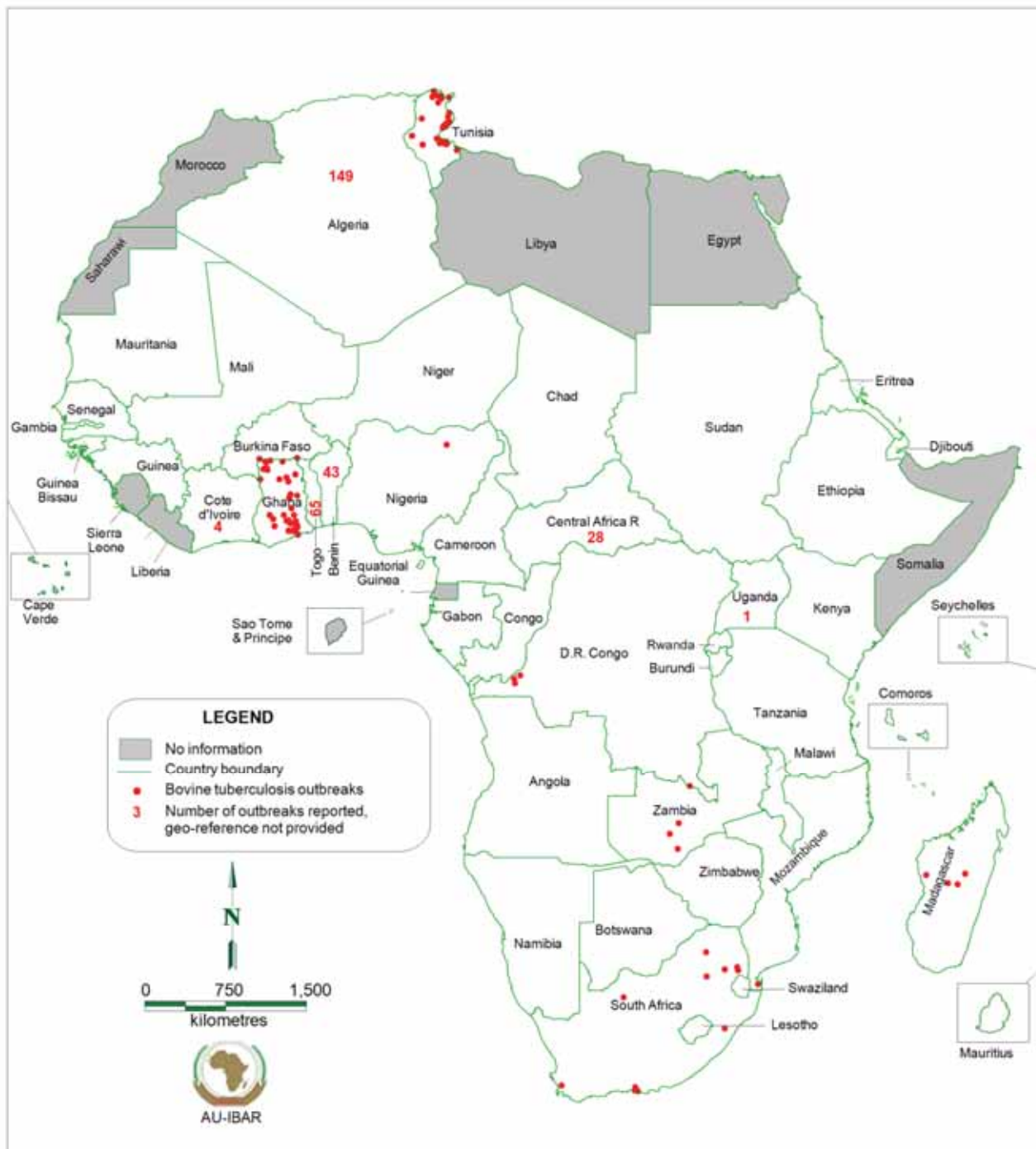
Figure 44, the proportion of species involvement in bovine tuberculosis outbreaks reported during 2008



The 16 countries which reported bovine tuberculosis during 2008 were from all the five regions of Africa. Map 12 shows how widespread the disease was across the continent.

The control measures for bovine tuberculosis outbreaks reported in 2008 include screening, quarantine and slaughter.

Map 12, the spatial distribution of bovine tuberculosis in Africa in 2008



4.2.6 Brucellosis

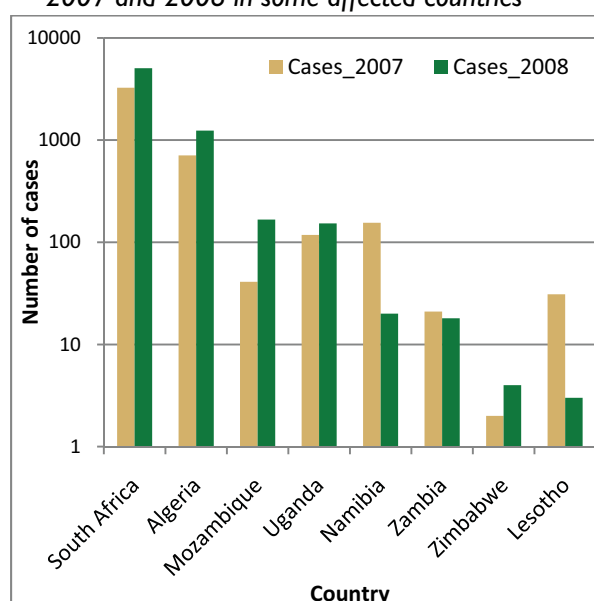
A total of 16 countries from all regions of Africa reported 1,236 outbreaks of brucellosis affecting 9,285 cases in 2008. South Africa, Eritrea and Algeria recorded the highest number of brucellosis cases during the reporting period (table 27).

Table 27, African countries reporting brucellosis outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
South Africa	605	5045	29
Eritrea	4	2170	10
Algeria	527	1237	17
Nigeria	7	245	0
Mozambique	28	167	5
Uganda	2	153	32
Tunisia	11	94	15
Swaziland	12	72	0
Ghana	4	32	0
Sudan	5	22	0
Namibia	4	20	0
Zambia	7	18	1
Zimbabwe	5	4	2
Lesotho	1	3	0
Togo	2	2	0
Kenya	12	1	0
16 countries	1,236	9,285	111

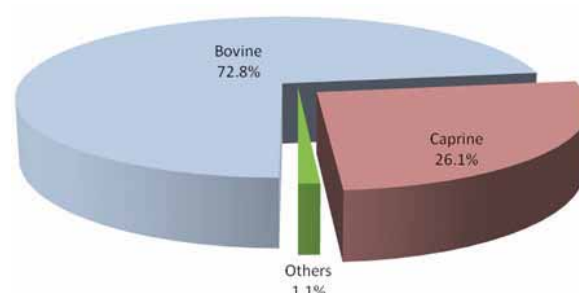
During 2007, 11 countries reported a total of 679 outbreaks of brucellosis, affecting 5,612 animals. This year the number of countries reporting the disease increased and the overall number of cases almost doubled (Figure 45).

Figure 45, comparison of brucellosis cases during 2007 and 2008 in some affected countries



The species most involved in the brucellosis outbreaks reported in 2008 was the bovine, with 72.8% of all brucellosis cases. Algeria, Eritrea, Sudan and Tunisia reported the involvement of goats in the brucellosis outbreaks. Few cases of ovine, camel and equine (labelled as “others” in figure 46) were also affected.

