REPORT

ON THE ASSESSMENT

OF THE

GEOGRAPHICAL BSE RISK OF

NAMIBIA

FULL REPORT

1. DATA

- The available information was suitable to finalise a qualitative GBR risk assessment for Namibia.

Sources of data

Country Dossier consisting of :

- Completed questionnaire for the assessment of the Geographical BSE-risk transmitted by the Embassy of the Republic of Namibia on October 31, 2000.
- BSE risk analysis prepared by the Namibian Veterinary Service according to OIE guidelines as transmitted by letter of August 24, 2000.
- Additional information on some chapters of the questionnaire as transmitted by the Veterinary Service of Namibia via e-mail on November 16, 2000.
- Comments on the draft report on the assessment of the Geographical BSE risk of Namibia as transmitted by the Veterinary Service of Namibia on January 12, 2001.

Other sources :

- EUROSTAT data on exports of "live bovine animals" and of "flour, meal and pellets of meat or offal, unfit for human consumption; greaves" from EU Member States, covering the period 1988 to 1999.
- UK-export data on "live bovine animals" (1980-1986) and on "Mammalian Flours, Meals and Pellets", 1980-2000. As it was illegal to export mammalian meat meal, bone meal and MBM from UK since 27/03/1996, exports indicated after that date may have included non-mammalian MBM.

2. EXTERNAL CHALLENGES

2.1 Import of cattle from BSE affected countries

- According to the country dossier, Namibia did not import live cattle from the UK or any other BSE affected country from 1980 until present.

  Eurostat data show that 2 head of cattle were imported from UK in 1990 for breeding purposes. This export is not registered in the UK export statistics.

To this extent the Namibian Veterinary Service explains that Namibia only acquired its independence on 21 March 1990. Previously it was administered by South Africa, although Namibia had some authority on veterinary and other matters, including importation of animals directly from foreign countries. After independence the Walvis Bay enclave was under dispute between South Africa and Namibia and it was only integrated *de facto* during March 1994.

Import of live cattle (n/year) into NAMIBIA from BSE-affected countries					
Period	**UK**			**Non-UK**	
Source:	**CD**	**EU**	**UK**	**CD**	**EU**
80-87:	**0**	***0***	**0**		***0***
1988					
1989					
1990		2	0		
1991					
1992					
1993					
88-93:		**2**	**0**		***0***
94-99:		***0***	**0**		*0*

Table 1: Live Cattle imports. Shading indicates period of different risk that UK-exports carried the agent, 1988-1993 being the period of highest risk. Sources: CD = Country Dossier, EU = Eurostat, UK = Export data from UK.

Namibian records show no evidence about importation of cattle during 1990 and the Veterinary Authorities of Namibia doubt if any animals were imported during the period (1989-1994). The South African Veterinary Authority is reported not to have issued an import permit either.

The information provided in the country dossier describes convincingly that adequate measures are taken at the borders and ports of Namibia to prevent import of live animals and other goods of animal origin without a veterinary import permit.

2.2 Import of MBM or MBM-containing feedstuffs from BSE affected countries

- According to the country dossier Namibia did not import any MBM from the UK or any other BSE affected country from 1980 until present.

- EUROSTAT export data and UK export statistic show, however, that 2,5 tons have been exported from UK to Namibia in 1997.

The Namibian Veterinary Service states however that similar to the alleged import of cattle no import permit was issued for MBM/MM/BM or greaves from the UK during 1997.

Import of MBM, MM, BM or greaves (t/year) into NAMIBIA from BSE-affected countries					
Period	**UK**			**Non-UK**	
Source:	**CD**	**EU**	**UK**	**CD**	**EU**
80-85		*0*	0		*0*
1986					
1987					
1988					
1989					
1990					
86-90		*0*	0		*0*
1991					
1992					
1993					
91-93		*0*	**0**		*0*
1994					
1995					
1996					
1997		2,5	2,5		
1998					
1999					
94-99:		**2,5**	**2,5**		*0*

Table 2: MBM-imports. Shading indicates period of different risk that exports carried the agent, 1986-1990 being the period of highest risk for UK imports while 1994-1999 UK-exports are assumed to have been safer than exports from other BSE-affected countries. Sources: CD = Country Dossier, EU = Eurostat, UK = UK-Export statistics.

Namibia was exporting about 90% of its own MBM before the voluntary ban (1996) and therefore considers it highly unlikely that there would have been a demand for importation of such materials. The same control as mentioned for live cattle exists for MBM and considering the distance (and cost) to transport MBM from the UK or any other BSE affected country to Namibia such operations can be considered economically unlikely.

