

**Animal Health for the Environment And Development**  
*Possible Applications in Namibia?*



**Introductory Workshop**

**Ministry of Environment and Tourism (MET)**

29 November 2005, Roof of Africa, Klein Windhoek  
Facilitator: David Cumming (AHEAD GLTFCA Regional Coordinator)

**Animal Health for the Environment And Development (AHEAD)**

**WORKSHOP PROCEEDINGS**



This workshop was organised by the Ministry of Environment and Tourism (MET) in collaboration with the Wildlife Conservation Society (WCS), and was funded by the Strengthening the Protected Area Network (SPAN) Project.

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## ACRONYMS AND ABBREVIATIONS

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AHEAD	Animal Health for the Environment And Development
BMCF	Bovine Malignant Catarrhal Fever
CBD	Convention on Biological Diversity
CBNRM	Community-Based Natural Resource Management
CBPP	Contagious Bovine Pleuro-Pneumonia
CITES	Convention on International Trade in Endangered Species of Flora and Fauna
CKGR	Central Kalahari Game Reserve
FMD	Foot and Mouth Disease
GLTFCA	Greater Limpopo Transfrontier Conservation Area
HIV-AIDS	Human Immunodeficiency Syndrome – Acquired Immune Deficiency Syndrome
IDRC	International Development Research Centre
IUCN	International Union for the Conservation of Nature and natural Resources (The World Conservation Union)
KAZA	Kavango-Zambezi
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
PA	Protected Area
PPF	Peace Park Foundation
SADC	Southern African Development Community
SPAN	Strengthening the Protected Area Network
TFCA	Transfrontier Conservation Area
UNFCCC	United Nations Framework Convention on Climate Change
WCS	Wildlife Conservation Society

## SUMMARY

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A one-day workshop was held on November 29<sup>th</sup>, 2005 in Windhoek. The objective of the workshop was to introduce relevant line ministry officials to the AHEAD concept and experience from existing AHEAD programme, as well as to yield some consensus and a way forward on this issue. For the purpose of developing an understanding of the AHEAD background, a number of presentations were given. These gave an overview of the status of animal diseases, the AHEAD programme, diseases in relation to conservation and livelihoods; as well as the progress made in sustaining animal and ecosystem health. Overall animal disease issues in Namibia were discussed at the workshop, as well as the possibility of starting the AHEAD approach in Namibia, given the current situation. Finally the potential stakeholders of AHEAD in Namibia were identified, whereby their roles/mandates and potential conflicts were highlighted.

To date, many animal diseases have been identified in Namibia. These are caused by pathogens, most of which are said to be emerging/re-emerging. Most of these pathogens are also responsible for causing human diseases. The identified diseases include: foot and mouth disease, rabies, anthrax, tuberculosis and avian influenza. Of the identified diseases, the foot and mouth disease is the most feared, as it has the greatest impact on land use. In addition, all mammals including human are susceptible to rabies. Other diseases are also said to be threatening animal health, but are said to occur in rare cases. Nevertheless, most diseases are of socio-economic importance and are shared between livestock, wild animals and human; therefore a multi-disciplinary approach is required to minimise the impact of such on animals and humans.

An initiative called Animal Health for Environment And Development (AHEAD) was then launched for the purpose of addressing animal health in relation to their environments. A major concern was the issue of animal diseases in relation to their ecosystems, and most importantly, transboundary wildlife management. The AHEAD initiative was started by the Wildlife Conservation Society, the IUCN Veterinary Specialist Group (VSG) and other partners after recognising the importance of animal health to both conservation and development interests. The idea is to promote the co-existence of people and wildlife, looking forward to sustainable livelihoods. AHEAD was launched at the World Park's Congress in 2003.

At the moment there are issues of concern at the interface of animal health and human livelihoods. Whilst there is boundary between Protected Areas (PAs) and people, and at the same time high dependence of rural people on livestock and environment for subsistence, a two-fold objective has been adopted i.e. poverty alleviation and increase in the potential to farm with livestock in communal areas. However, the role of animal health in conservation and agriculture needs to be redefined as it is now wildlife, livestock, human and vectors that are being dealt with. It is quite important to know how the infectious diseases spread between human and animals. The effect of climate change on vectors also needs to be investigated.

Several case studies have been conducted to investigate the animal and human health issues. Such studies have found a great need for more research, a shift in philosophies and attitudes as well as new approaches to livelihoods and resource use.

Looking at a broader picture, there are over 20 Transfrontier Conservation Areas (TFCAs) in the Southern African Development Community (SADC) region, with lack of research and suitable policies to address linkages between animal health and ecosystem health. For this reason there is a need to develop scientific approaches to contribute to the improvement of animal and ecosystem health and human wellbeing in the TFCAs across the SADC region. At this point the Greater Limpopo Transfrontier Conservation Area (GLTFCA) has prioritised the control of animal diseases across the national borders of the countries involved i.e. South Africa, Mozambique, Zimbabwe and Botswana.

The way forward is now to organise a workshop that involves a bigger group to look at research and development issues in a particular area of Namibia, to look at the benefits of wildlife to communities and to examine the wildlife-livestock interface.

The details of the presentations given at the workshop are presented in this report.

## **Animal Health for the Environment And Development (AHEAD): Possible Applications in Namibia?**

Introductory Workshop

Date: 29 November 2005

Venue: The Roof of Africa, Klein Windhoek

Facilitator: David Cumming (AHEAD GLTFCA Regional Coordinator)

### **PROGRAMME**

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**Background:** *Although wildlife based tourism is a key for regional and national development in Namibia, management of wildlife and livestock diseases across protected areas (including envisaged transboundary conservation areas and neighbouring lands) remains unresolved and is an issue of major concern for both conservation and economic development. In addition, interactions at the interface between animal health, ecosystem services and human wellbeing are also poorly understood. It is therefore critical for MET and other relevant organizations such as the Ministry of Agriculture, Water and Forestry (MAWF) to become aware of wider implications of the diseases and methods for disease control in order to work towards improved and integrated management of animal diseases.*

**Objective:** *To introduce relevant line ministry officials to the AHEAD concept and experience from existing AHEAD programme, as well as to yield some consensus and a way forward on this issue.*

