REPORT

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Thirty-second session

Food and Agriculture Organization of the United Nations

Meeting Report (AG.

REPORT

of the

THIRTY-SECOND SESSION

of the

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND -MOUTH DISEASE

2-4 April 1997

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of the Session are as follows:

FMD situation in the Balkans

At the conclusion of the discussion on the Balkan situation, **the Session agreed a recommendation that serum surveys should be carried out in Albania, the FYRO Macedonia and FR Yugoslavia as soon as possible.**

Report of the fact-finding EUFMD/EC mission to Turkey (September-October 1996)

The recommendations of the EUFMD/EC mission had been approved in principle by Turkey, Greece and Bulgaria (Tripartite Meeting in Ankara, October 1996) and by the Executive Committee of the EUFMD Commission (Meeting in Budapest, November, 1996).

In separate discussions during the Session agreement was reached between Turkey, EC and EUFMD for a meeting between the Turkish Government, the EUFMD and the EC in Ankara, probably in June 1997, to update the plans and proposals, including timetables and costs, for presentation to the EC later in the year, and to keep Bulgaria and Greece informed of Turkey's proposals and their progress.

Report of the activities of the Research Group during 1995 and 1996

The following conclusions and recommendations were made by the Research Group meetings:

The carrier state in small ruminants and persistence in other species including wild life
The acute state of the disease is considered more important than the carrier state in the dissemination of the disease. They play an important role in the epidemiology of FMD.

Contingency plans for emergency vaccination
The option of emergency vaccination together with detailed organisational measures should be included in national contingency plans.

Usefulness of serosurveillance as a means of establishing freedom from infection
Where vaccine has not been used surveys in small ruminants were recommended, regardless of the virulence of the outbreak strain. Cattle could be included when strains of low virulence for cattle were involved without overt signs of clinical infection, combined with intensive clinical examination.

Definition of an outbreak
The Session questioned the accuracy of the terminology "active" infection and recommended that a better wording would be "actively spreading infection".

Diagnostic aspects of trade
A recommendation was made that exporting countries should be able to identify the laboratory which carried out tests relating to the export of animals.

The Commission concluded that the recommendation of the Research Group "that certificates of health for the purpose of international trade do not need to include the identity of the laboratory which performed the tests in the exporting country. However, in the event of a

dispute or query, the exporting country should be able to trace back and identify the laboratory which performed the tests" **would be acceptable if the word "should" was changed to "must".**

Potency and stability of FMD vaccines prepared from stored antigens

The Commission recommended that steps should be taken to ensure better communication and interaction between the Research Group and members of the European Pharmacopoeia so that the procedures relating to FMD vaccines for emergency use could be harmonised.

Differentiation of antibodies induced by vaccination and infection

Several tests have been developed based on the detection of antibodies to non-structural viral proteins as evidence of FMD infection. Work continues on this topic.

Serological surveys
Recommendations were formulated for serological surveys. These included the paramount requirement for the clear and the advance definition of objectives, knowledge of the presence or absence of active infection in the surveillance zone, and the evaluation of the potency of any vaccine used.

Vaccine bank
The Research Group concluded that there was no requirement for the addition of any new virus strains of antigen to the EUVB.

FMD laboratories

The Session endorsed the Research Group recommendations related to national laboratories as follows:

1. FMD laboratories carrying out diagnostic tests to qualify animals and animal products for international movement should participate in a Quality Assurance Programme. This programme should include laboratory quality evaluation and proficiency testing, based on the "OIE guidelines for Laboratory quality Evaluation" and the "Draft OIE guidelines for Laboratory Proficiency Testing" respectively.

2. FMD laboratories are encouraged to adapt their tests until they pass an evaluation for proficiency.

3. Lack of participation in or failure to pass proficiency testing by a laboratory should temporarily prevent this laboratory from making tests to qualify animals or animal products for international trade. (This recommendation was rewritten at the request of the Fifty-ninth Session of the Executive Committee.)

The Session also endorsed the recommendations of the Fifty-ninth Session of the Executive Committee as follows:

1. FMD National Laboratories should be classified in two categories: those which fulfil the FAO/OIE security requirements and those which do not; the second category should not be allowed to manipulate virulent material; their activity should be limited to serology by ELISA with inactivated antigens.

2. The international standards ISO 9000 and EN 45000 should be the basis for the quality assurance programmes in laboratories and the guidelines for laboratory quality evaluation as proposed by the OIE Standards commission in September 1995.

Progress in Implementation of Contingency Plans in Member Countries

The Session agreed on:

- the paramount importance of organizing simulation exercises for validation of the plans,

- the importance of having an official notification of the completion of the plans addressed to the Secretariat by Member countries with a copy of the plan, or as a minimum, a summary of the plan in one of the official languages of the commission and in accordance with the outline in the working document on contingency Planning included in the Report of the Thirtieth Session of the EUFMD,

- the organization of a Workshop on contingency planning for central European countries jointly funded by EUFMD/FAO and EC and open to member and non-member countries of the region,

- the necessity for the Commission to provide teaching material and especially videos to member countries on request.

Availability of vaccines for emergency vaccination in Europe

The Session **agreed** that the possibility for regionalisation within a country following the use of emergency vaccination should be submitted to the OIE Code commission.

A suggestion that an emergency depot of vaccination equipment could be established at some critical locations would be referred to the EUFMD Executive Committee.

The Session **endorsed** the proposal of the Chairman that the status of the vaccine banks should be kept under review and called for a coordinated approach throughout Europe and that the EUFMD Commission should maintain contact with vaccine manufacturers and vaccine antigen bank organisations and do everything possible to ensure the availability of emergency vaccine for Europe.

Amendments to the Constitution

The amendments had been discussed and accepted by the Fifty-eighth and Fifty-ninth Executive Committee Sessions and circulated to the member countries 120 days before the Session in accordance with Art. XIV of the Constitution.

With the inclusion of certain editorial amendments the **proposed amendments were accepted** by the Delegates without modification.

Scale of contributions and membership of the Commission

The paper was accepted as presented on condition that certain editorial amendments be incorporated in the text and **the five following points were adopted by the Session:**

1. the new national classification should be based on FAO contribution and livestock population;
2. the countries will be classified in four categories of contributions instead of 5;
3. the categories in which a member country is placed will be reviewed at intervals of six years;
4. to accept the new categorization of the countries as presented in table 2 of Appendix 10;
5. to accept the new range of contributions from US$2,600 to US$26,000.

Financial matters: accounts for 1995 and 1996 and proposed budgets for 1997 and 1998

The Session **approved** the accounts for 1995 and 1996 and the proposed budgets for 1997 and 1998.

Research Group

It was agreed that the membership would be increased from 11 to 12.

Any other business

Dissemination of information to member countries
The Session agreed that there is no necessity to restrict the circulation of information related to the activities of the EUFMD Commission and therefore that this information should be circulated through the Internet.

Post of Associate Professional Officer (APO)
The Session agreed on the recruitment of one Associated Professional Officer to serve in the Secretariat of the Commission for a period of 2 years.

List of FMD experts
The Session agreed on the establishment of two lists of FMD experts and requested the member countries to send the names of their experts to the Secretariat.

The Session endorsed the recommendation of the Fifty-ninth Session of the Executive Committee regarding the involvement of scientists from private companies in the Sessions of the Research Group.

INTRODUCTION

1. The Thirty-second Session of the European Commission for the Control of Foot-and - Mouth Disease (EUFMD Commission) was held at the Food and Agriculture Organization of the United Nations in Rome, Italy, on 2 - 4 April 1997.

2. Dr. T. Fujita, Director of the FAO Animal Production and Health Division in Rome, welcomed all the participants, representatives of member countries and observers to the Session on behalf of the Director General of FAO. He particularly welcomed representatives of new member countries including Slovenia and the former Yugoslav Republic of Macedonia.

The total membership of the EUFMD Commission now included 33 countries. He hoped that the countries who were attending with observer status would soon formally request membership.

Dr Fujita expressed the gratitude of the Commission for the continuing support and co-operation of the Office International des Epizooties in Paris (OIE), also of the European Commission (EC) in Brussels, including its financial support. These relationships should continue to be strengthened for the benefit of animal health and productivity.

He drew attention to the recent outbreaks of Foot-and-Mouth Disease (FMD) in three Balkan countries which exemplified the continuing risk to Europe from the disease. Similarly to the ongoing FMD situation in Middle Eastern countries and also in Turkey. Turkey occupies a particularly important position between East and West in the dissemination of FMD. He was pleased that the joint EUFMD/EC Mission had been invited to visit Turkey in September and October 1996 and noted that the findings and recommendations of the Mission were included on the agenda of the meeting. He hoped that a new programme of FMD control will soon be established in Turkey with financial support from the EC .

FAO was in favour of all measures to improve the control of animal disease and was open to constructive suggestions and recommendations. For example, in improving the procedure for implementation of the EC Trust Fund established for emergency use against FMD in South East Europe. The Session would also include discussion of some proposed amendments to the Constitution designed for improved efficiency.

Dr. Fujita concluded by thanking all participants for their attendance and wished them a lively and fruitful meeting.

3. Dr. K.C. Meldrum, Chairman of the EUFMD Commission, thanked Dr. Fujita and also welcomed all delegates. He commented that as recently as four years ago the continuation of the EUFMD Commission had been seriously questioned but that events since then in Turkey and in the Balkans had amply confirmed the wisdom of continuing. He paid tribute to the vital work of the Commission in the control of FMD and to the very effective endeavours of the Secretary, Dr. Y. Leforban, and the excellent administrative assistance of Ms. J. Raftery. He was particularly appreciative of the EC participation in the Session. He also pointed out that the European Commission was currently reviewing its policy for the control of FMD and stressed the need for commonality of approach between the various organizations involved. He called for active participation from all participants and open discussion during the Session to enable the sound formulation of policy for the future.

4. Sixty-two delegates were attending the Session, including representatives of 36 countries and organizations in and around Europe. The member countries represented included: Albania, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Israel, Ireland, Italy, Lithuania, Malta, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, the former Yugoslav Republic of Macedonia, Turkey, and the United Kingdom. Observers were present from the European Community (EC), Morocco, the Office International des Epizooties (OIE), The Russian Federation, Slovak Republic, The World Reference Laboratory (WRL) for Foot-and-Mouth Disease, and the Food and Agriculture Organization (FAO) of the United Nations including the Regional Representative for Europe. An expert also attended from the Federal Republic of Yugoslavia (See Appendix 13).

Item 1 - Adoption of the Agenda

The Chairman proposed and the delegates adopted the following provisional agenda.

1. Adoption of the Agenda
2. FMD situation in Europe: Balkans, Greece, Turkey and other regions
3. Report on the Commission's activities during 1995-1996
4. Report on the fact-finding EUFMD/EC mission to Turkey (September-October 1996) and programme for FMD control in Turkey
5. Report on the activities of the Research Group during 1995 and 1996
6. FMD laboratories:
   - report of the WRL
   - national laboratories
7. Progress in the implementation of Contingency Plans in Member Nations
8. Availability of vaccines for emergency vaccination in Europe
9. Amendments to the Constitution
10. Scale of contributions and membership of the Commission
11. Financial matters: accounts 1995 and 1996, and proposed budget for 1997 and 1998
12. Election of Chairman, Vice-Chairmen, members of the Executive Committee and nomination of members of the Research Group
13. Any other business
14. Adoption of the draft report

Item 2 - The FMD situation in Europe : Bulgaria, Greece, Turkey and other regions.

Dr. Y. Leforban, the Secretary to the EUFMD Commission, reviewed the situation prevailing during 1995 and 1996. (See Appendix 1 for the full report).

Situation in 1995 :

In 1995, in EUFMD member countries, FMD was reported only from Turkey (96 type O and 11 type A outbreaks) and from Israel (5 type O outbreaks).

In Turkish Thrace one outbreak of type O was notified in March 1995. The virus was characterised by the WRL as a strain close to those isolated in Turkey and Greece in 1994. A joint EUFMD/WRL mission visited Thrace in March and recommendations were drawn up for control, all of which were implemented.

In Asian Turkey FMD remained endemic with 107 outbreaks in 1995, 96 of type O and 11 of type A reappearing after having been unreported since July 1993.

In Israel all outbreaks occurred in young, unvaccinated beef cattle. Genetic analysis of the type O isolates at the Kimron Veterinary Institute, showed 4 of the 5 outbreaks to be closely related. For the control of the outbreaks, in addition to the sanitary and restriction measures, a monovalent vaccine was used containing both O1 Manisa and O Geshur. The routine trivalent vaccination currently used in cattle was shown to be effective in that no dairy cattle were affected, bearing out the results of the ongoing serological surveillance in 6 farms spread around the country and sampled 3 times a year for serum neutralisation tests against A22, O and Asia 1 viruses. In 1995 trivalent vaccine was given to 472,513 cattle and monovalent type O vaccine to 392,630 sheep and goats. Farmers pay State fees for vaccination. All cattle over 3 months of age and all sheep and goats are vaccinated routinely with trivalent and monovalent vaccines respectively while ring revaccination is compulsory in the case of an outbreak.

In non-EUFMD member countries in Europe a single type O outbreak in pigs was reported from Russia in the Moscow area in June 1995. All 5,800 pigs were vaccinated and later destroyed. The usual disinfection measures were implemented and all susceptible animals revaccinated in the Moscow region. The probable origin of the outbreak was attributed to contaminated meat imported from the Far East.

In Asia and the Far East, type O virus was isolated in Iran, Yemen, Kuwait, Bahrain, Sri Lanka, Hong Kong, the Philippines and Oman: types O and A in Saudi Arabia and Pakistan: types Asia 1 and A in the Malaysian Peninsula; types O and A in Thailand and in Nepal; and type C only from the Philippines. FMD is endemic in India, Myanmar, Viet Nam, and Cambodia.

In Africa, type SAT 3 occurred in Zambia, and type SAT 2 in Uganda; types O, A, SAT 1, and SAT 2 in Nigeria; and types O, A and SAT 2 in Kenya. FMD was also reported from Chad, Benin, Burkino Faso, Togo, Ivory Coast, Ghana and Tanzania in 1995.

In South America the general situation improved in 1995 over earlier years. Type O was most commonly recorded with 262 isolates (from Bolivia, Brazil, Colombia, Ecuador, Peru and Venezuela); type A with 181 isolates (from Bolivia, Brazil, Colombia and Venezuela); and type C with 3 isolates (from Brazil).

The last outbreak in Uruguay dates to 1990 and vaccination ceased in 1994. The last outbreak in Argentina was in May 1994 and in Paraguay in October 1994. Vesicular stomatitis was reported from many South American countries during the period.

Situation in 1996 :

In **Turkey** two type O outbreaks were reported from Thrace in May and June in Edirne Province with outbreaks close to the Greek and Bulgarian borders. The origin was from cattle illegally transported to and from markets across the Bosphorous in Asiatic Istanbul. Infected cattle were destroyed and the outbreaks were controlled by disinfection, quarantine and ring vaccination of 3,000 cattle using bivalent type O and A vaccine.

In the Asiatic part of Turkey type O was widespread and there was one isolation of type A. The incidence in the Strategic Vaccination Zone in Western Anatolia differed little from that in

Residual Anatolia. The WRL analysed 1996 Turkish strains and found them to be antigenically similar to earlier isolates and covered by the O1 Manisa vaccine strain.

In **Greece** 39 outbreaks of type O virus were recorded between July and September from Evros Province bordering Turkish Thrace. Three foci became apparent in the North, the South East and the South West of Evros Prefecture with secondary spread - although the distinction between primary and secondary outbreaks remains to be clarified. WRL nucleotide sequencing confirmed that isolates from Greece and Turkey were very similar to each other but different from strains isolated in 1994 from these countries. All susceptible species involved in the outbreaks were destroyed including the precautionary slaughter of free ranging herds and flocks in the Evros Delta. In total 5,217 cattle, 14,636 sheep and goats and 336 pigs had been destroyed at the end of August. No vaccination took place.

The EC recognised the geographical limitation of the Evros outbreaks and allocated a regionalised status with certain restrictions on trade within, from and through the region. In accordance with EC Decision 96/526/EC a programme of serological surveillance is in progress with the aim of establishing freedom from FMD. The Prefecture of Rhodopi remained free of disease and negative results from EC funded clinical, epidemiological and serological surveys confirmed the free status of this region.

In **Bulgaria** a single outbreak of type O was reported in Malko Sharkovo in October 1996, close to the border with Turkey. All susceptible livestock in the village were destroyed. Movement restrictions were imposed and Infected, Protection and Surveillance Zones were delineated around the outbreak. The origin could not be determined but nucleotide sequencing of the outbreak virus at Pirbright showed close similarity with the 1996 outbreak viruses from Turkey and Greece. Repeated clinical examination of livestock throughout the country and testing of 4,039 serum samples from the designated zones for FMD antibodies gave negative results, demonstrating that there had been no spread from the primary focus during a period of three months following the completion of final disinfection. On these grounds Bulgaria applied to the OIE for renewed recognition of FMD free status.

The delegate from Bulgaria confirmed that there had been no further cases of FMD since the Malko Sharkovo outbreak in September 1996 and also that routine serological monitoring would continue.

In the Balkans FMD type A was diagnosed in May in Albania, in June in FYRO Macedonia and in July in FR Yugoslavia.

In **Albania** control was by a combination of stamping-out and vaccination. In the 10 infected villages all infected and in contact susceptible species were eliminated to a final total of 4,291 animals. Some 266,048 livestock of all susceptible species were immunised during the first round of vaccination and 285,263 in the second round, using A22 vaccine and equipment provided by EUFMD . The cost of vaccine was $115,908 and of equipment $ 31,219 funded by the EC via EUFMD Trust Fund 911100. Vaccine was provided from the EU vaccine bank, the first occasion that the reserves of the bank had been called upon.

Nucleotide sequencing at WRL showed the outbreak virus to be closely related to a strain circulating in Saudi Arabia and India and the probable origin was attributed to the importation of buffalo meat on the bone from India.

Serological monitoring was effected with the collaboration of the Brescia laboratory, Italy, and some 200 sera from different species were tested before and after primary and secondary vaccination.

The EU multicountry PHARE Programme is to provide training for Albanian veterinarians and laboratory staff in diagnosis and control and Italy will also assist in several areas.

In the **FYR of Macedonia** 17 outbreaks occurred between 25 June and 13 July 1996. Control was effected with the destruction of 4,369 animals and two rounds of vaccination for approximately 120,000 cattle. Vaccine was provided by both the OIE and the EU Vaccine Bank. The cost to the EC of vaccine was $ 43,459 and of equipment $7,490. Problems of marking vaccinated cattle and of animal identification precluded the exact enumeration of animal numbers and of those which have been vaccinated. Serum sampling has been carried out by the National Veterinary Services to evaluate vaccinal immunity and results are awaited.

A further serological survey has been designed for execution in the Spring of 1997 with parallel testing by the FYR of Macedonia and a laboratory of the EU.

Training in ELISA methodology has been provided by Tubingen, Germany, and by the WRL supported by the Joint FAO/IAEA Division in Vienna.

The origin of the outbreak is unknown but the virus has been shown by the WRL to be similar to that involved in Albania.

In **FR of Yugoslavia** 101 villages were reported as being infected between 7 July and 2 August 1996. The outbreak began in Kosovo, close to the border with the FYRO of Macedonia. The exact incidence is problematical since WRL did not detect virus in any samples or demonstrate antibody in sera from 234 cattle.

Stamping out was applied and although 100,000 doses of vaccine were supplied by the EUFMD Commission (at a cost of $41,878) they were not administered. A total of 3,496 infected and in contact animals were destroyed, including all susceptible species. Strict sanitary measures and restriction in animal movements were imposed in the infected and surveillance zones of Kosovo. Unaffected animals are being slaughtered in the zones and the meat consumed locally.

Regional Committee meetings have been established to co-ordinate control in the 3 countries with membership including local authorities and with EC, OIE and EUFMD participation. This Committee has agreed the objectives and design of a forthcoming serological survey to be funded by the EC and organised jointly by the EC and the EUFMD Commission.

In **Israel** 28 outbreaks of type O were recorded between January and September 1996, all involving non vaccinated animals. There has been no significant alteration in the type O outbreak strains during the 1990s.

In the countries of **the former Soviet Union** type O outbreaks occurred in Armenia, Azerbaijan, Armenia, Khazakhstan and Uzbekistan during 1996. Types O and A were recorded on the border of Georgia with Turkey.

The All Russian Research Institute for Animal Health (ARRIAH) was appointed as the Regional OIE Reference Laboratory for FMD for Eastern Europe, Central Asian and

Transcaucasian countries. In addition the laboratory continues to manufacture vaccine and to maintain reserves of monovalent and polyvalent vaccines on behalf of Bulgaria, Moldova and Ukraine.

A regional project has been submitted to the OIE by Armenia, Georgia, Kazakhstan, Kyrgyzstan, Russia and Uzbekistan for the establishment of a buffer zone of vaccination against FMD and sheep pox in the Transcaucas and Central Asia regions.

Situation in the Middle East

Type O was isolated in Bahrain, Iran, Jordan and Kuwait and type A in Saudi Arabia and in Iran. In Iran the WRL has found that the type A virus currently causing many outbreaks differs antigenically and genomically from previously recognised type A viruses from the region and that existing vaccine strains afford poor protection against it. FMD was also reported by the Palestinian National Authorities.

Situation in India and the Far East

FMD remains endemic across the mainland region except in North and South Korea. The situation in China is largely unknown. Types O,A,C and Asia 1 have been isolated in the region but of unconfirmed distribution. Peninsular Malaysia continues to experience sporadic outbreaks of types O, A and Asia 1 and The Philippines of type O. Type O has also been isolated in Afghanistan. Thailand diagnosed type O and Asia 1 in 1996. A recent type 0 outbreak occurred in Taipee in March 1997.

Situation in Africa

Untyped clinical disease was reported from Burkina Faso. Cote D'Ivoire and Ghana had type A; Ethiopia and Erithrea type O; Kenya types A, C and SAT 2; Tanzania types O and SAT 1; Rwanda type SAT 1; and Uganda types O and SAT 2. An untyped outbreak has been reported from Zambia.

Situation in South America

The overall incidence of disease continued to decline in South America through 1996 with a total of 1072 outbreaks, 1222 less than in 1995. Outbreaks were recorded in Colombia (subtypes O1, A24, A27, A32) , in Brazil (O1 and A24), in Ecuador (O1 and A27) and in Peru (O1).

Chile has been free of FMD since 1981, Uruguay since 1990, the Southern States of Brazil since 1993 and Argentina and Paraguay since 1994.

Additional information on the situation in Greece

A supplementary paper was provided to delegates entitled "Final Report on the eradication of FMD in Greece".

The delegate from Greece presented information based on clinical, epidemiological and serological surveys in and around the clusters of type O FMD in the South East, South West and North of Evros Prefecture in 1996. All primary outbreaks were linked with the presence of disease in Turkey either by human movement or via airborne spread. Secondary spread followed direct

contact at common grazing or watering. The areas along the Evros River bordering Turkey were at particular risk, most especially in the delta.

The disease was estimated to have infected 1,000 cattle and 4,500 sheep and goats by direct infection and 5,000 cattle and 19,000 sheep and goats by indirect infection. No pigs had become infected. The total direct cost of the epidemic was estimated at 3.25 billion GDR (1 ECU = 300 GDR).

