Report on the Assessment of THE GEOGRAPHICAL BSE-RISK (GBR) OF ESTONIA

NOTE TO THE READER

Independent experts have produced this report, applying an innovative methodology by a complex process to data that were voluntarily supplied by the responsible country authorities. Both, the methodology and the process are described in detail in the final opinion of the SSC on "the Geographical Risk of Bovine Spongiform Encephalopathy (GBR)", 6 July 2000. This opinion is available at the following Internet address:

<http://europa.eu.int/comm/food/fs/sc/ssc/outcome_en.html>

In order to understand the rationale of the report leading to its conclusions and the terminology used in the report, it is highly advisable to have read the opinion before reading the report. The opinion also provides an overview of the assessments for other countries.

FULL REPORT

1. Data

- The available information was sufficient to carry out the qualitative assessment of the GBR.

Sources of data

Country dossier (CD) consisting of:

- Basic questionnaire for the assessment of the Geographical BSE-risk of Estonia (7 November 2000), including Annexes 1 to 9, providing additional information.
- Additional information provided with comments (dated 24 January 2001) on the draft report.

Other sources:

- EUROSTAT export data on "live bovine animals" and on "flour, meal and pellets of meat or offal, unfit for human consumption; greaves", covering the period 1993 to 1999.
- UK-export data on "live bovine animals" and on "Mammalian Flours, Meals and Pellets", 1980-1997/2000. 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

Estonia became an independent country in 1991.

2.1 Import of cattle from BSE affected countries

Table 1 provides an overview of the import of live cattle into Estonia, as provided in the country dossier (CD) and compares this with the exports from BSE-affected countries, as indicated in Eurostat and UK export statistics.

According to the country dossier, all animals imported from UK were breeding-bulls (intended for artificial insemination stations) with the exception of 34 cows imported in 1989 (intended for an experimental state farm). 18 of 22 totally imported bulls in the period 1980-1987 were younger and 4 older than 2 years at import. From the 39 animals imported in the period 1988-1992, 10 were younger and 29 older than 2 years at import.

In the dossier, detailed information is given on the fate of the 61 cattle imported from UK in the period 1985-89, i.e. animal ID, year of birth, year of import, year of death and reason for death (all dead, no BSE suspect according to the Estonian authorities).

However, the Estonian authorities estimate that 46 animals of 24 months or older (at death) imported from UK might have entered the feed chain (35 of them before 1992).

It is remarkable that the exports from UK to Estonia are not mentioned in the export data from UK.

Import of live cattle (n/year) into ESTONIA from BSE-affected countries

	Period	UK			DE		NL		DK		Non-UK	
	Source:	CD	EU	UK	CD	EU	CD	EU	CD	EU	CD	EU
Part of former USSR	1980		No data available for that part of the country			No data available for that part of the country		No data available for that part of the country		No data available for that part of the country		No data available for that part of the country
	1981								124		124	
	1982						187				187	
	1983											
	1984								318		318	
	1985	7										
	1986	10										
	1987	5										
	80-87:	**22**					**187**		**442**		**629**	
	1988	5										
	1989	34			5						5	
	1990											
ESTONIA	**1991**											
	1992								2		2	
	1993				2		1		36	35	39	35
	88-93:	**39**			**7**		**1**		**38**	**35**	**46**	**35**
	1994				10	10			2	2	12	12
	1995					35			1	1	1	36
	1996							32				32
	1997						34	34	1		35	34
	1998					1	75	75			75	76
	1999				9	9			41	41	50	50
	94-99:				**19**	**55**	**109**	**141**	**45**	**44**	**173**	**240**

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 (Estonia) Dossier, EU = Eurostat, UK = Export data from UK.

All animals imported from UK stayed "under supervision of official county veterinarian in their destination farms" as well as the cattle imported from DK and NL.

All animals imported from DK and NL were for breeding purposes.

145 Danish animals were younger and 380 animals older than 2 years when imported. According to the country dossier, 106 animals imported from NL were younger and 191 animals older than 2 years when imported.

