

**Final Report**  
**on the**  
**assessment of the**  
**Geographical BSE-Risk (GBR)**  
**of the**  
**Former Yugoslav Republic of**  
**Macedonia – 2003**

10 April 2003

**NOTE TO THE READER**

Independent experts have produced this report, applying an innovative methodology by a complex process to data that were 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 and its update of 11 January 2002. These opinions are available at the following Internet address:

**<[http://europa.eu.int/comm/food/fs/sc/ssc/outcome\\_en.html](http://europa.eu.int/comm/food/fs/sc/ssc/outcome_en.html)>**

This report, and the opinion of the SSC based on it, is now serving as the risk assessment required by the TSE-Regulation EU/999/2001 for the categorisation of countries with regard to their BSE-status. The final BSE-status categorisation depends also on other conditions as stipulated in annex II to that TSE-Regulation.

## **1. DATA**

- The information available was suitable to carry out a qualitative assessment of the GBR. Nevertheless, this report is based on reasonable worst case assumptions, in cases where data are not complete.

### Sources of data

- Country dossier (CD) consisting of information provided from the country's authorities in 2001-2003.

### Other sources:

- EUROSTAT data on export of "live bovine animals" and on "flour, meal and pellets of meat or offal, unfit for human consumption; greaves" (customs code 230110), covering the period 1980-2001.
- UK-export data (UK) on "live bovine animals" (1980-1996) and on "Mammalian Flours, Meals and Pellets", 1988-1996. As it was illegal to export mammalian meat meal, bone meal and MBM from UK since 27/03/1996, exports indicated after that date under customs code 230110 should only have included non-mammalian MBM.
- Export data from Cyprus, the Czech Republic, Estonia, Hungary, Lithuania, Romania, Slovenia and Switzerland.

## **2. EXTERNAL CHALLENGES**

The Former Yugoslav Republic of Macedonia has been independent from Yugoslavia since 1992. Data for the period 1980 to 1991 is incomplete, for reasons related to the break-up of the Former Republic of Yugoslavia. A large number of the border crossing points of Former Yugoslavia are today on the territory of the other newly formed states; the Republic of Slovenia, the Republic of Croatia, the Republic of Bosnia-Herzegovina and the Federal Republic of Yugoslavia. Until 1991, imports from the EU came exclusively through the border crossing points of Slovenia and Croatia. The Former Yugoslav Republic of Macedonia states that it has full veterinary control on its borders since 1992.

### **2.1 Import of cattle from BSE-Risk<sup>1</sup> countries**

Table 1 provides an overview of the data on live cattle imports from BSE risk countries into Former Yugoslavia until 1991. Table 2 provides an overview of the data on live cattle imports, as provided in the country dossier (CD) and the corresponding data on relevant exports as available from BSE risk countries that exported to the Former Yugoslav Republic of Macedonia.

#### Former Yugoslavia (1980-1992)

Eurostat does not provide a breakdown of exports to different parts of former Yugoslavia. According to Eurostat, no animals were exported from UK to Yugoslavia between 1980 and 1992 (this is confirmed by UK export data). On the other hand between 1980 and 1991 Yugoslavia received significant numbers of animals (around 30,000 cattle) exported from other BSE risk countries than UK, mainly from DE, CH, NL and FR.

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<sup>1</sup> BSE-Risk countries are all countries already assessed as GBR III or IV or with at least one confirmed domestic BSE case.

Export of live cattle (n/year) to former <u>YUGOSLAVIA</u>										
From EU-Member States and Switzerland										
Period	CH	UK		IT	DE	NL	DK	FR	SP	All BSE-risk countries
Source	CH	EU	UK	EU	EU	EU	EU	EU	EU	
1980	32									32
1981	306				913					1,219
1982	328			(169)	1,137		(670)			1,465
1983	150				945	(36)		100		1,195
1984					700					700
1985				10	598			20		628
1986					106					106
1987					2,078					2,078
1988					688					688
1989	160			29	922			10		1,121
1990					5,177	269		245	64	5,755
1991				2	15,945			66		16,013
<b>Total</b>	<b>976</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>29,209</b>	<b>269</b>	<b>0</b>	<b>441</b>	<b>64</b>	<b>31,000</b>

**Table 1:** Live Cattle exports to former Yugoslavia from a number of the BSE risk countries. Values in brackets show imports outside the assumed BSE risk period. Sources: EU = Eurostat for former Yugoslavia, UK = Export data from UK, CH= Export data from Switzerland.