### **AGENDA**

8h30 - 9h00	Registration
9h00 - 9h15	Introduction of the guests and all participants (Pauline Lindeque)
9h15 - 9h45	Trends of wildlife and livestock diseases in Namibia and current response procedures (MAWF)
9h45 - 10h15	Facilitated discussion – pros and cons of current practice
10h15 - 10h35	TEA Break
10h35 - 10h55	World Park's Congress and the AHEAD program (Mike Kock)
10h55 - 11h30	Overview of the AHEAD GLTFCA program (Dave Cumming)
11h30 - 12h00	Questions and Discussion of AHEAD approach
12h00 - 12h45	Diseases, conservation and livelihoods (Mike Kock and Dave Cumming)
12h45 - 14h00	Lunch
14h00 - 15h00	Facilitated discussion - Can the AHEAD approach enhance prospects for successful conservation and development in Namibia?
15h00 - 15h15	Tea break
15h15 - 16h15	Stakeholder analysis
16h15 - 16h45	Way forward
16h45	Closing

## MORNING SESSION

### 1. *Welcoming Remarks and Background to AHEAD: Dr Pauline Lindeque*

- Dr Lindeque opened the meeting and welcomed everyone.
- She outlined the purpose of the workshop:
  - *provide a brief introduction to the Animal Health for the Environment And Development (AHEAD) approach ;*
  - *identify the potential stakeholders for the prospective AHEAD project in Namibia.*
- Defining AHEAD was thought to be important as there was limited understanding of this type of project in Namibia.
- The Strengthening the Protected Area Network (SPAN) project of the MET identified the AHEAD approach as a possible way forward to addressing the wildlife disease in Namibia.
- The Directorate of Scientific Services (DSS) is also very interested in looking at the AHEAD programme and possibly starting an AHEAD type project in Namibia, as it will help with the management of wildlife diseases.
- The AHEAD concept resulted from a 2-day interactive forum, at the IUCN World Parks Congress held in Durban in 2003, which captured a holistic and integrated approach that fits in well with Namibian approach; leading to sustainable development, and could also strengthen the Ministry's strategic planning process.
- Purpose of the workshop: information-sharing, hearing how AHEAD has begun to be implemented in other parts of Africa, how relevant to the Namibian situation it is, and to decide collectively if it is applicable in Namibia.
- Workshop organised by MET in collaboration with the Wildlife Conservation Society (WCS).

The floor was given to the workshop facilitator, **Dr David Cumming, Coordinator for the AHEAD Programme in the Greater Limpopo Transfrontier Conservation Area (GLTFCA)**

### 2. **PRESENTATION 1: *Trends of wildlife and livestock diseases in Namibia and current response procedures – By Dr Otto Huebschle (Director: Veterinary Services, MAWF)***

So far, 1400 pathogens infecting humans have been identified, of which 13% are regarded as emerging/re-emerging; and many of such are animal-related pathogens. In addition, there is an increase in the number of new pathogens that are still emerging. The major ones of these are shared between livestock and wildlife are:

- **Viral diseases:** foot and mouth, rabies (well-known), malignant catarrhal, African swine fever, classical swine fever, avian influenza and the Newcastle disease.
- **Bacterial diseases:** anthrax, tuberculosis, Salmonella and Yersinia pestis.
- **Protozoal diseases:** trypanosomiasis and Theileria parva lawrenci. These are said to be limited, and mostly found in corridors in the Caprivi region, but have impacted on humans and animals.
- Foot and Mouth Disease:
  - Most feared and contagious
  - Buffalo are lifelong carriers, also kudu, impala and other antelope
  - Most common in east Caprivi
  - Characterized by a rapid spread, appearance of sores and blisters in the mouth, feet and udder, causing reduced mobility and feeding resulting in debility, reduced production and secondary infections.
  - Low mortality in adults, but high in calves - cannot infect people



- Control is said to be complicated in Namibia, however there are some complicated systems that are being used. Those include: strategic vaccination zoning, movement control, traceability, quarantine, surveillance and branding.
- Rabies:
  - All mammals, including man are susceptible.
  - Transmitted by saliva, through bites or mucous membranes.
  - Characterised by irreversible neurological changes that lead to death
  - Many rabies cases have been reported in northern Namibia, mostly in dogs, followed by cattle, kudu and goats.
  - Vaccination programmes expensive. They however only work well on some animals, for example, in foxes.
  - In Namibia, the jackal, bat-eared fox, honey badger and other wild carnivores are important in the transmission of the disease to domestic animals and other wildlife.
  - Dogs and cats are responsible for transmitting the disease to man and other domestic animals.
  - Just one vector can cause havoc
  - Vaccination is being prioritised.
- Bovine Malignant Catarrhal Fever (BMCF):
  - Infrequent, but easily diagnosed.
  - Blue and black wildebeest are maintenance hosts.
  - Infect cattle when in close contact, esp. calving season.
  - Recommended that farmers practising wildebeest farming should have double fence.
- African Swine Fever:
  - Highly fatal disease of domestic pigs.
  - Transmitted by soft tick.
  - Wild pigs and warthog are symptomless reservoirs of infection for domestic pig. Piglets easily pick up the disease.
  - Occurs in sporadic outbreaks in Namibia.
  - It is advised that pig stiches have double fencing to avoid warthog to domestic pig contact.
  - Outbreak cases very few.
- Anthrax:
  - Soil borne bacterial disease.
  - Can affect humans, livestock and wildlife.
  - Spores of bacteria can last for decades in contaminated soil.
  - Recent outbreaks in Eastern Caprivi involving wildlife and cattle.
  - The anthrax spores can survive in the environment for up to 90 years, but animals that have been vaccinated are not affected.
  - Many anthrax cases resulted in cattle deaths in Katima Mulilo in 2004.
- Nagana:
  - Not necessarily in Namibia, but found in many parts of the Sub-Saharan region. Also found in Namibia in a small part of Eastern Caprivi covering an area of 2800 km<sup>2</sup>.
  - Transmitted by Tsetse fly.
  - Controlled by the use of insecticide.
- Avian influenza:
  - Not yet diagnosed in Namibia.
  - Risks increased by threat of migratory birds – Some 3750 million birds enter sub-Saharan Africa from Europe and Asia each year (MacLean 1990). A very small

fraction of these (less than 1%) 37 million enter Namibia either as their final destination or in transit to the south and east (and on the return leg).