It is further explained that no importation of feedstuff containing ruminant derived protein from BSE-affected countries was authorised since 1994 when Walvis Bay was formally recognised as Namibian territory.

2.3 Overall assessment of the external challenge

The level of the external challenge that has to be met by the BSE/cattle system is estimated according to the guidance given by the SSC in its final opinion on the GBR of July 2000.

External Challenge experienced by NAMIBIA				
External challenge		***Reason for this external challenge***		
Period	**Level**	**Cattle imports**	**MBM imports**	**Comment**
1980-1999	Negligible	Negligible	Negligible	

Table 3: External Challenge resulting from live cattle and/or MBM imports from the UK and other BSE-affected countries. The Challenge level is determined according to the SSC-opinion on the GBR of July 2000.

On the basis of the available information the overall assessment of the external challenge would conclude that it was negligible throughout the reference period.

3. STABILITY

3.1 Overall appreciation of the ability to avoid recycling of BSE infectivity, should it enter processing

Feeding:

According to the country dossier ruminant MBM was included in licks that were used as supplementation during winter and drought periods at least until 1996.

A voluntary feed ban was in place since 1996. Before, feeding cattle with MBM, BM, MM or greaves was generally the case.

Since September 1998 feeding ruminant-MBM to ruminants is officially prohibited in Namibia and feed controls are carried out. The legal basis for this measure is the Government notice No 199 of August 15, 1998.

According to the country dossier veterinary officials visit every farm at least once per year and inspections are done on feeds and licks as well. In addition, officials of the Registrar of Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies, who are registering farm feeds in terms of existing legislation, are also carrying out ad-hoc inspections at various control points. Inspection staff of the official Veterinary Services are authorised to inspect and take samples for analysis. The Veterinary Service explains that currently staff attached to the Registrar's office are on training courses to perform such analysis locally. Routine sampling and testing (including feedmills and imported feed) will be done as of 2001. Until present feed controls were only performed visually and are therefore not relevant to detect ruminant MBM as long as non-ruminant MBM is permitted. However, the only non-ruminant mammalian MBM produced in Namibia is sealmeal and this can easily be identified by the presence of tankage and gut contents. If such MBM would be added to feedstuffs, it would be in amounts over 10%. No BM is produced from seals.

In 2000, 3 suspect cattle feed samples were taken at controls on suspicious farms by the veterinary service. They were examined by microscope and one sample was confirmed to contain mammalian BM. The amount found in the positive sample taken in 2000 was in the same range (25-35%) that farmers normally used to include in feeds as a phosphorous supplement. The species has not been identified, but bone structure clearly showed mammalian BM. Less than 1% meat content was found in the sample together with a high BM content and therefore it was concluded that it was not seal meal, but bone meal from ruminant origin.

In the context of visual feed controls and especially the three samples taken in 2000 the Namibian Veterinary Service is of the opinion that by means of visual and olfactory appreciation it is possible to detect whether or not MBM of whatever origin is present. Very little MBM of non ruminant origin is available and the source can easily be detected by observing the compulsory labelling of any such product containers (bags). Other non-ruminant proteins such as sealmeal and fishmeal have clearly distinctive smells, which differs from that of RMBM.

It is further explained that feed controls from now onwards will be carried out. In the future the laboratory will screen all submitted feed samples microscopically (routine sampling aiming at 60/month) and BM and MBM positive samples will be quantified. Sampling will be done randomly on all farms, but suspicious farms will be sampled more often.

Rendering:

The rendering industry in Namibia consists of 4 plants. They produce mainly MBM and blood meals, which are said to be entirely exported since the feed ban.

It is further explained by the Veterinary Service that all 4 existing RMBM rendering plants are attached to Namibian export abattoirs which are under fulltime control of official veterinary staff. These establishments are keeping records of all destinations of 'sterilised' RMBM. Destinations within Namibia are limited to "bona fide" users, such as petfood manufacturers, only. A list of the "bona fide" users is contained in the country dossier.

It is stated that since 1996, MBM that is produced from, inter alia, SRM and fallen stock, is only used for pet food. No evidence is however provided by the Namibian Authorities to prove that.

According to the country dossier, the annual production is about 4,800 tons of MBM and 120 tons of Blood Meal, the main market outlet being pet food. It is also stated that written records must be kept by the owner of the plant per batch of production (required by the Registrar of the Act 36 of 1936).