Figure 46, the proportion of species involvement in brucellosis outbreaks reported during 2008



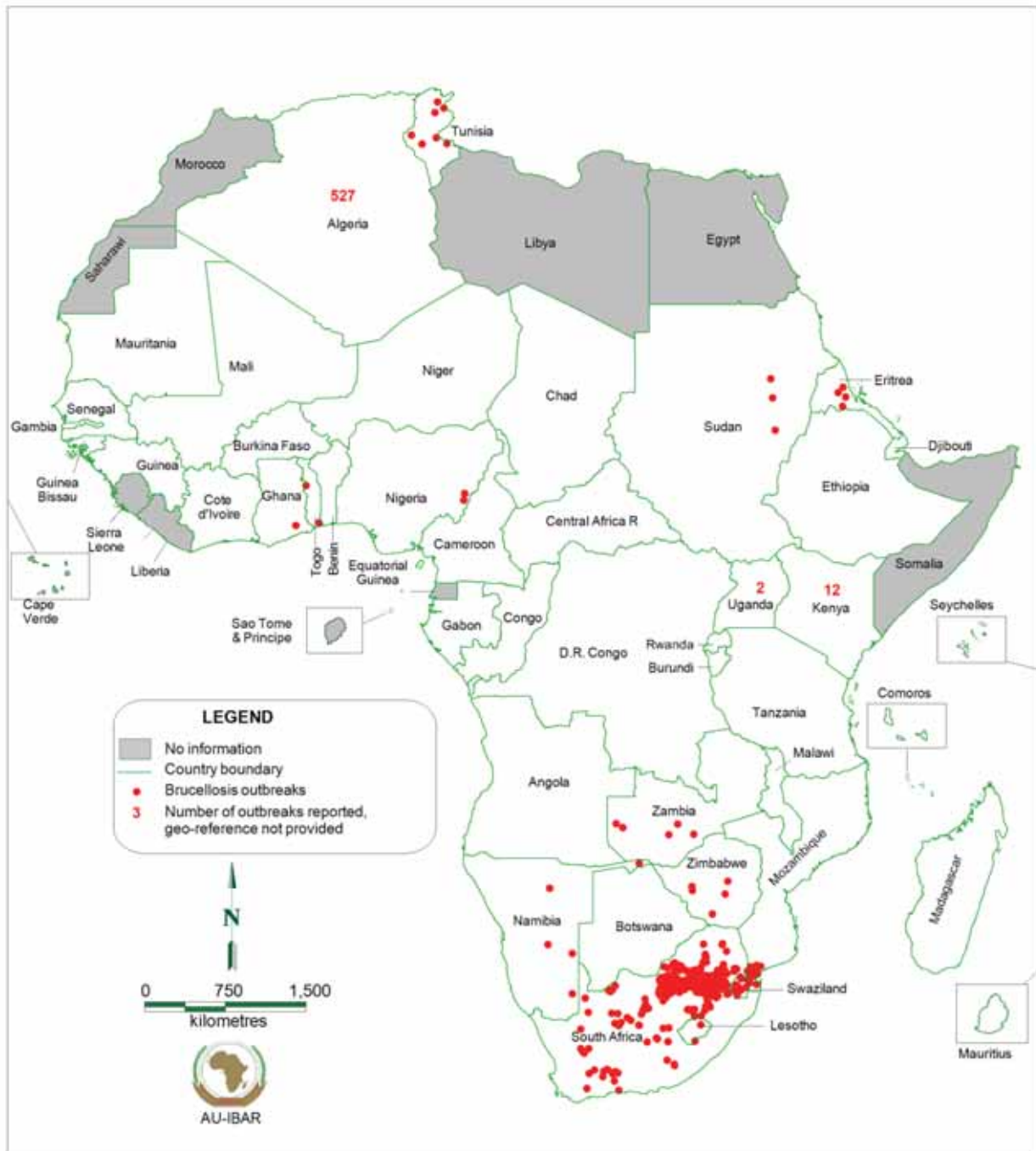
The 16 countries which reported outbreaks of brucellosis during 2008 were from all the five regions of Africa (Map 13).

The brucellosis control measures instituted by most of the countries which reported outbreaks included screening, quarantine and slaughter. The number of animals slaughtered and destroyed as part of brucellosis control measure in some African countries is presented in table 28.

Table 28, Control measures implemented by countries reporting brucellosis and related figures

Country	Slaughtered	Destroyed
Algeria	1213	7
Eritrea	0	10
Ghana	16	16
Lesotho	0	2
South Africa	0	183
Togo	0	2
Uganda	36	0
7 countries	1265	220

Map 13, the spatial distribution of brucellosis in Africa in 2008



4.2.7 Contagious caprine pleuropneumonia (CCPP)

Out of 44 countries reporting their disease status to IBAR during 2008, only seven reported the occurrence of CCPP. These

countries recorded a total of 68 outbreaks, which affected 117,651 goats out of which 12,849 died. Uganda and Ethiopia were the two most affected countries with almost all CCPP cases (98.3%) and deaths (97.1%) registered during the reporting period. Table 29 presents the details.

Table 29, African countries reporting CCPP outbreaks during 2008 and related quantitative data

Countries	Outbreaks	Cases	Deaths
Uganda	3	90102	1238
Ethiopia	53	25651	11244
Tanzania	0*	1536	218
Nigeria	1	170	10
Eritrea	2	85	46
Niger	3	55	17
Kenya	6	52	76
7 countries	68	117,651	12,849

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

Five of the seven countries reporting CCPP in 2008 experienced the outbreaks also in the previous year. These five countries were from Eastern African region and the two added during 2008 were from Western African region (i.e. Nigeria and Niger).

4.2.8 Dermatophilosis

Eight countries reported a total of 154 outbreaks of dermatophilosis during the reporting period. These outbreaks affected 3,163 cases, out of which 207 died. Zambia reported the highest number of cases (44.3% of all dermatophilosis cases) followed by Madagascar (26.1%). Table 29 show the details.

Table 29, African countries reporting dermatophilosis outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Zambia	0*	1402	42
Madagascar	0*	825	28
Zimbabwe	106	570	132
Ghana	43	182	0
Angola	0*	160	4
Senegal	2	15	1
Namibia	2	6	0
Lesotho	1	3	0
8 countries	154	3,163	207

The outbreaks of dermatophilosis during 2008 were reported mainly from countries in Southern African and to some extent from Western African regions.

4.2.9 Gumboro disease (Infectious bursal disease)

In 2008, 14 countries reported a total of 277 outbreaks of Gumboro disease (Infectious bursal disease). The outbreaks involved 389,366 cases and out of which 61,593 birds died (Table 30).

Table 30, African countries reporting Gumboro disease outbreaks during 2008 and related quantitative data

Country	Outbreaks	Cases	Deaths
Zambia	12	193450	4002
Cote d'Ivoire	2	112000	24000
Ghana	215	62681	20249
Sudan	4	4100	2685
Nigeria	8	3843	1101
Eritrea	1	2500	1605
Uganda	4	2012	300
Malawi	1	664	354
Zimbabwe	23	1343	800
Cameroon	3	461	213
Madagascar	0*	102	102
Senegal	1	65	40
D.R. Congo	0*	15	15
Botswana	3	6130	6127
14 countries	277	389,366	61,593

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

During 2007, five countries reported a total of 31 outbreaks of Gumboro diseases affecting 27,357 birds. Out of the five, only two reported the occurrence of the disease in their territories during the following year.

Zambia and Cote d'Ivoire were the two most affected countries, accounting for 78.5% of all Gumboro diseases cases and 45.5% of the deaths during the reporting period.

4.2.10 Heartwater (Cowdriosis)

In 2008, 17 countries reported the occurrence of 529 outbreaks of heartwater. The outbreaks affected 8,802 animals, out of which 1,064 died. Burundi and South Africa reported the highest number of cases, accounting for 74.9% of all heartwater cases during 2008. Ten of the 17 countries reporting (58.8%) the outbreaks of heartwater were from the Southern African region. Table 31 shows the details.

Table 31, African countries reporting heartwater outbreaks during 2008 and related quantitative data

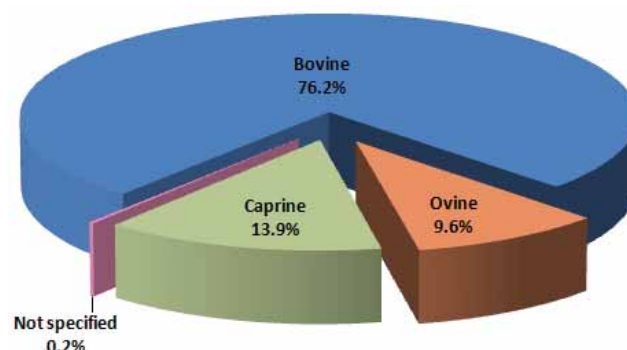
Country	Outbreaks	Cases	Deaths
Burundi	1	4177	0
South Africa	230	2418	191
Madagascar	0*	775	215
Zambia	11	438	110
Zimbabwe	145	394	146
Tanzania	0*	237	30
Botswana	96	111	253
Sudan	1	70	45
Togo	15	55	34
Mozambique	4	48	18
Swaziland	16	46	18
Kenya	5	11	0
Comoros	2	10	0
Nigeria	1	8	0
Eritrea	1	2	2
Lesotho	0*	1	1
Namibia	1	1	1
17 Countries	529	8,802	1,064

*Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier

During 2007, 13 countries reported heartwater outbreaks. Except for Kenya, all the countries reporting heartwater last year were also from Southern Africa region. The outbreaks of heartwater reported during 2008 involved all the ruminant species as shown in figure 47. The species most affected

though was the bovine, with 76.2% of all cases recorded during the reporting period.