It is noted that almost no information was provided by the authorities of the Former Yugoslav Republic of Macedonia on imports of cattle from BSE risk countries to the territory of the Former Yugoslav Republic of Macedonia of former Yugoslavia before the independence of the Former Yugoslav Republic of Macedonia. However, it cannot be excluded that part of the exports from BSE risk countries to former Yugoslavia entered the Former Yugoslav Republic of Macedonia part of the country. The proportion of these imports ending up in the Former Yugoslav Republic of Macedonia (before 1992) is not known.

#### The Former Yugoslav Republic of Macedonia (since 1992)

- According to the CD, no cattle were imported from UK since 1992. This is confirmed by UK, Eurostat and other export data.
- According to Eurostat and other data, 6,443 cattle have been exported between 1993 and 2001 to the Former Yugoslav Republic of Macedonia, mainly from the Netherlands, Germany and Hungary, but also from France, Denmark, Austria, Belgium, Italy and Slovenia. 431 of these cattle were exported in 1993 and 1994 to the country.
- The CD states imports of 5,647 cattle, mostly from the Netherlands and Germany but also from the Slovak Republic, Denmark, Poland and Belgium. 658 of these cattle were imported in 1993 and 1994 by the country.
- Given the fact that the Former Yugoslav Republic of Macedonia confirmed not to have any rendering system since the end of 1994, only the cattle imported before 1995 are taken into account when calculating the external challenge because only these cattle could have been rendered.
- In contrast to Eurostat and other data (import of 1,283 cattle from Hungary and 282 cattle from France), the CD does not mention any imports from Hungary and France.
- The CD reports 3,923 cattle imported from the Netherlands, Eurostat has registered 2,997 animals.

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Country	data	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	0	1	Total
Austria	CD																							0
	other																26							58
Belgium	CD																	1*	27*	1*	2*	2*		33
	other																		27					27
Denmark	CD																	12*	12*	13*	100*	13*		150
	other																				100			100
France	CD																							0
	other														282									282
Germany	CD													148*	149*	148*	148*	132*	133*	133*	133*	133*		1257
	other													149				478	124	367	335	142	96	1691
Hungary	CD																							0
	other																206	566	206			249	56	1283
Italy	CD																							0
	other																	3						3
Netherlands	CD																33*	927*	32*	164*	353*	2414*		3923
	other																34		32	164	353	2414		2997
Poland	CD														18*	18*	19*	18*						73
	other																							0
Slovak Rep.	CD													**53*	**53*	**52*	**53*							211
	other																							0
Slovenia	CD																							0
	other																			2				2
UK	CD																							0
	other																							0
Totals																								
non-UK	CD	0	0	0	0	0	0	0	0	0	0	0	0	219	220	219	252	1072	204	311	588	2562	0	5647
	other	0	0	0	0	0	0	0	0	0	0	0	0	0	431	0	266	1047	389	533	1069	2612	96	6443
UK	CD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Table 2: Live cattle imports into the Former Yugoslav Republic of Macedonia (CD) and corresponding exports from BSE-Risk countries. Source for export data: Eurostat and UK export statistics and, where available, export statistics from other BSE-Risk countries. Data on imports before 1992 were provided by the Former Yugoslav Republic of Macedonia in the CD and refer to the proportion of the imports to Former Yugoslavia, which remained in the territory of the Former Yugoslav Republic of Macedonia part of Former Yugoslavia. Note: Only imports in Risk periods (grey shaded) are taken into account for assessing the external challenge. Risk periods are defined according to the SSC opinion of 2000 as updated in 2002.**

\* Numbers of cattle imported according to the CD were only given in 5 years periods and are adjusted to Eurostat and other data if available or equally distributed over the years of the respective period.