A statistically based serological survey had been carried out four and a half months after the outbreak, sampling from 162 herds. The results were classified on three levels of antibody detection by ELISA. In the highest class - where animals showed a titre of equal to or greater than 1/100 - a grand total of 41 of 2000 sera were positive. In these cases the entire flock was sacrificed. In addition the entire bovine population and 10% of the small ruminant population were individually clinically examined in all herds in the Evros Prefecture and no evidence of clinical disease was observed. Performance indicators such as milk yield, lamb crop etc. were also investigated for any effects of FMD with negative results.

Greece considered that the disease had been eliminated and had applied to the EC for recognition of the position. The country was concerned however about the continuing threat from Turkey and called for a determined effort to be made on both sides of the border.

The EC representative welcomed the report and confirmed that the Greek request would be considered in Brussels the following week.

In reply to questions Greece confirmed that probang sampling had not been used in their surveillance and also that the slaughter of the higher antibody titre animals had been precautionary and in the absence of any clinical disease.

The WRL representative commented that an ELISA antibody titre of 1/40 was accepted as the serological threshold of positivity in the screening of animals for international trade including the detection of carriers. Survey criteria had to be selected according to the objective. However intensive clinical examination could be a sufficient basis for confirming the absence of disease.

Additional information on the present situation in Turkey

Dr. M. Eker, delegate of Turkey (Director-General, Protection and Control, Ministry of Agriculture and Rural Affairs, Turkey), agreed that co-operation was essential across the Greek-Turkish border. Problems of disease incursion also existed on Turkey's Eastern and South Eastern borders. Turkey had begun vaccinating again in Thrace in January 1997 using bivalent Type O and A vaccine from the SAP Institute. To date 332,000 large ruminants and 214,000 small ruminants had been vaccinated. The first round of vaccination of cattle will be completed by mid-April and a second round will start at the beginning of May. The intention is to vaccinate all cattle three times a year and all sheep and goats once in Thrace, continuing for three years. A general vaccination of cattle twice a year and small ruminants once a year is planned in Anatolia. The vaccine produced locally - by the Sap Institute (capacity 30 million bivalent doses) and Vetal (capacity 22 million bivalent doses) - will be used both in Thrace and in Anatolia. At the same time the other disease control measures will be strengthened. The SAP vaccine was not currently subjected to independent Quality Assurance but there was a proposal to introduce this.

In a reply to questions, the delegate of Turkey confirmed that serum surveys were carried out in Thrace in 1995. 186 sera were examined and positive titers were found for 01, A22 and 01 +A22 in 3.7%, 2.6% and 2.1% respectively. He also stated that it was illegal to move animals across the Bosphorous and Dardanelles from Anatolia to Thrace unless they had been quarantined in the Strategic Vaccination Zone for 6 months. The movement of livestock across the Eastern and South Eastern borders of Turkey was totally prohibited and there was a proposal to create a 20km wide stock free zone along these borders.

A proposal had been prepared by the Government of Turkey for the improvement of many aspects of the control of FMD and forwarded to the EUFMD and to the EC in Brussels. This contains reference to several measures which are in line with the recommendations of the EUFMD/EC mission, including:

- the revaccination of Thrace,
- the preparation of legislation for the application of stamping out policy in Thrace,
- the introduction of permanent, individual livestock identification by means of ear-tagging,
- the initiation of proposals for cooperation with donor agencies for

  a) a project for the upgrading of the Bornova Control laboratory for the control of viral vaccine with EC support,
  b) a feasibility study for a revolving fund to compensate farmers' losses due to the application of official control measures against certain epizootic diseases.

Dr. Eker also reported that a separate Animal Health Department had been created within the GDPC of the Ministry of Agriculture under the authority of veterinarians.

Additional information on the results of Serological Surveys in Albania

Dr. A. Berlinzani, Brescia, Italy, presented preliminary results of collaborative work undertaken by the Brescia Institute and the State Veterinary Service in Albania. Blood samples had been obtained from all susceptible species in Albania in June, July and October 1996 from the zone of ring vaccination prior to vaccination, at 30 days post primary vaccination (immediately before secondary vaccination) and 100 days after revaccination. Samples were also taken during the outbreak. All the animals were individually identified. The initial sampling was of 155 animals and in subsequent sampling 90 of the same animals were still available.

The monovalent vaccines used contained either A22 Iraq or A22 Saudi Arabia antigen but to date it had only been possible to test the sera using the heterologous virus strain A5 Parma, which was not closely related to the vaccine strains or to A Albania 96. The results of ELISA tests for antibodies were displayed as frequency distributions. Similar antibody levels were seen in cattle, sheep and goats given aqueous vaccine. Results from pigs vaccinated with oil vaccine were higher than those for ruminants. In general antibody levels following vaccination were rather low, although this was unsurprising given the heterologous relationship of the viruses. The tests will be repeated using a homologous system.

ELISA tests were also carried out using a monoclonal antibody to non structural FMD virus proteins with a view to standardising the test. All sera from vaccinated Albanian animals gave negative results in this test whereas sera from infected animals gave positive results.

Additional information on the situation in the FR of Yugoslavia

In clarification of uncertainty concerning the diagnosis of FMD in FR of Yugoslavia in 1996, Dr. R. Tadic explained that in 15 initial bovine cases classical clinical lesions had been observed and local virus typing on tongue epithelium material from these cases had given positive results by complement fixation at the National FMD Laboratory, Belgrade. These findings, together with the knowledge that FMD was present within 150 m across the border with the FYRO Macedonia had formed the basis of their initial confirmation of FMD. He stated that later in the outbreak lesions were less clear cut and that there may have been confusion with lesions of papullar stomatitis.

Dr. Donaldson restated the WRL finding that attempts to demonstrate virus in 6 samples of lesion material from Kosovo region using ELISA and other tests including PCR had all given negative results. Dr. Tadic confirmed that these materials corresponded to the original 15 cases from which positive results by complement fixation had been obtained in Belgrade. Dr. Donaldson commented that the ELISA test is about one thousand times more sensitive than the complement fixation test in the detection of FMD antigen. WRL attempts to detect FMD antibodies in 234 serum samples from the region also proved negative. Dr. Tadic explained that these had originated from clinically normal cattle farms surrounding the outbreak, collected about 10 days after the last detection of clinical disease.

There was surmise that the different results could have been due to deficiencies in the methods of storage and that the virus could have been inactivated during the prevailing hot weather. Dr. Donaldson offered support from the WRL for training in the recognition of the clinical disease and the taking and subsequent handling of samples. The IAEA might also be approached for assistance.

The delegate from Slovenia queried the criteria for the confirmation of FMD and was advised that both clinical signs and laboratory diagnosis were required for the confirmation of the first case. Dr. Donaldson added that a competent National Laboratory could confirm the diagnosis, but that in doubtful cases the diagnosis was best confirmed by an authorised Regional Laboratory or by the WRL. Dr. Meldrum reminded the Session of the danger of confusion with Swine Vesicular Disease in pigs.

The delegate from the FRO Macedonia enquired about conditions for official recognition of a country's freedom from FMD and was advised that the situation should be examined against the criteria set out in the OIE Animal Health code, chapter 2.1.1. If in compliance, the country could apply to OIE for recognition.

At the conclusion of the discussion on the Balkan situation, **the Session agreed a recommendation that serum surveys should be carried out in Albania, the FYRO Macedonia and FR Yugoslavia as soon as possible.**

Item 3 - Report on the Commission's activities during 1995-1996

The Secretary presented the paper on the Commission's activities during the biennium (see Appendix 2). He stated that due to the persistence of sporadic outbreaks of type O in the Thrace region and the occurrence of one epidemic of type A in the Balkans, the activities of the Commission have been very intensive especially during 1996. Good collaboration with EC and OIE was established for the control of the epidemic in the Balkans and the Commission supplied

the countries involved with vaccine and vaccination equipment thanks to the financial support of EC through TF911100.

This outbreak revealed some weak points in the prevention and control system of certain countries: import of meat from non-FMD free countries, unpreparedness for clinical diagnosis and control of the disease, and also for laboratory diagnosis.

He then reviewed the specific activities of the Commission starting with the statutory meetings. Three meetings of the Executive Committee had been held: the Fifty-eighth Session in Milan in April 1996 , an ad-hoc meeting in Paris in May 1996, and the Fifty-ninth Session in Budapest in November 1996. The Research Group held two Sessions, one in the Federation of Russia in September 1995 and one in Israel in September 1996. The EUFMD/EC/OIE Tripartite FMD Group met twice in November 1995 in Alexandroupolis, Greece, and in October 1996 in Ankara, Turkey. The latter meeting was essentially devoted to the review of the conclusions and recommendations of the EUFMD/EC mission to Turkey (see Item 4).

A one-week Workshop on Contingency Planning and Emergency Preparedness was organized in Velingrad, Bulgaria, in May/June 1995 for countries of southeast Europe. A Newsletter on the Commission's activities was issued by the Secretary in January 1996. Unfortunately the workload did not allow for the preparation of the second issue which had been planned for June 1996.

Close collaboration was maintained with the WRL which provided very prompt scientific and technical support to the activities of the Commission. The Zooprophylactic Institute of Brescia cooperated also actively with the Commission especially through the provision of expertise in the field to Albania.

Joint missions were carried out by the Secretary and experts to the countries concerned with the disease. Most of these missions were combined with those of EC. During 1996, three EUFMD/EC/OIE coordination meetings took place, with the participation of the CVO's of Albania, the FYR of Macedonia, and the FR of Yugoslavia, to discuss the action to be taken in respect of the FMD epidemic in the Balkans. Epidemiological information Bulletins in English and French were faxed frequently to member countries to update them on the FMD situation especially during 1996.

Two countries joined the Commission during the biennium - Slovenia on 25 July 1995 and the FYR of Macedonia on 24 February 1997. Contacts were also established with other countries in Europe for the purpose of encouraging them to join the Commission.

Item 4 - Report of the fact-finding EUFMD/EC mission to Turkey (September - October 1996 and new programme for FMD control in Turkey

On behalf of the Joint EUFMD/EC team, Dr. Garland presented a precis of the findings and recommendations of the mission to Turkey. A summary of the report is given as Appendix 3 and copies of the complete report are available on request.

At the invitation of the Turkish Government, the mission visited Turkey between 17 September and 13 October 1996, travelling widely in a series of field oriented visits. Excellent co-operation was received from the Turkish authorities at all levels.

The main findings were as follows:

- Turkey is under constant threat of the introduction of FMD (and other serious diseases) from countries to the East.
- Control of animal movement is extraordinarily difficult under the present situation in Turkey.
- Recent outbreaks of FMD in Thrace were due to illegal movement of animals.
- Identification of animals is a prerequisite for the control of animal movement and of disease but is deficient in Turkey. Improvements are planned.
- Cleaning and disinfection of animal transport vehicles is not routine and comprehensive.
- FMD vaccination coverage is low in many parts of the Strategic Vaccination Zone in Western Anatolia.
- Farmers consider FMD as important and are willing to contribute to the cost of vaccination.
- Control of FMD vaccine quality does not comply with international norms but this is planned.

The principal recommendations included the following items:

Certain of these recommendations have already been implemented since the report was produced in October 1996.

- A distinct and separate Veterinary Directorate should be established within the Ministry of Agriculture (implemented)
- The participation of private veterinarians in control schemes should be accelerated.
- The legal framework should be strengthened for the control of animal disease (e.g. increased penalties for infringements).
- Co-operation between veterinary and other government services should be strengthened.
- Adequate resources should be allocated to permit the full epidemiological investigation of outbreaks.
- Greater speed and transparency should be accorded to national and international reporting of OIE List A diseases.
- The planned upgrading of disease security at the SAP Institute should be implemented.
- The planned development of oil adjuvanted FMD vaccines should be implemented.
- The planned eventual privatisation of veterinary vaccine manufacture should be accelerated.
- The planned introduction of independent testing for FMD vaccine should be implemented.

- Disinfection equipment and procedures between veterinary farm visits should be improved.
- Simultaneous vaccination against FMD, Rinderpest and Sheep Pox should be considered.
- Compulsory FMD vaccination should be reintroduced in Thrace (implementation starting in January 1997).
- A feasibility study should be carried out to determine how the area of the Strategic Vaccination Zone in W. Anatolia could be reduced, solidly vaccinated and routinely monitored.
- Consideration should be given to adjusting FMD vaccination schedules to give maximal immunity before and during the festival of Kurban Bayram.
- Control of animal movement should be strengthened across the Fatih Sultan Mehmet, Bosphorous Bridge.
- The planned cattle identification and registration system to be introduced as soon as possible.
- Cleaning and disinfection of animal transport vehicles and animal premises (border posts checkpoints, quarantine areas, markets, abattoirs etc.) to be strengthened.
- Prepare and circulate a new FMD contingency plan for Thrace.
- Organise FMD contingency training for veterinary staff, including simulation exercises.
- Organise public awareness campaigns for FMD and training in basic hygiene for non-veterinary personnel associated with disease control (including farmers, animal dealers, animal transporters, customs officers, police and security personnel). (This campaign has started).
- Investigate the role of sheep in the perpetuation and dissemination of FMD in Turkey.

Further details were provided of the recommendations for vaccination in Thrace as follows:

- To resume preventive vaccination in Thrace for a period of three years, with annual review.
- Ideally to vaccinate cattle, sheep and goats twice a year using bivalent type O and A vaccine.
- Alternatives
  to vaccinate cattle twice a year and sheep and goats once a year.
  To vaccinate using only type O vaccine.
- To use only independently quality controlled vaccine.
- To improve the critical, associated control measures including: the control of animal movement; animal identification and registration; vehicle cleaning and disinfection; and ensuring more efficient vaccination in the Strategic Vaccination Zone.
- Cost benefit analysis was carried out.

These Recommendations were approved in principle by Turkey, Greece and Bulgaria (Tripartite Meeting in Ankara, October 1996) and by the Fifty-ninth Session of the Executive Committee of the EUFMD Commission (Budapest, November, 1996).

The Session learned that following the mission members of the team together with Turkish representatives visited Brussels to discuss the report and to investigate possible funding for several of the key recommendations. DG VI had been supportive in principle, but it was considered that the Turkish proposals were overly ambitious and too costly, even though the proposal was for 50/50 funding by the EC and Turkey.

Dr. Westergaard, EC representative, suggested that Turkey should now prepare new proposals based on the mission's recommendations and focused on the key requirements for control and resubmit them to Brussels. Vaccine might be provided from the EUVB; independent supply and potency testing could be arranged; animal identification might be assisted; aid might be provided for a quality control laboratory for FMD vaccine. It was important to recognise however that any EC support would be conditional on the achievement of specified objectives and that funding would be subject to annual assessment.

Dr. Eker stated that the Turkish target was for the eradication of FMD by the year 2000 but assistance was needed for the control of the disease in the national interests and also those of Europe. An estimated US$ 70 million was required of which Turkey was committed to funding half.

Dr. Cheneau, FAO, suggested that Turkey could approach other sources of funding such as UNDP or the World Bank.

Dr. Ivanov, delegate from Bulgaria, proposed that animals in the strategic Vaccination Zone in Western Anatolia should be revaccinated before being allowed to be moved to Thrace. He also recommended large scale serum surveillance including testing for neutralising antibody and for antibody to nonstructural proteins.

In separate discussions during the Session agreement was reached for a meeting between the Turkish Government, the EUFMD and the EC in Ankara, probably in June 1997, to update the plans and proposals, including timetables and costs, for presentation to the EC later in the year. Dr. Eker agreed to keep Bulgaria and Greece informed of Turkey's proposals and their progress.

Item 5 - Report of the Activities of the Research Group during 1995 and 1996

Dr. Donaldson reported that the Research Group held joint Sessions with the FMD Sub-Group of the Standing Veterinary Committee of the EC on two occasions, in Russia at ARRIAH in September 1995 and in Israel in September 1996. Both meetings had been the first in these venues and both had produced useful scientific and technical contributions. He paid tribute to the organisers of those successful meetings. Details of the meetings are given in Appendix 4 and complete reports of the Sessions were made available to Delegates and are on file. He summarised the principal conclusions and recommendations of the Sessions.

The carrier state in small ruminants and persistence in other species including wild life
(see Item 4 of Research Group Meeting of 1995)

Sheep and goats form the largest FMD susceptible population. They are less often vaccinated than cattle and disease is frequently inapparent in these species. The acute stage of the disease is considered more important than the carrier state in the dissemination of the disease. They play an important role in the epidemiology of FMD.

Llamas have been shown to be relatively insusceptible to FMD by natural routes of infection and probably have a minor role, if any , in the epidemiology of the disease.

Experimental studies have demonstrated that wild boar can excrete airborne virus and serosurveillance around outbreaks in cattle in Israel detected antibodies in boar and gazelle.

Contingency plans for emergency vaccination
(see Item 11 Research Group Meeting of 1996)

Decisions on whether or not to vaccinate cannot be generalised and each emergency situation has to be evaluated individually. A decision to vaccinate must be implemented as rapidly as possible. Computer-based decision support systems can provide useful objective assistance and mathematical modelling can predict economic outcomes. The option of emergency vaccination together with detailed organisational measures should be included in national contingency plans.

Quality Asssurance in FMD diagnosis and requirements for achieving international standards
(see Item 13 Research Group Meeting of 1996)

Standards were considered for liquid-phase-blocking-ELISA (LPBE) and virus neutralisation (VN) tests. A proposal submitted to the OIE that tests shown to be of equal or greater sensitivity to LPBE and VN should be considered as prescribed tests was not accepted. Guidelines on the standardisation of tests should be produced as an Appendix to the report of the OIE Standards Commission.

Usefulness of serosurveillance as a means of establishing freedom from infection
(see item 5 of Research Group Meeting 1995)

Currently available tests are of limited value for serosurveillance aimed at differentiating vaccinated from infected animals. Where vaccine has not been used surveys in small ruminants were recommended, regardless of the virulence of the outbreak strain. Cattle could be included when strains of low virulence for cattle were involved without overt signs of clinical infection, combined with intensive clinical examination. The serological survey of pigs was not indicated since this species does not develop a virus carrier state.

Definition of an outbreak (see Item 6 of Research Group Meeting 1995)

The Session questioned the accuracy of the terminology "active" infection. The Chairman of the Research Group explained that active infection in this context means that there is evidence of the spread of virus within one or more animals; consequently, a better wording would be "actively spreading infection".

Testing of milk for surveys (see item 9 of Research Group Meeting 1995)

Collaborative studies between the WRL and national laboratories in Israel, Italy and Turkey were undertaken with EUFMD funding. These showed that LPBE as used for serology was

unsatisfactory for milk. The test was modified for the detection of IgG antibodies to FMD virus in milk and this work will be published in the Journal of Virological Methods.

Diagnostic aspects of trade (see Item 7 of Research Group Meeting 1995)

A recommendation was made that exporting countries should be able to identify the laboratory which carried out tests relating to the export of animals.

The Session did not agree with the conclusions contained in paragraph 49 of the Report of the Research Group in which it is stated "that certificates of health for the purpose of international trade do not need to include the identity of the laboratory which performed the tests in the exporting country. However, in the event of a dispute or query, the exporting country **should** be able to trace back and identify the laboratory which performed the tests".

The Commission concluded that the above statement would be acceptable if the word "should" was changed to "must".

New and improved techniques for the diagnosis of FMD (see Item 4 of Research Group Meeting 1996)

Progress was made with a new rapid coagglutination test, with improved ELISA's, the Reverse Transcriptase Polymerase Chain Reaction (RT-PCR), sequencing and the use of monoclonal antibodies. Those find application in primary diagnosis, typing, subtyping and detection of carriers.

Potency and stability of FMD vaccines prepared from stored antigens (see Item 5 of Research Group Meeting of 1996)

Work was reported on the potency of stored inactivated, concentrated antigens. Highly potent vaccines were shown to elicit a broad spectrum of immunological response. Vaccine manufacturers should be encouraged to formulate vaccines of potency equal to or greater than 6 PD50/dose for use in emergency situations.

Following discussions on this topic, the Session agreed that there were differences in the procedures used for testing the potency of emergency vaccines which were employed by the Community Coordinating Institute and those described by the European Pharmacopoeia.

The Commission recommended that steps should be taken to ensure better communication and interaction between the Research Group and members of the European Pharmacopoeia so that the procedures relating to FMD vaccines for emergency use could be harmonised.

Differentiation of antibodies induced by vaccination and infection (see Item 6 of Research Group Meeting of 1996)

Several tests have been developed based on the detection of antibodies to non-structural viral proteins as evidence of FMD infection. While those are promising, the duration of such antibodies is not yet determined, thus positive results for these antibodies can be taken as evidence of infection whereas a negative result does not necessarily indicate freedom from infection. Work continues on this topic.

Standardisation of FMD Diagnosis (see Item 7 of the Research Group Meeting of 1996)

In Phase XIV of the ongoing standardisation exercise, significant variation was found in the sensitivity and specificity of assays in individual laboratories. The application of LPBE reduced the variation between laboratories in respect of sera classed as positive but increased the number of negative sera incorrectly classed as positive. It was concluded that the use of a standardised test is not of itself sufficient to harmonise testing between laboratories. Recommendations have been made for the next Phase of the exercise .

Emergency vaccination (see Item 8 of Research Group Meeting of 1996)

A series of recommendations were made on the future of emergency vaccination.

Computer-aided Management of FMD epidemics (see Item 9 of Research Group Meeting of 1996)

The development and status of the EPIMAN (EU) computer programme for decision support and management in FMD outbreaks was described. Further work on predicting the detection of airborne spread analysed the effect of using meteorological data from different weather stations and of using different levels of virus output. The RIMPUFF (EU) computer programme has advantages when used within the EPIMAN (EU) programme for the prediction of spread over long distances.

Vaccination of neonates against FMD (see Item 10 of Research Group Meeting of 1996)

Work on the official vaccination of neonates was reported with particular focus on the value of oil adjuvanted vaccines.

Training (see Item 12 of Research Group Meeting of 1996)

Requests for training were received from the FYRO Macedonia, Croatia, Albania and FR of Yugoslavia and support was provided by IAEA and EU FMD laboratories.

Serological surveys (see Item 12 of Research Group Meeting of 1996)

Recommendations were formulated for serological surveys. These included the paramount requirement for the clear and the advance definition of objectives, knowledge of the presence or absence of active infection in the surveillance zone, and the evaluation of the potency of any vaccine used.

Vaccine bank (see item 12 of the Research Group Meeting of 1996)

The Research Group concluded that there was no requirement for the addition of any new virus strains of antigen to the EUVB.

Item 6 - FMD laboratories

Report of the WRL

Dr. A. Donaldson (Head of the Pirbright Laboratory) reported on the activities of the World Reference Laboratory for FMD, during 1995 and 1996. Samples had been received for typing to a total of 451 in 1995 and 473 in 1996. The full results are given in Appendix 5.

A number of collaborative international studies were reported including Phase XIV of the ongoing FAO/OIE exercise on the standardisation of diagnostic methods. Thirty-two laboratories had taken part. Other work concerned the response of dairy cattle to oil vaccination, the development of immunoassays to detect antibody to non structural viral proteins of FMD and computer modelling of FMD outbreaks.

Diagnostic reagents were supplied to more than 40 countries and training was given to representatives from 28 countries. In addition WRL staff made overseas visits for technical consultation and advice to 18 countries during the period.

Security and Quality Assurance in National FMD Laboratories

The Secretary presented a paper with an overview of proposals and recommendations issued by the various proceedings of the Commission since 1995.

The replies to the questionnaire on National FMD laboratories in Europe were presented: 24 of the 32 member countries of the Commission have a laboratory carrying out FMD analyses. Staff training is needed by 17 national laboratories, equipment by 12 laboratories, and 10 need assistance in meeting security standards.

He then reviewed the recommendationsof the Executive Committee and Research Group meetings regarding the Security and the Quality Assurance in FMD laboratories (see Appendix 6).