Figure 47, the proportion of species involvement in heartwater outbreaks reported during 2008



4.2.11 Rabies

According to the disease status reports received, rabies was one of the most widely distributed diseases in Africa during 2008. Thirty of the 44 countries (69.8%) which submitted their reports to IBAR reported 2,194 outbreaks of the disease affecting 4,180 animals of different species. Algeria (northern) South Africa (southern) and Ethiopia (eastern) recorded the highest number of outbreak, cases and deaths during the reporting period (table 32).

Table 32, African countries reporting rabies outbreaks during 2008 and related quantitative data

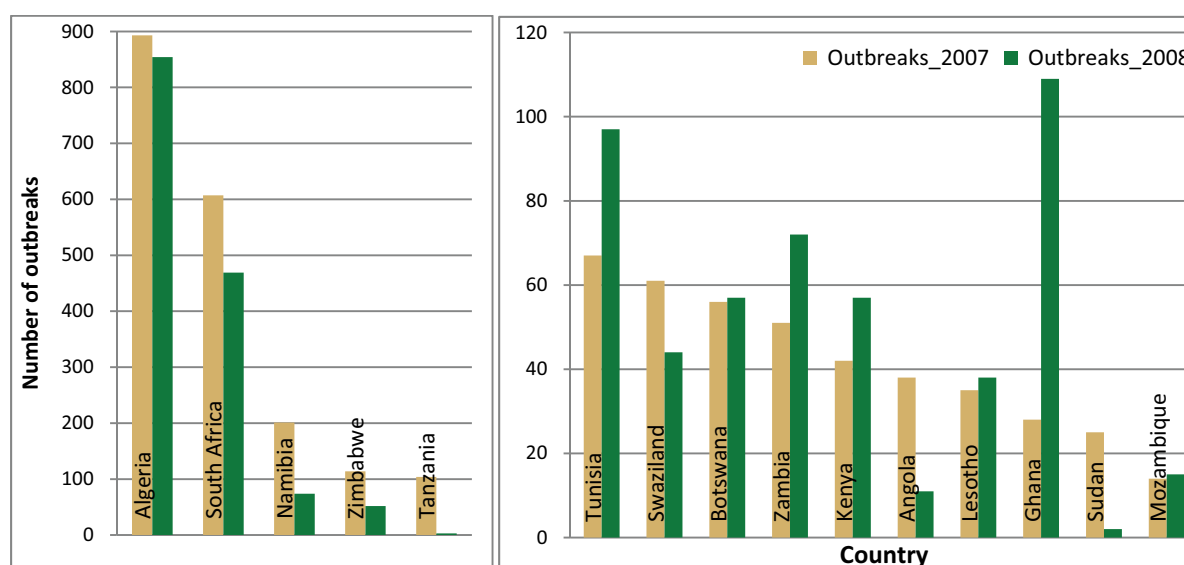
Country	Outbreaks	Cases	Deaths
Algeria	854	970	360
South Africa	469	503	250
Ethiopia	115	365	211
D.R. Congo	0*	364	4
Zambia	72	320	163
Uganda	7	254	27
Nigeria	24	135	34
Rwanda	13	133	48
Ghana	109	130	95
Tunisia	97	129	0
Zimbabwe	52	120	73
Namibia	74	83	83
Lesotho	38	80	77

Mozambique	15	79	64
C.A.R.	11	79	27
Burundi	1	79	0
Togo	50	65	61
Tanzania	3	60	42
Swaziland	44	59	52
Angola	11	49	49
Sudan	2	35	8
Cameroon	3	33	33
Botswana	57	19	74
Gabon	7	12	12
Mali	1	7	6
Eritrea	5	6	5
Cote d'Ivoire	1	5	4
Kenya	57	3	2
Malawi	2	2	2
Madagascar	0*	2	2
30 countries	2,194	4,180	1,868

**Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier*

During 2007, 19 African countries reported the occurrence of rabies outbreaks. These countries again recorded the occurrence of the disease in 2008. In general, the number of rabies outbreaks reported in 2007 was higher in most countries compared to those recorded during 2008. The comparison between the number of rabies outbreaks during 2007 and 2008 for countries most affected is presented in figure 48.

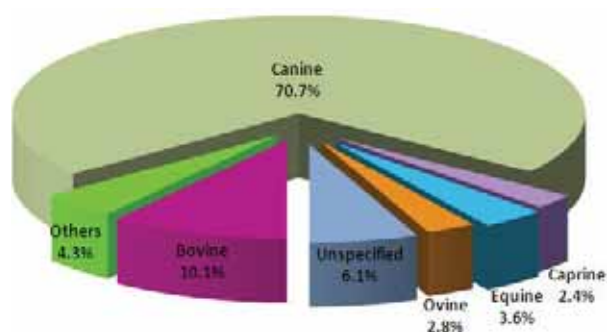
Figure 48, number of rabies outbreaks during 2007 and 2008 in some affected countries



The rabies outbreaks reported in 2008 affected several species of animals. Although few reports did not specify the species involved, data from the remaining 93.9% shows that the canine species was the most affected, accounting for 70.7% of all rabies cases during the reporting period. Bovine was

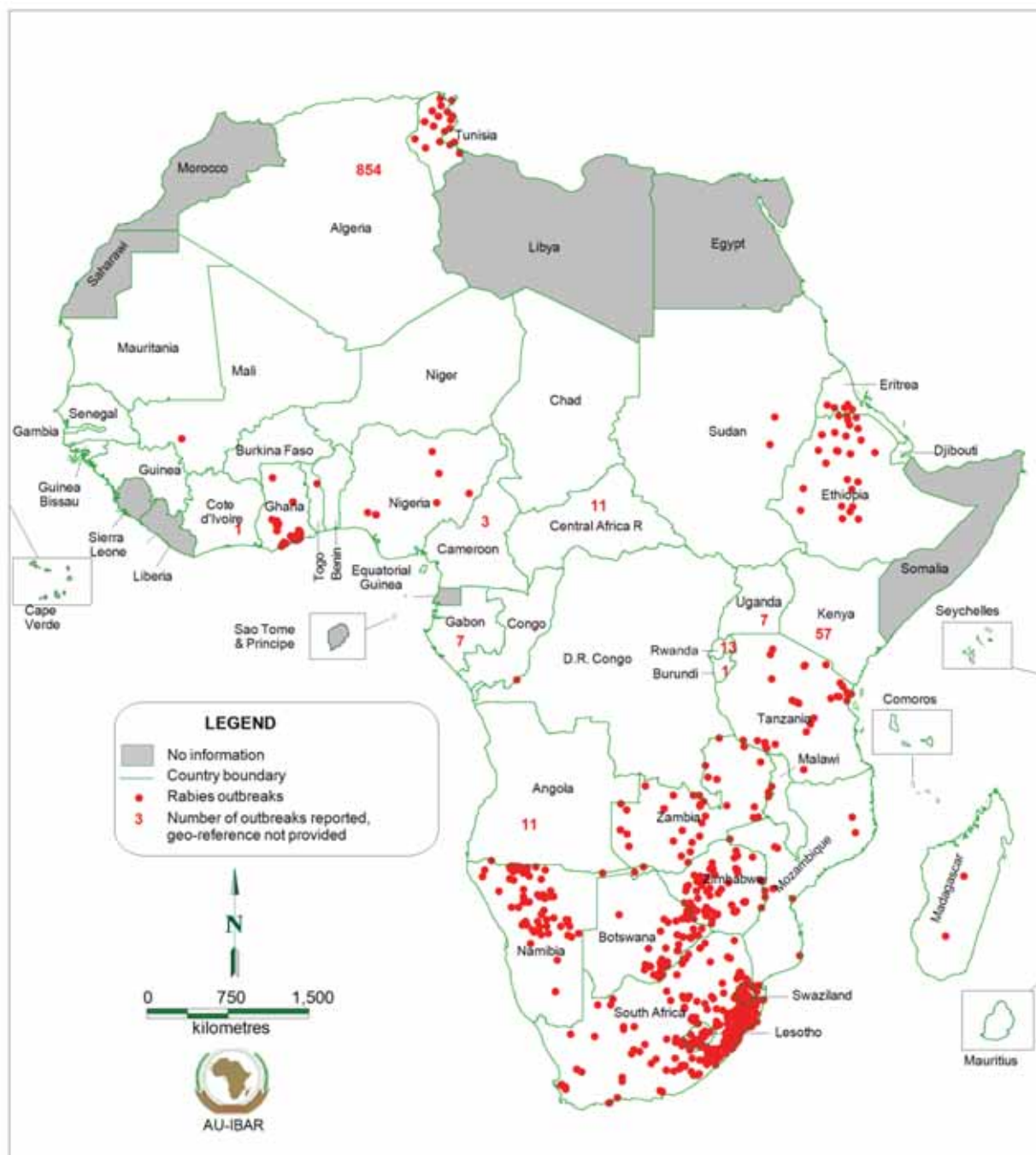
the second highly affected species with 10.1% (Figure 49). The species categorised as “others” in the figure includes cats, camels, pigs and human. Although two human cases were reported from Ethiopia and Zimbabwe, there seems to be underreporting on human involvement in rabies.