\*\* The number of imported cattle from Czechoslovakia as given by the CD is registered as import from the Slovak Republic.

- However, during the GBR process the Former Yugoslav Republic of Macedonia accepted the Eurostat and other data for live cattle imports.
- No more information about the fate of imported cattle from BSE risk countries is provided because an animal identification system for cattle is not existing.

## **2.2 Import of MBM<sup>2</sup> or MBM-containing feedstuffs from BSE-Risk countries**

Table 3 provides an overview of the MBM-exports from EU Member States (source: Eurostat) to the former Republic of Yugoslavia.

Table 4 provides data on the imports/exports of MBM from BSE risk countries to the Former Yugoslav Republic of Macedonia for the time since 1992 based on CD data, Eurostat, UK export statistics and data submitted by other GBR III and IV countries.

### Former Yugoslavia (1980-1992)

Eurostat does not provide a breakdown of exports to different parts of former Yugoslavia. According to Eurostat, no MBM was exported from UK to former Yugoslavia between 1980 and 1992 (this is confirmed by UK export figures). On the other hand, between 1980 and 1991 Yugoslavia received significant amounts of MBM (more than 27,000 tons) exported from other BSE risk countries, mainly from Italy and France.

It is noted that no information was provided by the authorities of the Former Yugoslav Republic of Macedonia on imports of MBM from BSE risk countries to its part of former Yugoslavia before the independence of the Former Yugoslav Republic of Macedonia. However, it cannot be excluded that part of exports from BSE risk countries to former Yugoslavia entered the Former Yugoslav Republic of Macedonia part of the country. The proportion of these imports ending in the Former Yugoslav Republic of Macedonia before 1992 is not known.

<b>Export of MBM (tons/year) to former Yugoslavia from BSE risk countries</b>						
<b>Period</b>	<b>UK</b>	<b>IT</b>	<b>FR</b>	<b>DE</b>	<b>NL</b>	<b>non-UK</b>
1980	0	(7,962)	1,500			1,500
1981	0	(5,878)	580	260		740
1982	0	(7,354)		77	(50)	77
1983	0	14,949				14,949
1984	0	6,014				6,014
1985	0	2,136				2,136
1986	0	464				464
1987	0	124				124
1988	0	623				623
1989	0	251				251
1990	0	239		3		242
1991	0	24		1		25
<b>1980-1991</b>		<b>24,824</b>	<b>2,080</b>	<b>341</b>	<b>(50)</b>	<b>27,245</b>

**Table 3: MBM exports from BSE risk countries to former Yugoslavia. Values in brackets show exports outside the assumed BSE risk period<sup>3</sup>.**

<sup>2</sup> For the purpose of the GBR assessment the abbreviation “MBM” refers to rendering products, in particular the commodities Meat and Bone Meal as such; Meat Meal; Bone Meal; and Greaves. With regard to imports it refers to the customs code 230110 “flours, meals and pellets, made from meat or offal, not fit for human consumption; greaves”.

<sup>3</sup> As defined by the SSC opinion of January 2002.

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Country	data	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	0	1	Total	
Albania	CD																						21*		21
	other																								0
Denmark	CD																	89*	88*	88*	88*	88*			441
	other																								0
Germany	CD																								0
	other														24					25				22	71
Hungary	CD																	27*	27*	27*	27*	27*			135
	other																								0
Italy	CD																			26*	127*	58*	72*		283
	other														14	22				77	409	126	213		861
Netherlands	CD																								0
	other																						2		2
Poland	CD																							22*	22
	other																								0
Slovenia	CD																								0
	other														5										5
Greece	CD																						276*		276
	other																	56	207	381	572	390	17		1623
UK	CD																								0
	other																								0
non-UK	CD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	127	334	600	21	1178	
	other	0	0	0	0	0	0	0	0	0	0	0	0	5	38	22	0	56	309	790	698	627	17	2562	
UK	CD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Table 4: MBM imports into the Former Yugoslav Republic of Macedonia (CD) and corresponding exports from BSE-Risk countries. Source for export data: Eurostat and UK export statistics and, where available, export statistics from other BSE-Risk countries.** Note: Only imports in Risk periods (grey shaded) are taken into account for assessing the external challenge. Risk periods are defined according to the SSC opinion of 2000 as updated in 2002.