According to EUROSTAT data, Germany exported 55 cattle in the period 1994-99. No breakdown of imports per year is provided. Estonia has recorded only 19 cattle imported from Germany during that period. The cause of death of 8 of the animals imported in 1994 is known. In January 2001 the last two out of the 10 animals imported in 1994 were still alive, as well as the 9 animals imported in 1999. The 11

breeding bulls concerned are living in a known Artificial Insemination Centre, under supervision of the county official veterinarian and will be tested for BSE after the end of their production life.

With the exception of 32 animals imported in 1996 from NL which are not mentioned in the country dossier, the EUROSTAT data and the data from the country dossier correspond almost perfectly for the period 1993-1999. Estonia has no trace of these 32 cattle exported from NL in 1996 and explained that the imports recorded the following year took place in early 1997 and that the same exports might have been recorded twice, which is plausible.

The period before 1993 cannot be compared due to the unavailability of data from EUROSTAT.

The Estonian authorities have carried out a detailed investigation on the fate of cattle imported (and of their offsprings) from BSE affected countries since 1989. In total, 141 animals (90 from NL, 40 from DK, 11 from DE), were still alive in March 2001, they are all specifically ear-marked and will be examined for BSE at the end of their production life.

This indicates that on the basis of CD data, since 1989, 112 animals imported from BSE affected countries (34 from UK, 20 from NL, 43 from DK, 15 from DE) were slaughtered or died (99 on the basis of Eurostat data) and were potentially rendered. This is assessed as a negligible challenge since 1989.

175 offspring of cattle imported from BSE affected countries were alive in March 2001. They are all registered and under strengthened official veterinary supervision.

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

Table 2 gives an overview of the MBM-imports into Estonia, as provided in the country dossier and compares it with the Eurostat and UK-export statistics.

Imported MBM are processed in Estonian feed mills under inspection of Plant Production Inspectorate which is responsible for the enforcement of the requirements of the Feedingstuffs Act § 29. However, no detailed information is provided on controls carried out or on the results of these controls. It is not indicated how it is guaranteed that imported MBM are not fed to cattle or used for the preparation of ruminant feed.

According to the country dossier, Estonia has imported 15 tons of MBM and 609 tons of “feedstuffs” containing MBM from UK in the period 1994-2000 for pig, poultry and pet-food. The 15 tons of MBM imported from UK were for pig feed (5 tons) and poultry feed (10 tons). It is also mentioned in the country dossier that Estonia did not import any MBM or MBM-containing feedstuffs from UK before 1994. This cannot be checked by EUROSTAT data.

According to the CD this "feedstuffs" category includes:

- "finished products (pet-food, packed for retail)", containing 18 to 24% of animal proteins;
- "finished products (other finished products for animals)", containing 17 to 18% of animal proteins;
- and "premixes", containing 1 to 3% of animal proteins";
- but NOT the "flour, meal, and pellets of meats of offal, unfit for human consumption; greaves", containing 30 to 60% of animal proteins.

Therefore, the "feedstuffs" imports are not included in Table 2.

Import of MBM, MM, BM or greaves (t/year) into ESTONIA from BSE-affected countries

	Period	UK			FR		DE	BE/Lux		NL		DK		Non-UK	
	Source:	CD	EU	UK	CD	EU	EU	CD	EU	CD	EU	CD	EU	CD	EU
Part of former USSR	1980		No data available for that part of the country			No data available for that part of the country	No data available for that part of the country		No data available for that part of the country		No data available for that part of the country		No data available for that part of the country		No data available for that part of the country
	1981														
	1982														
	1983														
	1984														
	1985														
	80-85														
	1986														
	1987														
	1988														
	1989														
	1990														
	86-90														
ESTONIA	1991														
	1992														
	1993										19				19
	91-93										**19**				**19**
	1994										30				30
	1995								2		8		54		64
	1996					20					51		495		566
	1997												438		438
	1998								35		3		162		200
	1999								21				1,156		1,177
	94-99	**15**				**20**	**12**		**58**		**92**		**2,305**		**2,487**
	80-00:	**15**			**0**			**2**		**78**		**4,308**		**4,388**	

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 (Estonia) Dossier, EU = Eurostat (no data available before 1993), UK = UK-Export statistics.*

***** The MBM-imports given by Estonia cover the whole indicated period, i.e. 1980-2000.

According to the country dossier, Estonia has imported 40,594 tons of feedstuffs from BE, DK, FR and NL in the period 1980-2000 (not presented in Table 2 above), and 4,388 tons of MBM from BE, DK, and NL. Because the amount of ruminant proteins in these feedingstuffs cannot be estimated, feedingsuffs are not taken into further consideration albeit it points to an additional risk that the BSE agent might have been imported.