Figure 49, the proportion of species involvement in rabies outbreaks reported during 2008



As mentioned earlier, almost 70% of the countries reporting disease status to IBAR during 2008 recorded rabies outbreaks. The 30 countries where the disease outbreaks occurred during the reporting period are from all the five regions of Africa. Map 14 shows the spatial distribution of the rabies outbreaks.

Map 14, the spatial distribution of rabies in Africa in 2008



The types of interventions implemented to control rabies outbreaks during 2008 varied from country to country. Some destroyed infected animals, while other vaccinated susceptible animals, particularly dogs. Table 33 shows the different interventions implemented for the control of rabies outbreaks in affected countries.

Table 33, Rabies control measures undertaken by affected countries during 2008 and some related quantitative data

Country	Destro- yed	Control Vac.	Prophy. Vac.
Angola	49	0	0
Eritrea	1	0	0
Ethiopia	0	8717	0
Ghana	27	356	0
Lesotho	3	340	0
Malawi	1	0	0
Mozambique	1	0	0
Nigeria	33	0	0
Rwanda	2714	7568	0
South Africa	94	0	0
Sudan	2	0	0
Swaziland	7	2017	0
Tanzania	10	0	2791
Uganda	14	0	0
Zimbabwe	6	0	0
Algeria	734	0	0
Cote d'Ivoire	1	0	0
Gabon	4	237	0
Lesotho	0	5	0
Togo	6	0	0
20 countries	3,707	19,240	2,791

4.2.12 Theileriosis

In 2008, 11 countries mainly from Southern and Eastern African region reported 156 outbreaks of theileriosis. While some of the countries were very specific in the type of theileria species involved in the outbreaks, others reported theileriosis in general. During

the reporting period, the highest number of cases of theileriosis, 75.5%, was recorded in Burundi. Table 34 lists the countries which reported theileriosis outbreaks and where possible the specific type of theileriosis involved with relevant quantitative data.

Table 34, African countries reporting theileriosis outbreaks during 2008 and related quantitative data

Country	Disease	Outbreaks	Cases	Deaths
Burundi	Theileriosis	1	28375	0
Zambia	Theileriosis	2	3347	807
Uganda	Theileriosis	10	2597	121
Tanzania	Theileriosis	0*	2246	333
Sudan	Theileriosis	11	461	316
Kenya	ECF	81	260	16
Zimbabwe	Theileriosis	15	136	75
Mozambique	Theileriosis	17	97	26
Comoros	Theileriosis	4	30	0
South Africa	Corridor disease	10	26	0
Namibia	Theileriosis	4	8	0
South Africa	Benign Theileriosis	1	1	1
11 countries		156	37584	1695

**Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier*

During 2007, 926 outbreaks of theileriosis, mainly believed to be ECF, affected a total of 10 countries. Except for Swaziland, missing from the list of affected countries in 2008, the remaining countries reported the occurrence of the disease in 2007 and 2008.

4.2.13 Trypanosomiasis

A total of 16 countries in Africa reported the occurrence of 656 outbreaks of trypanosomiasis in 2008, affecting 117,957 cases. During these outbreaks 1,749 animals died. The countries most affected were Benin and Uganda, accounting for 90.9% of all trypanosomiasis cases during the reporting

period. The highest number of deaths was recorded in Nigeria (Table 40), with 40.8% of all deaths attributed to trypanosomiasis outbreaks. Apparently, Tanzania and D.R. Congo did not record new outbreaks of the disease but figures of cases collected during follow-up to outbreaks reported during the previous year.

Table 40, African countries reporting trypanosomiasis outbreaks during 2008

Country	Outbreaks	Cases	Deaths
Benin	382	56547	558
Uganda	9	50681	111
Burundi	1	3164	0
Nigeria	9	2599	713
Togo	100	1424	43
Zambia	2	1410	39
Tanzania	0*	1215	64
Kenya	101	244	14
South Africa	10	154	1
Ethiopia	7	152	31
Ghana	13	138	44
Mozambique	10	117	101
Zimbabwe	10	89	20
D.R. Congo	0*	14	4
Angola	1	8	6
Swaziland	1	1	0
16 countries	656	117,957	1,749

**Presumably, these were on-going outbreaks reported during the previous year and figures reported here are follow-ups to the outbreaks reported earlier*

In 2007, 12 countries reported a total of 856 outbreaks of trypanosomiasis. With the exception of Botswana, Ghana and Malawi, the remaining nine countries again reported the occurrence of the disease during 2008.

These outbreaks mainly affected cattle (96.9% of all trypanosomiasis cases). The 16 countries which reported outbreaks of trypanosomiasis during 2008 were from all regions of Africa except the northern region. The majority (50%) of these countries were from Southern African region.

5. PROGRESS OF RINDERPEST ERADICATION

This section deals with the current status of rinderpest, interventions and lessons learnt and the way forward.

Just like in the previous year, in 2008, no suspicious disease events were reported anywhere on the continent. Writing dossiers to OIE for accreditation of freedom from Rinderpest with special emphasis on the

Somali ecosystem under the aegis of Somali ecosystem Rinderpest Eradication Coordination Unit (SERECU) Project were the main focus.

By the year 2008, the following 33 African counties were declared officially free from the disease.

Algeria	Congo	Gabon
Angola	DRC	Guinea
Benin	Egypt	Guinea Bissau
Botswana	Equatorial Guinea	Lesotho
Burkina Faso	Eritrea	Madagascar
Burundi	Ethiopia	Malawi
Mali	Morocco	Rwanda
Mauritania	Mozambique	South Africa
Mauritius	Namibia	Sudan
Swaziland	Tanzania	Togo
Uganda	Zambia	Zimbabwe

Self declared members or zones provisionally free from the disease (in accordance with the terrestrial code) included Djibouti (in October, 2003); Kenya (in March, 2007); and Somalia (in January, 2007). Members that have not declared themselves free from the disease include Niger, Cameroon, CAR, Chad, Nigeria, Liberia, and Sierra Leone.

The situation in the Somali Ecosystem (SES)

Confident that Rinderpest was no longer circulating in the SES after a lot of re-sampling and re-testing of sites, Ethiopia was accredited freedom by the OIE in the year under review. Kenya and Somalia have since submitted their dossiers to OIE for accreditation of freedom.