- 'Bird flu' viruses normally infect only birds, but also pigs, and rarely humans.
- Contagious in animals.
- Highly species specific.
- Spread of disease is a concern in Namibia as it is likely to experience mutation in birds.

## CONCLUSION

A number of diseases of socio-economic importance are shared between livestock and game animals and some with human beings. A multidisciplinary approach is therefore required to minimise the impact of these diseases on wildlife, livestock and humans.

## DISCUSSIONS

*Rabies has been identified as one of the most threatening wildlife/livestock diseases that can be transmitted to humans. Have any cases of rabies been recorded in baboon populations?*

- No, however only a fraction of cases are reported as no economic incentive for farmers

*Which of these diseases have the greatest impact on land use?*

- FMD

*Are there predator control programmes for rabies?*

- At the moment there are only vaccinations for dogs and cats, which are free of charge.
- There is a need to educate the farmers on priorities related to rabies vaccination. Cost of cattle loss vs. vaccination.
- In farming areas, jackal is the main vector.
- Potential for oral vaccine (e.g. Tunisia, C. Europe) but must first test a significant number of smaller carnivores in Etosha to vaccinate and the effects must be approved by the scientific community.
- Alternative methods like the muzzling of dogs in the 1950's eliminated rabies in Britain and Zimbabwe.
- CBPP not relevant to wildlife, only to livestock – although significant implications for wildlife due to fencing?

*Discussion regarding moving the veterinary fence northwards!*

- Erecting of fence without market benefit is of no use.
- Moving the 'red line' to the Angolan border would destroy the market immediately.
- The more reasonable thing to do is to maintain the fence as a safety mechanism to contain disease.
- Use of GPS, branding number per farm in the short to medium term, and then looking to remove fence in long term – 2010?

*What is the state of the Kunene fence?*

- At the moment, the new vet in Outjo is taking care of the fence.

*Does the Kunene fence need repair?*

- No – this is only apparent as elephants continually cause damage to the fence - constant process.

*What is MAWF's attitude to the disease free buffaloes?*

- Disease free buffaloes can fetch N\$ 150,000 per animal and many farmers would be interested in the high economic value. However, MAWF is not confident that every farmer could go through expensive and stringent procedure to ensure disease free status. The risk of jeopardising the farming industry below the Red Line is too great to risk at the moment. Therefore, MAWF would not want to engage in any discussion on introduction of disease free buffaloes.

*Are there any adverse environmental impacts from FMD control?*

- Negative impact of fencing is felt on the giraffe population, on fences, on buffaloes, and the animals require to be quarantined. However livestock are being protected.

*Any critical analysis done on the red line?*

- Not at this point. Overall, there are no major environmental impacts, perhaps, economic impacts.

*What are the economic impacts – opportunity costs of excluding buffalo and wildlife tourism south of the red line?*

- Rowan Martin's study shows good financial analysis of the value of buffalo in Caprivi but this still needs full economic analyses. Socioeconomic aspects need examination in greater detail. Requires fence that elephants can't break through!

### **3. PRESENTATION 2: *World Park's Congress and the AHEAD program - by Dr Mike Kock (AHEAD/WCS)***

Overview of Wildlife Conservation Society:

- Has been operating since 1895 at Bronx Zoo in New York, USA; with a commitment to save wildlife and wild lands across the world.
- Promotes the co-existence of people and wildlife in a sustainable way on both a local and global scale.
- WCS Field vet programme with 53 projects/offices around the world – 2 in Africa.
- Work done on Ebola virus.
- Looking at integrated human, wildlife and livestock health.
- AHEAD launched in 2003 – vets, ecologists, economists, wildlife managers etc. at a workshop in RSA, trying to develop an approach which is integrative towards development [ See [www.wcs-ahead.org](http://www.wcs-ahead.org) ].
- To look at animal health implications and how they relate to the wider landscape.
- TFCA initiatives are on the rise and AHEAD would like to look at animal disease in terms of ecosystem and transboundary wildlife management.
- Policies are at the moment not addressing the balance between animal and ecosystem health and human well being.

**AHEAD themes:**

- Animal health and Disease
- Ecosystem health
- Ecosystem goods and services (those contributing to quality of human life – such as solar energy, decomposition of waste, regeneration of breathable air, storage, purification and redistribution of potable water, etc. i.e., veterinarians have to broaden the sphere of work)
- Human livelihoods and well being

#### **At World Park's Congress in 2003**

*Outcomes of AHEAD Forum workshop*

Working Group 3 (GLTFCA and Shashe-Limpopo TFFCA):

- Disease and Protected Area management
- Health of wildlife and domestic animals are linked.
- Sustaining animal health is important for human livelihoods in the GLTFCA

[Note: The AHEAD Forum Working Group Notes are available at <http://www.wcs-ahead.org/workinggroups.html> ]

4. PRESENTATION 3: *Diseases, Conservation and livelihoods – by Mike Kock and David Cumming*

Issues at interface of animal health and human livelihood:

- \_ Boundaries between Protected Areas and people – this is the hard edge of protectionism.
- \_ 80% of Africa’s rural poor depend on livestock and the environment as a whole for subsistence.

A two-fold objective is adopted:

- **Alleviating poverty in Africa**
- **Increasing the potential to farm with livestock in communal areas.**

This approach needs a redefinition of the role of animal health in both conservation and agriculture. Complicated roles in the ecosystem: Wildlife, Livestock, Humans and vectors.

