REPORT

ON THE ASSESSMENT

OF THE

GEOGRAPHICAL BSE RISK OF

SWAZILAND

FULL REPORT

1. DATA

- The available information was suitable to finalise the GBR risk assessment.

Sources of data

Country dossier consisting of:

- Completed questionnaire for the assessment of the Geographical BSE-risk of Swaziland as transmitted by the Ministry of Agriculture and Co-operatives on November 23, 2000 by fax (1 annex).
- Clarifications and comments on the draft report for the assessment of the geographical BSE-risk for Swaziland sent by the authorities on 18 January 2001. Due to a technical error however, not all comments were clearly transmitted, however, this will not change the overall conclusion.

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 1980 to 1999.
- UK-export data on "live bovine animals" (1980-1996) 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 as well as UK export- and EUROSTAT export-data no live bovine animals have been imported by Swaziland from the UK or any other BSE affected country all over the reference period 1980 until present.

Swaziland provided evidence showing that all (except for one) live cattle were imported from the Republic of South Africa. Swaziland could as well convincingly explain (via system of import permits) that imports of livestock are controlled inter alia by veterinary checks at the three ports of entry (10 ports of entry before 1999), local cattle movement permits and registration at local diptank registers.

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

According to the country dossier no MBM was imported from the UK or any other BSE affected country during the reference period 1980 until present. This statement is supported by UK export- and EUROSTAT export- data.

The Veterinary Service of Swaziland explains further that no import permits for ruminant feed, except for hay, were and are issued and that the country does not provide a market for MBM because cattle is "primarily" free on grassland, with the exception of four feedlots. It is further clarified that during veterinary inspections of these feedlots for animal health reasons no indication could be found from plant records that MBM or MBM containing feedstuffs were used.

Intensive pigs and poultry rearing systems could use MBM, this being primarily fishmeal, mainly because there was/is no guaranteed source of MBM in the country.

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.

It appears that the external challenges resulting from live cattle and MBM imports have been negligible all over the reference period 1980 until present.

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

Table 1: 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.

3. STABILITY

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

Feeding

There are four main cattle feedlots in the country, three of which work for export. All four use mainly plant based by-products in their rations. Most other cattle are free-ranging beef and dairy, and they do not use concentrated supplements but use hay as additional feed.

A feed ban came into force in Swaziland in November 1999. Random checks in feedlots and feed-mills started in December 1999. No information is provided on how the control measures will be carried out.

MBM can be fed to other animals, mainly intensively reared pigs and poultry. Somehow, the preferred source of animal proteins in these farms is fishmeal. In the past there has never been a guaranteed source of MBM in Swaziland and the intensive pig and poultry industry is only emerging recently. There is only one feed mill that used plant based protein sources and fishmeal as the protein source in their rations.

Rendering

One rendering plant is existing in Swaziland. It is linked to the only EU approved slaughterhouse and processes mainly slaughter offal, including condemned material and ante-mortem condemned animals from its own production.

The annual production is said to be about 120 tons of MBM, from 1980-1984. The MBM produced locally is said to be exported to Republic of South Africa (RSA) because of the better prices they provide. Not all cattle offal is sent to the by-product plant as some is sold to the local communities. Therefore, as a worst case assumption, it has to be assumed that some sub-industrial scale rendering of cattle offal is taking place, potentially used as fertiliser. No further information is provided in the country dossier.

The rendering plant was closed between 1988 and 1990 because the whole plant went into liquidation and had to be closed. It was reopened under new management. During the period 1990-1995 all rendering products (including SRM) were destroyed by incineration at the plant premises because of *Clostridia.* Products that did not contain SRMs include manure for fertiliser and blood meal, the latter last produced in 1998 and sold to a local company for export.