6. CONSTRAINTS FACED DURING COMPILING DATA

The importance of sharing information on the status of disease across Africa cannot be overemphasised. The implementation of several projects in AU Member States in recent years targeting surveillance and disease control have improved considerably the understanding of sharing information for transparency and accountability. In addition to sensitisation, the projects also assisted in establishing systems and creating capacity for the collection of surveillance data from field and compiling reports for national and international reporting obligations. The quality of these reports and the information generated from them highly depend on the quality of data. The quality of data in turn depends on how it is collected from field, the skills, experience and motivation of the personnel involved in data collection, availability of standardised data collection forms and guidelines amongst others. This section of the Yearbook discusses the challenges faced during compiling data for the printing of the 2008 issue and proposes on how to address these gaps to enhance data quality in the near future.

6.1 Data quality gaps identified and proposed solutions

IBAR developed and distributed a monthly disease reporting format in 2003 for use by Member States. The format was also accompanied by guidelines on how to fill the reporting format to assist reporting officer understand the parameters to collect and the assumptions made. During 2008, most of the Member States adhered to the standard format and continued submitting their reports in the required format and agreed time table. However, few Member States deviated from the standard format and submitted their reports in templates not compatible with the standard format IBAR introduced. This makes collation and analysis of data difficult. Among

those who used the IBAR disease reporting form, few countries left blank some key parameters or inserted parameters not expected making aggregation and analysis difficult. Most of the data quality issues discussed here will be solved by the introduction of the 2nd version of ARIS and the data collection form. Till that is achieved, we would like to draw the attention of reporting officers to the following data quality gaps.

- a) **IBAR monthly disease status report not used** – In recent years, some countries are deviating from the agreed reporting form and presenting their disease status report in different forms. This leads to omission of some important parameters and makes the use of data in the report difficult.
- b) **Reports for several months bundled together** – IBAR expects **MONTHLY** disease reports from Member States. Hence, reports for each month should be submitted preferably by the end of the following month. If for some reason, that is not possible and countries have to submit reports for several months together (say on quarterly basis), still it is possible but the report for each month should be prepared separately. The tendency of bundling reports for several months and submitting either at the end of six months or in some cases at the end of the year should be avoided. Timely submission is meant for timely information flow for action.
- c) **Absence of disease not often reported or Zero reporting is abused** – There are some countries, particularly the island nations where animal diseases might not occur often. When diseases do not occur, it is good practice to report the **ABSENCE** of disease, also known as **ZERO**

REPORTING. The IBAR monthly disease reporting targets the status of animal diseases in Member States, whether these are PRESENT or ABSENT. However, care should be exercised to differentiate lack of capacity to detect disease occurrence because of capacity from genuine absence of disease.

- d) **Diseases with different forms or sero-types of causative agents not specified** – Some diseases have different forms (virulent) and mere infection. For instance, theileriosis could be presented as East Coast fever, benign theileriosis, corridor disease, January disease, etc., depending on the theileria species involved. Unless the reporting officers specify the form of the disease or the species of the agent involved, it makes aggregation and analysis difficult affecting the quality of information generated. The typical example is the challenges in reporting the FMD virus sero-types involved in outbreaks. It is well understood that identification of FMD sero-types requires laboratory capacity and support. If the sero-type data is available, it should be specified in the corresponding column of the reporting form designed for this purpose. To the contrary if it is not available, NOT TYPED (the FMD virus sero-type was not identified) should be entered instead of leaving the column blank for IBAR staff to guess what that might be.
- e) **Official or more frequently used names of diseases not followed** – Animal diseases have one or more names and in some cases even local names. Using different names for reporting confuses data entry personnel, who are familiar with the names provided in the OIE list. Hence, reporting officers are requested to adhere to official disease names and avoid using local names or names less frequently used.
- f) **Clear distinction between NEW outbreaks and FOLLOW-UP not made** – Some reporting officers continue providing numbers for disease outbreaks already reported during the previous month(s), inflating the number of outbreaks unduly. Particularly, endemic disease with ongoing clinical cases for several months should be reported once and subsequent reports are just follow-ups. To report an outbreak as NEW, there should be convincing evidence that it is not linked either by time or by space to the one reported before.
- g) **Methods used to diagnose disease outbreaks not specified** – This is one of the parameters left out by many reporting officers from the monthly disease report. The diagnostic methods used to confirm the disease while investigating outbreaks are ignored sometimes in up to 90% of the reports. The lack of this key data makes it difficult to ascertain the quality of outbreak investigation.
- h) **Control measures and related quantitative data often ignored** – This is also another parameters often ignored by reporting officers. The methods used to contain disease outbreaks are very important information to share. Likewise, the number of animals vaccinated, destroyed or slaughtered is key to understand the effectiveness of the control measure implemented.
- i) **The species of animals affected during the outbreak not specified** – Some of the reports submitted to IBAR lack the species of animal involved in the outbreak, particularly if the disease is a multi-species disease. There is a tendency among some reporting officers to combine sheep and goat together (as Ovine/Caprine) and report one figure. This makes species level analysis difficult particularly for those diseases which affect

small ruminants. It is highly recommended that the name of species affected is captured separately for each species and the corresponding quantitative data is entered.

j) Quantitative data not provided – The main quantitative data in the monthly disease report includes the number population at risk (susceptible), number of cases, number of deaths, those slaughtered or destroyed as part of control measures and finally those vaccinated (prophylactic or for control). Sizeable amount of reporting officers ignore all or part of these statistics, crucial to quantify the magnitude of the problem. IBAR is fully aware how difficult it is to collect some of these figures, particularly the *population at risk* from filed. However, the reporting officers are better placed than anybody else to devise ways of getting these figures and include in the monthly report. In the absence of key parameters such as the Population at risk, it is not possible to calculate epidemiological rates (with the denominator missing). That is one of the main reasons why mostly the Yearbook cannot go beyond description. With the right data provided better analysis and comparison of intensity of diseases can be made.

k) Incomplete geo-reference data – The availability of location data in longitude and latitude coordinates (in degree decimal and at least at three decimal points precision) is mandatory for disease mapping. During 2008, several countries did not provide geo-reference data for several diseases making it difficult to map the spatial distribution of outbreaks of these diseases. The number of countries submitting outbreak location data for mapping purpose is increasing from time to time. However, until all countries consistently provide geo-reference data,

mapping disease distribution accurately cannot be achieved.

l) The name of the affected administrative unit is often ignored – Several reports ignore the administrative unit, i.e. the name of the Province and District where disease outbreaks occurred. In the absence of geo-reference data, the name of administrative unit may help at least to understand the part of the country affected by the outbreaks reported.

m) Wildlife disease or diseases where wildlife is involved neglected – There is gross underreporting of wildlife diseases. In outbreaks involving wildlife, the species involved is not specified (only the general name *Fauna* is provided), making it difficult to understand the type of wildlife affected. It is worthwhile considering working together with Wildlife Departments as to get complete picture on this. The first step would be providing the species of wildlife affected or involved in disease outbreaks.

n) Underreporting of Zoonoses – Human involvement in zoonoses continued being underreported. The suggestion made above is also valid here. Networking with public health authorities and securing data on human involvements shades more light on the situation of zoonoses in member States and across Africa, enhancing the quality of information generated.

o) Reporting diseases of fish and bees should start – Only Algeria reported bee disease during 2008. It is hoped others will follow suit and provide report not only on bee diseases but also fish diseases in the near future.

In conclusion, addressing current gaps and improving data quality is a common good for Member States, which are the primary

beneficiary of their own quality information. Improved data quality and reporting at country level also improves the quality of information managed by continental organisation such as IBAR. There are certain aspects which require training of personnel and capacity building in general. Some can be done with little effort and a bit of discipline. While IBAR continue providing support through its different project trainings and capacity building, it requires from Member States commitment in providing towards enhancing the flow of quality information in the required quantity and in timely manner.

ANNEX

ANNEX I, GLOSSARY OF TERMS

The definition of Indicators and related parameters used for the description of disease occurrence were mainly compiled from the Terrestrial Animal Health Code of the OIE and included to the monthly disease reporting form completing guidelines distributed to Member States in 2003. It is believed that Member States follow those guidelines while filing monthly disease reports to IBAR.

This section is a continuation to section 3.1 on the indicators used in the description of diseases status in African countries during 2008. The definitions given to each of the indicators are mostly those accepted as international standards (the OIE - Terrestrial Animal Health Code http://www.oie.int/eng/normes/mcode/en_glossaire.htm#terme_maladie) or those commonly used in many countries.