There are neither separate production lines nor other measures to separately render ruminant and other materials. Bovine raw material, including SRM and fallen stock (dead or injured during transport to the abattoir), were and are rendered together with other raw material (pig/sheep/seals).

Only 5% (240t) of MBM is rendered in batch mode at $133^{\circ}C/20^{min}/3^{bar}$. Control measures for the correct application of the $133^{\circ}C/20^{min}/3^{bar}$-standard include checking records and calibrating the control instruments (gauges, etc.) at least once a year. About 95% (4,560 t) are processed continuously at $120^{\circ}C$ for 20^{min}. Therefore the present approach does not satisfy controlling BSE infectivity.

SRM and fallen stock

There is no SRM-ban in Namibia.

Both SRM and fallen stock (dead or injured during transport to the abattoir) can enter the rendering process. Animals found dead on farms are usually burned or buried on the spot.

Cross-contamination:

The Veterinary Service of Namibia explained in the Country Dossier that the feedmills are not using RMBM presently for cattle feed but make instead use of other sources of protein and phosphorous/calcium supplementation (such as urea, fishmeal, oil-cake meals and inorganic P/Ca compounds).

Registration, import applications and label requirements for any feedstuff by law prescribes that all ingredients of a specific feed or mix must be declared and displayed on the label. Intensified routine sampling will only take place from the beginning of 2001 but providing misinformation on ingredients of feed could lead to a loss of registration, disqualification to import or legal prosecution. However, the possibility of cross-contamination cannot be ruled out.

Conclusion on the ability to avoid recycling

In light of the above-discussed information it has to be assumed that the BSE agent, should it have entered the territory of Namibia would have been recycled and potentially amplified.

Since 1996 (voluntary feed ban) and 1998 (official feed ban) the likelihood that the agent would have been recycled decreased.

Cross-contamination can still not be excluded and rendering of bovine material, including fallen stock (dead or injured during transport to the abattoir) and SRM is taking place under conditions not equivalent to reduce BSE-infectivity.

3.2 Overall appreciation of the ability to identify BSE-cases and to eliminate animals at risk of being infected before they are processed

Cattle population structure

The cattle population of Namibia is currently 2,294,040 heads. The country dossier states that the total number of cattle older than 24 months is approximately 1.3 million. The dairy herd (milking cows) consists of 6,300 heads. The average age of slaughter animals for meat production is 4 years (3 years for male and 5 for

female animals). About 99 % of the cattle are free ranging on natural grassland and only one permanent feed lot is reported to exist.

Surveillance and culling

Notification of BSE is compulsory since 30.1.1995, together with all other exotic diseases. A compensation scheme is in place.

Awareness / training for veterinary staff takes place since 1996 by means of videos and circulars, and other available literature. Examples for such circulars are contained in the country dossier.

Veterinarians are urged to provide complete histories when dealing with cattle with CNS symptoms. Future plans are aimed at reinforcing the information on BSE to farmers and workers involved in transport of animals.

Official veterinarians annually visit all farms, inter alia to control the animal disease situation. Farmers have to give account for deaths.

Since January 1997 (DVS circular 2/97) all veterinarians, including those in private practice, were directed to send brain samples (medulla oblongata in formalin) for histopathological examination from all cattle dying which had nervous signs as a significant feature. Submission of samples has not been restricted to typical BSE-suspect cases but to all animals showing CNS symptoms.

The laboratory personnel in the Central Veterinary Laboratory in Windhoek are trained since 1996 for histopathological examinations of cattle brains. Other diagnostic measures to verify BSE suspects such as immuno-histochemistry or western-blot are not yet used.

Most of the bovine brain samples received at the Central Veterinary Laboratory in Windhoek were submitted for rabies testing. Most of these animals had, unlike BSE, a short history of neurological signs. For the animals tested for rabies, the typical neurological signs described were aggression, ataxia, stiff gait, staggering, paralysis, recumbency and opisthotonus; making BSE a possible differential diagnosis. From 1998 until the end of 2000, in total 289 CNS suspects were examined. The results are summarised in table 4.

Year	CNS total	Positive Differential diagnosis	Tested BSE*	BSE positive	CNS not tested
1998	118	57	8	0	53
1999	106	37	8	0	61
2000	65	29	5	0	37

Table 4: Summary of results of bovine brain-samples tested. *: many CNS suspects as well as animals diagnosed differently were tested in addition.

The number of brains tested since 1997 annually for BSE is well below the OIE-requirements. If the adult cattle population were about 1,3 million animals, about 130 examinations of brains from adult cattle with CNS-symptoms would be necessary annually. Taking this into account, it must be assumed that the existing surveillance would not be able to detect small numbers of BSE cases.