According to the CD, all import feedstuffs were for pig or poultry feed or for pet food and all imported MBM for pig or poultry feed, but not for ruminant feed.

In EUROSTAT, there are only 2,487 tons of exported MBM to Estonia mentioned for the period 1993-1999 - with the biggest part coming from DK. The difference between CD and Eurostat comes from the recorded MBM imports from DK (4,308 tons for the period 80-00 according to CD, 2,305 tons for the period 93-00 according to Eurostat). This difference is not explained and no breakdown of imports per year is provided in the country dossier.

According to EUROSTAT data, Germany exported about 12 tons of MBM to Estonia in the period 1994-99, but neither Italy nor Spain exported MBM to Estonia.

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 challenge resulting from live cattle imports has been very low in the period 1980-87, due to imports from non-UK BSE-affected countries, moderate in the period 1988-93, due to imports of 39 cattle from UK and negligible since 1994. It is noted that according to the CD 46 animals imported from UK (out of 61 imported) might have entered the feed chain.

The imports of MBM, mainly from DK and from BE, NL, FR, DE have created a high external challenge since 1994. They were all destined for pig or poultry feed but no guarantees are provided thereof.

Data are only available since 1993. According to the CD, MBM imports amounted to about 4,400 tonnes while Eurostat only recorded about 2,500 tonnes. Both sources and confirm that the vast majority of imports came form DK. In any case, these imports contributed to a high external challenge to the Estonian system. This challenge is underlined by the much higher imports of feedingstuffs containing small amounts of animal proteins.

External Challenge experienced by ESTONIA				
External challenge		***Reason for this external challenge***		
Period	**Level**	**Cattle imports**	**MBM imports**	**Comment**
1980-1987	**Very low ***	Very low	***Unclear***	Cattle imported from BSE affected countries
1988-1992	**Moderate ***	Moderate		Cattle imported from UK
1993-1999	**High**	Negligible	High	Imports of MBM from BSE affected countries

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. / * Based on available data for imports of live cattle only.

On the basis of the available information the overall assessment of the external challenge is as given in the table above.

3. STABILITY

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

Feeding:

An MBM-ban has existed since 10/11/2000 in Estonia but the CD indicates that there could have already been an RMBM-ban before 2000. The provisional instructions on arrangements to be carried out in order to prevent Spongiform Encephalopathy from entering the territory of the USSR, and to combat and prevent the disease (October 1990) requested to "not feed cattle with meat-bone flour and fodder containing protein of ruminants". No information on degree of implementation of this ban on the territory of the current Estonian Republic was provided.

It is indicated that MBM were used in 7 places for pig and poultry feed. In one single case MBM has been used for calves feeding and in some cases as component of premixes for calves. It is also mentioned that the quantities of milk proteins used for replacement stock are decreasing since late 80's for economic reasons.

The feeding practices are controlled as follows: "All dairy farms have to be controlled by authorised veterinarians for the compliance with the provisions of "relevant legislation" at least once in every three months". For farms not having dairy production, the frequency of the similar inspections is at least once a year. However feed control are similar for dairy and non-dairy farms. It is explained that the "relevant legislation" includes notably the Feedingstuffs Act (not detailed) and the Food Act and that during inspections by official veterinarians, documented farm records (treatment, movement and feeding) are checked. As indicated in the dossier, there has "never been tradition to use MBM, BM, MM and greaves in commercial feedstuffs intended for cattle and sheep, but for pigs and poultry feed". It is explained by the CD that the milk price is low, average milk yield is also low (4.000 kg /year) and there is a strong price disincentive between the price of corn and the price of feedingstuffs containing animal proteins. The compound feed for replacement stock is described as being made by the farmer, using domestically produced grain crop mixed with supplementary feeding stuffs bought at feed mills (mostly plant protein and vitamin/mineral premixes). No evidence was provided thereof. It is also indicated that lack of proteins is covered with oil cake and other products of the oil industry (sunflower cake, oil cake, and soybean cake).