Discussion

Dr. Marabelli, Italy, stated that he supported the recommendations contained in the report presented by Dr. Y. Leforban and added that in his opinion a distinction should not be drawn between the standards under which laboratories operate and the quality of their animal exports; both are linked, and countries concerned to maintain high standards of their export products should support their laboratories accordingly.

Dr. Leforban said that there is an increasing tendency for laboratories carrying out serological tests for export purposes to also become involved in the investigation of material submitted from suspected field cases of FMD.

Dr. Donaldson stated that this trend should be discouraged as there was a risk of the dissemination of FMD virus from laboratories which do not meet minimum standards of biosecurity. Furthermore, a delay in diagnosis or even failure to correctly diagnose FMD could result if laboratories not routinely involved in diagnosis attempt to carry out the task. Dr. K. De Clercq said that he supported this view. In the ensuing discussion about the risks associated with the manipulation of live virus for diagnostic purposes, Dr. D. Panagiotatos, Greece, expressed the view that, while he agreed that minimum biosafety standards were required for FMD laboratories, a

distinction should be drawn between those concerned only with diagnosis and those concerned with research. Diagnostic testing carried a lower risk of the escape of virus and disease security should be appropriate to the risk. National laboratories should be allowed to perform the diagnosis of FMD in accordance with relevant requirements and encouraged to do so. Dr. Donaldson stressed that all laboratories handling FMD virus should conform with the document "Security Standards for FMD Laboratories" (Thirtieth Session of the European Commission for the Control of FMD, Rome, Italy 27-30 April 1993). This paper adopted by the OIE, FAO and the EC sets out minimum standards for laboratories which handle live FMD virus and identifies the risks associated with different activities: a high risk for laboratories producing vaccine or carrying out animal challenge tests; a lower risk for diagnosis and research.

Professor Schuller, Austria, supported the need for laboratories handling live FMD virus to meet minimum standards. Indeed the standards should also apply when other highly contagious agents are handled.

Discussion followed about the problems associated with the transportation of highly contagious material by air. Dr. Engevall, Sweden, asked about the possibility of sending samples as hand-carried luggage with couriers. Dr. Donaldson responded that this does not meet international air transport regulations or the import certificate provided by the UK State Veterinary Service for the WRL to accept suspected FMD material. Only transport by air freight to London airport and Customs clearance and collection by WRL staff is permitted. Dr. Cawthorne, U.K., confirmed this and emphasised that the security of FMD material in transit is as important an issue as the biosecurity of diagnostic laboratories.

<u>The Session endorsed</u> the Research Group recommendations related to national laboratories as follows:

1. FMD laboratories carrying out diagnostic tests to qualify animals and animal products for international movement should participate in a Quality Assurance Programme. This programme should include laboratory quality evaluation and proficiency testing, based on the "OIE Guidelines for Laboratory Quality Evaluation" and the "Draft OIE Guidelines for Laboratory Proficiency Testing" respectively.

2. FMD laboratories are encouraged to adapt their tests until they pass an evaluation for proficiency.

3. Lack of participation in or failure to pass proficiency testing by a laboratory should temporarily prevent this laboratory from making tests to qualify animals or animal products for international trade. (This recommendation was rewritten at the request of the 59th Session of the Executive Committee.)

<u>The Session also endorsed</u> the recommendations of the 59th Session of the Executive Committtee as follows:

1. FMD National Laboratories should be classified in two categories: those which fulfil the FAO/OIE security requirements and those which do not; the second category should not be allowed to manipulate virulent material; their activity should be limited to serology by ELISA with inactivated antigens;

2- the international standards ISO 9000 and EN 45000 should be the basis for the quality assurance programmes in laboratories and the guidelines for laboratory quality evaluation as proposed by the OIE Standards Commission in September 1995.

Item 7 - Progress in Implementation of Contingency Plans in Member Countries

The Secretary commenced by recalling the aim of contingency plans which is that of setting up procedures for dealing with foot-and-mouth disease should it occur. He indicated that these plans are particularly important in the current situation in Europe, where preventive vaccination has not been practised. The progress made with such plans, and particularly the capacity to implement them, varies considerably from country to country. He then reviewed the recommendations issued by the various bodies of the Commission since 1993 as well as by other competent authorities including the EU/PHARE Programme.

He proposed that a joint EUFMD/EC workshop on Emergency Preparedness and Contingency Planning be organized for the countries of central and eastern Europe along the lines of that organized in May/June 1995 at Velingrad in Bulgaria for the countries of southern Europe and the Near East. This workshop would be open to both member and non-member countries of the region.

He proposed also that the Video on FMD recognition could be provided by the UK MAFF Audio Visual Department to the Commission for translation into other languages and distribution to member countries on request.

Dr. Donaldson, WRL , informed the Session of the availability from Telos, UK of a PC-based training module on FMD prepared by the AVIS Consortium (Advanced Veterinary Information Systems) comprised of FAO, OIE, IAH-Pirbright and Telos Ltd.

During the discussion the delegate of Norway suggested that the Secretariat of the Commission should be officially informed of the status of contingency plans in member countries and that a follow-up of the situation be carried out by the Executive Committee. The problem related to the translation of the plans from national languages into one of the two languages of the Commission was raised by the delegate of Cyprus. The Secretary informed the Session that it is his responsibility to provide advice in the preparation of FMD contingency plans and this support has been provided to member countries on request.

The Session agreed on:

- the paramount importance of organizing simulation exercises for validation of the plans,
- the importance of having an official notification of the completion of the plans addressed to the Secretariat by Member countries with a copy of the plan, or as a minimum, a summary of the plan in one of the official languages of the Commission and in accordance with the outline in the working document on Contingency Planning included in the Thirtieth Session of the EUFMD.
- the organization of a Workshop on contingency planning for central European countries jointly funded by EUFMD/FAO and EC and open to member and non-member countries of the region,
- the necessity for the Commission to provide teaching material and especially videos to member countries on request.

Item 8 - Availability of vaccines for emergency vaccination in Europe

Dr. A. Garland presented a summary of the paper given in full at Appendix 8. The paper covered the updating of the information on the availability of vaccine from all member states and some non-member states in and around Europe and also addressed certain specific associated topics as requested by the Fifty-ninth Session of the Executive Committee.

Vaccine banks were for formulated vaccine, ready to use but with limited shelf life while antigen banks contained concentrated, inactivated vaccine of long shelf-life which could be formulated on demand but with some delay.

Antigen banks are of three types: International, National and Commercial. The International banks include the International Vaccine Bank (IVB) at Pirbright with seven members including Australia, Finland, Ireland, New Zealand, Norway, Sweden and the United Kingdom with Malta as an associate member. Established in 1985, the bank purchases commercial antigens and currently holds stocks of seven types, each equivalent to 0.5 million doses of vaccine. Importantly, the IVB can formulate aqueous or oil vaccines.

The North American Vaccine Bank at Plum Island was founded by Canada, Mexico and the USA in 1982. European and South American antigens are held equivalent to 11 million doses of vaccine which would be formulated under contract with a commercial manufacturer.

The European Vaccine Bank (EUVB) was authorised in 1991 and holds stocks of four virus types each equivalent to approximately 5 million doses of vaccine. Antigens are divided between Brescia, Lyon and Pirbright, two of these locations being independently equipped to formulate oil and aqueous vaccines.

The All Russian Research Institute for Animal Health (ARRIAH) has proposed that it should undertake the function of an international vaccine bank as part of the recognition by OIE of its status as a Regional Reference Laboratory for FMD. Situated in Vladimir, it maintains stocks of four virus types each equivalent to 100,000 doses of vaccine.

Information on national vaccine banks came from the latest EUFMD questionnaires circulated in January 1997. Based on replies received the current status is that:

- Questionnaires were received from 30 out of 34 countries;
- Four countries have no reserves of antigen or vaccine;
- Fifteen countries maintain a national bank of formulated vaccine variant, 6 of those also belong to the EUVB;
- Five countries have contracts with commercial suppliers for ready-to-use vaccine or for formulation from stored antigen on request;
- Ten countries hold stocks of concentrated antigen;
- Six European countries are members of the IVB, 2 of these are also members of the EUVB.

There were three major companies in the EU: Bayer AG, Intervet and Rhone-Merieux. Some of those companies also had facilities outside Europe. Other manufacturers included the government Institute (ARRIAH) in Russia and the SAP Institute in Turkey. Private manufacture was by Vetal in Turkey and Dyntec in the Czech Republic (Note: the delegate from the Czech

Republic advised that the Dyntec plant was not now in routine manufacture but maintained antigen stocks.)

Commercial vaccine manufacturers in and around Europe have a combined production capacity of at least 155 million doses per annum at a rate of 13 million doses per month. All used first order inactivants and calculated inactivation kinetics. 146S antigen incorporation varied from a minimum of 1.48-6.0 microgram per dose with mean values of 2.8-15.0 micrograms per vaccine dose. All EU manufacturers can supply oil and aqueous formulations.

Target species testing is employed by all manufacturers and most test according to the European Pharmacopoeia. Some use serological correlations which can replace cattle challenge. All EU companies are subjected to testing by independent national authorities. Manufacturers claim to supply vaccine from stored antigen within 3-5 days of order while estimates of the time to manufacture vaccine from a new field strain varied from 1 to 6 months.

The potential for rationalisation of existing stockpiles was discussed. Current EU antigen stocks are equivalent to 78 million doses of vaccine while emergency vaccine has been required on only one occasion. The possibility of reducing the number of strains was also raised vis-à-vis the evidence that high levels of antigen in vaccines could increase both the speed and the spectrum of the immunological response.

In discussion the issues of maintaining sufficient strains to give adequate coverage of circulating viruses was raised. The point was made that it was often better to use a well characterised vaccine strain that to try to adapt a new field outbreak strain of unknown nature although there were occasions when there was no alternative. In any event, emergency vaccination would utilise existing strains, perhaps with increased 146 S content.

The stability of stored antigen had been demonstrated for at least 8 years over liquid nitrogen. However it was prudent to test stored antigens routinely to ensure the long term stability of antigens stored at -70°C and -196°C. Dr. Donaldson confirmed that testing was routinely carried out at Pirbright, using physico-chemical tests and guinea pig vaccination. There have been variable results for the stability of vaccines reconstituted from stored antigen and the presence of high concentrations of nucleases might explain some of these results. Further work was required in this area and the existence of vaccine left over from that supplied from the EUVB to the Balkan countries in 1996 could provide an opportunity to so. Information was required for both aqueous and oil formulations.

Liability problems could be envisaged for vaccines which had a number of different organisations involved in antigen manufacture, storage and formulation and also in the circumstances where emergency vaccine was supplied without full pharmacopoeial testing - particularly for bacterial sterility. The simplest approach was for the country receiving emergency vaccine to issue a waiver, as had been the case in the recent supply of vaccine from the EUVB. An alternative which might be considered was to establish a compensation fund.

Computer aided decision making was supported in the difficult situation of deciding whether, when and where to vaccinate in emergency. Promising results were accumulating from efforts to develop a test to differentiate between animals vaccinated and animals vaccinated and infected by examining sera for antibodies to non-structural viral proteins. Such a test would greatly mitigate the currrent serious consequences of emergency vaccinations for international trade.

The EC representative reported that the Commission placed a tender in November 1996, for the addition of antigen stocks to the EUVB including some 2.0 million doses of A_{22} Iraq, 5.0 million doses of C_1 and 5.0 million doses of Asia-1. Provisions were also made for the formulation, bottling and distribution of vaccines. Offers received from three commercial manufacturers were now being examined. The intention is that formulation and delivery of vaccines will be effected within 4-5 days when required in an emergency situation. Under these arrangements a single company would carry the liability.

Dr. Westergaard also stated that it was possible for countries which were not members of the EU to have access to the EUVB under certain circumstances, as had been the case in the Balkans. He suggested that such countries could send written requests to Brussels. An Eastern European Vaccine Bank had been proposed but had not so far found acceptance.

Dr. Ivanov stated that Bulgaria had closed its vaccine production plant and had changed to a policy of non-vaccination. There is a contract for the supply of vaccine from ARRIAH, Russian Federation, but Bulgaria would be interested to have more details of possible IVB/EUVB membership.

The Chairman noted that the question of payment for the vaccine supplied to the Balkans but unused was still to be resolved between the EC and the EUFMD Commission.

Dr. Donaldson drew attention to the proposal to amend the OIE International Animal Health Code to allow for possible regionalisation within a country following the use of emergency vaccination, as had been proposed at the Research Group Meeting in Israel in 1996. This would greatly ease the trading restrictions which now applied. The OIE representative confirmed that the matter would have to be submitted to the OIE Code Commission. The Session **agreed** that the matter should be pursued.

The delay between ordering vaccine and vaccinating in the Balkans had been as long as 26 days, due to a variety of causes. In discussion it appeared that certain obligatory tender conditions entailed a minimum delay even in emergencies. Vaccine suppliers often had the opportunity to make preparations based on epidemiological knowledge ahead of the decision to vaccinate. In some circumstances a delay would give time for the recipient country to organise the campaign of vaccination. A suggestion that an emergency depot of vaccination equipment could be established at some critical locations would be referred to the EUFMD Executive Committee.

Several delegates expressed the opinion that a proportion of the emergency vaccine stock should be in the form of final vaccine. The Chairman felt that some form of rolling contract could apply to fund such vaccines.

Dr. Vallat advised that France keeps a stock of fully formulated vaccine in addition to antigen reserves. Future policy had not yet been decided for the formulated vaccine but it could be made available to other countries under appropriate circumstances.

Dr. Vallat also reminded delegates that emergency FMD vaccination was to be used only when other measures had failed and that stamping-out was the recommended policy in FMD-free, non-vaccinated areas.

The Secretary commented that commercial companies can offer to cut the lead times for the supply of vaccine from stored antigen but at an increased cost because of the disruption of routine vaccine manufacture.

Dr. Westergaard commented that the new EUVB contract allowed for a) the immediate supply of fully formulated vaccine and b) supply of vaccine prepared from stored antigen within 3-5 days or within 14 days with prices varying accordingly.

The Chairman concluded the item by stressing that the status of the vaccine banks should be kept under review and called for a coordinated approach throughout Europe. He requested that the EUFMD Commission should maintain contact with vaccine manufacturers and vaccine antigen bank organisations and do everything possible to ensure the availability of emergency vaccine for Europe. **This proposal was endorsed by the Session.**

Item 9 - Amendments to the Constitution

This item had already been discussed at the Thirty-first Session which agreed in principle on the amendments proposed. The text of the amendments had been drawn up by the Secretariat with the support of Legal Counsel and Finance Division in FAO

The Secretary introduced the Item by stating that the objective of the proposed amendments was to update the text of the Constitution, Rules of Procedure and Financial Regulations in view of the new epidemiological situation of FMD in Europe and the current financial procedures of the Organization.

The amendments had been discussed and accepted by the Fifty-eighth and Fifty-ninth Executive Committee Sessions and circulated to the member countries 120 days before the Session in accordance with Art.XIV of the Constitution.

The proposed amendments were reviewed by the Session. The French Delegate requested the Commission to provide him with the list of the countries falling under Art. I., para. 1 as amended by the Twenty-eighth Session in 1989.

In Para 2 of Art 1, Delegates from EU countries requested that the term 'the European Community' be modified and replaced by 'the Commission of the European Communities'.
This proposal was submitted to FAO Legal Counsel who recommended the term "European Community" which also covers the Commission.

With the inclusion of certain editorial amendments the rest of **the proposed amendments were accepted** by the Delegates without modification.

Item 10 - Scale of contributions and membership of the Commission

The paper on this item had been circulated to the CVOs in advance of the Session together with the amendments to the Constitution.

The Secretary presented the item starting with the recommendations of the Thirty-first Session. He stated that no new comments on this item had been received by the Secretariat after the Thirty-first Session and that only one answer had been received - from Malta - to the letter he had addressed to the member countries of Category IV.

He then presented the five points proposed for adoption by the Session:

1. **the new classification should be based on FAO contribution and livestock population;**
2. **the countries will be classified in four categories of contributions instead of 5;**
3. **the categories in which a member country is placed will be reviewed at intervals of six years;**
4. **to accept the new categorization of the countries as presented in Table 2 of Appendix 10;**
5. **to accept the new range of contributions from US$ 2,600 to US$ 26,000.**

During the ensuing discussion it was stated by the Chief of the Animal Health Service, FAO, that the livestock population figures of FAO are those provided by the member countries. The Delegate of Norway requested clarification as to the classification of the level of contributions of the countries falling under the new Category 3. The Secretary explained that the new categorization was carried out with the least possible modification of categories under which the present membership falls. However, the consequence of the reduction of the number of Categories was that certain countries fell within a new level of contributions..

The delegate of Italy expressed concern that, despite the fact that the livestock population in Italy was the seventh largest in Europe, Italy was classified in Category 1 with three other countries. He expressed the wish that the number of countries in this Category be increased in the future.

The paper was accepted as presented on condition that certain editorial amendments be incorporated in the text and **the five points were adopted by the Session**.

It was also **agreed** that the proposal from the Delegate of Italy be considered when the question of Categories is being rediscussed at the next Sessions of the Commission.

Item 11 - Financial matters: Accounts for 1995 and 1996 and proposed budgets for 1997 and 1998

The Secretary explained that the financial reports included at Appendix 11 had been prepared by the FAO Finance Division and by the Secretariat.

The Secretary tabled detailed statements for the Commission's three Trust Funds, numbers TF904200 (European Commission for the Control of FMD); TF909700 (non-EC Trust Fund for FMD Emergency Aid Programmes) and TF911100 (EC Trust Fund for FMD prevention in southeastern Europe) showing balances of US$150,481; US$59,776 and US$1,077,653 respectively as of 31 December 1996.

The Finance Division statement showed the balance of funds held by FAO on behalf of the EUFMD Commission Trust Fund TF904200 as of 31 December 1996 was US$150,481. Contributions from member countries for 1996 amounted to US$286,663, including annual subscriptions, arrears and an advance payment. Details were also provided of individual members contributions. Of the 32 members all but 4 were up to date in their payments for 1996. The account had earned interest at US$13,056 while administrative costs amounted to US$284,971. Accommodation and facilities provided without charge by FAO are estimated at a value of US$50,000.

Details of the EUFMD Commission budgets and expenditure for 1995 and 1996 were also tabled, together with proposed budgets for 1997 and 1998. Explanations were provided of the inclusion of US$100,000 for vaccines which may or may not be required and also of the inclusion of US$30,000 for the workshop for emergency preparedness and contingency planning which is to be held in Poland. The 1998 budget for TF909700 was dependent on whether or not actual expenditure utilised the funds allocated for 1997. The estimate for the professional post of Secretary included a 7% yearly increase in accordance with standard FAO practice; the estimate for the administrative support post, which is Lira based , carries a 3% increase.

Support to the WRL had been increased from US$20,000 to US$30,000. A once only sum of US$11,000 was included to contribute to the creation of a serum bank at the WRL.

There was discussion of a suggestion from the Austrian Delegate that there was excessive duplication of epidemiological information from various sources and that the EUFMD Commission might reduce expenditure on this activity and allocate the savings to FMD laboratories. **The Session decided that the dissemination of information by the EUFMD Commission should continue at its present level.**

In reply to queries on the workshop in Poland clarification was given that the FAO (EMPRES programme) would share the costs for non member countries while the participating countries will probably be expected to make a contribution as well.

The Session **approved** the projected budgets for 1997 and 1998 in the following amounts:

	1997 US$	1998 US$
Total for TF904200	391,217	319,217
TF909700	50,600	50,600
TF911100	214,507	176,850
Grand Total	656,324	546,667

Item 12 - Election of Chairman, Vice Chairmen, members of the Executive Committee and members of the Research Group.

Executive Committee

Dr. Y. Cheneau, Chief, Animal Health Service, FAO, reminded delegates of the constitutional requirements and of the accepted practice which has evolved towards achieving a balanced representation of the different regions and EU, non-EU countries in the membership of the eight persons making up the EUFMD Executive Committee.

Dr. K.C. Meldrum (Chairman) and Dr B. Nordblom confirmed that they would be standing down from the Executive Committee.

Dr. R. Marabelli was elected unanimously to the position of Chairman. He proposed a vote of thanks to Dr. K. Meldrum for his outstanding contribution as Chairman of the Executive

Committee during a particularly eventful period and he hoped that Dr Meldrum could continue in a supportive capacity. His remarks were enthusiastically endorsed by the delegates. In thanking delegates for the honour of his election Dr Marabelli looked forward to continuing the work of the Commission with the support of the other members of the Executive Committee, the Research Group, the EC, OIE and FAO.

Dr. N. Voetz was elected unanimously as first Vice Chairman and Dr L. Celeda as second Vice Chairman.

For the election of members of the Executive Committee the following persons were proposed and seconded : Drs. G. Bakken; D, Panagiotatos; L. Hallet; T Balint; M. Eker and B. Vallat. Thus a total of six nominations were received for five vacancies. It was agreed that in the interest of balance the three nominations for the delegates from the countries which are not currently members of the European Union would be accepted and that a vote would be held to decide among the three nominations from the countries which are members.

A formal election followed for the remaining two positions on the Executive Committee organised under the supervision of FAO Legal Office. Dr. D.Panagiotatos was elected. There was a tie in the voting for the final member. Dr. L. Hallet kindly volunteered to stand down to avoid the necessity for a further vote and Dr. B. Vallat was duly elected.

The membership of the Executive Committee for the period 1997 - 1999 was confirmed as:

			Proposed	Seconded
Dr. R. Marabelli	(Chairman)	Italy	Dr. Nordblom	Dr. Hallet
Dr. N. Voetz	(First Vice Chairman)	Germany	Dr. Vallat	Dr.Balint
Dr. L. Celeda	(Second Vice Chairman)	Czech Rep.	Dr. Weber	Dr. Gaynor
Dr. G. Bakken	(Member)	Norway	Dr. Balint	Dr. Celeda
Dr. T. Balint	(Member)	Hungary	Dr. Ivanov	Dr. Nordblom
Dr. M.Eker	(Member)	Turkey	Dr. Balint	Dr. Bakken
Dr. D. Panagiotatos	(Member)	Greece	Dr. Pitzolis	Dr. Gamboa Da Costa
Dr. B. Vallat	(Member)	France	Dr. Voetz	Dr. Hallet

Research Group

Dr A. Donaldson explained the current make-up of the Research Group and its rationale. He confirmed that he would be standing down as Chairman but that he would continue to serve on the Group as the representative of the World Reference Laboratory. Dr R. Ahl and Dr C. Terpstra would be retiring and he warmly thanked them for their valuable contributions. He proposed that they should be replaced by Dr S. Barteling and Dr B. Haas who would bring particular expertise in vaccinology and diagnostics respectively. Both had confirmed their willingness to serve. These proposals were accepted by the delegates but with the addition of Dr J.M. Sanchez-Vizcaino, who would bring additional expertise in FMD diagnosis and research, as proposed by Dr. Justo Nombela Maqueda, delegate from Spain. It was agreed that the membership would thus be increased from 11 to 12.

Dr Meldrum thanked the Research Group for the excellent support which they had provided, particularly Drs Ahl and Terpstra on the occasion of their retirement and Dr Donaldson who had been an outstanding Chairman.