\* Numbers of MBM imported according to the CD were only given in 5 years periods and are adjusted to Eurostat and other data if available or equally distributed over the years of the respective period imported according to the CD were only given in 5 years periods and are entered in the last year of the challenge periods, i.e. 2000.

The Former Yugoslav Republic of Macedonia (since 1992)

- According to the CD, no MBM was imported from UK since 1992, which is confirmed by UK and Eurostat export figures.
- According to the CD, the Former Yugoslav Republic of Macedonia imported 1,178 tons of MBM from Albania, Denmark, Hungary, Italy, Poland and Greece.
- Eurostat and other data report exports of 2,562 tons of MBM to the Former Yugoslav Republic of Macedonia from Greece, Italy and Germany and other countries.
- The Former Yugoslav Republic of Macedonia accepted the Eurostat and other data for MBM imports during the GBR process.
- According to the CD, imports of MBM from countries where a domestic BSE case was reported was banned since the reported date of BSE in these exporting countries.
- Since 2000, the Former Yugoslav Republic of Macedonia has banned the import of feed containing material of animal origin except animal feed containing fishmeal, dicalcium phosphate and hydrolysed proteins and milk. Imported pet food, fish feed and poultry feed is derogated from this provision. All consignments are inspected by official veterinary inspectors at border inspection posts. There is no indication however of the date of implementation of this measure.

### 2.3 Overall assessment of the external challenge

The level of the external challenge that has to be met by the Former Yugoslav Republic of Macedonia BSE/cattle system since 1992 is estimated according to the guidance given by the SSC in its final opinion on the GBR of July 2000, as updated in January 2002.

It has been noted that the external challenge faced by the former Yugoslavia prior to 1992 was always significant. Between 1980 and 1991 it was high, mainly due to imports of MBM or due to the combined imports of live cattle and MBM from BSE risk countries. The proportion of these imports that remained in the Former Yugoslav Republic of Macedonia is not known and therefore as a realistic worst case assumption, it is assumed that the external challenge experienced by the territory of the Former Yugoslav Republic of Macedonia before 1992 was high enough to make it possible that the BSE agent could have been introduced in the country.

- Live cattle imports:

In total over the period 1992 to 2001, 6,443 (Eurostat and other data) live cattle were exported to the country from BSE risk countries, of which none came from the UK. Broken down to 5-years periods the resulting external challenge is as given in table 5. This assessment takes into account that cattle imported since 1995 could not have been rendered. This implies that the BSE-agent, should it have been present in any of the imported cattle imported since 1995, could not have reached domestic cattle.

- MBM imports:

Over the period 1992 to 2000, the country imported in total 2,562 tons MBM (Eurostat and other data) from BSE risk countries, of which none came from the UK. Broken down to 5-years periods the resulting external challenge is as given in table 5.

<b>External Challenge experienced by the Former Yugoslav Republic of Macedonia</b>				
<i>External challenge</i>		<i>Reason for this external challenge</i>		
<b>Period</b>	<b>Overall Level</b>	<b>Cattle imports</b>	<b>MBM imports</b>	<b>Comment</b>
<b>*1992-1995</b>	<b>Low</b>	Very low	Very low	
<b>1996-2000</b>	<b>High</b>	Negligible	High	