Case means an individual animal infected by a pathogenic agent, with or without clinical signs.

Control vaccination (numbers) means the number of susceptible animals per species immunised through the administration of a vaccine comprising antigens appropriate to the *disease* which broke out and need to be controlled

Disease means the clinical and/or pathological manifestation of infection.

Epidemiological Unit means a group of animals with a defined epidemiological relationship that share approximately the same likelihood of exposure to a pathogen. This may be because they share a common environment (e.g. animal in a pen), or because of common management practices. Usually, this is a herd or a flock. However, an epidemiological unit may also refer to groups such as animals belonging to residents of a village, or animals sharing a communal animal handling facility. The epidemiological relationship may differ from disease to disease, or even strain to strain of the pathogen.

Infection means the entry and development or multiplication of an infectious agent in the body of humans or animals

Number of cases means the number of animals (per species for multi-species diseases) affected by the disease being reported (clinical cases) or infected with the causative agent of the disease.

Number of deaths means the number of animals (per species for multi-species diseases) which died as a result of the disease being reported. This number is always the subset of the number of cases.

Number destroyed means the number of animals (per species for multi-species diseases) killed and buried or burnt as a means disease control measures due to the disease being reported

Number slaughtered means the number of animals (per species for multi-species diseases) killed for salvaging products partly or entirely for consumption or other use as part of disease control measures due to the disease being reported

Outbreak means the occurrence of one or more cases in an epidemiological unit

Prevalence means the total number of *cases* or *outbreaks of a disease* that are present in a population at risk, in a particular geographical area, at one specified time or during a given period.

Prophylactic vaccination (number) means essential the same as above. However, in this particular case the administration of the vaccine is prior to the occurrence of the disease as preventive measure

Transboundary animal diseases (TADs) means those diseases that are of significant economic, trade and/or food security importance for a considerable number of countries; which can easily spread to other countries and reach epidemic proportions; and where control/management, including exclusion, requires cooperation between several countries. (Source: *The Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)* Version approved as basic text the 24 May 2004 by FAO and OIE).

Based on the above definition, the TADs discussed in this Yearbook are:

1. Foot and mouth disease
2. Rinderpest
3. Peste des petits ruminants
4. Contagious bovine pleuropneumonia
5. Lumpy skin disease
6. Rift Valley fever
7. Bluetongue
8. Sheep pox and goat pox
9. African horse sickness
10. African swine fever
11. Classical swine fever
12. Highly pathogenic avian influenza
13. Newcastle disease.

Zoonosis means any *disease* or *infection* which is naturally transmissible from *animals* to humans.

ANNEX 2, LIST OF DISEASES REPORTED DURING 2008

Disease	Countries reporting	Cases	Deaths	Slaugh-tered	Destro-yed	Control Vaccination	Prophylactic Vaccination
African Horse Sickness	6	2571	1214	1	0	276476	29978
African Swine Fever	18	191137	96108	16025	2204	0	9
American foulbrood of honey bees	1	0	0	0	360	0	0
Anaplasmosis	18	8056	1020	455	7	0	47526
Anthrax	21	31591	6207	773	180	0	228811
Avian Influenza (HPAI)	1	4231	4231	0	3540	0	0
Avian Chlamydiosis	1	12	10	0	0	0	0
Avian infectious bronchitis	1	16	13	0	0	0	0
Avian Mycoplasmosis	1	200	10	8	0	0	0
Avian salmonellosis (excluding fowl typhoid & pullorum disease)	1	149	149	0	0	0	0
Babesiosis	21	9577	2094	232	0	2298	1348
Benign Theileriosis	1	1	1	0	0	0	0
Blackleg	16	14270	3911	58	13	1414372	146119
Bluetongue	5	412	141	0	0	323	0
Botulism	7	5711	5397	0	6	94	0
Brucellosis	16	9285	111	1265	220	0	2679
Bovine Ephemeral Fever	1	202	23	0	0	0	0
Bovine genital campylobacteriosis	2	6	0	0	0	0	0
Bovine tuberculosis	16	3644	74	41000	171	0	30
Bovine Viral Diarrhoea	1	9	0	0	0	0	0
Brucella ovis infection (Ovine epididymitis)	2	166	0	0	15	0	0
Camel pox	1	23	3	4	0	0	0
Canine Distemper	5	72	35	0	16	0	0
Caprine and ovine brucellosis	2	50	7	0	0	0	0
CBPP	17	47404	13928	71284	682	251995	204284
CCPP	7	117651	12849	2157	28	72450	9567
Chronic Respiratory Disease	2	488	124	0	0	0	0
Classical Swine Fever	1	723	656	0	0	0	0
Coccidiosis	11	4649	834	526	14	0	6400
Colibacillosis	1	126	3	121	0	0	0
Contagious ophthalmia	2	167	11	0	0	0	0
Contagious pustular dermatitis (Contagious Ecthyma or Orf)	7	777	65	0	1	0	0
Corridor disease	1	26	0	0	0	0	0
Cysticercosis (bovine)	3	423	10	112	219	0	0

Disease	Countries reporting	Cases	Deaths	Slaugh-tered	Destro-yed	Control Vaccination	Prophylactic Vaccination
Cysticercosis (swine)	4	361	98	186	68	0	0
Dourine	3	118	0	0	0	0	0
E.coli	1	1200	580	0	0	0	0
East Coast Fever	1	260	16	0	0	0	0
Echinococcosis/encephalitis	4	130	15	167	108	0	0
Ehrlichia ruminantium	1	10	0	0	0	0	0
Encephalomyelitis (enterovirus)	1	94	90	0	0	0	0
Enterotoxaemia (Pulpy kidney)	7	486	334	0	3	0	0
Enzootic bovine leukosis	1	5	0	0	0	0	0
Equine piroplasmosis	2	6	1	0	0	0	0
Erysipelas	1	100	0	0	0	0	0
European foulbrood of honey bees	1	0	0	0	18	0	0
Exoparasites	1	0	0	0	0	0	0
Fascioliasis	7	5997	44	3134	98	2200	100
Foot and mouth disease	23	46562	843	328	61	366556	29017
Footrot	5	1404	21	0	0	0	12700
Fowl Cholera	5	4990	2894	1474	0	8740	0
Fowl Pox	15	5050	1114	78	75	2000	4574
Fowl Typhoid	6	30179	1035	276	0	724	384
Gumboro disease	14	389366	61593	100	1614	0	8142
Haemorrhagic Septicaemia	4	345	101	0	0	6196	0
Heartwater	16	8792	1064	439	7	0	1800
Helminthosis	2	508	0	0	0	716	0
Human Sleeping Sickness	1	15	15	0	0	0	0
IBR/IPV	3	23	0	0	0	0	0
Infectious Bovine Keratoconjunctivitis	1	9	0	0	0	0	0
Infectious Bronchitis	1	18	9	0	0	0	0
Infectious coryza	2	890	632	0	0	0	0
Infectious Laryngo Trachitis	1	200	100	0	100	0	0
Leptospirosis	1	1	1	0	0	20	0
Listeriosis	1	4	2	0	0	0	0
Lumpy skin disease	29	66314	2804	1484	109	1306156	182341
Malignant Catarrhal Fever	3	135	81	0	0	0	0
Malignant oedema	1	11	5	0	0	0	0
Mange	1	25055	863	90	25	0	346
Marek's disease	4	2682	690	0	0	0	0
Mastitis	3	86	8	0	0	0	0
Mead-i-visna	1	4	0	0	0	0	0
Mycoplasmosis (M.gallisepticum)	1	4	70	0	0	0	0