The membership of the Research Group for the period 1997-1999 was **confirmed** as:

Dr M. Amadori	(Italy)
Dr S. Barteling	(Netherlands)
Dr M. Danes	(Romania)
Dr K. DeClercq	(Belgium)
Dr I. Gurhan	(Turkey)
Dr P. Have	(Denmark)
Dr B. Haas	(Germany)
Dr Y. Ivanov	(Bulgaria)
Prof. W. Schuller	(Austria)
Dr J. Sanchez-Vizcaino	(Spain)
Dr H. Yadin	(Israel)
Dr A. Donaldson	(WRL, Pirbright, United Kingdom, Ex Officio)

The Research Group will elect a Chairman from their membership at their next meeting.

Item 13 - Any other business

The Secretary presented the item reviewing the following subjects:

Dissemination of information to member countries Two types of information are currently circulated by the Secretariat: the reports of the statutory meetings and the epidemiological information. Up to now, most of the epidemiological information has been sent to the member countries by fax. The proposal of the Secretary is to take advantage of the new electronic technologies available to better disseminate the information to member countries. If they so wish, member countries can now receive most of the information which was circulated to them by fax via electronic mail (E-Mail). **They must then confirm their request to the Secretariat of the Commission and communicate their E-Mail address.**

The Secretary informed the Session that in agreement with the Fifty-eighth Session of the Executive Committee, a Home-page for the EUFMD Commission has been prepared to be included at the FAO site at the Worldwide Web address (http://www.fao.org), Agriculture Department, Animal Production and Health Division. This page includes general information on the EUFMD Commission and its activities. **The Session agreed that there is no necessity to restrict the circulation of information related to the activities of the EUFMD Commission and therefore that this information should be circulated through the Internet.**

Post of Associate Professional Officer (APO) The Secretary informed the Session of the possibility of the Commission to avail of the services of an Associate Professional Officer (APO) from a member country of the Commission participating in the FAO/APO programme.The task of this expert, recruited for a period of two years, would be to assist the Secretariat with the circulation of information and also take part in the other activities of the Commission. The salary and other costs related to APO's are covered by the government and the cost for the Commission would be minimal. Following the agreement of the 59th Session of the Executive Committee, the terms of reference for

this post have been prepared by the Secretariat and sent to the Directors of Veterinary Services of the countries concerned with the APO/FAO programme. **The Session agreed on the recruitment of one Associate Professional Officer to serve in the Secretariat of the Commission for a period of 2 years.**

List of FMD experts To shorten the delay in fielding teams of experts in case of emergency situations, the 59th Session of the Executive Committee has proposed that two lists be established of FMD experts from member countries ready to intervene in case of an emergency in Europe - one for national experts working for their governments (for whom the Commission would cover travel and DSA), and one for private or retired experts (who could request an honorarium in addition to DSA). **The Session agreed on the establishment of two lists of FMD experts and requested the member countries to send the names of their experts to the Secretariat.**

Participation of scientists from private companies in the Sessions of the Research Group The recommendation of the Fifty-ninth Session of the Executive Committee regarding the involvement of scientists from private companies in the Sessions of the Research Group was that: (a) scientific participation could be considered on a case by case basis, (b) however, such participation should not have any commercial implications, (c) sponsorship of EUFMD meetings is not acceptable, (d) organization of publicised social events should be avoided. **The Session endorsed this recommendation.**

Forthcoming meetings of the EUFMD

- Sixtieth Session of the Executive Committee, 30-31 October 1997
- Session of the Research Group (closed Session), Brasov, Romania, 22-26 September 1997
- Sixty-first Session of the Executive Committee - to be decided
- Thirty-third General Session of the Commission, Rome, April 1999

Item 14 - Adoption of the draft report

The draft report was adopted subject to agreed amendments and the circulation of Items 11, 12 and 13 to delegates for approval and or amendments immediately after the Session.

Conclusion of the Session

Dr. Marabelli reiterated the appreciation of the EUFMD and of all delegates at the Session for Dr. Meldrum's contribution as Chairman and wished him well in his retirement.

The Chairman closed the Session with thanks to all participants. He added that he had greatly enjoyed his period of office. He complimented the Secretariat on their excellent organisation of the Session and wished the Commission continuing success in its important work.

Appendix 1

FMD situation in Europe: Balkans, Greece, Turkey and other regions

Situation of FMD in 1995

SITUATION IN MEMBER COUNTRIES

FMD was reported in two member countries only i.e. Turkey and Israel in 1995

Turkey (see Tables 1 and 2).

Table 1: Foot-and-Mouth Disease outbreaks in Turkey in 1993, 1994, 1995 and 1996

Year	Total	Type 0	Type A	Thrace	Western Anatolia	Eastern Anatolia
1993	221	217	4	0	42	179
1994	158	158	0	0	21	137
1995	107	96	11	1	8	98
1996	133	132	1	2	28	103

FMD outbreak in Thrace (see map No 1).

One outbreak was notified to the Secretariat of the European Commission for the Control of Foot-and-Mouth Disease (EUFMD) on 20 March 1995 in Ulukonak, Karklareli Province, Thrace region. A joint EUFMD/World Reference Laboratory (WRL) mission to Thrace took place on 27-28 March, and a list of recommendations was drawn up. The strain characterized at the WRL is very close to those isolated previously in Turkey and in Greece in 1994 - the history of the outbreak was reported to the Thirty-first Session in April 1995.

Development of the situation in Thrace after the outbreak:

- Six cattle were destroyed and five cattle were slaughtered on the infected premises.
- The 21 measures proposed by the EUFMD/WRL for the control of the disease have been implemented.
- Strict quarantine measures were implemented and a limited number of animals i.e. 5,020 cattle and 5, 585 sheep in the six villages within a 10 kilometre radius were vaccinated twice with a bivalent O and A type vaccine.
- A serum survey of 84 samples collected from small ruminants in six villages (i.e. 14 samples per village) around the infected village of Ulukonak before vaccination had been tested in the SAP Institute, Ankara. All were found negative for antibodies to FMD types O and A.

Table 2
Foot and Mouth Disease outbreaks in Europe in 1995 and 1996 (by country, number of outbreaks and virus type)

Country	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Bulgaria 1996										1			1 O1
Greece 1996							10	21	8				39 O1
Turkey 1995 1996	3 12	7 14	6 12	5 13	13 17	10 20	14 16	11 11	6 8	11 4	12 3	9 3	96 O1,11A 132 O1, 1A
Israel 1995 1996	 1	 3	1 5	 5	1 8	1 4	1 2					1	5 O1 28 O1
Albania 1996					5	5							10 A
FYRO Macedonia 1996						10	8						18 A
FR Yugoslavia 1996							100	1					101 A
Fed Russia 1995						1							1 O1
Georgia 1996									1 1				1 O 1 A
Azerbadjian 1996		2					1						3 O
Armenia 1996							1						1 O

Situation of FMD in the rest of Turkey

FMD continued to be an endemic disease in Turkey in 1994 and 1995. A total of 158 outbreaks were reported in Anatolia in 1994 and 107 in 1995 (see table 1 and table 2). In 1994 all outbreaks were due to type O and in 1995, 96 were due to type O (of which eight in the Strategic Vaccination Zone of western Anatolia) and 11 to type A. These were the first type A outbreaks reported in Turkey since July 1993. They occurred in seven Provinces of central Anatolia (Kirsehir, Giresun, Tokat, Ankara, Kirikkale, Maras and Kastomanu). The exact origin of the reoccurrence of type A virus has not been clarified.

Israel (see table 3)

During 1995 five outbreaks of FMD were reported and confirmed, all of them in young unvaccinated beef cattle in Northern Israel, of which three were in very close proximity to the international borders. All were caused by FMDV type O1. The routine laboratory tests applied by the Kimron Veterinary Institute (KVI) for FMD diagnosis of virus infection are the CFT, ELISA, PCR, isolation of PK or LK cells, seroneutralisation and inoculation into baby mice. Genetic analysis is also routinely carried out by elucidating the sequence of 292 bases (320-613) of the VP1 gene. It was found that 4 of the isolates were very closely related (rate of mutation less than 5 %). Based upon the antigenic analysis of the isolates, the vaccine used included FMDV serotypes O Manisa and O Geshur. Not one of the dairy farms of the country was affected, reflecting the severe animal movement restrictions imposed and the impact of the vaccination. The effectiveness of the vaccine was also confirmed by the ongoing monitoring programme, which has been operational since 1992. It includes six farms with cattle of the Israeli-Holstein breed, located throughout the country and along the borders. On each farm, 40 animals in four age-groups are sampled three times a year for SNT evaluation of the immunity conferred by the trivalent vaccine. The FMDV types used are strains of A22, O and Asia1, from the region, as current as possible.

During 1995, 472,513 vaccinations of cattle with the trivalent vaccine were carried out, as well as 392,630 monovalent (O) vaccinations in small ruminants. The figures for 1994, when 19 foci were recorded with as a consequence revaccination around them, were 511,845 and 418,714 respectively. Vaccinations are subject to State fees, paid by the owners. The present policy is to vaccinate all cattle above the age of 3 months during October to December. Booster vaccination is carried out in bovines younger than 18 months, 8-12 weeks after their initial vaccination. Calves born after the general vaccination period are vaccinated when three months old within a secondary scheme. Vaccination involves also the entire sheep and goat population. They are currently vaccinated with a monovalent vaccine O (Manisa and Geshur) whereas cattle are vaccinated with a trivalent vaccine. In case of an outbreak, ring revaccination is carried out within the surrounding area, in addition to all quarantine measures and animal movement restrictions as prescribed by law.

SITUATION IN NON-MEMBER COUNTRIES

EUROPE

Russia (see table 2)

One type 0 FMD outbreak in pigs was reported in Russia in the vicinity of Moscow on 19 June 1995. All pigs on the infected farm, totalling 5,800, had been first vaccinated on 20 June and were later slaughtered and buried within the infected perimeter on 1 July.

The following additional measures were taken:
- disinfection and sanitation measures were implemented on the infected premises.
- all pigs, bovines and small ruminants in the Moscow region were revaccinated.

Restriction measures were lifted on 25 July and the territory of Russia was again declared free of FMD. The likely origin of the outbreak was contaminated imported meat from the Far East.

ASIA:

FMD virus type O has been isolated in **Iran, Yemen, Kuwait, Bahrain, Oman** .
FMD type O and A have been notified, in **Saudi Arabia, and Pakistan.**
FMD type Asia 1 and A has been reported in the southern part of the **Malaysian Peninsula** in June. An important epidemic due to types O and Asia 1 started in **Thailand** in April,
Types O and Asia 1 occurred in **Nepal.** Type O occurred in **Sri Lanka and Hong Kong**
The **Philippines** in particular has had a major epizootic caused by a strain of serotype O closely related to strains isolated from samples from Hong Kong.
FMD is also endemic in **India,** and South East Asia, **Myanmar, Viet Nam, Cambodia and Vietnam.**
Type C isolates have been received only from the **Philippines**

AFRICA:

FMD type SAT 3 has been notified in **Zambia,** type SAT2 in **Uganda.**
Types O, SAT 1, SAT 2 and A are present in **Nigeria.**
Types O and SAT 2 and A outbreaks occurred in **Kenya** in May and June.
FMD disease has also been reported in **Chad, Benin, Burkina Faso, Togo, Ivory Coast, Ghana, and Tanzania** during the first quarter of 1995.

SOUTH AMERICA:

Table 3: Affected herds and isolates of Foot-and-Mouth Virus in South America in 1995 and 1996*.

Years	Affected herds	Samples	Type O	Type A	Type C	Vesicular Stomatitis
1995	2112	868	262	181	3	399
1996	1072	612	53	123	0	194

* Partial data, Continental Information and Surveillance System on Vesicular Diseases, PANAFTOSA 1995, 1996.

The general situation of FMD in South America has improved in 1995 by comparison with 1994 and 1993. According to the information provided by the Pan American Foot-and-Mouth Disease Center (PANAFTOSA), 2,112 farms have been affected by vesicular diseases in 1995 (from January to December): 1,230 in Colombia, 390 in Brazil, 75 in Ecuador, 108 in Bolivia, 8 in Peru and 61 in Venezuela. Samples for laboratory diagnosis have been taken in 868 establishments. Type O was the most commonly recorded serotype of FMD virus with 262 isolates, type A 181 isolates and type C, 3 isolates. **Type O outbreaks occurred in Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela, Type**

A in **Bolivia, Brazil, Colombia, Venezuela** and type C in **Brazil only**.

The last outbreak reported in Uruguay was in 1990. Vaccination is prohibited in Uruguay since June 1994. Last outbreak in Argentine was in May 1994, and in October 1994 in Paraguay.
In addition to FMD, Vesicular Stomatitis has also been reported in many countries in America mainly in Colombia. This must be taken into account when considering the number of vesicular disease outbreaks in these countries.

SITUATION OF FMD IN 1996

SITUATION IN MEMBER COUNTRIES (see table 2)

TYPE O OUTBREAKS IN TURKEY, GREECE AND BULGARIA

Turkey (see Table 1 and also Appendix 3)

Situation in Thrace (see Map No 2)

Two outbreaks of type O FMD were reported on 31 May and 7 June in the Province of Edirne, one in the south close to the Greek border and the other in the north close to the Greek and Bulgarian borders. According to the Turkish authorities, both were associated with the illegal movement of cattle to and from Istanbul markets in the Asiatic part of the Bosphorus. The outbreaks were controlled by the destruction of affected animals (a total of 16 cattle), disinfection, movement restrictions and ring vaccination of 3000 cattle with a bivalent vaccine type O and A.

Situation in the rest of Turkey (see Table 1)

In the whole of Turkey, **132 outbreaks of type O and one of type A** (in Samsum Province) were reported. Disease is widespread all around Anatolia including in the Strategic Vaccination Zone of Western Anatolia where the prevalence of the disease looks to be as high as in the rest of the country (28 type O outbreaks and the disease occurred in 9 out of the 13 provinces in the zone). According to the WRL the strains of type O FMD virus circulating are antigenically similar to earlier isolates and the WRL continues to recommend the use of O Manisa vaccine strain.

Greece

FMD outbreaks : between 3 July and 30 September **39 outbreaks of FMD type O** were reported in the Prefecture of Evros in eastern Greece, bordering Turkish Thrace. The outbreaks occurred in three different areas close to the Turkish border. The disease was first notified at the beginning of July in the villages of Dikella and Makri located on the coast in the South of the Prefecture, west of Alexandroupoli. Then, in the middle of July, cases were observed in pastures on the Evros Delta. Finally, at the end of July cases occurred in a third zone, in the vicinity of Didimoticho, Oristiada district, located in the middle of the Evros Prefecture also along the Turkish border. Secondary outbreaks were then observed in the vicinity of these primary outbreaks. However, the distinction between primary and secondary outbreaks has not been fully clarified. For the Greek authorities 7 of the 39 outbreaks are considered as primary whereas for the EC experts, it was considered likely that the disease had spread across the border on at least three occasions, although the method of transmission was not identified. Nucleotide sequencing of the outbreak strain by the WRL confirmed that it was the same as that causing outbreaks on the

Turkish side.

Control Measures : 1,828 heads of cattle, 5,057 small ruminants and 30 pigs have been destroyed in the 39 outbreaks. In addition to these infected or in contact animals, other susceptible animals were destroyed as a precautionary measure because of their proximity to infected animals. This preventive destruction of susceptible animals concerned mainly the free ranging herds and flocks in the Evros Delta. In total, 5,217 cattle, 14,636 sheep and goats and 336 pigs were destroyed. No vaccination was carried out.

EC Decisions : recognising the geographically restricted spread of the disease and the efficacy of the control and safeguard measures imposed by the Greek Authorities, the European Commission adopted on 31.08.1996 the Decision 96/526/EC which cancelled and replaced the Commission Decision 96/440/EC and regionalised Evros Prefecture.
This Commission Decision stipulates the following restrictions, which are the only measures related to FMD still in force:

- Intra-community trade of live FMD-susceptible animals coming from and through Evros is prohibited.
- Intra-community trade of certain edible and inedible products of animal origin coming from Evros is permitted, subject to certain conditions and/or treatments.

The same restrictions apply to internal movements of live animals and products inside Greece.

Surveillance : in accordance with annexe II of the Commission Decision 96/526/EC, the Greek Authorities are currently working on a programme for epidemiological surveillance in Evros with a view to establishing FMD freedom and, eventually, revoking the Commission Decision.

With regard to the Prefecture of Rhodopi, west of Evros, although FMD was never reported there, the Greek Authorities implemented at the end of 1996, a statistically sound programme comprising clinical, epidemiological and serological surveillance in order to rule out incursion of disease there. This programme, which was technically approved and funded by the Community by virtue of Commission Decisions 97/86/EC and 97/87/EC, was completed on 31 December 1996, with negative results. With regard to safeguard measures, Rhodopi was never subjected to restrictions due to FMD and this practice was confirmed by the results of the above programme

Bulgaria (see Map No 2)

On 26 October **a single outbreak of type O** was reported in the village of Malko Charkovo, Region of Jambol, close to the border with Turkish Thrace. 47 infected and in contact cattle, 7 sheep, and 11 goats were slaughtered and destroyed. Three zones A (infected zone), B (protection zone), C (surveillance zone) were delimited with specific measures. All susceptible animals in the infected village were slaughtered, their offal destroyed and their meat heat treated. Other control measures in zone B and C included disinfection, prohibition of animal movements, closure of markets and abattoirs. The origin of the outbreak was not determined, however nucleotide sequencing of the outbreak virus identified it as being the same as that which had caused earlier outbreaks in Turkish Thrace and Greece.

On 10 February 1997, Bulgaria sent the following message to the OIE :

quote - The foot-and-mouth disease (FMD) situation in cloven-hoofed animals in Bulgaria is under control. This is the result of the urgently applied strict measures for the eradication of the FMD outbreak (see Disease Information, 9 [46], 175), the subsequent stamping-out of the infected and in-contact animals and the sanitary slaughter of the healthy and susceptible animals in the epizootic area in the village of Malko Sharkovo, Yambol region. In the course of two months, weekly clinical examinations for FMD have been carried out on all cloven-hoofed animals throughout the country. A total of 4,039 blood

samples were tested between 29 October 1996 and 4 February 1997. Of these, 3,019 were taken from cloven-hoofed animals in Zone A, and 1,020 in Zone B. All existing herds of susceptible animals have now been covered and no seropositive animals have been detected. As of 9 February 1997, three months have elapsed since the final disinfection procedures in the outbreak and all the actions related to the eradication of the disease. In view of the non vaccination, stamping-out and sanitary slaughter strategy adopted in Bulgaria regarding the FMD outbreaks, and in accordance with the provisions of Article 2.1.1.2. of the International Animal Health Code, Bulgaria may again have the status of an FMD-free country. - *unquote.*

EPIDEMIC OF TYPE A IN THE BALKANS (see the map No 3 and tables 4 and 5)

Table 4: Chronology of events in the Balkans

EVENTS	ALBANIA	FYRO MACEDONIA	FR YUGOSLAVIA
First Suspicion	02 May	25 June	7 July
Notification	24 May	29 June	9 July
Date of the EC Decision	7 June - 19 June	8 July - 18 July	8 August*
Date of arrival of first batch of vaccine in the country	12 June	13 July (the 20 000 doses provided by OIE arrived on 9 July)	31 July (the 14 000 doses provided by OIE arrived on 20 July)
Date of first vaccination	20 June	10 July - 20 July	-
Delay (days)	26	11	-
Number of infected villages	10	18	101
Last clinical case	22 June	13 July	2 August
Number of doses of vaccine provided	370,000	240,000	114,000
Number of animals vaccinated	285,263	120,000 (cattle)	-
Date of completion of the first round of vaccination	12 July	27 July	-
Date of completion of the second round of vaccination	21 August	5 - 15 August	-

* due to the decision of Yugoslavia not to vaccinate, the EC Decision was revoked in December 1996.

Table 5: Doses of A22 vaccine provided to Balkan countries (cattle doses).

PROVIDER	ALBANIA	FYRO MACEDONIA	FRO YUGOSLAVIA	TOTAL
OIE		20 000	14 000	34 000
EUFMD	110 000 (DOE)	-	100 000	210 000
EU BANK (TF 911000)	260 000	220 000	-	480 000***
TOTAL	370 000*	240 000	114 000**	724 000

* 16,000 doses not used still available in Korcha
** not used, still available in Belgrade
*** in addition to this quantity, 120 000 doses have been reformulated and are still available with the manufacturer.

Table 6: Cost supported by EC and EUFMD for the control of the epidemic in the Balkans (in US Dollars, excluding travel)

EUFMD/EC	ALBANIA	FYRO MACEDONIA	FRO YUGOSLAVIA	TOTAL
EUFMD(TF909700) Vaccine			41,878.00	41,878.00
EC (TF 911000)	Dec.96/968/CE	Dec.96/439/CE		
Vaccine	115,908.09			
Equipment	31,219.76	43,458.77		
Total	147,127.85			198,076.62
		7,490.00		
		50,948.77		
TOTAL	147,127.85	50,948.77	41,878.00	239,954.62

Albania

FMD outbreaks: FMD was confirmed on 24 May in the District of Korcha in south eastern Albania. The last clinical case occurred on 22 June and no case was observed since then. From the beginning of May until 22 June, 10 villages in the district were infected, comprising 284 holdings, containing 1,847 susceptible animals: 944 cattle, 683 sheep and goats and 220 pigs. Of these 463 cattle, 74 sheep and goats and 86 pigs were clinically affected and were slaughtered and destroyed at the time of the disease.
A programme of elimination by slaughter of the remaining susceptible animals in the households/villages which had been infected was carried out later. A total of 1,266 out of 1,847 infected and in-contact animals had been slaughtered by 30 September. The Government of Albania has authorized increasing the compensation to the farmers from 25% initially to 40 % in order to speed up the elimination of all possibly infected animals by the end of 1996. On 03 February, a total number of 4,291 heads had been

eliminated and subsidised

Strain: **FMD virus type A** was isolated and the nucleotide sequencing of the outbreak strain showed it to be very closely related to a strain circulating in India and Saudi Arabia. Meat on the bone had been imported from India so either could have been the source of infection. It is likely that the origin of the outbreak could be the import of buffalo meat on the bone from India.

Vaccination (see Tables 5 and 7): ring vaccination was carried out with an A22 Iraq vaccine strain. 266 048 animals (59,234 cattle, 137,190 sheep, 62,202 goats and 7,422 pigs) have been vaccinated during the first round of vaccination between 20 June and 12 July. The second round of vaccination started on 05 August and finished on 10 August. 285,263 animals have been vaccinated (61,742 cattle, 156,158 sheep, 59,814 goats and 7,549 pigs. A total of 370,000 bovine doses have been provided to complete the two rounds. We have been informed by the Veterinary Service of Albania (through the reply to the questionnaire on vaccine availability) that 16,000 doses have not been used and have been kept in Korcha i.e the number of doses really used was 354,000 (see table 7). All vaccinated animals were marked by notching the right ear with a circular hole. Those animals present in the infected villages were, in addition, notched on the left ear.

Table 7: Vaccination campaigns in Albania

	Cattle	Sheep/Goats	Pigs	Total	Doses
First round	59,234	199,392	7,422	266,048	166,352
Second round	61,742	215,972	7,549	285,263	177,277
Total					343,629

Monitoring of vaccination (with the participation of the Brescia Laboratory, Italy): serological testing was carried out on approximately 200 animals of different species in order to assess the antibodies before and after vaccination. Animals were identified by ear tags with a number and three series of samples were collected on animals in June (before vaccination), in July (after one injection) and in October (after two injections). The results are presented by the Brescia laboratory.

Surveillance zone: a surveillance zone has been established all around the vaccination zone and along the border with Macedonia and Montenegro. This border surveillance zone with Montenegro has been suppressed after a few weeks but the other surveillance areas were maintained for 8 months. No movement of animals was authorized between the zones.