Between 1980-1988 and 1990-September 2000 the rendering process used was $133°C/20^{min}/3^{bar}$. Since then the rendering processes applied has changed to $110°C/120^{min}/3^{bar}$, which is not suitable for reducing BSE-infectivity as efficient as the $133°C/20^{min}/3^{bar}$ standard. These new parameters were introduced to control the growth of *Clostridia*. In view of its inefficiency to control BSE-infectivity the

country indicated that these parameters would be again reviewed. No evidence of controls is provided in the country dossier.

SRM and fallen stock

There is an SRM-ban since January 1998. SRM were normally included in the slaughterhouse offal rendered for feed production until January 1998. From that time on, brains and spinal cord did, according to the country dossier, no longer enter rendering and were separated and incinerated. This was mainly enforced through directives and physical inspection during the process of SRM removal in the rendering process. It is not explained why this has been introduced.

For the assumed sub-industrial scale rendering, SRM is normally included in the raw material.

Fallen stock is said to be buried or burned since 1980 as part of the national disease control program. These animals first go through routine post mortem inspection and are then buried or burned following hygienic methods of disposal. This is supervised by the Veterinary Authorities in charge of the meat hygiene plant in the abattoir.

Cross-contamination

The country dossier indicates that there is no use of MBM protein in feed mills and feed lots because there has not been enough supplies of MBM or MBM containing feedstuffs. Feed mills are said to produce feedstuff that contains only fishmeal, soya, molasses amino acids and urea.

Conclusion on the ability to avoid recycling

In light of the available information it has to be assumed that the BSE agent, would it have entered the territory of Swaziland would not have been recycled and potentially amplified. This assessment is based on the fact that all domestically produced MBM is exported.

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

According to the country dossier the current total cattle population is 670,000 heads of which 413,530 are said to be older than 24 months. The male sub-population consists of 120,000 slaughter cattle, 17,500 breeding cattle and 530 work animals.

In the current female herd 31,500 cows are at the age of slaughter. The dairy herds (6,000 heads) are very small in comparison to the breeding cow herds (238,000). The average age of slaughter dropped from 6 years in 1980 to 4 years currently. The reasons for this are that the Ministry of Agriculture passed the message to adopt new beef cattle management practices including better breed selection and grazing land and to adopt the practice of selling cattle for slaughter at earlier ages.

Moreover there was a growing market demand for beef products and the actual breeds resulted in earlier maturing animals.

Surveillance and culling

- Notification of BSE is not compulsory yet but legislation on this should have come into effect in December 2000.
- No description is provided of the criteria for a BSE-suspect.
- No awareness / training measures are in place yet.
- No compensation scheme is covering the market value of confirmed cases, and culled suspects.
- So far no CNS- suspects were analysed for BSE and there is not yet any laboratory personnel in Swaziland trained to analyse BSE-suspects. However, the Swaziland Veterinary Authority argues that there were no BSE/TSE suspects in the country.
- No information is provided on the number of cattle notified as showing CNS-symptoms.

Altogether it can be said that neither passive nor active surveillance of TSE/BSE is in place.

3.3 Overall assessment of the stability

For the overall assessment of the stability the impact of the three main stability factors (i.e. feeding, rendering and SRM removal) 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 are applied.

Feeding: Feeding (R)MBM to cattle was apparently legally possible until 11/99 but the efficiency of this ban cannot be judged as no details on feed-controls are reported. This would result in assessing the stability factor as “reasonably OK” before and “OK “ after the feedban. This latter assessment is exclusively due to the fact that all MBM is exported, therefore stabilising the system in Swaziland.

Rendering: Industrial rendering is and was present in Swaziland, throughout most of the reference period. While the rendered material does include ruminant material the annual production is low and the market outlet is mainly export to the RSA. The processes used were adequate for reducing BSE-infectivity until September 2000, but no evidence was provided.

The information provided is only referring to the only export slaughterhouse and the rendering plant in annex. This means that most probably sub-industrial rendering is also taking place. However, no information is available in the country dossier on this.