Disease	Countries reporting	Cases	Deaths	Slaughtered	Destroyed	Control Vaccination	Prophylactic Vaccination
New World screwworm (Cochliomyia hominivorax)	1	26	0	0	0	0	0
Newcastle Disease	32	565197	305222	60082	29308	1196657	1145783
Old World screwworm (Chrysomya bezziana)	3	527	3	0	0	0	0
Other pasteurellosis	2	42	23	0	0	0	0
Ovine Contagious Mastitis	1	5	5	0	0	0	0
Paratuberculosis (Johne's disease)	2	18	3	0	1	0	0
Parvovirus	1	2	1	0	0	0	0
Pasteurellosis	15	34938	9257	206	36	1898984	149514
Peste des petits ruminants	19	244,054	27013	1982	478	597285	191674
Pneumonia	2	35	8	0	0	0	0
Rabies	31	4180	1868	69	3707	19240	2791
Rift Valley Fever	5	1155	240	0	0	0	0
Salmonellosis	6	354796	7795	55	441229	1459534	0
Sheep and Goat Pox	7	5247	1163	59	236	4500	0
Sheep scab	1	38	0	0	0	0	0
Strangles	2	21	2	0	0	0	0
Sweating sickness	1	17	5	0	0	0	0
Swine Erysipelas	1	2	0	0	0	0	0
Tetanus	1	1	0	0	0	0	0
Theileriosis	9	37297	1678	342	0	374	15175
Toxicity	1	38	29	0	0	0	0
Toxoplasmosis	2	46	17	0	0	0	0
Trichomoniasis	2	148	65	0	7	0	0
Trypanosomiasis	16	117957	1749	1683	46	5387	116721
Turkey Pox	1	12	2	0	0	0	0
Varroatosis	1	52	2	0	941	0	0

ANNEX 3, ADDRESSES FOR THE DIRECTORS OF VETERINARY SERVICES DURING 2008

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, Algerie <u>Tel:</u> (213-21) 743 434/711712 <u>Fax:</u> (213-21) 743 434/7463 33 <u>Email:</u> dsval@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 <u>Tel:</u> (244-222) 324 067/323 217/321 429 <u>Fax:</u> (244-222) 324 067 <u>Email:</u> 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 <u>Tel:</u> (229) 21 330 285/21331665/21331768 <u>Email:</u> delevage@intnet.bj or pacebeni@intnet.bj or bonimonsia@yahoo.fr
4.	BOTSWANA	Dr. Moetapele Letshwenyo Director, Ministry of Agriculture Department of Animal Health and Production	Private Bag 0032 Gaborone, Botswana <u>Tel:</u> +267 3950 635 /+267 31 81 571 <u>Fax:</u> (+267) 39 03 744 <u>Email:</u> mletshwenyo@gov.bw mletshwenyo@yahoo.com
5.	BURKINA FASO	Dr. Marcel Nagalo Directeur général des services veterinaries Ministère des ressources animals Direction générale des services vétérinaires	09 Ouagadougou B.P 907 Burkina Faso <u>Tel:</u> (226) 5032 4584/307650/326053 <u>Mobile no.</u> (226) 70200670 <u>Fax:</u> (226) 5031 3529 <u>Email:</u> 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 <u>Tel:</u> (257) 402 192 <u>Fax:</u> (257) 402 092 <u>Email:</u> ntamaurice@yahoo.fr
7.	CAMEROON	Dr. Hamadou saïdou Directeur des Services de Vétérinaires, Ministère de	<u>Tel:</u> 237 2231 60 48/22361049 <u>Fax:</u> 237 2231 60 49/2221 405/2222409 <u>Email:</u> hama_saidou@yahoo.fr

		l'élevage, des Pêches et des Industries Animales (MINEPIA). YAOUNDÉ, Cameroun	
8.	CAPE VERDE	Dr. Giberto C.C Silver Directeur des Services d'Elevage	DGASP-MA B.P 50 PRAIA, Cap-vert Email: dgasp@mail.cvtelecom.cv
9.	CENTRAL AFRICA REPUBLIC	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
10.	CHAD	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
11.	COMOROS	DR. Abdourahim Faharoudine Directeur de la santé Publique et de l'Environnement	B.P. 774 MORONI COMORES Tel: (+269) 33 27 19 Fax: (+269) 744180/736222 Email: fahar1951@yahoo.fr
12.	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: cyrilleloungeuedi@yahoo.fr or valentin_okombo@yahoo.fr
13.	CONGO (DEMOCRATIC REPUBLIC)	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
14.	COTE D'IVOIRE	Dr. Charles Kouame Kanga Directeur des Services Vétérinaires et de la Qualité Ministère de la Production	B.P. V 84 ABIDJAN Tour C, 11 ^e Etage, CITAD ABIDJAN Tel: (225) 2021 8972

		Animal et des ressources Halietiques Direction des Services Vétérinaires Cité, Administrative	<u>Fax:</u> (225) 20219085 <u>Email:</u> kceml@yahoo.fr , dsqv@aviso.cj or phyenyd@yahoo.fr
15.	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 <u>Tel:</u> (253) 351 301/351 025 <u>Fax:</u> (253) 357 061 <u>Email:</u> pace@intnet.dj
16.	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 <u>Tel:</u> (202) 7481750 <u>Fax:</u> (202) 336 17 27 <u>Email:</u> samahahyg@hotmail.com or samahahyg@claes.sci.eg
17.	ERITREA	Dr. Ghebreiwet Teame Mahru Director of Veterinary Services Ministry of Agriculture APOD Technical services	P.O Box 4114/1048 ASMARA ERYTHREE <u>Tel:</u> (291-1)181690 or (291-1)181077 ext 246 <u>Fax:</u> (291-1)181019 <u>Vet12@eol.com.er</u> ghebrehiwet@moa.gov.er
18.	ETHIOPIA	Dr. Berhe G/Igziabher Head, Animal & plant Health Regulatory Department Ministry of Agriculture and Rural Development	P.O Box 62347, Addis Ababa Ethiopia <u>Tel:</u> Mobile: (251) 911254 374 <u>Tel:</u> Office: +251 116 460119 <u>Fax:</u> 251 116 478591 <u>Email:</u> berheg@gmail.com <u>Physical Address:</u> Lamberet (Near ILRI)
19.	GABON	Dr. Jean-Félix Ibouesse Directeur de l'Elevage et des Industries Animales	B.P. 136, Libreville <u>Tel:</u> 241 0668 8076/720382 <u>Email:</u> ibouess@yahoo.fr
20.	GAMBIA	Dr. Kebba Daffeh Director of veterinary services Department of Veterinary services	ABUKO, The Gambia <u>Tel:</u> (+220) 4390 820/7575 <u>Tel Mobile:</u> (+220) 990 2441 <u>Email:</u> kebbadaffeh@yahoo.co.ke <u>Fax:</u> (220) 4397 575
21.	GHANA	Dr. Enoch Boye-Mensan Koney Chief Veterinary Officer, Veterinary Services	P.O Box M161, ACCRA, Ghana <u>Tel:</u> (233-21) 775 777 <u>Mobile:</u> (233-246 493 139 <u>Fax:</u> (233-21) 776 021

		Directorate Ministry of Feed and Agriculture	Email: vsdghana@gmail.com ; vsdghana@yahoo.com ; vetsdept@africaonline.com.gh
22.	GUINEA	Dr. Sory keita Directeur National de l'Elevage, Ministère de l'agriculture, de l'Elevage, de l'Environnement et des Eaux et Forêts Direction Nationale de l'Elevage)	MAE/DNE B.P. 5585, CONAKRY REBLIQUE DE GUINEE <u>Tel:</u> (224) 60436107 <u>Fax:</u> (224) 30 45 20 47 <u>Email:</u> k.sory@yahoo.fr
23.	GUINEA BISSAU	Dr. Ivo Mendes Directeur de Service Vétérinaires Ministério da Agricultura e Desenvolvimento Rural	C.P. 26, BISSAU, GUINEE-BISSAU <u>Tel:</u> 245 7222 980 <u>Fax:</u> 245 72 21 719 <u>Email:</u> imendes@yahoo.fr or pacegbissau@hotmail.com
24.	GUINEA EQUATORIAL	Dr. Gabriel Martin Esono Mdong Micha Director General de Ganaderiary limentacion Ministerio de Agricultural Desarrollo Rural	Apartado 1041 MALABO, Guinee Equatoriale <u>Tel:</u> 240 27 39 24 <u>Fax:</u> 240 09 33 13/240 09 31 78
25.	KENYA	Dr. Peter Ithondeka Director of Veterinary Services Ministry of Livestock Department of Veterinary Services	Veterinay Research Laboraty P.O KANGEMI-00625, Nairobi-KENYA <u>Tel:</u> 254 20 2700575/254 20 631 567 <u>Fax:</u> 254 20 631273 or 4765586 <u>Email:</u> vetdept@todaysonline.com
26.	LESOTHO	Dr. Malefane Moleko Director General of Veterinary Services Department of livestock Services	Private Bag A 82 Maseru, 100 <u>Tel:</u> 266 223 123 18 <u>Fax:</u> 266 223 115 00 <u>Email:</u> molekomp@yahoo.co.uk
27.	LIBERIA	Dr. Kpadeh K. Koikoi Director of Veterinary Services	P.O Box 10-4094 MONROVIA, Liberia
28.	LIBYA	Dr. Giuma EL Aerf Elhafi Chief Veterinary Officer	P.O Box 7344, Tripoli-Aen Zara Libya <u>Tel:</u> 00218 214 831015/00218 21 4831016 <u>Fax:</u> 00218214832123 <u>Email:</u> Giuma109@hotmail.com
29.	MADAGASCAR	Dr Raymond Directeur de la Santé Animale et du Phytosanitaire Ministère de l'Agriculture,	AMPANDRIANOMBY B.P 291 ANTANANARIVO 101, MADAGASCAR <u>Tel:</u> (261-20) 24 636 38 or (261-20) 22 665 36