No active surveillance measures, i.e. sampling of asymptomatic cattle in risk populations are yet in place.

3.3 Overall assessment of the stability

For the overall assessment of the stability the impact of the three main stability factors and of the additional stability factors, mainly cross-contamination and surveillance plus culling, has to be estimated. Again the guidance provided by the SSC in its opinion on the GBR of July 2000 is applied.

Feeding:

Feeding ruminant MBM to cattle was legally possible until 9/1998 and the information provided indicates that it was common practice for dairy and beef cattle in form of licks as supplement to grazing on pasture.
The available information on the control of the feed-ban does not yet allow concluding that the feed-ban is already efficiently implemented. It is assumed that feeding was "not OK" before 9/1998 and is still only "reasonably OK" thereafter.

Rendering:

Rendering is and was common practice in Namibia. Material includes ruminant material, including SRM and transport casualties. The process used for 95% of the MBM production is not adequate for reducing BSE-infectivity. Therefore rendering is assessed as "not OK" throughout the reference period.

SRM-removal:

There is no SRM ban and parts of fallen stock (transport casualties) are rendered. Therefore, SRM removal was and is "not OK" throughout the reference period.

Other stability factors:

Surveillance was and is insufficient and cross contamination cannot be excluded. The other stability factors therefore reduced stability throughout the reference period, rather than enhancing it.

Stability of the BSE/cattle system in Namibia over time					
Stability		**Reasons**			
Period	**Level**	**Feeding**	**Rendering**	**SRM**	**Other***
1980-1997	Extremely unstable	not OK	not OK	not OK	
1998-2000	Very unstable	reasonably OK			

Table 5: Stability resulting from the interaction of the three main stability factors and the other stability factors. The Stability level is determined according to the SSC-opinion on the GBR of July 2000. *Other refers to the impact on the stability of other factors than the three main stability factors. Until 1996 they did rather reduce stability, since 1996 the improved surveillance and, since 2000, the feed controls, made their impact "neutral".

On the basis of the available information it has to be concluded that the country's BSE/cattle system was "extremely unstable" until 1998 and still is "very unstable" thereafter.

4. CONCLUSION ON THE RESULTING RISKS

4.1 Interaction of stability and challenges

The conclusion on the stability of the Namibian BSE/cattle system over time and on the external challenges the system had to cope with are summarised in the table below. From the interaction of the two parameters "stability" and "external challenge" a conclusion is drawn on the level of "internal challenge" that emerged and that had to be met by the system, in addition to external challenges that occurred.

Since no external challenge can be identified, the system is highly unlikely to have encountered an internal challenge.

INTERACTION OF STABILITY AND EXTERNAL CHALLENGE IN NAMIBIA			
Stability		**External Challenge**	**Internal challenge**
Period	**Level**	**Level**	
1980 - 97	Extremely Unstable	Negligible	Highly unlikely
1998-2000	Very Unstable	Negligible	

Table 6: Internal challenge resulting from the interaction of the external challenge and stability. The internal challenge level is determined according to guidance given in the SSC-opinion on the GBR of July 2000.

4.2 Risk that BSE infectivity was processed

In view of the negligible external challenge it is highly unlikely that the BSE agent entered feeding processing.

4.3 Risk that BSE infectivity was recycled and propagated

If the BSE-agent would have entered processing, it would have been most likely recycled and amplified due to the extremely/very unstable system. However, due to the absence of an external challenge, this risk is negligible.

5. CONCLUSION ON THE GEOGRAPHICAL BSE-RISK

5.1 The current GBR as function of the past stability and challenge

- The current geographical BSE-risk (GBR) level is I, i.e. it is highly unlikely that domestic cattle are (clinically or pre-clinically) infected with the BSE-agent**.**

Note: This favourable assessment is mainly depending on the negligible external challenge.

5.2 The expected development of the GBR as a function of the past and present stability and challenge

- As long as no external challenge occurs in the future, the GBR remains unchanged.

5.3 Recommendations for influencing the future GBR

- Improving the stability of the system would make it less vulnerable to (accidental) introduction of the BSE agent. Excluding SRM from rendering for feed, improved rendering processes and better feed controls would be efficient measures.
- Improving the surveillance by introducing other methods for the BSE examination of cattle brains and by active surveillance of asymptomatic at-risk cattle populations by means of rapid screening would increase the confidence in the low level of the GBR that is currently derived from the available data.