Although this might be convincing "in average", it is not clear if it corresponds to the situation of every dairy farm (there must be also some high yield cows / dairy farms).

The preparation of the feed-ban started in October 2000 by informing farming organisations and explaining the measures to be taken for its implementation. In November 2000 the feed ban for MBM began. But no information is provided on methods, frequency and on the results of the controls.

Without additional information it has to be assumed that feeding cattle with MBM, BM, MM or greaves was possible before November 2000, although it was neither widespread nor in high amounts. In any case, no active measures were in place to ensure non-feeding.

Rendering:

A rendering industry exists in Estonia. Detailed figures of national MBM and BM production were provided. MBM production increased from 920 tonnes in 1980 to 2,939 tonnes in 1991. After a reduction of production between 1991 and 1997 (612 tonnes), the production seemed to increase again (1,674 tonnes in 2000). BM production started in 1992 (24 tons) and tended to increase since then (469 tons in 1997 and 224 tons in 2000).

All bovine raw materials, fallen stock and all other fallen agricultural animals and animal waste are rendered in three plants. However it is not clear if all offals and fallen stocks of the country are collected / treated by these three plants. Therefore a certain amount might be used as land fill or buried.

According to the dossier, these three enterprises are using rendering processes at $133°C/20^{min}/3^{bar}$ since 1995. But there is no further evidence given for that in the dossier. From 1980 to 1994, the enterprises were using $118\text{-}127°C/\ 0{,}9\text{-}1{,}5^{kg/cm}/\ 45^{min}$, which does not reduce BSE-infectivity as efficiently as the 133/20/3-standard. The ability of the rendering system to reduce incoming BSE-infectivity was therefore very low before 1995.

Since 1995, with the introduction of the 133°C / 20min / 3 bars standards, the ability of the rendering system to reduce incoming BSE-infectivity has been improved.

The rendering plants are under Estonian Veterinary and Food Board supervision. Decree N° 65 of 10.11.2000 provides new requirements on collection, transportation and handling of animal waste. It also introduces provisions for low risk and high-risk material processing plants as well as for destruction (burial or incineration) of material and approval procedures for all plants concerned.

On the basis of the available information, it is concluded that rendering requirements have been controlled since November 2000.

SRM and fallen stock:

There is no SRM-ban for domestic production.

A SRM ban is foreseen and it will enter into force in April 2001.

But Estonia has adopted a regulation on "classification of animal waste, veterinary requirements for the handle of animal waste and the procedure for approval of plants which handle animal waste" which was adopted in November 2000 (Decree N° 65 as already mentioned above). During the last 20 years, all bovine raw materials and fallen stock and other fallen agricultural animals and animal waste have been included in the rendering process. However, in view of the small capacity of the rendering industry, not all offals could possibly have been rendered, and parts ended in landfills.

Cross-contamination:

There is no information on cross-contamination. No specific measures to control it are reported. Results of the testing of ruminant feedstuff for presence of MBM, BM, MM, greaves or animal protein in general are not given in the dossier.

The legal basis for the inspection of feed mills is the Feedingstuffs Act that lays down requirements for this industry. The Plant Production Inspectorate staff inspects the premises.

When official veterinarians suspect incorrect use of ruminant proteins they take feed samples for examination. These samples are examined by Elisa test (the supplier of the test was indicated) "Species Identification Testy for the Qualitative Determination of Species content in Meat / Meat products.

No indication on number of samples taken and results of these controls were provided.

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 Estonia, would have been recycled and amplified. Since the introduction of the 133/3/20 rendering standard in 1995, and in particular after the start of the controls of implementation of the rendering process 133/20/3 standard in 2000, the likelihood that the agent would have been recycled decreased, subject to appropriate implementation of the rendering standard. The feed ban of 2000 and the SRM handling regulation potentially will reduce the risk of recycling and amplification.

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 structure of cattle population is described in Table 4 below.