Fig. 1: Emerging and Re-emerging zoonoses, 1996 – 2000:

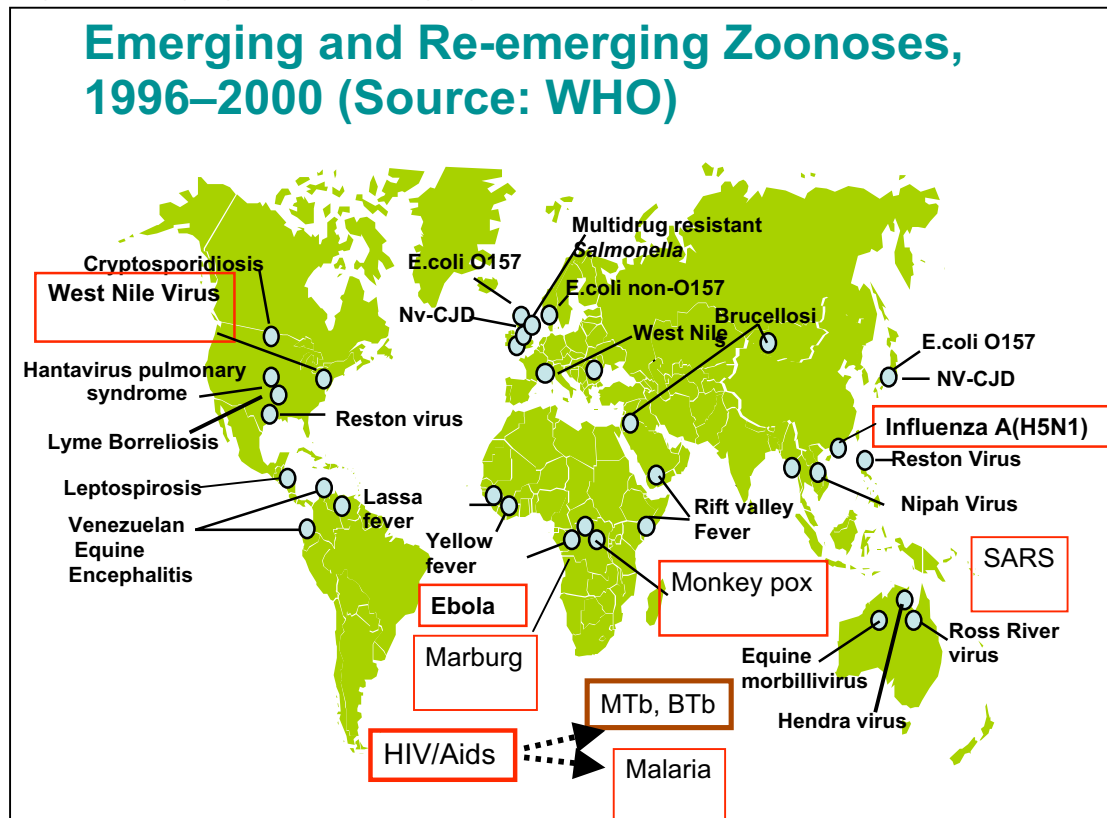
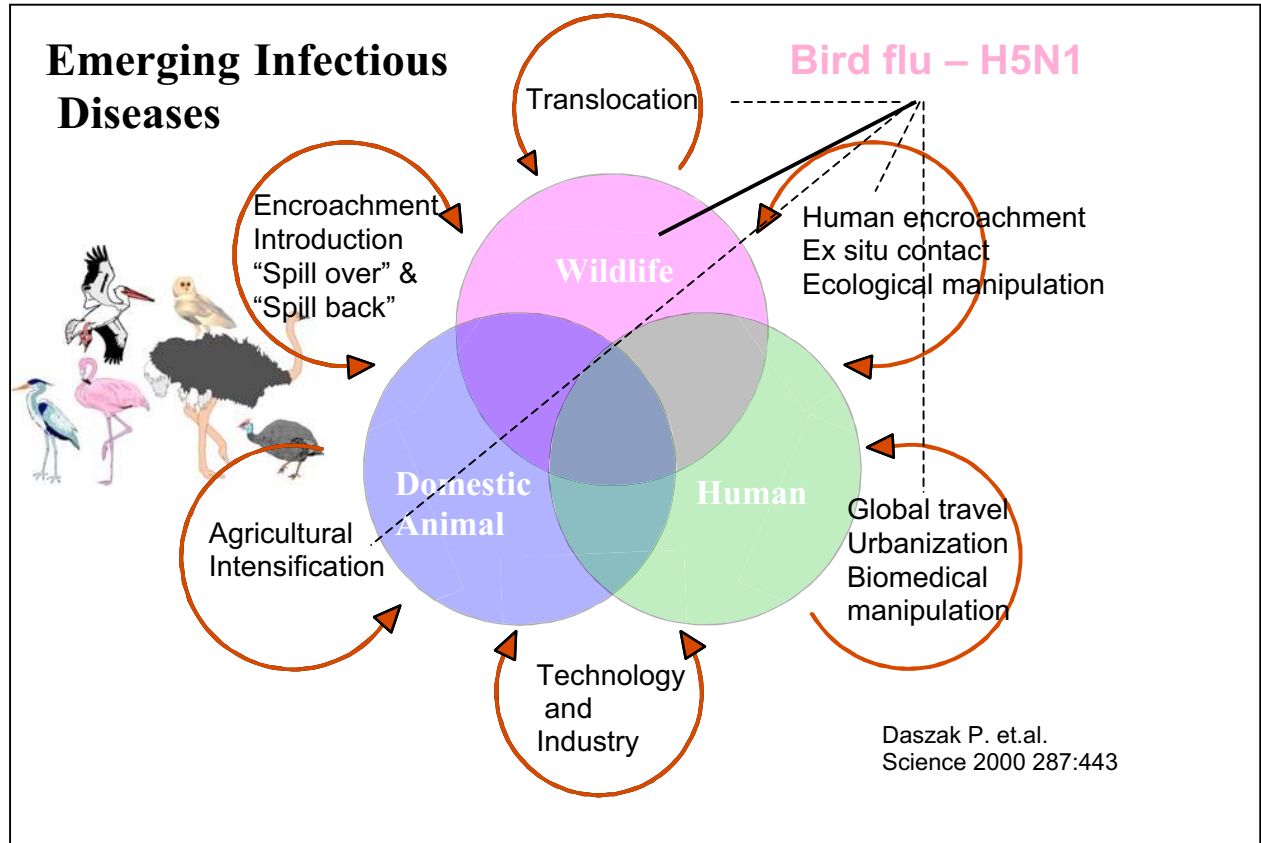