Training of laboratory staff: The multicountry PHARE programme should provide support to Albania for training of veterinarians especially for laboratory staff. In addition to the EU support, a veterinary agreement has been signed with Italy. Through this agreement, Italy will provide expertise to Albania in several domains including laboratory know-how.

Economical aspects: The estimate of the cost of the outbreak for the Government of Albania has not been communicated. The cost for vaccine ($ 115,908) and equipment for vaccination ($ 31,219) has been covered by EU through the EUFMD TF911100.

Former Yugoslav Republic of Macedonia

FMD outbreaks: first suspected on 25 June. Seventeen outbreaks occurred in the Skopje District and one in Titov Veles District. The last clinical case was observed on 13 July. A combined method of strict

stamping out and emergency ring vaccination were chosen to stop and eradicate the disease. Stamping out started on 1 July and 4,369 animals were killed out of which 4,030 were cattle and the rest were animals of other susceptible species. They were all destroyed and buried in 25 separate pits. Farmers were compensated 100% for all destroyed animals.

Viral strains: strains of type A FMD virus similar to those isolated in Albania were isolated from outbreaks in Macedonia at the WRL.

Vaccination: Two rounds of vaccination of cattle have been completed. The first round was from 10 to 20 July and the second from 5 to 15 August. Approximately 120,000 cattle were vaccinated and revaccinated in this campaign. Other susceptible species were not included in the vaccination. Vaccinated cattle should have been marked by one notch (hole) in the right ear. However, problems occurred in regard to the marking of cattle due to the utilisation of inappropriate ear pliers and therefore marking of vaccinated animals was not properly carried out. Exact figures on the number of animals present and the exact number of vaccinated cattle in the different districts/zones have not been provided to the Commission.

Regarding the vaccination of sheep and other susceptible species, the Veterinary Service of Macedonia considered that, as the disease was under control at the time that this question was considered (two months without cases), there was no need, at this stage, to vaccinate other susceptible animals.

Surveillance zone: clinical surveillance was maintained in the vaccination and surveillance zones. Repopulation of the infected villages has started with vaccinated cattle from the vaccinated zone.

Laboratory training: two specialists of the National Laboratory have already been trained in Tübingen on ELISA and one expert of the Joint FAO/IAEA Division of Vienna visited the Skopje Laboratory to establish the ELISA in this laboratory.

Serosurvey: Collection of serum samples has been carried out by the National Veterinary services to estimate the level of antibodies after the vaccination but the figures on the number of samples collected /tested before and after vaccination are not available; neither are the results of the tests.

A team of experts from EU worked together with national experts to prepare the strategy of serological testing which should be carried out early in spring 1997.It had been decided to cover the whole country without regard to the different zone status of the municipality. 10 villages from every municipality were randomly selected . 10 cows and 1 bull, 10 ewes and one ram will be taken for serotesting from every selected village. Blood samples should be doubled which allow a double testing by the National Veterinary Institute, Skopje and by one EU laboratory for the purpose of comparing the results and checking the quality of work in the National Laboratory.

Economical aspects : according to the national authorities, the total damages due to this epidemic are enormous including direct and indirect losses and they still have to be fully estimated. The main losses are due to the ban on export of lamb meat to the European market which is one of the biggest and most important incomes for the country. The ban on exports will have a serious impact on the sheep industry and on the whole economy of the country. The cost for vaccine ($43,459) and the supply of small equipment for vaccination ($7,490) has been supported by EU and paid under the EUFMD TF 91100. The campaign for serotesting should also be sponsored by EU.

FR of Yugoslavia

FMD outbreaks: FMD was reported by the Veterinary Service of the FR of Yugoslavia in Kosovo close

to the border with FYROM on 7 July. A total of 101 villages were diagnosed infected. The last report was on 2 August. Since then two suspicions occurred, but they were ruled out by the National Laboratory. Only the stamping out method has been applied, 3,496 animals were destroyed,i.e. 2,298 cattle, 734 sheep and goats and 496 pigs. The WRL was unable to identify or isolate any FMD virus from tissue samples or show serological evidence of infection in 234 cattle blood samples submitted for diagnosis. Full control measures were implemented.

Surveillance: Clinical inspection and prohibition of the exit of animals from the protection and surveillance zones are maintained. Animals are slaughtered in the zones and meat is also consumed in the same zone. Check points at the exit of Kosovo are strictly maintained and animals and animal products from Kosovo do not exit the area.

At the time of the episode, 200,000 sheep were in three different mountains situated in the protection zone, surveillance zone and "free zone". These animals returned to the same zone in November.

Vaccination: 100,000 doses of monovalent vaccine were provided by the Commission to the Government of Yugoslavia as emergency stock but **no ring vaccination was considered necessary** and therefore this vaccine has not been used.

Economical aspects: no estimate of the cost of this episode has yet been provided by the Government of Belgrade. The cost for provision of the vaccine was $41,878 paid by the EUFMD Commission under Trust Fund 909700.

Coordination of the control and surveillance measures in the region

Regional Committee/meetings

A regional Committee has been established to coordinate the measures in the three countries. The Committee held three meetings on 03 August in Skopje, 22 August in Tirana, and 02 October in Belgrade, with the participation of the three CVOs and of the international organisations EC, OIE, EUFMD. Meetings were also held in Brussels on 05 and 18 July organised by the European Commission (EC).

Vaccination of sheep coming back from mountain pastures.

At the meeting of 02 October held in Belgrade, all countries considered that the disease was under control in the previously infected area and therefore it was not their intention to vaccinate these animals.

Serosurvey:

A serosurvey with the following steps has been proposed by the regional Committee meeting of 02 October. This proposal has been endorsed by EC. The main objective of the serology is to confirm that there is no circulation of the virus in the region :

1- Missions of EU experts visited the three countries in October 1996 to prepare a programme for the survey.
2- The serum samples shall be collected by the national authorities under the supervision/coordination of one EU laboratory and according to the programme proposed by the EU missions and agreed by the National Veterinary Service.
3- Testing of the samples by ELISA in recognized EU laboratories.
4- Analysis of the results at the national and regional levels.

EU experts have visited the three countries to establish the design of the serosurvey. This serosurervey should be financed by EC and organized jointly by the EUFMD Commission and EC.

SITUATION IN ISRAEL

(see the Report of the Research Group meeting held in Israel in September 1996)
28 outbreaks due to type O were reported in Israel between January and September 1996. The disease occurred mainly in small farms widely distributed in the country involving non-vaccinated animals. The strain of type O FMDV involved in these outbreaks had been relatively invariable during the 1990's, and remained closely related to vaccine strains in use. Dairy farms regularly vaccinated were efficiently protected.

SITUATION IN CIS COUNTRIES

The Ukraine, Byelorussia, Moldova and Russia remained free of disease. FMD was reported in the following countries in 1996:

Azerbaijan

- FMD type O was diagnosed on 6 February in the Agdzhabedinsky region (adjacent to Iran). Two outbreaks have been reported involving a flock of 855 sheep and a herd of 141 bovines of which 64 sheep and 85 cattle were affected in two kolkhozes at a distance of 5 km from each other.
- At the end of July, FMD type O was confirmed in the Nakhichevan Autonomous Region where 49 cattle and 120 sheep were affected out of 570 and 1,700 respectively. Disease was confirmed by the National Veterinary Laboratory of the Republic of Azerbaijan.

Armenia

The disease occurred in July 1996 in the North West of the country. Virus type O was isolated at the OIE Regional Reference Laboratory (ARRIAH, Vladimir, Russia). The national stock of vaccine of 250,000 doses was used and 350,000 doses were imported from Russia. A total of 600,000 doses were used which, according to the Director of Veterinary Services, represented only half of the vaccine required. A request for the supply of 600,000 doses was addressed to OIE.

Georgia

FMD due to types O and A occurred in September 1996 in sheep and bovines at the border zone with Turkey. FMD started in the sheep. 85 clinical cases were diagnosed. The laboratory confirmation was carried out at the Central Laboratory at Tbilissi and Georgia bought 125,000 doses of FMD vaccine from Shelkosky factory in Russia. The Director of Veterinary Services of Georgia estimates that he needs a further 300,000 bivalent doses to vaccinate cattle and sheep in the border districts.

Kazakhstan and Uzbekistan

Disease was reported in March from the Chimkent region of Kazakhstan on the border with Tashkent, region of Uzbekistan. FMD type O was confirmed at the ARRIAH by serological testing of 10 serum samples from convalescent non-vaccinated cattle. In all the affected area, the diseased animals had not been vaccinated against FMD.

Role of the All-Russian Research Institute for Animal Health (ARRIAH)

In addition to its role of OIE Reference Laboratory for FMD for Eastern Europe, Central Asian and Transcaucassian countries, the ARRIAH, Vladimir, continues to maintain a reserve of monovalent and polyvalent vaccines for immunisation of cattle and pigs on behalf of Bulgaria, Moldova, and Ukraine.

A regional project has been prepared jointly by Armenia, Georgia, Kazakhstan Kyghistan, Russia and Uzbekistan. They propose the establishment of a buffer vaccination zone against FMD and sheep pox in Transcaucassia and Central Asia regions. This project has been submitted to OIE.

ASIA

SITUATION IN THE MIDDLE EAST

One FMD outbreak has been reported by the **Palestinian National Authorities**, in Bethlehem in January. Type O has been isolated in **Bahrain, Iran, Jordan, Kuwait** (3 outbreaks). Type A is present in **Saudi Arabia. Iran** has reported a large number of outbreaks due to type A. According to the WRL, type A FMD virus circulating in Iran is genomically and antigenically different from previously recognized type A virus. Biochemical and antigenic characterisation of the Iranian outbreak strain indicates that vaccines currently available give poor protection against this strain.

INDIA AND THE FAR EAST

FMD remains endemic in all of the mainland region with the exception of North and South Korea. The situation in **China** is largely unknown. Serotypes O,A,C and Asia 1 have been isolated although their individual distribution cannot be confirmed due to the absence of surveillance in some countries. **Peninsular Malaysia and the Philippines** continue to have sporadic outbreaks due to type O,A, and Asia and type O respectively. Type O has been isolated in Afghanistan
In **Thailand** the FMD Centre at Pakchong diagnosed FMD virus type O in 13 samples and type Asia 1 in 4 samples.

AFRICA

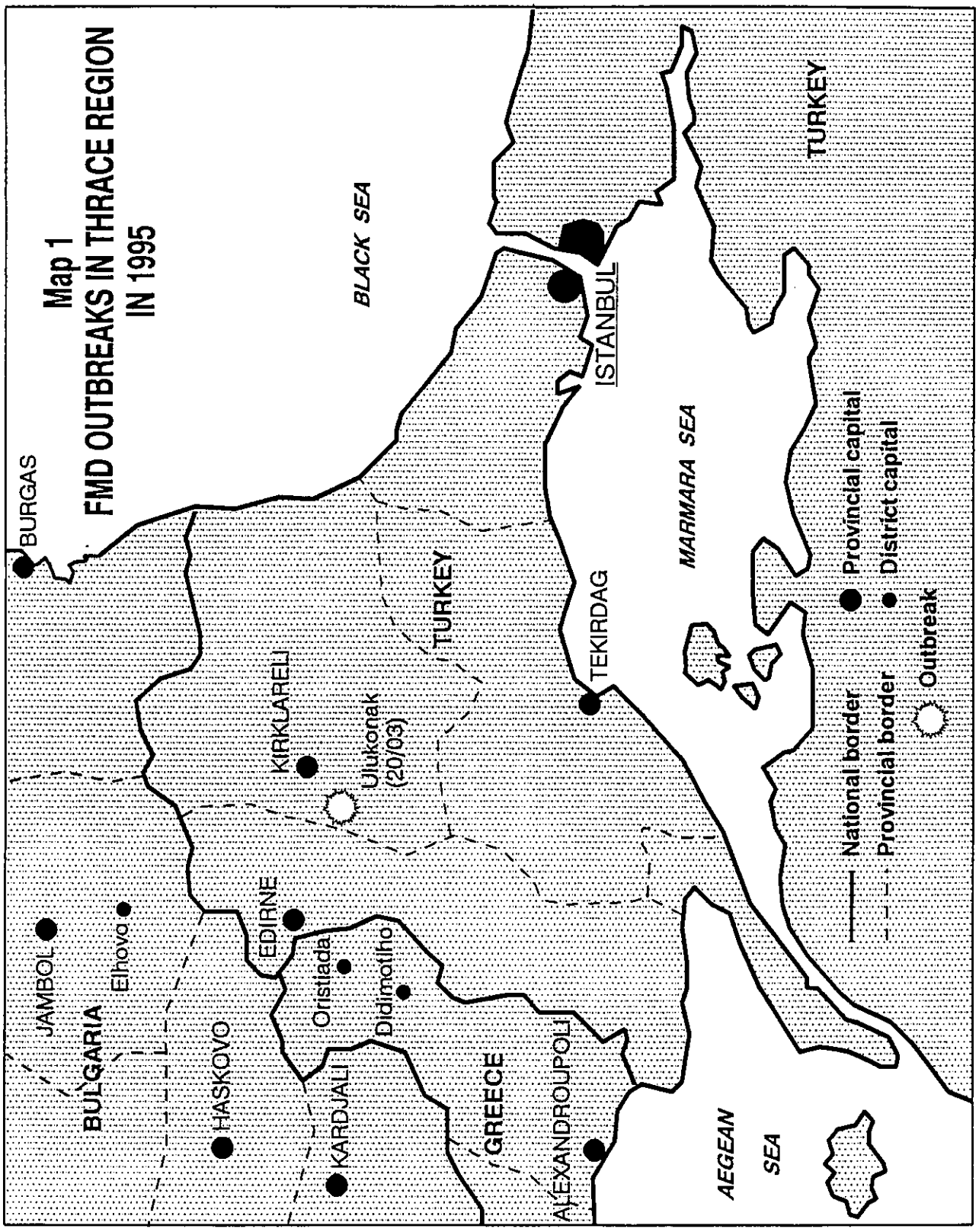
The Republic of South Africa, Botswana, Zimbabwe, Morocco, Algeria, and Tunisia, remained free from FMD in 1996.

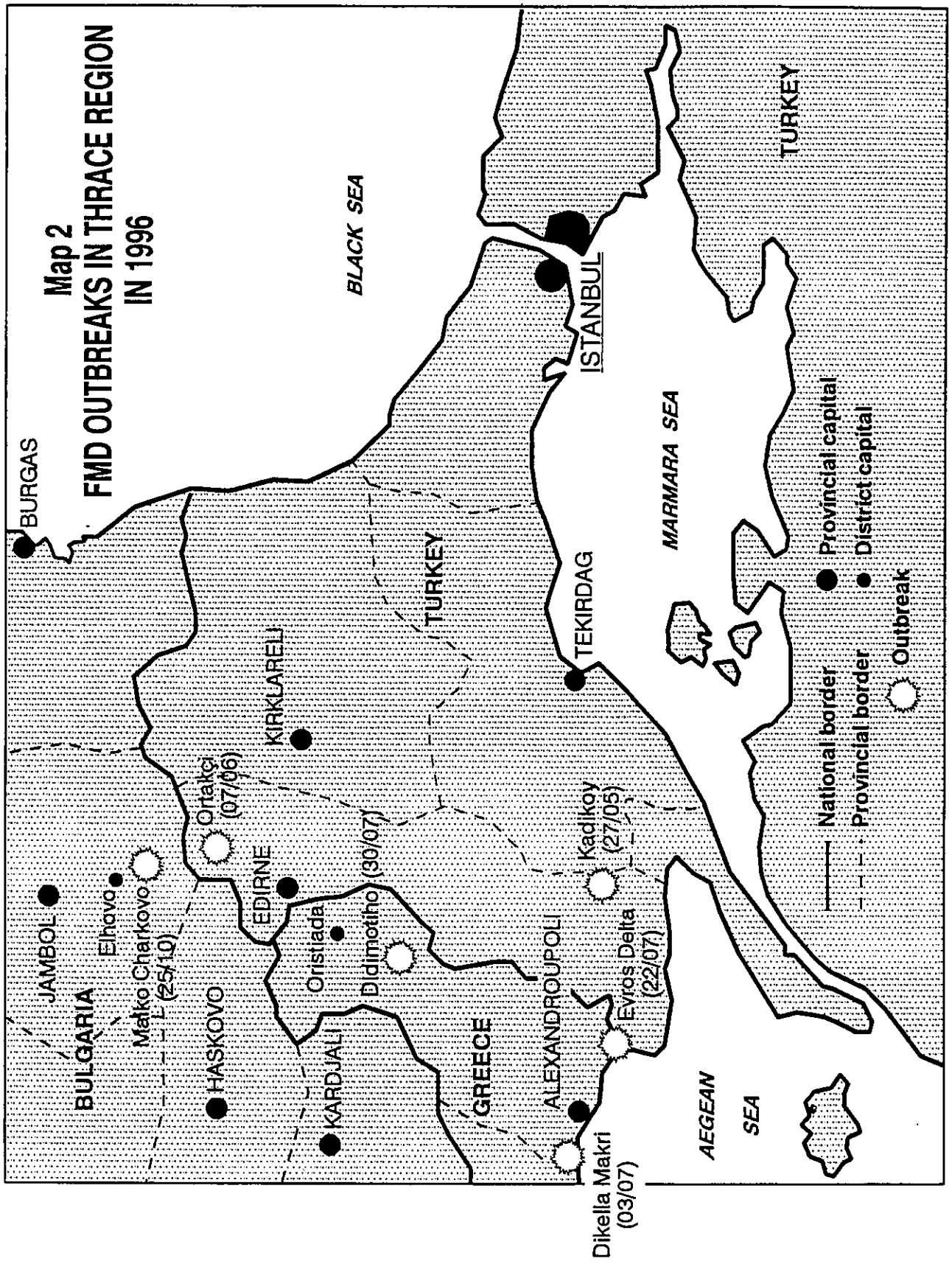
Reporting of FMD is not done on a regular basis in other countries in the sub-saharian region. In 1996 the disease has been reported in **Burkina Faso** (clinical diagnosis), **Côte d'Ivoire and Ghana** type A, **Ethiopia and Erithrea** type O, **Kenya** types A, C and SAT2, **Tanzania** types O and SAT1, **Rwanda** type SAT1, **Uganda** type O and SAT2. 13 outbreaks due to Type O and type SAT2 have been reported since January 1996 in Uganda. Bovine and caprine populations are involved and 50% of a total of 294,000 heads of livestock have been affected. The introduction of the disease is related to movement of local cattle in communal grazing within a common border area of Rwanda/Tanzania/Uganda where FMD is currently epidemic.

One outbreak affecting four herds has been notified in **Zambia** in the district of Sesheke, Western Province, by the OIE Regional Laboratory. FMD virus of type SAT3 is suspected.

SOUTH AMERICA (see Table 3)

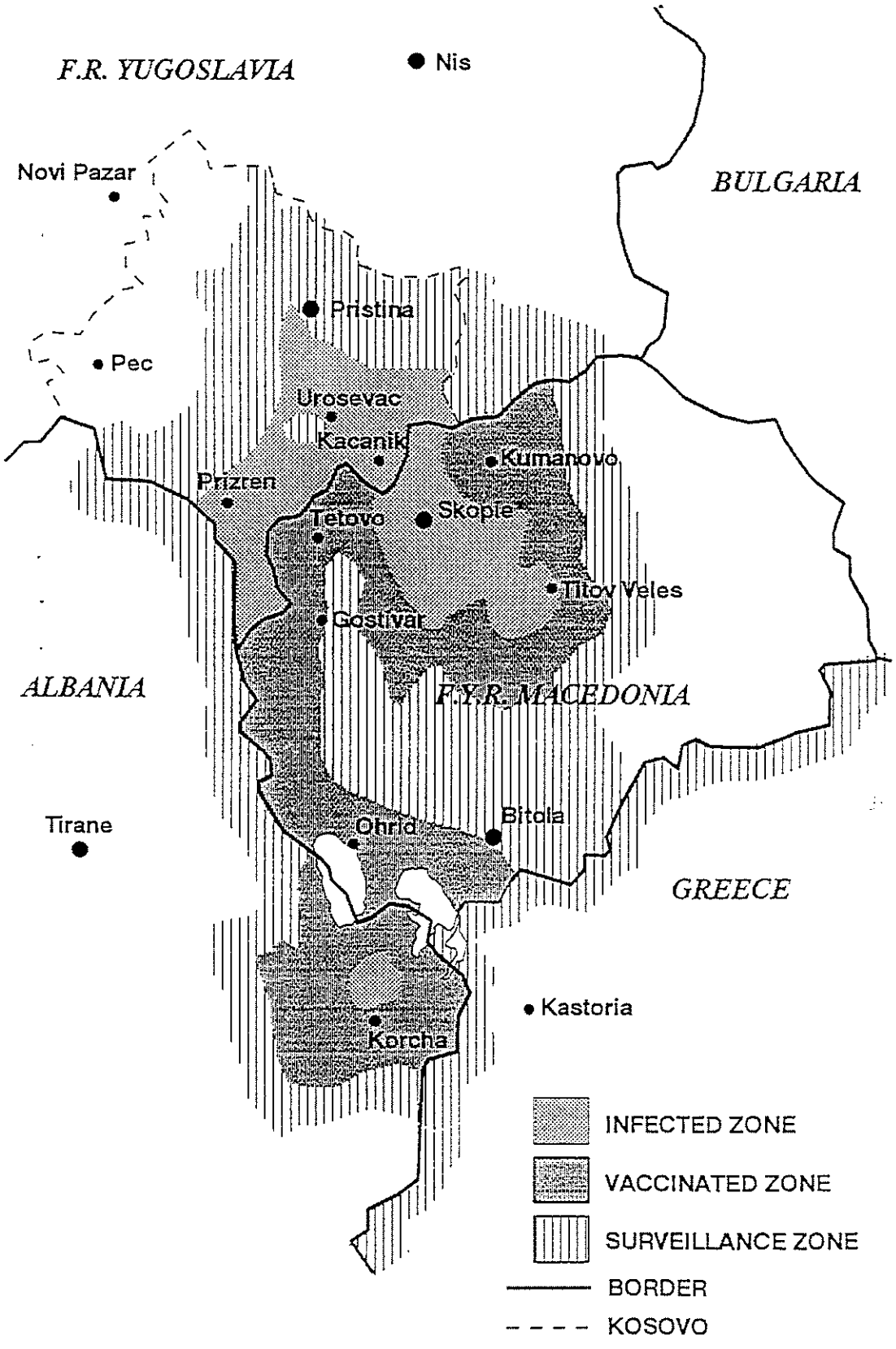
The general situation of FMD continued to improve in South America in 1996. 1,072 outbreaks (affected herds) of vesicular disease were recorded which is 1,222 fewer than in 1995. In 1996, 612 samples collected for diagnosis of which 53 type O and 123 type A virus were identified. Vesicular Stomatitis virus was isolated from 194 samples (mainly in Colombia). The majority of the FMD outbreaks were reported in **Colombia and Brazil**. No cases of FMD (vesicular diseases) occurred in Argentina since April 1994, in Paraguay since September 1994, in the States of Santa Catarina and Rio Grande do Sul since December 1993. Uruguay is free from FMD since 1995 and Chile since 1981.
The identification of the field strain was carried out at the Pan American FMD Centre, Rio de Janeiro Brazil. Subtypes O1 and A24 were identified in Brazil, subtypes O1, A24, A27, A32 in Colombia, subtypes O1 and A27 in Ecuador and subtype O1 in Peru.