**Table 5: External Challenge resulting from live cattle and/or MBM imports from the UK and other BSE-Risk countries. The Challenge level is determined according to the SSC-opinion on the GBR of July 2000 (as updated in January 2002). \* The external challenge between 1980 and 1991 has not been tabled for the reasons explained under the above paragraph, but it should be understood that this challenge is considered to exist and to be significant.**

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

##### Use of MBM in cattle feed

According to the CD, due to price differences between MBM and proteins of plant origin, MBM was not used in the Former Yugoslav Republic of Macedonia and cattle have always been grazing or fed with plant origin proteins. Whereas the average domestic price of 1 kg soy was 0.32 EUR, of 1 kg wheat was 0.17 EUR and of 1 kg sunflower was 0.18 EUR, the average domestic price for 1 kg MBM was 0.74 EUR in the period 1996-2001.

The structure of the feed industry in the country is as given in Table 6.

Type of feed mill:	Number of mills operational in the country per period by type of feed mill			
	1980-1985	1986-1990	1991-1995	1996-2001
Dedicated to poultry feed only		1	1	1
Mixed feed mills producing feed for bovines and other farmed animals	5	5	5	7

**Table 6:** Structure of the feed industry in the Former Yugoslav Republic of Macedonia.

Seven multi-species feed mills are currently existing in the Former Yugoslav Republic of Macedonia. According to the CD, 2 out of those 7 do not use MBM for feed production. Four out of the remaining 5 multi-species feed mills declared that they use MBM for production of pig and poultry feed but not for production of cattle feed. The pig feed produced by those feed mills contained between 1,1 up to 3,7 and in one case 16 % MBM and the poultry feed contained from 0,3 up to 3,5 % MBM.

In only one feed mill around 2 % of MBM was used in the production of cattle feed as well as for pig and poultry feed (1997 to 2000). The MBM used was imported from Italy.

The total amount of MBM used for the production of cattle, pig and poultry feed in the Former Yugoslav Republic of Macedonia from 1992 to 2000, coincides with the MBM export data given by Eurostat and other export figures.

According to the CD, the amount of feed production of the mixed feed mills is as follows:

Multi-species feed mills				
Type of feed	1980-1985	1986-1990	1991-1995	1996-2001
Pig feed	46,173	48,892	69,953	149,701
Poultry feed	77,625	37,565	65,962	50,256
Bovine feed	15,739	14,191	21,237	12,036

**Table 7:** Production of the multi-species feed mills in the Former Yugoslav Republic of Macedonia by type of feed and period (tons).

### Feed bans

An official total feed ban is in place since 2000. The exact date of the “decision” is not provided (no translation of the decision provided).

According to the CD, since 2000 the Former Yugoslav Republic of Macedonia has banned the import of feed containing feed material of animal origin except animal feed containing fish meal, dicalcium phosphate and hydrolysed proteins and milk. Imported pet food, fish feed and poultry feed is derogated from this provision.

### Potential for cross-contamination and measures taken against

- The country states that since there is currently no production of MBM in the Former Yugoslav Republic of Macedonia, the implementation of the feed ban was achieved by introducing checks at the border.
- According to the CD, measures are in place since 1998, but no legal basis was specified to prevent cross-contamination:
  - all transports of consignments of animal origin must be reported to an official veterinarian;
  - an official veterinarian and the private veterinarian take samples of animal feed on farm for laboratory analysis.
  - Veterinary inspectors are conducting regular checks on the premises of the feed mills.
- No measures relating to feed mills were specified, no indication on analyses carried out on feed samples and on results thereof were indicated for the period 1998-2000.
- According to the CD, 22 feed samples have been tested using an ELISA test in 2000 and 5 in 2001, none were positive. A commercial ELISA test kit is used and the detection limit is given with 1%. A sampling plan was not provided. However, according to the experience in certain Member States of the EU and scientific evaluations, the available ELISA tests normally fail in detecting MBM if it was properly heat treated.