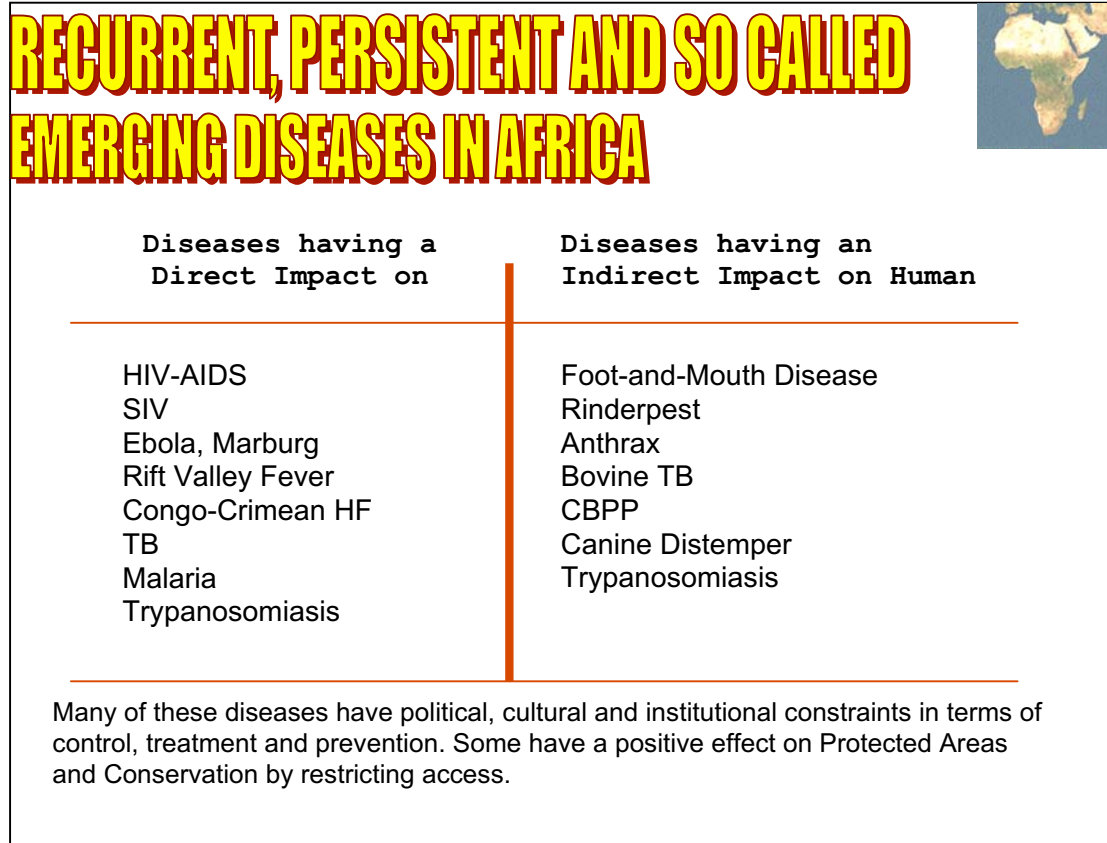
Fig. 2: Emerging infectious diseases:



How infectious diseases and zoonoses affect humans through human encroachment? Effect on livestock farming? Livelihoods?

Effect of climate change on vectors, pathogens and zoonoses needs to be investigated.  
NB: NEUROLOGICAL diseases emerging.

**Fig. 3: Emerging disease in Africa and their direct and indirect effect on human health**

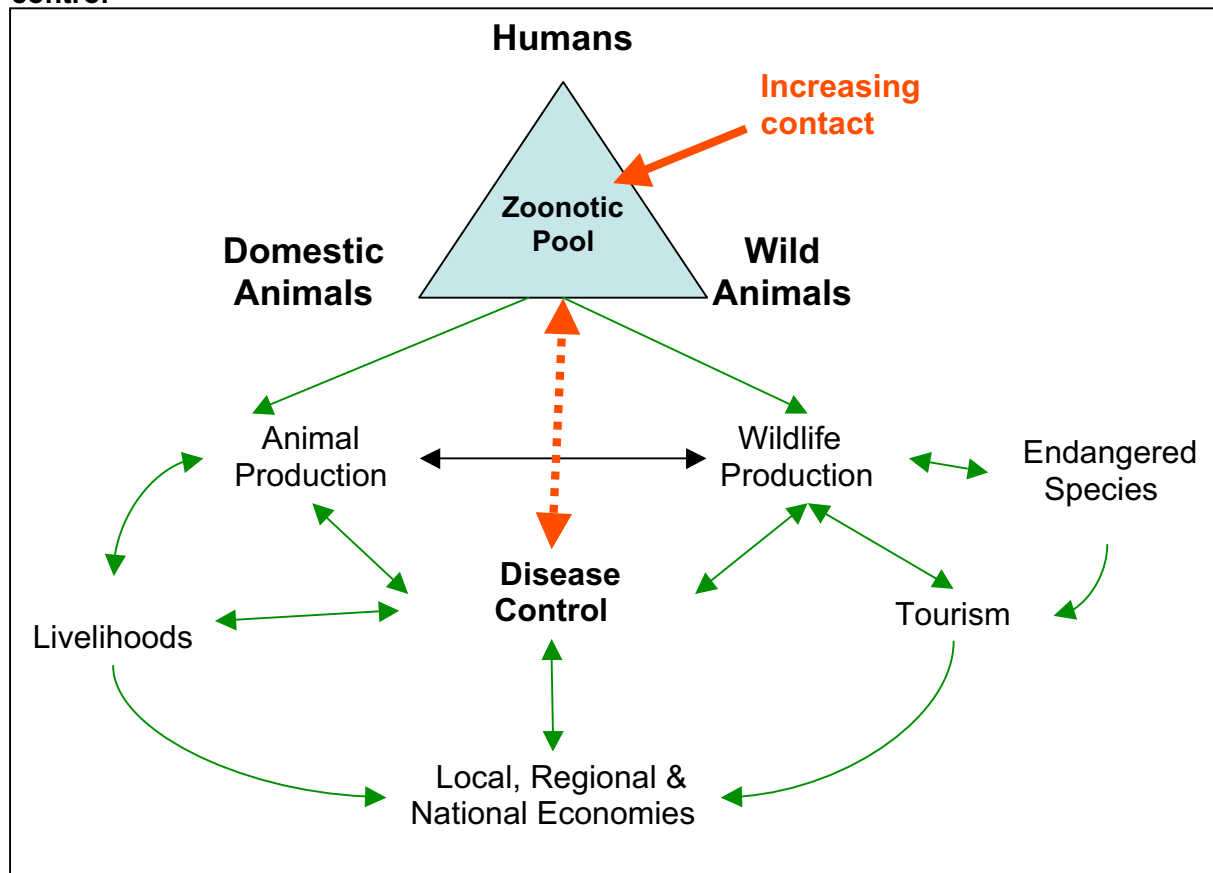


***Domestic Animal – Wildlife – Human health***

Threats and trends of zoonotic pool to:

- endangered species,
- human health, and
- livestock health

**Fig. 4: Triangle depicting integrated method of human, wildlife and livestock disease control**



**Botswana case study - Foot and Mouth disease control**

*Baseline:*

- Mixed system of land-use that comprises both PA management and livestock farming.
- The implication is that there are veterinary cordon fences and CBPP fences, to keep livestock and wildlife apart.

*Disease Control measures:*

- Vaccination,
- Test and slaughter,
- Movement controls e.g. fencing to block off migration of carriers and their associated vectors
- Blanket slaughter e.g. CBPP

*Wildlife and Ecosystem impacts of measures used:*

- More than 2000km fencing erected since 1950's (FMD and CBPP).
- Some scientists claim that the bio-mass has declined 100 fold in the CKGR.
- Others claim that fences are only part of the problem, habitat loss, settlement of people around pans, increase in livestock numbers, and drought, are as important.
- Greatest impact is on Kalahari species that move vast distances for food and water.
- Blue wildebeest and red hartebeest are most affected.

**Kruger National Park - Buffalo and TB case study**

- More than 2000km fencing erected since 1950's (FMD and CBPP).
- Kruger National Park, situated in South Africa, at the border between Mozambique and Swaziland.

- A TB outbreak in buffalo herds in the southern part of the park has spread to the central and northern parts by 2005.
- At an interface – the high HIV/AIDS rates in populations living around the Park.
- Threats to attempts to open up park to form a TFCA with Namibia and Botswana.

#### **Greater Rungwe, Ruaha NP case study - Pastoralists, livestock, wildlife and TB**

##### *Baseline:*

- Buffalo herds in the swamps and Ruaha National Park.
- Pastoralists herding livestock through the park, during dry seasons, (300,000 head of cattle).

##### *Human health threats:*

- People using the water from rivers for subsistence
- The use of unpasteurized milk from livestock
- High HIV/AIDS infection rate among human population
- Bovine TB and Pulmonary TB
- A shift in paradigm is needed to address these issues in an integrated manner.

#### **Looking AHEAD**

There is a need for more research, shift in philosophies and attitudes, new approaches to livelihoods and resource use.

##### *Discussions:*

The fencing strategies of Botswana and Namibia were discussed at some length. While the two countries differed it was concluded that there was a need to look at the wider environmental and economic impacts and the trade offs involved in using fences as a disease control strategy.

#### **4. PRESENTATION 3: *Overview of the AHEAD GLTFCA - Sustaining Animal and Ecosystem health in large landscapes – by Dr. David Cumming (AHEAD/WCS consultant)***

SADC has over 20 TFCAs but a lack of research and suitable policies have hampered any integrated strategy to address linkages between animal health and ecosystem health.

A 2-day forum was then held at the Vth IUCN World Parks Congress where there was strong regional representation. The representatives of South Africa, Mozambique, Zimbabwe and Botswana chose the Greater Limpopo Transfrontier Conservation Area (GLTFCA) and Shashe-Limpopo as priority areas.

Effective animal disease control measures based on national borders and fences were in place, until recently.

##### *Current trends:*

- TFCA formation,
- Increasing wildlife and cultural based tourism,
- Infrastructure development, and
- Tourism development at grass roots level

However, animal diseases have not been addressed properly in these broad plans.

##### *Other issues of concern are:*

- Ecosystem services,
- Animal health and human well being,
- Conflicting policies,
- Inappropriate land uses,
- Water



These lead to land degradation, food insecurity, susceptibility to zoonoses, increased pressure on the environment.

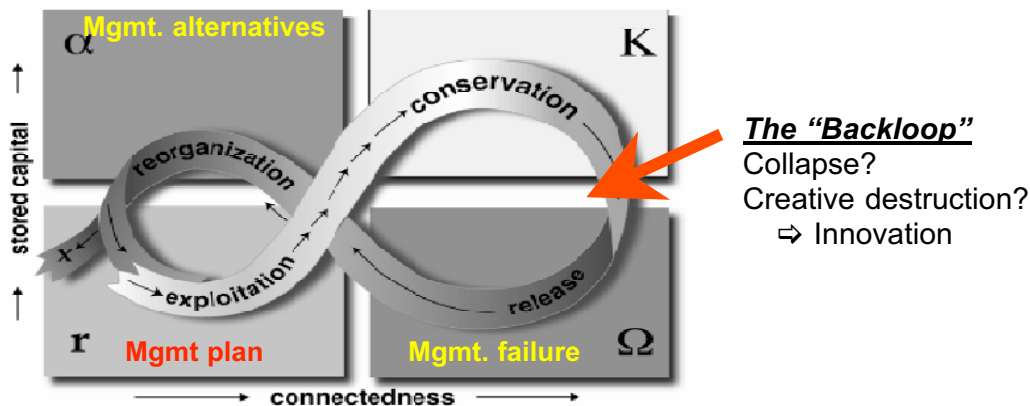
The TFCA concept is understood/perceived as creation of greater landscapes.

**Problem or Opportunity?**

Has not been tried and international policies were based on optimistic returns from conservation  
 Animal health interventions on small scales may not work on a larger scale.

Increasing animal health problems?