Due to the Fresh Milk Hygiene requirements it is not allowed to rear cattle and non-ruminant in the same time (no co-farming for the purpose of this assessment). This regulation has been enforced since November 1999 (regulation of 21/10/99) and it is also mentioned that only less than 10% of cows are kept with other farm animals (which contradicts the previous statement). Farms have less than 5 cows in average and the production is often meant for self-consumption by the farmer.

It is concluded that co-farming is unlikely since Nov. 1999.

		Total (all ages)	Over 24 months old				
			male		female		
Period			Meat	Breeding	Meat	Dairy	Breeding
2000	N°	267,300	13,265	100	0	138,400	13,365
	Age*	3.5-4y	24m	6-7y		4.5y	5.5y

Table 4: Cattle population structure (age*: average age at slaughter)

However, the annual average milk yield is 4.000 kg (see "feeding" above).

- **Surveillance and culling**

Notification of BSE has been compulsory since 1990 and the symptoms of BSE-cases or suspects are described in detail.

Since 2000, compensation would be paid for BSE-cases and for culled "at risk" animals. But there is no amount given in the dossier.

According to the country dossier, awareness-training measures have been in place since 1990, and also the lab-personal trained since 1994. Detailed information refer to a 5-day training course in Russia in 1996 and a 5-day workshop for laboratory personnel in UK in 1998. An ongoing training program ("post mortem inspection and sampling for TSE") has already lead to 3 one week courses of implementation of EU directives in Veterinary and Food Inspection in Estonia prepared by the Danish Meat Trade College for county official veterinarians and meat inspectors of slaughterhouses. In February 2001 training on sampling methods was organised in a slaughterhouse for meat inspectors and animal health inspectors. A symposium on BSE for Baltic countries was organised in February 2001.

It is mentioned that the Estonian Veterinary and Food Board organises a one day course for heads of local veterinary services six times a year and a training course for animal health inspectors at least eight times a year.

It is concluded that appropriate training had started by 1996.

According to the dossier, there were no BSE suspects recorded either in the domestic cattle population or in the imported cattle population. So there were no BSE-examinations of BSE-suspects in the last 10 years. Also the number of CNS-suspects that were analysed annually for BSE are below the OIE requirements.

Histological examination of brain is used to verify BSE-suspects. Estonian Veterinary and Food Laboratory introduced the sampling and laboratory testing for the presence of BSE in bovine animals in accordance with European Commission Decision of 5 June 2000.

After a detailed investigation carried out on animal imported since 1989, according to the CD, no imported animals, or their offsprings were reported dead or slaughtered with nervous symptoms.

All fallen stock and bovine animals that have been slaughtered with CNS have been examined through brain histology for rabies (approx. 50 per year).

For 2001, it is planned to examine every bovine dying or fallen with CNS and 150 animals over 3 years of age (random sampling). All animals imported from BSE affected countries will also be examined after their production life.

Its is planed to introduce the use of ENFER test and of another immunoenzymatic kit in 2001. It is also mentioned that the Veterinary and Food Board has applied for extra finances in order to examine 800 slaughtered cattle in 2001 (the result of this request is not indicated). Arrangements are made to examine all slaughtered animals over 30 months from the beginning of 2002.

It is concluded that active surveillance will start in 2001 and be strengthened in 2002.

Year	BSE examinations		Age (n°)		Differential Diagnosis	N° of doubtful	N° of positive
	N°	Reason	>24m	>36m			
1990-1998	-	-	-	-	-	-	-
1999	5	Nervous disorders	-	1	Rabies	-	-
2000	18	Nervous disorders	-	3	Rabies	-	-
Total	23	Nervous disorders	-	4	Rabies	-	-

Table 5: Non-suspect cattle that were examined for BSE, results of their examination

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 are applied.

Feeding: Feeding RMBM and MBM to cattle was legally possible until November 2000, even though the information provided indicates that it was uncommon practice for dairy and beef cattle. Because there is no evidence provided that MBM was not fed to cattle, and in view of the late introduction of a feed ban (only in 2000), it is assumed that feeding was and is still "not OK".