### Rendering

- According to the CD, one slaughterhouse, which was officially established in 1982 also contained a rendering facility, which started working in 1987 and was closed in 1994. The country states that only slaughterhouse waste fit for human consumption of this slaughterhouse was rendered. During its work the rendering facility produced approximately 30 tons of MBM (without specifying in which period). The country states that the production process fulfilled the requirements for destruction of the BSE-agent, as the production temperature was 130°C for 2 hours at a pressure of 8 bars. However, these conditions do not comply with the 133°C/3<sup>bar</sup>/20<sup>min</sup> standard.
- In contradiction to the above statement, the CD also stated that there is no rendering plant in the Former Yugoslav Republic of Macedonia and there has never been one operating in the Former Yugoslav Republic of Macedonia as a part of former Yugoslavia.

- All fallen stock as well as slaughterhouse waste and bones, fat and other material that is not used for human consumption is buried in specific locations, which are agreed by the authorities. The Former Yugoslav Republic of Macedonia pointed out that this is the only way of disposal of animal waste since 1995. It is therefore assumed that this describes the current situation.
- Furthermore the country points out that it is very likely that if the imported cattle died they would have been buried and if they were slaughtered the animal waste would have been buried.

### **SRM and fallen stock**

The Former Yugoslav Republic of Macedonia states that they have 20 slaughterhouses and 8 of them are registered for export but a SRM ban does not exist. However, after 1994, due to the fact that the only rendering facility closed down, SRM is not rendered anymore. According to the CD, a veterinary inspector must be present on the disposal of animal waste when slaughter waste is buried.

### **Conclusion on the ability to avoid recycling**

On the basis of the available information, it is concluded that, should BSE have entered the Former Yugoslav Republic of Macedonia BSE/cattle system, it would have been recycled and amplified until 1994. Since then recycling and amplification of the BSE-agent would be less likely, because the only rendering plant in the country closed down.

## **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 current cattle population is of approximately 265,000 animals (2000). The dominant breed is a domestic breed called “Busha”, which presents 54 % of the total number of cattle. Holstein-Friesian cattle represent 19 % and Simmental and Montafon cattle represent 13 % each of the total number of cattle.

The country states, that there is no individual identification of animals and no record about the number of holdings is held in the Former Yugoslav Republic of Macedonia.

According to the CD, the annual milk production of domestic cattle is very low (see table below).

<b>Year</b>	<b>Milk production in kg per cow</b>
1993	1,325
1994	1,283
1995	1,429
1996	1,406
1997	1,396
1998	1,902
1999	2,152
2000	2,343

**Table 8: Average milk production per cow in the Former Yugoslav Republic of Macedonia.**

The average milk production per breed is 5,200 litres for Holstein cattle, 3,500 litres for Simmental, 3,000 for Montafon and 500-1,000 litres for the domestic breed "Busha". 30% of cattle in the Former Yugoslav Republic of Macedonia are dairy cattle.

### **BSE surveillance**

BSE has been notifiable since 1998.

According to the CD, a BSE suspicion can be expressed for cattle older than 20 months, which show clinical signs of nervous symptoms or changed behaviour that cannot be diagnosed differently, by therapeutic treatment or laboratory examination.

Compensation for confirmed cases, suspects and culled "at risk" animals is available since 1998 at market value price.

According to the CD, awareness training is in place since 1998 (no detail thereof provided) and laboratory personnel has been trained in Weybridge (UK) in 1998.

According to the CD, the used laboratory method was histopathology in the past. At current, laboratory methods are immunohistochemistry and two rapid post mortem tests. BSE cases would be confirmed by histopathology and immunohistochemistry.

Since 1996, 13 imported animals over 24 months old have been examined (all negative) of which 8 were asymptomatic. It was explained that a farmer with cattle imported from the Netherlands reported clinical signs in one of his cattle. After examination by an official commission mandated by the CVO, it was confirmed as being a suspect case. The animal was culled and laboratory testing indicated a negative result on all tests. All the animals on the farm had been imported from the same farm in the Netherlands and the remaining ones did not show any clinical signs. Those cattle were also culled and examined with negative results. Compensation was paid to the farmer.