**Outline of the Adaptive Cycle:**



**Ecological insights:**

- Increase scale and diversity
- Scale land uses to savannah process scales
- Match socioeconomic enterprise scales and ecological process scales
- Increase adaptive capacity and resilience of ecological and social systems

**Assumptions and Approaches**

1. Pilanesburg Resolution
2. Dealing with a TFCA not only the TFNP
3. Management practices need to match scale
4. Scaling up will result in trade offs
5. Command and Control inappropriate
6. Strong participatory approach
7. Healthy mix of scientific approaches
8. Common understanding needed
9. Communication - costly but essential

**Scientific Approaches**

Healthy mix of approaches to applied science, paradigms and methodologies should be employed and include:

1. Normal science (hypothetico-deductive, reductionist)
2. Integrative science (consilient, inductive, holistic)
3. Post-normal normal science (dealing with uncertainty)

Employ a healthy mix of appropriate scientific approaches, paradigms and methodologies are needed. Communications and Outreach should also be emphasized.

## Overall objectives and themes

To contribute, through innovative and integrated inter-disciplinary research to improving animal and ecosystem health, and human wellbeing in the TFCAs in the GLTFCA (and SADC Region).

### Themes:

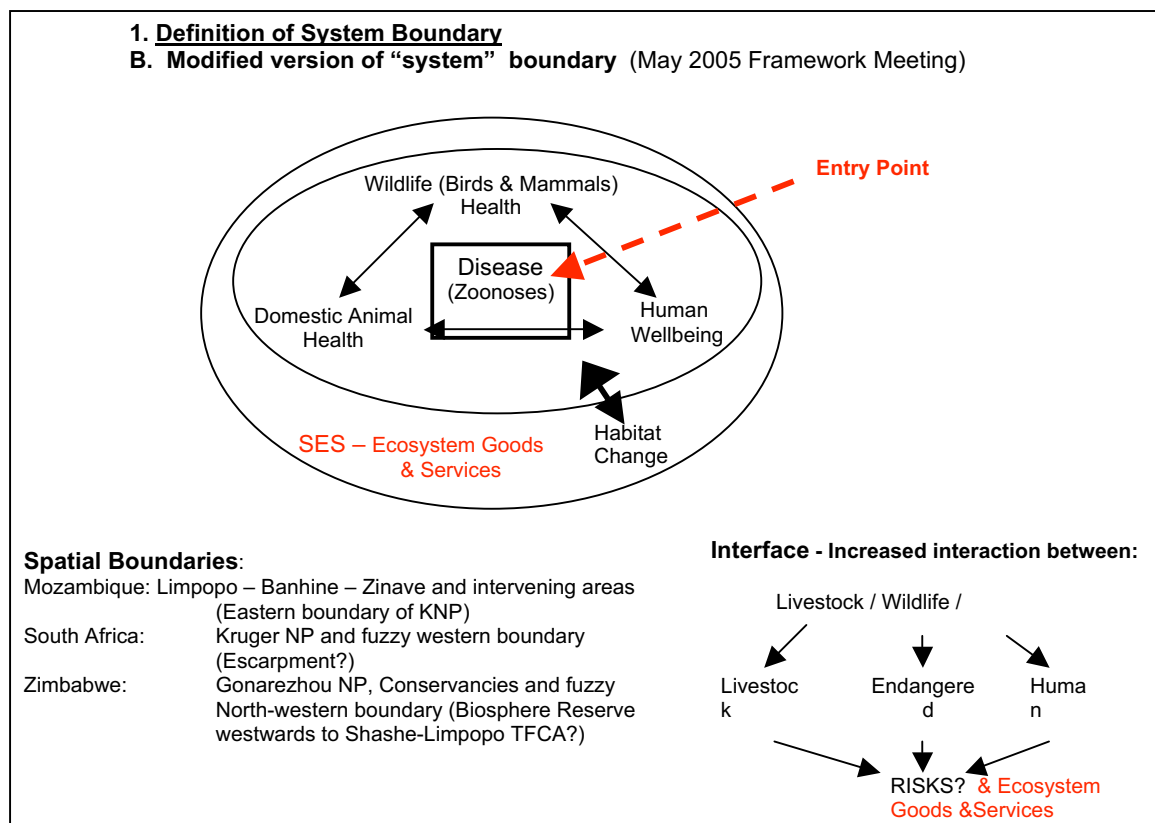
- Overarching frameworks
- Animal health and disease
- Human livelihoods and human health and ecosystem goods and services
- Animal health policy and protocols
- Communications and outreach
- Coordination/integration

Each Theme includes several modules and more specific activities which are elaborated in the Concept document circulated before the Workshop and available on the AHEAD website

### Progress:

1. Development of overarching framework. Working Group Meetings, initial project concepts developed, publication of AHEAD Forum papers, functional website.
2. Development of Overarching Conceptual Framework supported (WCS/USAID) and first workshop held in May 05.
3. Scenario planning (module #1 and #4) supported (WCS/USAID & SCF - INR) and full proposal being developed for IDRC by CASS/INR
4. BTb survey in Sengwe Communal Land (PPF and CESVI support)
5. Letters of Understanding – 7 agencies so far
6. Ongoing development of funding proposals

### Definition of System Boundaries



## 5. Discussion of AHEAD concept

### *Who funds the program?*

The core costs of supporting coordination and development of the programme are being provided by WCS with more recent support from USAID. A proposal for major funding was submitted to the Wellcome Foundation in 2004 but was not successful. Approaches have also been made to UNEP GEF but have not yet borne fruit. Peace Parks Foundation supported an assessment of bovine tuberculosis in the Sengwe Communal Lands in the SE Lowveld of Zimbabwe. Other AHEAD projects are currently under development in Zambia, Tanzania and Mongolia

### *Elephant problems between countries*

- Large numbers of elephant population in the corridors between Namibia, Zimbabwe, Botswana and Zambia pose problems for people who cultivate crops. A possible alternative is to use some of these mammals to feed the people.

### *What are some possible effects of animal disease on Elephant numbers?*

- Could be seen as a natural way to reduce and balance out elephant numbers especially in Etosha. However, the cost to the environment should be questioned, for example, burning of elephant carcasses - 7 tonnes of wood used to burn one elephant carcass.