Map 1
FMD OUTBREAKS IN THRACE REGION
IN 1995
BURGAS
JAMBOL
Elhovo
BULGARIA
HASKOVO
KARDJALI
EDIRNE
Oristiada
Didimotiho
KIRKLARELI
Ulukonak
(20/03)
TURKEY
GREECE
ALEXANDROUPOLI
BLACK SEA
TEKIRDAG
ISTANBUL
MARMARA SEA
AEGEAN
SEA
TURKEY
National border
Provincial border
Provincial capital
District capital
Outbreak


Map 2
FMD OUTBREAKS IN THRACE REGION
IN 1996
BULGARIA
BURGAS
JAMBOL
Elhovo
Matko Charkovo
(25/10)
HASKOVO
Ortakçi
(07/06)
EDIRNE
KIRKLARELI
Orsitlada
Didimotiho
(30/07)
KARDJALI
GREECE
TURKEY
BLACK SEA
ISTANBUL
TEKIRDAG
MARMARA SEA
Kadikoy
(27/05)
ALEXANDROUPOLI
Evros Delta
(22/07)
Dikella Makri
(03/07)
AEGEAN
SEA
TURKEY
National border
Provincial border
Provincial capital
District capital
Outbreak

MAP 3

FMD Zones in Albania, FYRO Macedonia and FR Yugoslavia



Appendix 2

Report on the Commission's Activities in 1995-1996

GENERAL

The foot-and-mouth disease (FMD) epidemiological situation in Europe gave cause for great concern in the 1995–1996 period, especially in 1996. Apart from the persistence of sporadic outbreaks of type O in Turkish Thrace and the Greek-Turkish frontier areas, an outbreak of type A affected three countries in the Balkans. For the first time since 1994, strategic ring vaccination around and in the infected area was necessary in order to control the disease in two countries. On this occasion close collaboration was established between the Commission, the EC and the OIE. The EUFMD Commission supplied these countries with vaccine and vaccination equipment, thanks to financial support from the EC.

This outbreak revealed weak points in some countries' FMD prevention and control systems:

1. imports of meat from a country not totally free of FMD could have been the source of infection;
2. National Veterinary Services were ill prepared to take charge of diagnosis and control of the disease;
3. initial clinical diagnosis of the disease was often slow, and confirmatory diagnosis by national laboratories was often inaccurate (whether by under- or over-diagnosis).

Swiftly implemented vaccination measures were undoubtedly largely responsible for controlling the spread of the disease. This was the first time since its creation in 1993 that the antigen bank established by the European Community was used to reformulate vaccine. It became clear at this time that there were a number of flaws in the procedure for organizing emergency vaccination with reformulated vaccine from the EU bank (see also Appendix 8).

The situation in Turkey showed no significant improvement in 1995 and 1996, despite vaccination carried out in Anatolia. The level of vaccination cover in the strategic vaccination zone of western Anatolia was insufficient to ensure real protection. Moreover, there was little control over the movement of animals between zones (and toward Thrace). This resulted in occasional incursions of the virus into the European part of the country, while outbreaks of the same type of virus (type O) also occurred in eastern Greece and northern Bulgaria along the frontier with Turkey.

SPECIFIC ACTIVITIES

1. **The Executive Committee** held two regular sessions, the Fifty-eighth in Milan, Italy, on 18–19 March 1996, and the Fifty-ninth in Budapest, Hungary, on 20–21 November 1996. It also held an *ad-hoc* meeting in Paris, France, on 20 May 1996, at the time of the Sixty-fourth General Session of the OIE. The report of the Fifty-eighth Session of the Executive Committee was distributed to all the member countries of the Commission in February 1996, while that of the Fifty-ninth Session was distributed during the Session.

2. **The Research Group** of the Standing Technical Committee of the Commission held two sessions in the 1995–1996 period. One was restricted to group members and was held at the All-Russian Research Institute for Animal Health at Vladimir, the Russian Federation, on 20–22 September 1995, while the other was open to group members and observers and was held at Ma'ale Hachamisha, Israel, on 2–6 September 1996. The reports of both Sessions have been distributed.

3. **The EUFMD/EC/OIE Tripartite FMD Group** met twice during the two years to discuss the situation with representatives of Bulgaria, Greece and Turkey: on 20 November 1995 at Alexandroupolis, Greece, and 11 October 1996 at Ankara, Turkey. The latter meeting was essentially devoted to reviewing the situation in Turkey following the joint EUFMD/EC mission which visited the various regions of Turkey between 17 September and 10 October 1996. Another meeting of representatives of the three countries in the region was held at Oristiada, Greece, on the initiative of EC, on 17 August 1996.

4. **The Commission Secretariat** kept in close touch with the member countries of the Commission, especially those affected or threatened by the disease.

- **Missions** to the countries concerned were undertaken by the Secretary and Commission experts, and were usually carried out jointly with those of the EU (see section on missions below).
- **Bulletins** providing information on the situation were faxed to all member countries whenever judged necessary. These bulletins were, in principle, distributed in the two languages of the Commission, but sometimes the situation was so urgent that the Secretariat did not have time to provide a French version.
- **Joint EC and OIE coordination meetings** were held on three occasions for the Balkan countries affected by the type-A epidemic (at Skopje on 3 August 1996, Tirana on 22 August 1996, and Belgrade on 2 October 1996).

COLLABORATION WITH THE WORLD REFERENCE LABORATORY AND NATIONAL LABORATORIES

The Commission's activities were made possible by the scientific and technical support of the World Reference Laboratory (WRL) of the Animal Health Institute at Pirbright (see Appendix 5). WRL experts took part in several field missions during the Balkan epidemic (see the section on missions below). The WRL isolated and characterized the strains responsible for the outbreaks in the Balkans. Comparison of strains through nucleotide sequencing provided vital information on the epidemiology of both type-A and type-O outbreaks.

The Commission contributed financially to the WRL's coordination and research activities in the following areas:

- Phase XIV in the standardization of laboratory tests for serological diagnosis of FMD;
- study of the detection of FMD antibodies by ELISA in milk;
- study of viral excretion by wild boars (undertaken jointly with the National Laboratory of Israel);
- analysis of the results of serological research in Greece in 1994.

Scientific exchange on the use of the PCR method of detecting virus-carrying animals has taken place between the National Laboratories of Belgium and Romania. The Fifty-eighth Session of the Executive Committee agreed that certain travel expenses related to this exchange should be covered out of the Commission's budget.

The Zooprophylactic Institute of Brescia, Italy, made a major contribution to the Commission's activities through its technical and scientific support in initial diagnosis of the disease in Albania and its participation in four field missions.

MISSIONS

During the period under consideration, the following missions were undertaken by experts and

the Secretary in connection with the Commission's activities, the costs being met from the Commission's Trust Funds.

Experts

WRL, Pirbright

- Velingrad, Bulgaria, 28 May–3 June 1995: consultant at the regional EUFMD/EMPRES workshop on contingency planning and emergency preparedness.
- Alexandroupolis, Greece, 9–10 November 1995: Tripartite meeting.
- Albania, 27 May–1 June 1996: first joint EUFMD/EC mission.
- Milan, Italy, 3 July 1996: coordination meeting with EC representatives on the situation in Albania.
- Ankara, Turkey, 11 October 1996: Tripartite EUFMD/EC/OIE meeting.

IZS Brescia

- Albania, 27 May–1 June: first joint EUFMD/EC mission.
- Albania, 12–25 June: second mission to launch the vaccination campaign.
- Albania, 22–28 July: mission to monitor the vaccination campaign, and collect serology samples.
- Albania, 28 October–3 November: second mission to collect serology samples.

Secretary

1995

- Tübingen, Germany, 1–2 March: Fifty-seventh Session of the Executive Committee.
- Thrace, Turkey, 27–29 March: fact-finding mission following an FMD outbreak.
- Albaron, France, 3–5 May: participation in a seminar on the organization of FMD emergency plans.
- Paris, France, 15–22 May: 63rd General Session of the OIE.
- Velingrad, Bulgaria, 28 May–3 June: organization of the EUFMD/EMPRES Regional Workshop on Contingency Planning and Emergency Preparedness.
- Vladimir, Russian Federation, 20–22 September: Session of the Research Group.
- Brussels, EC, 26–27 October: Symposium on dangers in areas with a high livestock density.
- Brussels, EC, 3 November: EUFMD/EC meeting on FMD control strategies and on preparations for the joint mission to Turkey.
- Alexandroupolis, Greece, 9–10 November: Tripartite EUFMD/EC/OIE FMD Group meeting with representatives from Bulgaria, Greece and Turkey.

1996

- Paris, France, 15–19 January: meeting of the OIE's FMD and Other Epizootics Commission.
- Milan, Italy, 17–20 April: Fifty-eighth Session of the Executive Committee.
- Paris, France, 20–23 May: 64th General Session of the OIE.
- Albania, 27 May–1 June: first joint EUFMD/EC mission.
- Albania, 11–17 June: second mission to launch the vaccination campaign.
- Turkey, 17–21 June: mission to Thrace following two outbreaks in late May and early June.
- Milan, Italy, 3 July: coordination meeting on Albania with EC representatives.
- Brussels, EC, 5 July: meeting with the EC and the Directors of the Veterinary Services of Albania and FYR of Macedonia.

- Belgrade and Kosovo, FR of Yugoslavia, 14–17 July: first visit following the notification of outbreaks in Kosovo.
- Skopje, FYR of Macedonia, 16 July: visit to infected zone and vaccination zone (from Kosovo).
- Brussels, 18 July: meeting with Directors of Veterinary Services of EU countries and countries infected or threatened by FMD.
- FYR of Macedonia, 2–4 August: joint mission with the EC, and first EUFMD/EC/OIE regional coordination meeting on measures to be implemented in the three countries (Albania, FYR of Macedonia and FR of Yugoslavia).
- Zagreb, Croatia, 7 August: fact-finding and sensitization visit to the Director of Veterinary Services.
- Evros Prefecture, Greece, 15–18 August: joint mission with the EC on the situation in the region, meeting at Oristiada with representatives of the Veterinary Services of Greece, Bulgaria and Turkey.
- Tirana, Albania, 22 August: second EUFMD/EC/OIE regional coordination meeting on measures to be implemented in the three countries (Albania, FYR of Macedonia and FR of Yugoslavia).
- Israel, 31 August–7 September: meeting of the Research Group.
- Paris, France, 10–12 September: meeting of the OIE's FMD and Other Epizootics Commission.
- Turkey, 17–22 September: first phase of the joint EUFMD/EC assessment mission.
- Belgrade, FR of Yugoslavia, 2 October: third EUFMD/EC/OIE regional coordination meeting on measures to be implemented in the three countries (Albania, FYR of Macedonia and FR of Yugoslavia).
- Turkey, 7–13 October: second phase of the joint EUFMD/EC assessment mission; Tripartite EUFMD/EC/OIE FMD Group meeting in Ankara on 11 October with representatives from Bulgaria, Greece and Turkey.
- Bulgaria, 31 October–4 November: joint EUFMD/EC mission following an outbreak.
- Brussels, EC, 23 October: meeting to discuss setting up a serosurveillance programme in the Balkans (Albania, FYR of Macedonia and FR of Yugoslavia).
- Budapest, Hungary, 18–21 November: Fifty-ninth Session of the Executive Committee.
- Brussels, EC, 5 December: meeting with veterinary authorities of Turkey and the Deputy Director-General of the DG VI to discuss a new FMD control programme in Turkey, especially Thrace.

NEW MEMBER COUNTRIES

The following countries became members during the biennium: Slovenia on 25 July 1995, and the FYR of Macedonia on 24 February 1997 Contacts were also established with the following countries and information supplied in order to encourage them to join the Commission: Armenia, Azerbaijan, Bosnia-Herzegovina, Estonia, Georgia, Latvia, Slovakia.

OTHER TRAINING AND INFORMATION ACTIVITIES OF THE COMMISSION

- A Workshop on Contingency Planning and Emergency preparedness in case of an FMD outbreak was organized jointly by the Commission and the FAO/EMPRES Programme at Velingrad, Bulgaria, 28 May–3 June 1995, aimed at the countries of southern Europe and the Near East. A similar workshop for the countries of central Europe has been proposed for the autumn of 1997.

- A Newsletter on the Commission's activities and other activities connected with FMD control and prevention in Europe has been produced in English and French. The first issue appeared in January 1996. Unfortunately, the heavy workload caused by the epidemiological situation during 1996 made it impossible for the Secretariat to prepare the second issue, which was due in June 1996. The first issue will shortly be available on the Internet, and forthcoming issues should also be available on the Internet in due course (see Appendix 12).

Appendix 3

Summary and recommendations of the Report of the EUFMD/EC Mission to Turkey

1. INTRODUCTION

A joint mission was undertaken to Turkey between 17th September and 13th October 1996 on behalf of the European Commission for Control of Foot and Mouth Disease (EUFMD) and the European Community (EC) with the approval and the participation of the Turkish Government. The cost for the mission was covered by EC underTrust Fund 9111000 EUFMD Trust Funds. The mission members were as follows:

Dr Tony Garland, FMD Expert Consultant, United Kingdom.
Dr Franz Steinegger, Epidemiological Expert Consultant, Italy.
Dr Mustafa Tufan, Epidemiological Expert, GTZ Project, Turkey.
Dr Alf-Eckbert Fussel, EC, Brussels, Belgium.(Final week).
Dr Yves Leforban, Secretary, EUFMD Commission, FAO, Rome, Italy.(First and last weeks).

2. ORIENTATION AND METHODOLOGY

The mission was essentially field orientated with the objectives of evaluating the actual status of the control of Foot and Mouth Disease (FMD) and certain other Office International des Epizooties (OIE) List A Diseases in Turkey and of making recommendations for the strengthening of existing control measures. Priority was accorded to the feasibility, estimated chances of success and cost-benefit of various options for FMD control.

An intensive series of visits, meetings and discussions was conducted during the mission when facts and opinions were collected from relevant sectors of the community with responsibility for, knowledge of, or an interest in, the control of FMD and other diseases.

3. TERMS OF REFERENCE

- to establish the field situation in Turkey and particularly in Thrace and Western Anatolia with regard to the control of FMD and other OIE List A diseases;
- to make proposals to the Veterinary Services in Turkey to improve disease surveillance and control;
- to evaluate the existing identification, movement and disease control arrangements and propose measures for improvement;
- to evaluate the surveillance systems and measures taken at the borders between Turkey, Greece and Bulgaria, and to make proposals for improvement;
- to evaluate the effectiveness of the Thrace Buffer Zone and the Strategic Vaccination Zone (SVZ) in Western Anatolia and propose measures for improving the actual situation;

- to evaluate the Turkish National Programme for FMD control and identify with the Turkish Authorities the possible options for achieving the Turkish objective of controlling FMD;
- to evaluate the impact of the possible options to reduce the risk of spreading of FMD from the Near East to Europe;
- to assess with the Turkish authorities the need for financing of the Turkish National Programme for FMD control
- to assess the true economic impact of FMD in Turkey;
- to assess the cost-benefit of the possible options for FMD control in Turkey;
- to evaluate the possibility of establishing an external Quality Control for FMD and Rinderpest vaccines;
- to assess the FMD vaccine needs for each option and the possibility of supply;
- to review the Turkish authority's FMD Contingency Plan for Thrace.

4. GENERAL BACKGROUND

5. THE AGRICULTURAL AND LIVESTOCK INDUSTRIES

Table 1 : Livestock Figures from The Turkish Office of Statistics (SIS) :

YEARS	CATTLE	BUFFALO	SHEEP	GOATS	TOTAL
1991 -1994	13,246,898	401,176	46,202,886	14,506,682	74,357,642

(Note: SIS figures are identical for 1991,1993, and 1994).

Table 2 : Livestock Figures from MARA (1994) :

SPECIES	TOTAL NUMBER
CATTLE	11,981,210
BUFFALO	405,550
SHEEP	39,829,930
GOATS	10,867,790
OVERALL TOTAL	**63,084,480**

Table 3 : Livestock figures from FAO

YEARS	CATTLE	SHEEP	GOATS	BUFFALO	TOTAL
1992	11,973,000	40,433,010	10,764,000	10,000	63,180,000
1993	11,951,000	39,416,000	10,454,000	12,000	61,833,000
1994	11,910,000	37,541,000	10,133,000	9,000	59,593,000
1995	11,901,000	35,646,000	9,564,000	8,000	57,119,000

6. VETERINARY SERVICES

Table 4 : Notifiable animal diseases according to Law No. 3285, and respective official control programmes

Disease	Control programme
1- Rinderpest	national
2- Foot and mouth Disease	national
3- Anthrax	national
4- Bovine tuberculosis	national
5- Sheep and goat pox	national
6- Glanders	national
7- Dourine	-
8- Bovine brucellosis	national
9- Caprine and ovine brucellosis	national
10- Fowl plague	-
11- Newcastle	national
12- Salmonella pullorum and gallinarum	national
13- Rabies	national
14- African Horse sickness	-
15- Blue tongue	-
16- Scabies	-

It is recommended that:

- private veterinarians participate in governmental animal disease control programs and the detailed conditions for this participation be worked out as soon as possible.
- a distinct and separate Veterinary Directorate be established within MARA, reporting to the Minister of Agriculture, but with autonomy in the control of the allocated budget and the deployment of resources.

7. THE LEGAL FRAMEWORK FOR ANIMAL DISEASE CONTROL

It is recommended that:

- the various fines for offenders to the law on animal movements be reset with index linked to inflation, perhaps by being related to the current market price of the animals transported. If necessary, supplementary legislation should be passed for this purpose.

- consideration be given to a more severe punishment when the breach of the law can be shown to have resulted in the transmission of a notifiable disease.
- co-operation between the police and military authorities and MARA be strengthened and that - once the penalties have been increased and publicised - a vigorous effort be made to apprehend offenders in each district and to prosecute them to show that the authorities are taking the matter seriously.
- in view of the fact that Peste des Petits Ruminants is known to be moving West from neighbouring countries, PPR be added to the list of the notificable diseases.

- consideration be given to semen, ova or embryos for their inclusion in the listing of animal related materials to be considered for disinfection and disposal.

8. FOOT-AND-MOUTH DISEASE AND ITS EFFECTS

Apart from the direct losses caused by FMD the disease is also responsible for significant indirect economic losses. These can include: the costs of prevention by vaccination and animal movement and vehicle control on one hand and the costs of controlling outbreaks on the other. These latter include the costs of destruction and disposal of infected animals, disinfection measures and financial compensation of farmers. Valuable breeding stock may be destroyed and quarantine of infected premises and neighbouring farms together with the closure of markets and abattoirs disrupts local trade. Still more serious is the effect on international trade where external markets for animals and animal products are closed against countries affected by FMD

9. FOOT-AND-MOUTH DISEASE IN TURKEY AND REGIONALLY

9.1 Laboratory Diagnosis of FMD in Turkey

Table 5 : Laboratory diagnosis of FMD at the Sap Institute:

Year	Total Samples	Negative result %	Positive result %
1995	398	3.6	96.4
1996	416	4.4	95.6

It is recommended that adequate staff be appointed and resources allocated to investigate the role of sheep as disseminators of the virus in Turkey and to carry out full epidemiological investigations of outbreaks

9.2 Foot-and-Mouth Disease in Turkey

Outbreaks of disease in 1914 and 1923 were untyped but from 1952 onwards they were classified as follows:

1952	Types O, A-4, A-5, and C.
1957	Type O.
1962 - 1964	Types O-1 and SAT-1.
1964 - 1966	Types O-1, A-22 and SAT-1.
1966 - 1973	Types O-1 and A-22.
1973	Types O-1, A-22 and Asia-1.
1973 - 1994	Types O-1 and A-22.

Typically, several hundred outbreaks are recorded each year in Anatolia. Type O virus has been endemic in this area since at least 1952, while Type A-22 has been recorded in this region in every year between 1964 and 1993 at declining frequency. No Type A outbreaks were recorded in 1994 but Type A-22 reappeared in 1995 (11 outbreaks) and in 1996 (1 outbreaks in Anatolia up to the end of September).

Types of FMDV exotic to Thrace have spread across the Bosphorous whenever they have gained access to Anatolia as follows:-

Type SAT- in 1962
Type A-22 in 1965
Type Asia -1 in 1973
Type O in 1977/1978
Type Asia-1 in 1984

In 1962 when Type SAT-1 entered Turkey the EUFMD Commission in collaboration with FAO, OIE and the EEC co-operated with national authorities to created an emergency buffer zone by mass vaccination in both Turkish and Greek Thrace and in Bulgaria. Appropriate annual mass vaccination continued in Thrace and, commendably, the area achieved control of FMDV in 1978. In 1989 the Tripartite Group decided - on the basis of the relatively favourable disease situation prevailing since 1978, together with the negative results from a survey carried out in the sheep of the region, and on the opinion of the countries involved in the buffer zone - that vaccination should cease. Turkish Thrace was officially declared free of FMD by the OIE in 1991 and enjoyed freedom from the disease until 1995.

It is recommended that greater transparency, speed and completeness is accorded to the national and international recording of outbreaks of all OIE list A diseases.

9.3 Foot -and-Mouth Disease in Countries Close to Turkey.

In recent years outbreaks of FMD have been recorded in neighbouring or near-neighbouring countries as follows :

To the West:

Bulgaria	1991, 1993 and 1996 (Type O)
Greece	1994 and 1996 (Type O).
Albania	1996 (Type A).
Former Yugoslavian Republic of Macedonia	1996 (Type A).
(Federal Republic of Yugoslavia) Kosovo	1966 ? (Type A ?).

To the East and South East

Armenia	1996 Type O.
Azerbaidjan	1996 Type O.
Iran	1991 - 1996 Annually, Types O and A.
Iraq	1994 Type O, 1996 Type A.
Syria	1991 - 1992 Type O.
Jordan	1991 - 1995 Annually, Type O
Saudi Arabia	1991 - 1995 Annually, Types O, A and Asia-1.
Yemen	1992 - Type O.
Israel	1991 - 1996 Annually, Type O

10. FOOT-AND-MOUTH DISEASE VACCINE AND VACCINATION IN TURKEY

10.1 General Introduction:

Effective vaccination depends upon a series of vital elements. Firstly, there must be adequate availability of vaccine. Secondly, there must be sufficient homology between the existing vaccine strain(s) and the field strain(s) of virus. This requires the ongoing laboratory comparison of the relationship between the vaccine strains available and the strains currently prevalent in the field. Thirdly, the vaccine must be of adequate quality in respect of safety and potency and in compliance with internationally established quality criteria. Fourthly, the vaccine must have sufficient remaining shelf life. Fifthly, the vaccine must be stored and transported under the correct conditions of temperature. Sixthly, the vaccine must be correctly administered according to the manufacturer's instructions. Seventhly, and crucially, the vaccine must be applied to give maximum coverage with the objective of vaccinating 100 % of the target population and with a minimum level of no less than 80 %. Eighthly, and of particular importance in the case of aqueous FMD vaccines giving around 4 months of protection following a single immunisation, the programme of vaccination must make provision for revaccination. There is also a requirement to cater for the fact that maternal immunity in young animals born of vaccinated mothers interferes with FMD vaccination and to plan the campaign accordingly.

10.2 Vaccine Production in the Public Sector:

Despite technical difficulties, particularly concerning the quality of the water, production over the years has increased from 2,275,000 monovalent doses in 1974 to 29,050,000 monovalent doses in the form of 14,525,000, bivalent Type O and A, cattle doses of 5.0 ml by 1988.

Currently the installed production capacity of the plant is for 40,000,000 monovalent doses per annum.