Since 1999, all suspect cases are subject to laboratory examinations for BSE.

According to the CD, since 1999, an active BSE surveillance is in place:

- domestic cattle are clinically monitored for presence of BSE symptoms;
- all imported cattle are clinically monitored for presence of BSE symptoms;
- all fallen stock for which no differential diagnosis can be made are examined for BSE;
- a statistical sample of cattle older than 36 months that are slaughtered is examined on BSE.

The number of samples that were tested per year per category and the data from these findings are not available yet but the Former Yugoslav Republic of Macedonia states that all results are negative so far. According to the CD, a national reference laboratory for BSE is operating since August 2002.

The commercial test kits are used since the 30<sup>th</sup> of August 2002.

It is noted that some of the measures described above correspond to passive surveillance (surveillance on symptoms). Furthermore the Former Yugoslav Republic of Macedonia states that the veterinary service is responsible for passive surveillance of BSE and veterinary inspectors take sample for laboratory examination.

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In 2000 and 2002, 2 BSE-suspects and in 2001, 1 BSE-suspect, all older than 36 months were tested (all negative).

Year	BSE examinations		Age (n°)		Differential Diagnosis	N° of doubtful	N° of positive
	N°	Reason(s)	> 24m	> 36m			
90-98	0		0	0	0	0	0
1999	14	Selected during ante mortem inspection	3	11	0	0	0
2000	25		2	23	0	0	0
2001	6		1	5			
<b>Total</b>	<b>45</b>		<b>6</b>	<b>39</b>	<b>0</b>	<b>0</b>	<b>0</b>

**Table 9: Number of non-suspect animals examined for BSE and results thereof.**

It is concluded that there was no BSE surveillance during the period 1992-1998. Some surveillance started in 1999, but the number of brains tested is below OIE requirements. The active surveillance in place is not sufficient to ensure the identification of possible BSE cases.

### **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 factor, surveillance has to be estimated. Again, the guidance provided by the SSC in its opinion on the GBR of July 2000 is applied.

#### **Feeding**

As no legally binding feed ban was in force, MBM could have been fed to dairy cattle until 2000. Limited evidence is provided on the enforcement of the 2000 total feed ban. Feeding is assessed as being “**not OK**” from 1992 until 2000. Feeding is “**reasonably OK**” since 2001, when the total feed ban was introduced.

#### **Rendering**

As there was one rendering facility in the territory of the Former Yugoslav Republic of Macedonia operating from 1987 until 1994 using non- appropriate conditions, rendering is considered to be “**not OK**” until the end of 1994. Since 1995, there is no rendering plant in the country. Therefore rendering is regarded as “**OK**” since then.

#### **SRM-removal**

SRM could have been processed before 1995, when a rendering plant existed. Therefore SRM-removal is considered “**not OK**” from 1992 to 1994. Since 1995 SRM is not rendered anymore but buried or consumed by the human population and is therefore considered as “**OK**” since then.

#### **BSE surveillance**

BSE surveillance is not sufficient to ensure the identification of possible BSE cases.

Stability of the BSE/cattle system in the Former Yugoslav Republic of Macedonia over time					
Stability		Reasons			
Period	Level	Feeding	Rendering	SRM removal	BSE surveillance
1980 – 1986	Not Addressed*	No data	No data	No data	↓
1987 – 1991			Not OK		
1992 – 1994	Extremely unstable	Not OK		Not OK	
1995 - 2000			Stable		
2001-2002	Very stable	Reasonably OK			

**Table 10:** Stability resulting from the interaction of the three main stability factors and the BSE surveillance. The stability level is determined according to the SSC-opinion on the GBR of July 2000 as amended in 2002.

\* **Not addressed** as insufficient data were available on stability factors for the Former Yugoslav Republic of Macedonia as a part of Former Yugoslavia. However, it seems reasonable to assume that the stability was about the same as in the Former Yugoslav Republic of Macedonia around 1992.