		de l'Elevage et de la pêche	<u>Fax:</u> (261-20) 22 665 34 <u>Email:</u> maillard@cirad.mg
30.	MALAWI	DR. Wilfred Lipita Director of Animal Health and Livestock Development Ministry of Agriculture	P.O Box 2096 LILONGWE, Malawi <u>Fax:</u> (265-1)75 13 49 <u>Email:</u> wilipita@yahoo.com
31.	MALI	Dr. Kassoum Diakite Directeur National des Services Vétérinaires	03 BP 220 BKO 3 BAMAKO, Mali <u>Tel:</u> (223) 222 2023/605 1237/224 24 04 <u>Fax:</u> (223) 222 20 23 <u>Email:</u> barykass@yahoo.fr
32.	MAURITANIE	Dr. Mokhtar Fall Directeur de l'Elevage et de l'Agriculture Ministère du Développement Rural Direction de l'Elevage	B.P 175-Bp 2750 Nouakchott MAURITANIE <u>Tel/Fax :</u> 00221 52 57 475 <u>Email :</u> fmoctar@agriculture.gov.mr
33.	MAURITIUS	Dr Deodass Meenowa Lewis Prayag Principal Veterinary Officer Ministry of Agro Industry and Fisheries Division of Veterinary Medicine	REDUIT, Mauritius <u>Tel:</u> (230) 466 66 62 <u>Fax:</u> (230) 464 2210 <u>Email:</u> dmeenowa@mail.gov.mu or moa-dvs@mail.gov.mu
34.	MOZAMBIQUE	Dr. Florencia A. Massango Cipriano, Head, Department of Animal Health, Ministry of Agriculture and Rural Development Director of Veterinary Medicine	Praca dos Herois Mocambicanos, P O Box 1406, Maputo MOZAMBIQUE <u>Email:</u> fmcipriano@map.gov.mz <u>Tel:</u> (258-21) 460082/460494 <u>Fax:</u> (258-21) 460479
35.	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 <u>Tel:</u> (264-61) 208 7513 <u>Fax:</u> (264-61) 208 7779 <u>Email:</u> huebschleo@mawrd.gov.na
36.	NIGER	Dr Alzouma Maïga Zourkaleiyi Directeur de la Santé Animale , Ministère de Ressources Animale	B.P. 12091 NIAMEY, Niger <u>Tel:</u> (227) 733 184 or 227 207 331 84 <u>Fax:</u> (227) 733 186 / 738486 or (227) 20732692 <u>Email:</u> dvsniger@yahoo.fr ; alsouma_maiga@yahoo.fr
37.	NIGERIA	Dr. Junaidu Ahmed Maina	New Secretariat, Area 11, P.M.B. No. 135, Garki,

		Director Federal Ministry of Agriculture and Rural Development Department of Livestock and Pest control services	Abuja, FCT NIGERIA <u>Tel:</u> (234-9) 3142319/ 08037044433 <u>Fax no.</u> (234-9) 314 23 19/5240126 <u>Email:</u> pacenigeria@microaccess.com
38.	RWANDA	Dr. Rutagwenda Théogène Ministère de l'Agriculture et des Ressources Animales Directeur de l'Office Rwandais du Développement des Ressources Animales (RARDA)	P.O. Box 621 MINAGRI KIGALI, Rwanda <u>Tel:</u> (250) 084 75 493 <u>Tel/fax:</u> (250) 589 716 / 585057 <u>Email:</u> rutagwendat2006@yahoo.com
39.	SAO TOME AND 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 <u>Tel:</u> (221) 821 3228/639 3848 <u>Fax:</u> (221) 821 3228 <u>Email:</u> mfaye@refer.sn
41.	SEYCHELLES	Dr. Jimmy Gelaze Melanie Director Veterinary Services Ministry of Environment and Natural Resources	P.O.Box 166, Victoria Mahe, SEYCHELLES <u>Tel:</u> + (248) 285 950/722 869 <u>Fax:</u> + (248) 225 245 <u>Email:</u> vetmamr@seychelles.net
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 <u>Tel:</u> (232) 242 167 (232) 076 734 580 <u>Email:</u> farsankoh@yahoo.com
43.	SOMALIA	Dr. Abdirahman Nur Qeiliye Director General Ministry of Livestock, Forestry and Range TFG- Somalia	MOGADISHU, SOMALIA <u>E-mail</u> garish01@hotmail.com <u>Tel.</u> +252 15132463
44.	SOUTH AFRICA	Dr Botlhe Michael Modisane, Chief Director: Food, Animal Health and Disaster Management Department of Agriculture	Private Bag X 250 Pretoria 0001 Gauteng Province South Africa <u>Tel. no.</u> (27-12) 3196500/3 <u>Fax:</u> (27-12) 319 6281

		Director of Veterinary Services	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 <u>Tel. no.</u> (249) 912 305 573 <u>Fax:</u> (249-) 154 29 89 36 <u>Email:</u> pacesud@yahoo.com or marazig@hotmail.com
46.	SWAZILAND	Dr Robert S. Thwala Director of Veterinary and Livestock Services Ministry of Agriculture and Cooperatives Or sd-fangr@realnet.co.sz	PO Box 162 MBABANE, Swaziland <u>Tel:</u> (268) 404 2731-9/404 6948 <u>Fax:</u> (268) 404 9802 <u>Email:</u> thwalar@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 <u>Fax:</u> (+255-) 784358549/+255222862592 <u>Email:</u> 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 <u>Tél</u> 228 221 36 45/ 221 60 33 <u>Mobile</u> 228 909 27 30 <u>Fax</u> 228 221 71 20 <u>E-mail :</u> 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 <u>Tel :</u> 216 717 945 86 <u>Fax :</u> 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 <u>Tel:</u> (256-41) 320 825 Or. Mobile no. 256-772- 653139 <u>Fax:</u> (256-41) 320 428/321 070 <u>Email:</u> dar.maaif@infocom.co.ug Or wolahomukani@yahoo.com
51.	ZAMBIA	Dr. Moto Peter Crispin Mangani, Director of Veterinary and Livestock Development, Ministry of Agriculture &	P.O. Box 50060 Lusaka ZAMBIA <u>Tel. no.</u> (260 – 1) 250274 <u>Fax no.</u> (260 – 1) 252608

		Co-operatives,	E-mail : aphhq@zamnet.zm Or pmangani@maff.gov.zm
52	ZIMBABWE	Dr. Stuart Kenneth Hargreaves, Principal Director of veterinary services Ministry of Agriculture and rural Development Division of Livestock and Veterinary Services	18 Borrowdale Road P.O Box CY 66 HARARE, ZIMBABWE Tel: (263-4) 722358 Fax: (263-4) 791516 Email: skhargreaves@zol.co.zw or veeu@africaonline.co.zw



African Union / Interafrican Bureau for Animal Resources (AU-IBAR)
Kenindia Business Park
Museum Hill, Westlands Road
P.O. Box 30786
00100, Nairobi
KENYA
Telephone: +254 (20) 3674 000
Fax: +254 (20) 3674 341 / 3674 342
email: ibar.office@au-ibar.org

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