It is recommended that the project to install virus air filtration, in the virus vaccine production area and the cattle challenge unit of Sap institute be carried out as soon as possible and that the Institute meet the recommended standards set by the EU for the containment of live virus in FMD laboratories,

It is recommended that the development of oil adjuvanted FMD vaccines be given high priority.

It is recommended to pursue the objective for the eventual privatisation of veterinary vaccine production in Turkey

10.3 Vaccine Production In The Private Sector

One, single, private Turkish company, Vetal, based in Adiyaman in the SE region began producing veterinary vaccines in 1994 in a purpose-built facility constructed with some government financial. Vetal is in the process of constructing a new,

separate facility for the manufacture of FMD vaccine to EU standards. Separate disease-secure, large animal accommodation for vaccine testing will also be built on the same site. The laboratory is in an advanced stage of construction and equipment is on order for delivery and installation by the end of 1996. The company's intention is to have vaccine ready for the 1997 Spring campaign, starting with the annual production of 4-5 million, bivalent, aluminium hydroxide-saponin, Type O and A doses and gradually scaling up to a maximum capacity of 20 million doses per year. Vetal also have ambitions to manufacture a trivalent vaccine with the addition of Type Asia-1 for export sale in the Middle East.

Vetal intends to develop oil emulsion FMD vaccine and has a collaboration with the Rosenbusch Company in Argentina for the transfer of plant and technology.

The company was willing to consider the use of their secure cattle accommodation under contract to the government for the testing of FMD vaccines manufactured elsewhere.

10.4 Vaccine Production From Other Sources

Foreign companies have supplied FMD vaccine to Turkey in the past. In 1995/96 some 600,000 bivalent doses were imported from the Bayer company in Germany. These were tested at the SAP Institute in respect of bacterial safety and viral innocuity, but not potency, and were privately sold.

10.5 Vaccine Quality Control

It is recommanded that the external QC for FMD vaccine produced by private companies should not be carried out by the SAP Institute, since apart from the virus security aspect already discussed, there is the obvious potential for a conflict of interest.

The mission recommends that the proposals for the Bornova laboratory be implemented as soon as possible.
It is recommended the facilities including cattle isolation facility be established as soon as possible at Bornova Institute and staff trained in modern techniques required for the testing of FMD and other viral, veterinary vaccines - including Rinderpest vaccine.

It is recommended that the Turkish authorities consider the relative costings of continuing to test vaccines at Pirbright as compared with the costs of bringing the SAP Institute facilities up to acceptable standards in respect of disease security and the cost of constructing a new, secure facility at Bornova.

It is recommended that the initial QC testing of all vaccines should be carried out at a totally independent, internationally recognised institute and that, subsequently, random occasional testing of vaccines should be similarly effected.

10.6 Vaccine Pricing

FMD vaccine was supplied free to farmers in the Western Buffer Zone until the beginning of 1996 when a charge of TL 25,000 (approximately $ 0.25) per bivalent dose was introduced.

10.7 Vaccine Handling

Regarding cold storage, it is recommended that a written record of temperatures be kept of the checks including the date, time, temperature and signature and that deep freezers containing very small amounts of vaccine be filled with ice packs or similar to ensure that the temperature remains as low as possible for as long as possible in the event of mechanical or power failure.
It is recommended that at the very least it is necessary for veterinarians, technicians, inseminators etc. to wear rubber boots, to carry a supply of disinfectant and to disinfect hands and boots after leaving - and preferably also before entering - a farm. Attention should also be paid to the disinfection of vaccination equipment between farms. It is recommended that training and refresher courses should emphasise these simple but important measures.

It is recommended that consideration be given to apply vaccination effectively against FMD, RP and SP simultaneously at different injection sites in the same animal (as appropriate to the species) thereby saving time and other resources.

10.8 Vaccination Coverage

Table 6 : Livestock Distribution in the Different Regions of Turkey:

SPECIES	THRACE	ANATOLIA-WBZ	RES. ANATOLIA	TOTAL.
CATTLE	447,195	1,842,015	9,692,000	11,981,210
BUFFALO	7,230	32,820	365,500	405,550
SHEEP	693,820	4,381,110	34,755,000	39,829,930
GOATS	157,645	1,263,145	9,447,000	10,867,790
TOTAL	1,305,890	7,519,090	9,447,000	63,084,480

Table 7 : Percentage Vaccination Coverage by Region and Species in 1995 :

SPECIES	THRACE	%	WBZ	%	R. ANATOLIA	%
CATTLE& BUFFALO			1,933,622	51.6*	2,156,807	21.4
SHEEP& GOATS			2,891,077	51.2	1,759,761	4.0
TOTAL			**4,824,699**		**3,916,568**	

Table 8 : Percentage Vaccination Coverage by Region and Species in 1996* (to the end of July) :

SPECIES	THRACE	%	WBZ	%	R. ANATOLIA	%
CATTLE& BUFFALO	3500	0.8	1 340 280	35.7	4 550 868	22.6
SHEEP& GOATS			1 899 080	33.6	3 474 643	7.8
TOTAL	**3 500**		**3 239 360**		**8 025 511**	

*include September

It is recommended that compulsory, bivalent, Type O and A FMD vaccination be reintroduced in Thrace for all susceptible species and continued for an initial period of three years with annual review. During the three year period determined efforts should be made to improve the FMD situation in the Western Anatolia, including the identification and recording of livestock, movement control, and the cleaning and disinfection of vehicles.

It is recommended that the size of the vaccinated Western Buffer Zone be reduced to an area which can be solidly immunised, monitored and policed and that an immediate feasibility study be carried out to investigate how this may be best achieved.

It is further recommended that consideration be given to the adjustment of the FMD vaccination schedule so that maximum levels of immunity coincide with the intensive movement of animals before and during the Kurban Bayram festival

11. CONTROL OF ANIMAL MOVEMENT :

11.1. General

Animal movement plays a most important part in the spread of infectious diseases, not only directly through the movement of infected animals but also indirectly, through the contact of animals with contaminated vehicles.

The system of livestock production in Turkey entails the movement of large and small ruminants on a vast and continual scale for breeding, export and slaughter. Movements are routinely undertaken both over long distances and locally within provinces and districts. The excellent condition of the motorway network and plentiful motorised vehicles (trucks, pick- ups, tractors and trailers) allow livestock from the eastern feeder regions of the country bordering Georgia, Armenia, Iran, Iraq and Syria to be transported to the major consumer centres in Western Anatolia, including Istanbul, and even to Thrace within 24 hours.

Movement takes place throughout the year but is especially heavy before and during Islamic religious festivals.

11.2. Animal Movement Control at the Bosphorus bridge.

It is recommended that the control of animal movement be strengthened on the Fatih Sultan Mehmet bridge to include all live animal transport in both directions on a 24 hour basis. The education of police should include information on the national importance of animal movement control in the fight against disease and better co-operation should be developed between the various official agencies on the bridge.

It is also recommended that a feasibility study be undertaken as soon as possible on the suggested sighting of a new check point to the east of the bridge.

11.3. Animal movement in Thrace.

Legally imported animals come into Turkey only through the border points of Edirne (Kapikule) at the Bulgarian border by road or rail or through Ipsala by road at the border with Greece. Few animals are imported at the harbour of Tekirdag on the Sea of Marmara. Some imports come to Thrace from Anatolia via the Izmir-Canakkale ferry, officially after having been held for 21 days at the quarantine station of Izmir and a further 6 months in the Western Buffer Zone. However this is in contradiction to the actual practice, according to information given by the head of customs at the harbour in Izmir.

11.4. Animal markets in Thrace.

Heavy movement of animals and animal products occurs from Thrace to the consumer centres of Istanbul. Many animals move to and from the markets at Edirne (daily), Havsa (weekly) and Kesan (weekly). 200-250 cattle a day are traded at the hayvan borsasi (live animal market) of Edirne, with 10% being sold for slaughter and 90% for fattening or for transport to Istanbul. 60% of the auctioned animals are transported to Istanbul alive (70%) or as meat (30%). About 150-200 sheep and goats are also traded daily at Edirne on a similar basis.
The animal market at Havsa, on the highway from Edirne to Istanbul, is the second most important market in Thrace The average per market day is 250 trucks and 1,500-2,000 animals, of which 1/3 are cattle and 2/3 sheep and goats, assembled from all of Thrace

11.5. Slaughterhouses in Thrace.

At the slaughterhouse of **Edirne**, about 40 cattle and 80-100 small ruminants are slaughtered daily. At **Havsa** the slaughterhouse has a capacity of 25 large and 100 small animals. The slaughterhouse of **Kesan**, is well structured with separate slaughtering units for large and small animals.

11.6. Animal movement in the Western Buffer Zone.

The general movement of animals in Turkey is from East to West, from the breeding regions in Eastern and Central Anatolia to the Western Buffer Zone, where the main consumer centres are located. Intensive movement of animals also takes place inside

the Buffer Zone for breeding, fattening or slaughter. The area has a population of some 1,874,835 cattle and buffalo, and 5,644,255 sheep and goats.
The Province of Izmir is one of the key points in the WBZ concerning animal movement, with markets, slaughterhouses, quarantine stations and the harbour of Izmir for the import of breeding and fattening animals.

11.7. Animal Movement in Residual Anatolia.

The number and geographical distribution of FMD outbreaks are a good indicator of animal movement and of the efficiency of measures taken to control the disease. The widespread incidence of FMD indicates that the control of animal movement is problematical. Many factors can be responsible for the weak control of movement including: insufficient checking of transport certificates; ineffective measures against transporters who evade check points; insufficient of quarantine stations for smuggled animals caught at transport check points; insufficient of livestock registration/identification systems; and to trace back animal movements. Finally, the political unrest in the eastern part of the country adds further difficulty to the control of animal movement.

It is recommended that

- the purpose and efficiency of the Check Points be reviewed.
- the concept of a 20 Km stock- free border zone be put into practice in Eastern borders with the co-operation of the security forces.

11.8. General recommendations for strengtening the control of animal movements.

The following measures, given in order of priority, should be be implemented for the improvement of movement control:

- reinforce the check points in both directions at the Bosphorous bridge.

- reorganise the state veterinary service in order to have a direct link from the General Directorate down to District level.
- identify all large ruminants with ear tags and register all livestock at province and district level on a computerised data base.
- install equipment for disinfection at livestock markets, slaughterhouses and villages.
- reinforce the penalties for breaking laws related to livestock and link fines with inflation.
- establish an Animal Health Control Force within the Ministry of Agriculture.
- improve co-ordination between local authorities, including the security forces.
- set up joint mobile teams to catch transporters or traders avoiding check points.
- set up quarantine areas at checkpoints, animal markets and border gates.- educate and train members of the Security Forces in the control of contagious animal diseases.

- educate Heads of Villages, municipality officers, police, customs officers, traders and farmers regarding the importance of animal diseases and movement control, including legal and accurate certification.
- make regulations to standardise the technical and hygienic conditions required for live stock markets and quarantine stations.
- set up specialised customs areas for livestock imports as soon as possible.
- restrict import of livestock to those gates which have licensed quarantine facilities.
- cancel the legal allowance for travellers to up to 5 Kg of meat into Turkey for personal consumption.
- improve veterinary control of livestock markets and slaughterhouses.
- increase the number of veterinary officers in Municipalities.
- improve the functionality of outbreak cordons and quarantine measures in the case of outbreaks.
- develop information and communication systems.

12. ANIMAL IDENTIFICATION AND RECORDING IN TURKEY

Ear tagging and recording are essential for movement control, and for many other purposes, and is recognised as such by MARA.. Unfortunately the first round of tagging in Turkey in 1995 employed plastic tags of inadequate quality and around 90 % of the tags applied have been lost. Green tags were used in Thrace and orange tags in Anatolia. Normally only government officials are authorised to apply ear tags. The price of one ear tag was TL 10,000 in 1995 and 25,000 min 1996 (approximately $ 0.25). Private farmers and breeding co-operatives can also apply ear tags, when they correspond to official norms. The ear tags of imported animals are officially recognised.

The recording of animals and farms seems to be virtually non existent at present.

It is recommended that the planned cattle identification scheme be given maximum priority and that the use of computers for recording be accelerated. Ear tagging could be usefully combined with vaccination.

13. CLEANING AND DISINFECTION OF VEHICLES .

It is recommended that the routine cleaning and disinfection of animal transport vehicles and premises be strengthened as an urgent priority as follows:

- define minimum hygienic conditions for quarantine areas, markets and slaughterhouses.

- provide adequate equipment and infrastructure for disinfection at border posts, checkpoints, animal markets, slaughterhouses and quarantine stations.

- prepare standard procedures and instructions for the cleaning and disinfection of vehicles and premises and train disinfection teams in their application.

- train and control farmers, traders, transporters of livestock, market and abattoir staff,etc. in cleaning and disinfection.

- improve and monitor the system for Disinfection Certificates.

- if necessary modify the law to underpin the requirement for proper cleaning and disinfection.

14. CONTINGENCY PLANS FOR FMD IN THRACE.

It is recommended that :

1- a new FMD contingency plan should be prepared for Thrace by the Turkish authorities.
2 - This plan should include the exact and specific measures which will be adopted in Thrace in the event of an outbreak.
3 - A co-ordinator should be appointed for the control of FMD in Thrace. He should be based at Pendik and be in charge of the establishment and management of the Regional Control Centre.
4 - Clear procedures describing the actions to be taken in the event of an FMD outbreak(s) should be prepared and circulated to all Provincial and District Offices in Thrace.
5 - Contingency Training of Veterinary Services in emergency preparedness should be organised, including field exercises to practice the various procedures.
6 - Public awareness should be a priority task for the RCDC. Publicity should be specifically targeted at farmers, dealers, animal transporters, customs officers, police and their associations, with special emphasis on the rules restricting the movement of animals in Thrace and the cleaning and disinfection of animal transport vehicles.

15. EDUCATION AND TRAINING.

Educational bodies and places of employment for veterinarians and veterinary auxiliary staff in 1992 and 1996:

Personnel	1992	1996
Veterinarians: Govt. Officers	1777*	1900*
Universities	approx. 1000	approx. 1250
Private practitioners	1358	2500
Auxiliary personnel: Veterinary health technicians	2611	2743
Lab. technicians	384	450

The number of veterinary and auxiliary veterinary personnel serving in the Turkish Veterinary Services in 1992 and 1996.

Name of Institution	1992	1996
Veterinary faculties	9 (ann.graduates:500)	15 (ann.graduates:800)
Schools for veterinary health technicians	4 (ann.graduates:90)	4 (ann.graduates:90)
Schools for laboratory technicians	2 (ann.graduates:30)	2 (ann.graduates:30)
Provincial Animal Health Directorates	74	79
District Animal Health Directorates	811	811
Veterinary Control and Research Institutes	8	8
FMD Institute	1	1
Poultry Diseases Research and Vaccine Production Institute	1	1
Provincial Control Laboratories	9	38
Quarantine stations	11	11
Meat and fish combinates	78	84
Municipal slaughterhouses	751	1000
Poultry slaughterhouses	94	120
Slaughterhouses for equines	4	2

It is recommended that the education of non veterinary personnel in the basics of hygiene and of animal disease and its control should also be seen as a priority, aimed at farmers, animal dealers and transporters, customs officers, police and security personnel..

16. RESEARCH AND DEVELOPMENT PROPOSALS.

It is recommended that the development of oil adjuvanted FMD vaccine be pursued as an urgent priority. Technology transfer from the Pan American Centre Vaccine Laboratory in Campinas, Brazil, would be most appropriate in this context.

It is recommended that liaison be established with The World Reference Laboratory at Pirbright to investigate experimental approaches to the role of small ruminants in the perpetuation and dissemination of FMD in Turkey

17. OPTIONS FOR THE CONTROL OF FMD IN THRACE AND COST - BENEFIT ANALYSES.

There are basically two mains options regarding the control and eradication of FMD in Thrace:

First option: **to resume prophylactic vaccination using bivalent Type O and A vaccine.**

Second option: to keep Thrace unvaccinated as it is now.

17.1 First option : Preventive Vaccination

If a preventive vaccination is carried out it should be continued for a period of **three years** giving time for the improvement of animal movement control and vaccination cover in the WBZ and also in the rest of Anatolia. The cost for the preventive vaccination in Thrace will depend on the scenario selected for vaccination and on the source of the vaccine. Two possible alternatives can be proposed for vaccination:

1- Twice yearly vaccination of all susceptible animals

2- Vaccination of cattle twice a year and of sheep and goats once a year

The protocol 2 (vaccination of small ruminants once a year) is the one which was applied in the WBZ for small ruminants since 1990. There is actually no logical or epidemiological basis for vaccinating small ruminants once per year having accepted that cattle must be vaccinated twice. The only possible justification for once per year vaccination of small ruminants is economical . However, assuming that high vaccination coverage (which was not the case in the WBZ) is obtained with a potent vaccine this option can reduce the circulation of the virus in small ruminants.

Based on the livestock figures in Table 6 above, the number of bovine doses needed for each option is calculated as:

	Year 1	Year 2	Year 3	Total
option 1	1,760,465	1,760,465	1,760,465	5,281,385
option 2	1,334,582	1,760,465	1,760,465	4,003,746

Sources of vaccine.

Under the present situation the possible sources of vaccine for vaccination in Thrace may be.

- SAP Institute, Ankara	0.25*
- Private institute in Turkey, Vetal (after March 1997)	0.40
- Private institutes in Europe	0.60
- European (EU) vaccine bank	0,20 **

* Estimate of the cost for one cattle dose of bivalent vaccine (in US $).
** Cost for reformulation assuming that the antigen is provided free of charge by EC

The cost of a three year vaccination campaign in Thrace will vary according to the option selected and the choice of the source of vaccine as follows:

	Doses Needed.*	Cost per Dose. $	Total Cost. $
Option 1.	5,281,385.	Max 0.6	3,168,831
	5,281,385.	Min 0.2	1,056,277
Option 2.	4,003,746.	Max 0.6	2,402,448
	4,003,746.	Min 0.2	800,750

* Total doses for all species expressed as cattle doses.

17.2. Second Option. No Preventive Vaccination.

In this scenario, the number of expected outbreaks per year in Thrace is between 15 and 40. In this situation the risk of dissemination of the virus to neighbouring countries is high. Considering that during the past three years, 3 outbreaks occurred in Thrace and during the same period 40 outbreaks occurred in the neighbouring countries and applying the same ratio between an unvaccinated Thrace and neighbouring countries for the next 3 years, then the number of outbreaks in neighbouring countries could be higher than 100.

The basic cost for the control and eradication of one outbreak in Turkey is estimated at $ 12, 583 which includes the mortality and losses (weight, milk), and also the cost for sanitary measures (quarantine and disinfection expenses) as provided under the law for the control of FMD in Turkey.

By comparison the range of estimates of the cost of the direct losses for a single outbreak of FMD in EC countries in 1989 varied from 32,000 ECU ($ 40,000) in Greece to 470,000 ECU ($ 600,000) in Spain with an average cost of approximately $ 200,000. Basing the cost of the 1993 outbreak in Bulgaria on this average and taking the cost of each outbreak in Greece at $ 40,000 as in 1989, then the total cost of direct losses associated with FMD in the region is :

Country.	Number of Outbreaks.	Costs for one Outbreak.	Total.
Bulgaria	1	$ 200,000	$ 200,000
Greece	39	$ 40,000	$ 1,560,000
Turkish Thrace	3	$ 20,332	$ 61,000
Total	43		$ 1,821,000

In the second option, where no preventive vaccination is carried out in Thrace, the number of expected outbreaks in the region during the next 3 years is estimated to be in excess of 100 at a minimum cost of approximately 1,821,000 divided by 43 X 100 = $ 4,234,884.

Conclusions

- **The cost / benefit analysis demonstrates that a three year preventive vaccination campaign in Thrace under option 1 would have approximately the same cost as the losses associated with the disease in the region during the period 1993 to 1996.**

- In the option without preventive vaccination in Thrace, the cost of the expected outbreaks in the region (in excess of 100) for the next 3 years is estimated to be more than $ 4.2 million and is higher than the cost of preventive vaccination which stands between $ 1 and 3 million.

18. OTHER SELECTED OIE LIST A DISEASES.

18.1.Rinderpest

Year	No. of vaccinated animals
1992	11.178.791
1993	10.634.636
1994	11.664.420
1995	11.457.063
1996*	10 314 021

* first 7 months

Years	mean prevalence of Rinderpest antibody %
1992	70.91
1993	74.00
1994	70.00
1995	73.70
1996	survey plan, November/December

18.2. Sheep and Goat Pox

Sheep in villages and farms along the common borders with Iran, Iraq and Syria have Sporadic outbreaks of SP occur in Turkey. Preventive vaccinations are carried out using the live, attenuated vaccine prepared at Etlik. The vaccination programme gives priority to the regions of high sheep population and the common border areas with neighbouring countries where this disease occurs.

18.3 Peste des Petits Ruminants

The Etlik Institute is responsible for the diagnosis of PPR and for serum surveys. Suspect material has been submitted from the field for laboratory investigation on a few occasions during 1996 but. no positive diagnoses were obtained.

There is an urgent need to carry out systematic surveys to asses the real states of the disease in Turkey and possible losses to the economy.

18.4 Blue Tongue

Systematic surveys on Blue Tongue are recommended.

19. CONCLUSIONS

The mission found that the current measures for the control of FMD in Turkey can be strengthened in a number of crucial areas and are of the opinion that the disease situation will not improve unless these are attended to.

FMD vaccine coverage is variable and generally falls well below the minimum effective level of 80 %. This fact, together with the widespread, uncontrolled movement of animals and the common lack of cleaning and disinfection of livestock transport, all contribute to the continuing endemic status of FMD in the WBZ and in residual Anatolia. Despite the expenditure of considerable effort and resources during the last 30 years, including external financial assistance, the disease has not been controlled and was recently reintroduced into Thrace.

During the last two decades endemic FMD has been controlled - and indeed eradicated - in a number of countries by the rigorous application of several essential zoosanitary measures, including vaccination. Thus notable successes have been achieved in Western Europe and in South America. The conditions prevailing in Turkey differ from those in other regions in several significant aspects, nevertheless it is to be expected that FMD can be brought under control in Turkey. In bringing FMD under control Turkey will also gain improved control of other important, infectious, animal diseases (such as Rinderpest), since many of the elements required for the control of FMD are also common to their control. Improved control will benefit not only Turkey but also neighbouring countries, including those in the Balkans and in Western Europe.

Effective control of FMD in Turkey will require new initiatives, including the refocusing of priorities. The new campaign should concentrate resources on specific, achievable objectives - both sort term and longer term.

It appears to be extremely difficult to impose an effective, nation-wide control of movement, at least in the short term, since this will require a fundamental change of attitudes and traditional practices, very large resources and the dedicated co-operation of both the police and gendarme services with the veterinary service. While this must remain an important objective in the longer term, the short term objective should be to tighten movement control at strategic points, the most vital of these being the control

of movement across the Bosphorous via the bridges in Istanbul and the ferry at Canakkale, in order to protect Thrace and Dardanelles and the countries beyond.

Vaccination is the most important single weapon in the armoury of control measures available to Turkey, and especially where movement control is so problematical. Independent assurance of the quality of the vaccine is essential. Coverage of at least 80 % of susceptible livestock is needed at any given time during the year for effective herd immunity and in the short term it would be better to concentrate resources on achieving maximum coverage in Thrace and in a redefined WBZ of reduced area, rather than the present situation where coverage is generally inadequate. Once these areas have been secured the longer term objective should be to extend the vaccinated WBZ to the East and the South with the eventual aim of eradicating FMD(and other List A diseases) from the entire country.