On the basis of the available information it has to be concluded that the country's BSE/cattle system has been extremely unstable from 1992 to 1994. From 1995 until 2000, the BSE/cattle system in the Former Yugoslav Republic of Macedonia is assessed as stable due to the disappearance of the non-appropriate rendering.

#### 4. CONCLUSION ON THE RESULTING RISKS

##### 4.1 Interaction of stability and challenges

In conclusion, the stability of the Former Yugoslav Republic of Macedonia BSE/cattle system in the past and the external challenges the system has coped 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 had to be met by the system, in addition to external challenges that occurred.

INTERACTION OF STABILITY AND EXTERNAL CHALLENGE IN <u>THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA</u>			
Period	Stability	External Challenge	Internal challenge
1980 – 1991	<i>Not addressed*</i>	Significant**	<i>Cannot be excluded</i>
1992 – 1994	Extremely unstable	Low	Likely present and growing
1995	Stable		High
1996 – 2000			

**Table 11:** 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.

\* **Not addressed** as insufficient data were available on stability factors for Former Yugoslavia but reasonably to assume that it also was extremely unstable.

\*\*Due to an assumed large part of the live cattle and MBM imported by Former Yugoslavia remaining in the territory corresponding to the present the Former Yugoslav Republic of Macedonia.

An external challenge resulting from cattle imports could only lead to an internal challenge once imported infected cattle were rendered for feed and this contaminated feed reached domestic cattle. This could only happen about 3 years after potentially infected live cattle were imported. In the case of the Former Yugoslav Republic of Macedonia this was only possible for cattle imported and rendered before 1995.

On the other hand imports of contaminated MBM would lead to an internal challenge in the year of import, if fed to cattle. The feeding system is of utmost importance in this context. If it could be excluded that imported, potentially contaminated feed stuffs reached cattle, such imports might not lead to an internal challenge at all.

In the case of the Former Yugoslav Republic of Macedonia it was likely that imported MBM reached cattle since its independence i.e. since 1992 but most probably already earlier. It is less likely after 2000. It is therefore possible that domestic cattle were exposed to the BSE-agent in the early 80s and thereafter, as long as MBM was imported. Since 2000/2001, the use of MBM imports was controlled through veterinary controls at the borders.

In view of the above-described reflection, the registered external challenges have most likely led to an internal challenge in the Former Yugoslav Republic of Macedonia from 1992 onwards but most probably already earlier.

Before 1992, it is noted that former Yugoslavia faced a significant external challenge. However the stability of the system is not known before 1992, as insufficient data were available to assess the stability of former Yugoslavia before the independence of the Former Yugoslav Republic of Macedonia. Therefore the interaction of stability and external challenge is only addressed after 1992.

#### **4.2 Risk that BSE infectivity entered processing**

A certain risk that BSE-infected cattle entered slaughter in the Former Yugoslav Republic of Macedonia might have occurred since 1998 when domestic cattle, infected by potentially contaminated MBM that was imported in the early 90s, were slaughtered. This scenario most likely happened already earlier when live cattle or domestic cattle fed with MBM imported before the independence of the country were slaughtered. Due to the continuous MBM imports this risk continued to exist due to MBM imports.

#### **4.3 Risk that BSE infectivity was recycled and propagated**

Given that no rendering activities exist since 1995, a risk that BSE-infectivity was recycled and amplified only existed before 1995.

## **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**

- As long as the stability remains as it is, the probability of cattle being (pre-clinically or clinically) infected with the BSE-agent fully depends on MBM imports.

### **5.3 Recommendations for influencing the future GBR**

- The stability factor “feeding” should be enhanced wherever possible. Feeding any MBM to cattle should be avoided. This can be realised by proper feeding stuff controls using adequate analytical methods.
- Passive (i.e. reliable notification and examination of animals showing clinical signs compatible with BSE) and active surveillance (i.e. sampling of asymptomatic at-risk cattle populations, all adult cattle in fallen stock and emergency slaughter, by means of rapid screening) would allow monitoring the efficiency of the stability enhancing measures.