According to the herd size, a larger size of MBM production would be expected. Therefore it is assumed that sub-industrial rendering takes place. Therefore rendering is assessed as having been "reasonably OK" throughout the reference

period, including the period 1988-1990 when the industrial rendering plant was closed. In that period some sub-industrial rendering processed all offal. Because since September 2000, the process parameters are not suitable to reduce BSE-infectivity the stability factor rendering is assessed as being “not OK” since then.

SRM-removal: There is no official SRM ban in force. Since 1998 brain and spinal cord are excluded from entering the rendering process in the only industrial rendering plant of the country. Because sub-industrial rendering can occur, SRM removal was and is considered "not OK" throughout the whole period.

Other stability factors: No measures are in place to control possible cross-contamination of ruminant feed with MBM and the BSE surveillance is insufficient.

<table>
<tr><th colspan="6">Stability of the BSE/cattle system in SWAZILAND over time</th></tr>
<tr><th colspan="2">Stability</th><th colspan="4">Reasons</th></tr>
<tr><th>Period</th><th>Level</th><th>Feeding</th><th>Rendering</th><th>SRM</th><th>Other</th></tr>
<tr><td>1980-87</td><td rowspan="14">Neutrally stable*</td><td rowspan="11">Reasonably OK</td><td rowspan="12">Reasonably OK</td><td rowspan="14">Not OK</td><td rowspan="14"></td></tr>
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<tr><td>1999</td><td rowspan="2">OK</td></tr>
<tr><td>2000</td><td>Not OK</td></tr>
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Table 2: 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.

On the basis of the available information it has to be concluded that the country's BSE/cattle system was all the time neutrally stable. Before the feedban was enforced, the feeding can only be considered as reasonably OK, but because cattle could hardly have access to MBM due to its exportation before and after the feedban, the system can anyhow be considered to be neutrally stable during the whole reference period. The rendering being “not OK” since September 2000, also does not change this overall assessment.*

4. CONCLUSION ON THE RESULTING RISKS

4.1 Interaction of stability and challenges

The conclusion on the stability of the Swaziland 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.

According to the available data, the BSE/cattle system of Swaziland was exposed to a negligible external challenge throughout the reference period.

If such an external challenge occurred, it would most probably not have reached domestic cattle. Subsequently the neutrally stable system would not have recycled or amplified it.

INTERACTION OF STABILITY AND EXTERNAL CHALLENGE IN SWAZILAND			
Stability		**External Challenge**	**Internal challenge**
Period	**Level**	**Level**	
1980-87	**Neutrally stable**	**Negligible**	**Highly unlikely**
1988-90			
1991-97			
1998- At current			

Table 3: 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.

Since there has not been any external challenge, it is assumed that no internal challenge has occurred up till present.

4.2 Risk that BSE infectivity entered processing

Since the BSE-agent was not imported into the country, a risk that BSE infectivity entered processing never arose.

4.3 Risk that BSE infectivity was recycled and propagated

If BSE-infectivity would have been processed, it is unlikely to have been recycled and propagated by the neutrally stable system. This is, however, exclusively due to the fact that all of the domestic MBM production is exported and therefore cannot reach domestic cattle.

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

- Given the neutral stability of the BSE/cattle system of Swaziland, the future GBR depends fully on the future external challenges. As long as they remain negligible, the GBR remains constant but any external challenge would increase the GBR.

5.3 Recommendations for influencing the future GBR

- Improving the stability of the system, in particular by improving the rendering (industrial and sub-industrial) and, as far as feasible excluding SRM and fallen stock from entering the feed cycle would make the system much less vulnerable to accidental imports. For the stability to increase it is also crucial that all checks are fully functioning for the exclusion of MBM from cattle feeds.

- Effective passive and active BSE surveillance measures would provide reassurance of the absence of BSE from the territory of Swaziland and would allow controlling the efficiency of the measures taken to enhance the stability.