Rendering: Rendering is and was common practice in Estonia. Material includes ruminant material, including SRM and fallen stock. The processes used before 1995 were not adequate for reducing BSE-infectivity and rendering is therefore “not OK” for the period 1980-1995. After 1995, the processes described are adequate for reducing BSE-infectivity. However control procedures for the correct application of the appropriate rendering processes were only put in place in Nov. 2000, it therefore is assumed that rendering was “not OK” before 1995, “reasonably OK” between 1995-2000 and “OK” since 2001.

SRM-removal: There is no SRM ban and SRM are included in the raw materials rendered. Therefore SRM removal was "not OK" throughout the reference period.

Other stability factors: There is no information about measures to avoid and/or monitor cross contamination and BSE active surveillance will be improved in 2001

and 2002. The "other factors" therefore reduce the stability throughout the entire period.

Stability of the BSE/cattle system in ESTONIA over time					
Stability		**Reasons**			
Period	**Level**	**Feeding**	**Rendering**	**SRM**	**Other**
1980-1994	**Extremely unstable**	Not OK	Not OK	Not OK	
1995-2000	**Very Unstable**		Reasonably OK		
2001	**Neutrally stable**		OK		

Table 6: 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 extremely unstable before 1994, very unstable between 1995 and 2000 and is neutrally stable since 2001.

4. Conclusion on the resulting risks

4.1 Interaction of stability and challenges

The conclusion on the stability of the Estonian 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.

The BSE/cattle system of Estonia was exposed to a very low (80-87), moderate (88-93) and high (94-99) external challenge while being extremely unstable (80-94).

Between 1995-2000 when the system was “very unstable” the external challenge was still high.

Imports of potentially contaminated cattle from UK, NL, DK and DE and of MBM, MM, BM or Greaves from BE, DE, DK, FR and NL were significant and could have introduced the agent to Estonia. In view of the extremely unstable system, this most likely led to an internal challenge.

This is supported by the fact that it cannot be excluded that cattle imported from UK entered the feed chain, mainly before 1992 and that imported, potentially contaminated feed stuffs reached cattle since the mid 90s.

The internal challenge that resulted from the external challenge met the extremely unstable system and was recycled and amplified, growing over time.

The continuing external challenges supported this development.

INTERACTION OF STABILITY AND EXTERNAL CHALLENGE IN ESTONIA			
Stability		External Challenge	Internal challenge
Period	Level	Level	
1980-1987	Extremely Unstable	Very low	Unlikely, but not excluded
1988-1993		Moderate	Likely to be present and growing
1994		High	
1995-2000	Very Unstable		
2001	Neutrally stable		

Table 7: 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 entered processing

Given the fact that the BSE-agent was probably imported in non-negligible quantities into the country by cattle and MBM-imports, a risk that BSE infectivity entered processing first existed about 3 years after cattle imports and 5 years after the first import of potentially contaminated feed stuff. This could be as early as 1988 (cattle imports) or 1998 (MBM imports).

Given the extreme unstability of the system before 1995, this risk increased over time.

4.3 Risk that BSE infectivity was recycled and propagated

A risk that BSE infectivity was recycled and amplified first existed since potentially infected domestic cattle were processed, i.e. in the second half of the 80s.

Given the unstability of the system, this risk increased over time.

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 *III, i.e. it is likely but not confirmed* that domestic cattle are (clinically or pre-clinically) infected with the BSE-agent**.**

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

- Form the neutral stability of the system, it would follow that the GBR would remain as it is as long as no new external challenges appear.
- Any additional external challenge will fuel this process.

5.3 Recommendations for influencing the future GBR

- Improving the stability of the system would make it less vulnerable to external challenges and could lead, over time, to a reduction of the GBR. Excluding SRM (planned from April 2001) and fallen stock from entering the feed cycle and implementing efficient feed-ban controls would be particularly efficient. Verifying the correct application of the feed ban could ensure that the risk reduction potential of this part of the chain is optimally exploited.

- The better active surveillance announced by the Estonian authorities, i.e. by sampling of asymptomatic, at-risk cattle populations (adult cattle in fallen stock and emergency slaughter) by means of rapid screening, would allow monitoring the development of the GBR and to verify the efficiency of the stability enhancing measures.