*Overwhelming concept, which could be instrumental especially in light of the KAZA initiative! However something should come off it that could be applied nationally. What are the opportunity costs?*

- GEF grants are available and after some organization a grant could be applied for. Lessons learned: a large landscape is too ambitious and picking out key issues would ensure a more focused effort intervention.

### *What is the possibility of integrating this issue into existing programmes such as the north east conservation efforts (Kwandu – Mudumu- Mamili and KAZA)?*

- Need to prioritise! Biggest threats to animal health in Namibia are man made and not necessarily natural. Prior list of problems drafted places animal diseases quite low on the list.
- Look at the economic returns from wildlife that are incurred by the country at the moment and then strategise from there. The AHEAD programme may help in identifying high value species and possibly move redline south by one or two farms to establish quarantine camps.
- The meat market in Namibia is blossoming and one cannot compromise it and jeopardise good relations with trading partners (e.g. Cattle farmers).
- There is a need to look at the bigger picture and determine what the best land use is and which approach will benefit the country and its people better. However the suitability of land should also be addressed and the conservancy programme should be looked at in more detail.
- Which system benefits the rural poor more? Which benefits are more targeted towards equity?
- Socioeconomic analysis will be needed to determine that. For example, WWF in Zimbabwe made a thorough financial and economic study of 169 cattle and wildlife ranches in the dryer parts of the country and the results indicated higher returns from wildlife with higher returns on investment in the more arid regions. Diversification is needed especially with climate change and unreliable rains.
- There is also a need for changing peoples' perception – Cattle is mine! Wildlife is ours!

**AFTERNOON SESSION**

**6. Facilitated Discussion: *Can the AHEAD approach enhance prospects for successful conservation and development in Namibia?***

<i>INTERFACE ISSUES</i>	<i>Disease</i>	<i>Social</i>	<i>Economic</i>
Livestock only Livestock + wildlife (south of red line)	-MCF -Rabies -HCF (-parasites not a problem, except in kraals)	-predators -groups of wildlife farms	-wildlife providing rations -economics of alternative land uses i.e. livestock / hunting / tourism -bush encroachment
Conservancies + livestock (north of red line)	-nutritional stress -FMD + vaccination zone -mineral deficiencies	-population pressure -quarantine for	-marketing systems -quarantine requirements – regulations inhibit movement and sale of valuable wildlife across the country (new technology may help) -pricing -poor growth -genetic stocks
KAZA / Caprivi	FMD Corridor Heartwater Tryps Anthrax CBPP	-conflict -overstocking? with improved vet services	-quarantine and marketing - only 2 centres - distances -fencing issues (Botswana) -CBPP

*The options for wildlife farms are:*

- wildlife/livestock interface,
- new legislation of wildlife,
- reducing fencing,
- kraaling reduces predation but increases parasites.

*Ecosystem goods and services:*

- bush encroachment under alternative land uses
- wildlife effects
- goats and cattle
- bush blocks as means of controlling encroachment
- fire management

**Conclusion:** Benefit of trans-disciplinary approach to these problems.

## 7. Stakeholder Analysis

<i>Stakeholder</i>	<i>Role/mandate Responsibility</i>	<i>Potential Conflict</i>
MET	<ul style="list-style-type: none"> <li>- Oversee and regulate wildlife industry</li> <li>- PA mngt</li> <li>- Import &amp; export of wildlife and wildlife products/CITES, CBD, UNFCCC etc</li> <li>- CBNRM (w/Forestry)</li> <li>- TFCA</li> <li>- Coordination of Research</li> <li>- Key species management</li> <li>- Monitoring and information management</li> </ul>	<ul style="list-style-type: none"> <li>- Issuing of permits (conflict with MAWF)</li> <li>- Wildlife as a land use (MET &amp; MAWF)</li> <li>- Harmonising resource management institutions and regulations (MET, MAWF &amp; Communal conservancies)</li> <li>- GAP veterinary wildlife unit (MAWF)</li> </ul>
MAWF	<ul style="list-style-type: none"> <li>- Animal disease control/health Animal - prod. &amp; development</li> <li>- Import &amp; export of livestock product</li> <li>- Regulation of import/export</li> <li>- Diagnostics</li> <li>- Public health (veterinary, water, zoonoses etc.)</li> <li>- Forestry</li> <li>- Provision of bulk water supply</li> <li>- Extension and agric. Engineering services</li> </ul>	<ul style="list-style-type: none"> <li>- Regulations on keeping certain game species (MAWF &amp; Communal conservancies)</li> <li>- Water points development/management in relation to wildlife – elephant (MAWF &amp; MET)</li> <li>- GAP: Streamlining permitting system (MAWF, MET &amp; Ministry of Trade and Industry)</li> </ul>
Communal Conservancies		
Freehold Farmers		
Hunting Farms (Freehold)		
MoHSS		
MLR		
Communal Farmers		
Leasehold Farmers		
Farmers Unions		
Traditional Authorities		
Regional Councils		
Conservation NGOs		
Development NGOs		
Meat Board		
FENATA		
Emerging Farmers Association		
NACSO		
NAPHA		
CANAM		

## **8. Way Forward**

A thought on the next steps:

1. Complete the Stakeholder analysis exercise
2. Organise a workshop, involving a bigger group to examine research/development issues in a particular area of Namibia; Caprivi for example. Perhaps commission a team to look at TFCA issues.
3. It is important to look at the benefits of wildlife to communities. Wildlife Resources & community benefits. Wildlife/livestock interface needs to be examined, for example looking at the Caprivi areas.
4. Circulation of workshop proceedings.
5. A look at the population dynamics: livestock/wildlife in freehold/communal areas – productivity, economics and trends (MAWF & MET) – National survey?
6. A look at wildlife distribution.
7. Questionnaire surveys of annual farm visits by vet Dept.

## **9. Closing by Dr Otto Huebschle**

Many thanks to Dr Cumming and Dr Kock for their excellent facilitation. We learned a lot from the presentations given by them. The workshop was good eye opener and very productive. We have learned there are gaps in Namibia in terms of collaboration between various agencies, for helping the population and maximising return from livestock/game/land for people of Namibia. The AHEAD type work could well be taken further in Namibia. Next time, perhaps we can meet in Caprivi.

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