The veterinary staff of MARA are already well aware of what needs to be done to control FMD and other diseases. However organisational, logistical, financial and other constraints hamper the efficiency of the service. The state veterinary service should be reorganised as a separate and independent arm of MARA to create a more effective force which must be adequately resourced to implement their essential organisational and control functions. Existing plans to involve the growing private veterinary sector in the national control of disease should be accelerated.

Where necessary the animal health legislation should be strengthened to facilitate the proposed measures.

20. PRINCIPAL RECOMMENDATIONS.

Veterinary Service

- a distinct and separate Veterinary Directorate be established within MARA, reporting to the Minister of Agriculture, but with autonomy in the control of the allocated budget and the deployment of resources, both of which should be adequate to enable the responsibilities and duties to be discharged effectively.

- the planned devolvement of many veterinary functions currently undertaken by MARA to the private veterinary sector should be accelerated.

Law

- the law relating to animal health and disease control should be reviewed, updated and strengthened as detailed in this report.

Control of Animal Movements

- co-operation between the veterinary services and the other state, provincial and district agencies responsible for animal movement control should be strengthened.

- control of animal movement should be improved as detailed in this report. Priority should be given to the strengthening of the control over the Fatih Sultan Mehmet road bridge over the Bosphorus in both directions.

- a feasibility study should be carried out on the proposal to locate a new check point with all necessary facilities to the East of the present Bosphorus bridge check point at Camlica.

- the function of the chain of movement check points on roads leading from East to West across Turkey should be reviewed. - the proposed creation of a stock free zone along the Eastern and South Eastern borders of Turkey should be implemented. Cooperation with neighbouring countries in this field is encouraged.

Identification of animals

- the planned cattle identification scheme using new ear tags of higher quality should be given maximum priority and the use of computers for recording should be accelerated. Ear tagging could be usefully combined with vaccination.
- livestock dealers and animal transporters should be trained and registered.

Disease surveillance and report

- additional resources should be provided for the epidemiological investigation of outbreaks of FMD.
- greater transparency, speed and completeness should be accorded to the national and international notification of outbreaks of all OIE list A diseases.

Cleaning and disinfection

- improved cleaning and disinfection of animal transport vehicles should be implemented as soon as possible, as detailed in this report.

SAP Institute

- disease security should be improved at the SAP Institute as soon as possible.
- privatisation of SAP Institute should be pursued.
- the development of oil adjuvanted FMD vaccine should be given high priority.
- independent quality control of FMD vaccines should be established as soon as possible. In the short term this should be carried out at Pirbright and in the longer term at the new facility which is to be installed at Bornova.

Vaccination

- compulsory, mass, bivalent Type O and A prophylactic FMD vaccination should take place in Thrace as soon as possible using vaccine independently controlled and applied over a three year period as detailed in this report.
- where appropriate, simultaneous vaccination against FMD, RP and SP should be considered as a cost-effective practice.

Contingency plan

- new contingency plans should be drawn up for the control of FMD in Thrace as detailed in this report. These should include the creation of a Regional Control Center for Thrace based at Pendik, the appointment of a co-ordinator for this center and close liaison with the SAP institute.

Training and Research

-appropriate training and education should be organised under the responsibility of the GDPC for the various sectors of the veterinary, farming and associated livestock sectors in the economic importance of FMD, general hygiene, the recognition of disease, the methods of control of infectious disease including the control of animal movement, cleaning and disinfection ,and proper certification.

- research on the role of sheep as disseminators and reservoirs of FMD infection and on the value and optimal regime for ovine vaccination should be considered in collaboration with Pirbright.

- visit of senior staff of the Turkish Veterinary Services to the Pan American Foot-and-Mouth Disease Center and to South America with the objective to establish links with the Center, Institutes and National Veterinary Services for future technical cooperation in the fields of oil vaccine production, vaccine quality control and vaccination strategy.

Appendix 4

Report on the Activities of the Research Group during 1995 and 1996

1. Introduction

The main events involving the Research Group during 1995 and 1996 were two sessions held jointly with the FMD Sub-group of the Scientific Veterinary Committee of the Commission of the European Communities (CEC), the first at the All-Russian Institute for Animal Health (ARRIAH), Vladimir, Federation of Russia from 20-22 September 1995, the second at Kibbutz Ma'ale Hachamisha, Israel from 2-6 September. Each of these venues was unique in the history of the Research Group.

At both sessions the scientists from the respective host countries contributed an impressive number of papers and participated actively. At the session at the AARIAH, Federation of Russia, scientists from western Europe had the opportunity to learn more about the epidemiology of the disease and the current control methods used in the Federation of Russia and the ex-USSR. Similarly, at the session at Ma'ale Hachamisha, a valuable opportunity was provided to obtain information about the epidemiology of the disease and the control methods used in the Middle East, in particular in Israel.

The level of the scientific presentations at both sessions was high and the local organisation of the meetings was excellent. There are already clear signs that greater cooperation and closer links have resulted from the sessions and I would like to take this opportunity to express thanks on behalf of the Research Group to Prof A A Gusev and his staff for organising the meeting at the AARIAH, and to Prof H. Yadin and his staff for organising the meeting at Ma'ale Hachamisha. Thanks are also due and to Dr VM Avilov, CVO of the Russian Federation and Dr A Shimshony, CVO, Israel, for permitting and supporting the meetings in their countries.

Details are available in the published reports of the sessions so in this report I have highlighted only the main points and conclusions and selected recommendations. It will be apparent that the list of topics dealt with at the sessions was comprehensive.

2. The carrier state in small ruminants; persistence in other species, including wildlife

At the Thirty-first session of the EUFMD the topic of the carrier state was discussed. The Commission agreed that the Research Group would be asked to look again at the carrier status, particularly in small ruminants.

At the 1995 session at the AARIAH, Dr H Yadin reviewed the carrier state in small ruminants. It was highlighted that sheep and goats represent the largest part of the world FMD-susceptible animal population, are less often vaccinated against FMD than cattle, and are often sub-clinically affected by the virus. This explains the important role they play in the transmission of FMD virus. The topic was further addressed at the 1996 session. The optimal method for the detection of the carrier state is the PCR and/or virus isolation in primary thyroid cells. The mechanisms of transmission to other species under natural conditions is not clearly established but trade of sheep and goats is a very efficient way to disseminate the virus. There is an important difference between subclinically infected and carrier small ruminants in that there is much greater potential for transmission by the former.

In regard to the carrier state in other ruminants, experimental studies with cattle and llamas in South America have shown that llamas are not very susceptible to FMD virus by natural routes of infection and probably play a minor role, if any, in the epidemiology of FMD.

but it could not be determined whether infection had spread from the wildlife to domesticated species or *vice versa*.

3. Contingency plans for emergency vaccination; consequences for trade.

The topic of emergency vaccination was discussed at both the 1995 and 1996 sessions. At the 1995 session Drs Y Ivanov and P Have presented a discussion paper which focussed on the usefulness of emergency ('ring') vaccination as an adjunct to stamping out and pointed to the consequences which a country employing it would face in terms of extended trade embargoes. At the 1996 session a discussion paper by Drs A I Donaldson and P Have highlighted the criteria to be considered in making a decision of whether or not to apply emergency vaccination and provided a check list of the logistic requirements in implementing an emergency vaccination campaign.

The conclusions from the discussions were:

1. in reaching a decision of whether or not to vaccinate there are many parameters to be considered and 'rules of thumb' cannot be provided in advance to meet all situations - each will have its own unique features which will require separate assessment.
2. if a decision to vaccinate is made it must be done quickly and implemented soon afterwards.
3. computer-based decision support systems can provide valuable and objective assistance.
4. although historical data tend to indicate that the application of emergency vaccination would have or actually did greatly influence the losses due to reduced international trade compared to stamping out alone, countries are encouraged to review the likely economic consequences of emergency vaccination using predictive mathematical modelling in different parts of their territory, taking into account the principle of regionalisation.
5. guidelines should be drawn up by veterinary authorities for including the necessary resources for emergency vaccination in their national contingency plans.

4. Assessment of needs of national FMD laboratories for quality assurance of FMD diagnosis; requirements for achieving international standards.

In accordance with the conclusions and recommendations of the Thirty-first Session, the Secretary sent a questionnaire to the CVO's of all member countries in order to establish:

- a list of the countries which have a National Laboratory for the diagnosis of FMD.

- a list of the laboratories which need support and the type of support needed.
- the capacity of the FMD National Laboratories for testing large quantities of sera in case of an emergency.

The answers received were discussed at the Session of the Research Group held at the AARIAH in September 1995 and are included in the report of that meeting.

At the 1996 session Dr K De Clercq presented a paper in which he explained the requirements for achieving standards EN 45001 and ISO 9000 and provided a description of the 'OIE Guidelines for Laboratory Quality Evaluation' and 'Draft OIE Guidelines for Laboratory Proficiency Testing'.

The Group discussed the problems of implementing these guidelines and drew up a series of recommendations which are contained in the report of the session.

5. OIE Manual and international standards for diagnostic tests.

At the Thirty-first Session of the EUFMD the tests which could be accepted for the serology of FMD was raised and the Commission requested the Research Group to seek clarification.

The Chairman of the Research Group contacted Dr S Edwards, Secretary-General, OIE Standards Commission who responded that details of the tests are described in the OIE Manual of Standards for Diagnostic Tests and Vaccines under the headings Prescribed, Alternative and Other. The contents of his response are provided in the report of the 1995 session of the Research Group. In regard to the ELISA for FMD, Dr Edwards stated "the antibody detection ELISA for FMD is listed as a Prescribed test. Implicit in this is that the procedure has been examined by the Standards Commission, and the test, together with its definition as a Proscribed test, has been agreed by the OIE International Committee. As far as I am aware there is no higher category of international acceptance for a test in the veterinary arena."

This information was discussed by the Group at the 1995 session at AARIAH. Dr R Ahl proposed that OIE be requested to consider the proposals to change the term "prescribed test" to "established test" and to permit the inclusion in the Manual as established tests those which have been demonstrated to be of equivalent or greater sensitivity and specificity. This was done by the Chairman. At the 1996 session the Chairman informed the Group that the OIE Standards Commission had replied in the negative to the proposals. He agreed to a further proposal to submit to the OIE Standards Commission the recommendation that "tests which have been demonstrated to be of equivalent or greater sensitivity to the LPBE and VNT should be considered as Prescribed tests". To this OIE responded that a draft of the guidelines will be an appendix to the OIE Standards Commission report.

6. Usefulness of serology as a means to establish freedom from infection.

Discussion papers were presented on this topic at the 1995 session by Drs C Terpstra and M Amadori. During the subsequent discussions the Group agreed the following points:

(a) Currently available tests are of limited value for large scale serosurveillance aimed at differentiating vaccinated from infected animals.

(b) If vaccination has not been used to control an FMD outbreak, a serosurvey may be carried out on small ruminants, regardless of the virulence of the virus strain involved. Cattle may be included in the survey when a strain of low virulence for that species has been circulating without overt signs of disease. As no carrier stage occurs in pigs there is no need to sample that species.

(c) The serosurvey should be conducted on all farms and flocks in the protection zone and on those holdings and flocks which are defined at risk on the basis of direct or indirect contact with infected animals, and dispersal of airborne virus. The sampling should be based on a statistically sound regimen.

With regard to the actions to be taken on the basis of the results of the serosurvey, there was consensus that if antibody positive samples wee detected the whole herd/flock should be thoroughly clinically inspected, and the strategy proposed was:

(d) To sample the whole herd/flock, maintaining the movement restrictions until results become available and slaughter all seropositive animals. The whole herd/flock should then be resampled after 3-4 weeks; the herd/flock can be considered free from infection if no further seropositive animals are detected. On the other hand if positive samples are detected in the second round of sampling, this would indicate further spread of virus and the herd/flock

should be destroyed.

(e) The animals sampled should be identified with an individual code which is recorded.

(f) If at an early stage sequential testing demonstrates an increase in antibody titres of individual animals which indicates active infection, the whole flock/herd should be destroyed.

7. Definition of an outbreak.

During the Thirty-first Session of the EUFMD the definition of an outbreak FMD was discussed in the context of animals that were seropositive but did not manifest lesions. The Commission requested the Research Group to consider the issue and to provide a definition.

At the 1995 session Dr R Ahl presented a discussion paper on the topic.

Following discussions the Group agreed that:

1. Seropositive herds/flocks should be considered as an outbreak only during the period when active infection is confirmed by laboratory investigation and, therefore, the confirmation of an outbreak requires positive laboratory results demonstrating evidence of active infection.
2. Confirmation of an outbreak by serology requires either a strong positive result by a prescribed (or alternative) OIE test or in the case of a weak reaction positivity with or confirmation by two prescribed (or alternative) OIE tests.
3. When sequential serological tests demonstrate a rise in antibody this should be taken as evidence of active infection.
4. Laboratory investigations should not preclude or diminish the basic necessity for a thorough clinical examination and consideration of the situation in the field during investigations of suspected cases.
5. In coming to a conclusion following investigations of a suspected case all the elements i.e. laboratory results, field (clinical) investigations and available epidemiological data should be considered.

8. Testing of milk for surveys.

At the Thirty-first Session it was recommended that the possibility should be investigated of developing a test to detect antibodies to FMD virus in milk with the objective of screening herds to identify those which had been vaccinated or previously infected. The WRL, in collaboration with national laboratories in Israel, Italy and Turkey which provided field material, and with the financial support of the EUFMD, began work on the project in 1995. Provisional findings were presented at the 1995 session. These were that the routine LPBE used to test sera was unsuitable for testing milk. In subsequent work the test was modified to detect bovine IgG, and results showed that vaccinated cattle could be differentiated from those which were non-vaccinated. The modified ELISA could also be used to test milk from water buffalo. A paper reporting the results has been accepted for publication by the Journal of Virological Methods.

9. Diagnostic aspects of trade.

At the 1995 session papers were presented by Drs K De Clercq and M Danes reporting

their experiences in testing animals involved in international trade. In the discussion which followed the Group agreed that certificates of health for the purpose of international trade do not need to include the identity of the laboratory which performed the tests in the exporting country. However, in the event of a dispute or query, the exporting country should be able to trace back and identify the laboratory which performed the tests.

10. Availability of vaccines for emergency vaccination in Europe.

This topic was discussed by the Research Group at the 1995 session. It will also be dealt with under **Agenda Item 8.**

11. Improved and new techniques for the diagnosis of FMD.

At the 1996 session Dr R Ahl presented an overview of recent developments in FMD diagnosis in which a new technique (rapid coagglutination) as well as improved techniques (ELISA, PCR) were discussed for their use in primary/early or late diagnosis. A series of speakers followed who presented work describing improved diagnostic techniques for FMD using monoclonal antibodies and RT-PCR.

12. Potency and stability of FMD vaccines prepared from stored antigens.

Dr S Barteling opened this item at the 1996 session with a presentation which reviewed the establishment of the Community Vaccine Bank and its current portfolio of antigens. He provided data showing that the majority of the vaccines produced from stored antigens were highly potent. He made recommendations about the supply of batches of antigens to the bank by commercial producers so as to simplify testing procedures.

In the discussions the broad spectrum response elicited by highly potent vaccines - such as those in banks was noted.

The recommendation was made that in areas with endemic FMD vaccine manufacturers should be encouraged to supply vaccine of similar potency i.e. ≥6PD50/dose.

13. Differentiation of antibodies induced by vaccination and infection.

An impressive number of papers was presented on this important topic at the 1996 session. The majority of the speakers were from European laboratories but contributions were also given by speakers from South America.

It was agreed that a number of tests have been developed in which a positive result can be taken as conclusive evidence of previous infection with FMD virus and these tests may have an immediate value for the identification of infected herds/flocks e.g. in the Balkan region and elsewhere. However, because the duration of the antibody response to non-structural (NS) proteins following infection has not been as well established as for structural proteins, a failure to detect antibody to NS proteins may not necessarily indicate that exposure to FMD virus has not taken place.

14. Standardisation of FMD diagnosis.

At the 1996 session Dr D J K Mackay reported the results of Phase XIV of the FAO

International Standardisation Programme. The aims of Phase XIV were to compare the sensitivity and specificity of different laboratory tests, to establish a panel of FMD reference sera and to look at the variation occurring between the results from different laboratories.

The exercise showed that there was considerable variation in the sensitivity and specificity of individual laboratory assays. The use of the standardised LPB-ELISA reduced the variation between laboratories in the interpretation of positive sera as positive but also increased the number of negative sea incorrectly classified as positive.

It was concluded that the use of a standardised test alone is not sufficient to harmonise testing between laboratories.

A series of **recommendations** arose from the discussions which included the following:

1. The WRL should produce and distribute a panel of reference sera for antibody to FMD virus types O_1, A and C analogous to those distributed during Phase XIV. Participating laboratories will be requested to examine the sera using both their screening ELISA and the virus neutralisation test. The intention will be to define a range of definitive reference sera.
2. For validation of tests used in different laboratories, every year a standardisation exercise should take place comparable to the one used in Phase XIV.

15. Emergency vaccination against FMD: present and future.

Dr M Amadori gave a review of emergency vaccination and of the prospects for further developments. He was followed by speakers who presented results illustrating improved immune responses with different oil-adjuvanted formulations.

After discussion a series of recommendations were agreed which are included in the report of the session.

16. Computer assisted management of FMD epidemics.

Two presentations were given on this item, the first by Dr D K J Mackay who explained the general features of the EpiMAN(EU) decision support and epidemic management system, and the second by Dr A Dekker who presented results on the effect of calculating airborne FMD virus plumes using different weather stations and two different levels of virus output. Comparative trials between two models showed similar results for short distance (<10km) transmission. The model RIMPUFF in EpiMAN(EU) has the advantage that it can predict the probability of spread over long distance.

17. Vaccination of neonates against FMD.

Papers were presented in this session by Drs Terpstra, Kitching and Smitsaart on investigations which examined the responses of young animals of different species and age either with maternal antibodies or free from maternal antibodies using oil or aluminium hydroxide/saponin adjuvanted FMD vaccines.

The **recommendations** arising from the discussion were:

1. Further work is required to confirm, under different field conditions, the advantage of using oil-adjuvanted vaccines in both cattle and sheep.
2. The intradermal route of application of FMD vaccine should be studied in comparison with subcutaneous and intramuscular routes.
3. The relative contribution of antigen content, vaccine formulation and adjuvant to vaccine potency in overcoming interference from maternally derived antibody should be further investigated.

18. Closed Session.

18.1 Training

The Secretary informed the Group that the Commission had received requests from FYRO Macedonia, Croatia, Albania and the FR of Yugoslavia for the training of personnel. A lack of local diagnostic capability was evident during the recent outbreaks of FMD in the Balkans.

The Group agreed that comprehensive training should be offered and suggested that the Secretary should contact the International Atomic Energy Agency (IAEA), Vienna - a joint division of FAO, and propose to them that they consider as a high priority the initiation of a programme of FMD diagnosis technology transfer to the Balkan states. IAEA should be informed that support is also required for the provision of diagnostic kits and equipment. Several members of the Group expressed a willingness to offer training in their laboratories for technicians from the Balkan area.

18.2 Serological surveillance in the Balkan area

The Secretary raised the issue of whether there was a need for a serological survey in the Balkans. The Group agreed that it could be useful but before it is initiated the objectives should be clearly defined. Two aims were identified: (i) to identify whether there is active FMD infection within the declared surveillance zone; and (ii) to test animals which have been vaccinated to evaluate the potency of the vaccine administered during the emergency.

18.3 Future use of FMD vaccine in the Balkans

The issue of whether the strain of vaccine to be used in the next round of vaccination in the Balkans should be A_{22} as before or changed to the homologous type A strain was discussed. It was agreed that if an homologous vaccine of equal potency to that supplied by the Community Vaccine Bank (CVB) was available then it should be used - otherwise the use of A_{22} vaccine from the CVB should be continued. The Group agreed that there was no need to add any new strains to the CVB as a result of the Balkans episode.

19. Venue for next meeting.

Dr M Danes has kindly invited the Group to hold its next meeting - a business (closed) session, in Brasov, Romania during September 1997.

20. Retirement of Members.

The Group was informed and noted with regret, that due to their retirement the membership of Dr R Ahl and Dr C Terpstra would cease at the time of the next General Session. (In a

subsequent session of the meeting the Chairman paid tribute to the contributions which these internationally acclaimed scientists had made to the Group and the EUFMD during their many years of dedicated service).

21. Acknowledgements

Dr. Donaldson informed the Session that he had decided that this would be his last term of office as Chairman. He, therefore, took this opportunity to thank many people: the members of the Research Group for their valuable contributions, their active participation and support; those who have hosted sessions with the additional burden and responsibility which that has entailed; Yves Leforban and Joan Raftery for making the arrangements for the sessions and for collecting and distributing the papers and all the work involved in the preparation of reports. Yves Leforban had been very active on missions and contributed an impressive number of papers and reports since becoming Secretary. He also acknowledged the support he had received from colleagues at Pirbright during his six years as Chairman.

Appendix 5

REPORT OF THE WRL 1995/1996

1.1 Serotyping of samples

Details of the origin of samples submitted to the WRL during 1995 and 1996 and the results obtained are shown in Tables 1 and 2, respectively.

1.2 Collaborations

a. Phase XIV of the FAO/OIE Collaborative Study with 32 other FMD laboratories to standardise diagnostic tests was completed.

b. In addition to (a), a collaborative study under the direction of the International Atomic Energy Agency to introduce ELISA for FMD was continued in South America, in association with the Pan American FMD Center, Brazil. This involves Brazil, Argentina, Paraguay, Venezuela and Columbia. A further IAEA funded programme was started in 1995 and continued in 1996 in South East Asia, involving Myanmar, Thailand, Vietnam, Laos, Cambodia, Hong Kong, Malaysia, Philippines, Bangladesh and Sri Lanka.

c. Saudi Arabia on the response of dairy cattle to FMD vaccination using oil adjuvanted vaccines.

d. Argentina on the FMD virus persistence in carrier cattle.

e. The Netherlands, Italy and Germany on the development of immunoassays to detect antibody to non-structural proteins of FMD.

f. Denmark, Holland and Italy on the computer modelling of FMD outbreaks.

1.3 Supply of diagnostic reagents

Diagnostic reagents viruses were supplied to:

Argentina	Canada	Germany
Austria	Czech Republic	Greece
Belgium	Denmark	India
Botswana	Egypt	Indonesia
Brazil	Estonia	Iran
Bulgaria	Ethiopia	Israel

Italy
Japan
Jordan
Kenya
Kuwait
Macedonian Republic
Morocco
Philippines
Poland
Romania
Russian Federation
Saudi Arabia
Slovak Republic
Slovenia
South Africa
Sri Lanka
Sweden
Switzerland
Taiwan
Thailand
The Netherlands
Turkey
UAE
USA

* for distribution to South East Asian countries

1.4 Training

Representatives from the following were given training in FMD diagnosis, epidemiology and serology:

Argentina
Chile
Croatia
Ethiopia
Greece
India
Italy
Japan
Kenya
Korea
Malaysia
Mongolia
Mali
Morocco
Myanmar
Peru
Philippines
Russia
Saudi Arabia
Slovenia
South Africa
Sweden
Thailand
The Netherlands
Tunisia
Turkey
USA
Zambia

1.5 Visits by WRL staff to other laboratories

Technical consultation and advisory visits were made to:

Albania
Botswana
Bulgaria
Greece
Israel
Italy
Kenya
Macedonian Republic
Morocco
Myanmar
Namibia
Portugal
Russian Federation
Saudi Arabia
The Netherlands
Turkey
Vietnam
Zambia

Table 1:OIE/FAO World Reference Laboratory for Foot and Mouth Disease*
CUMULATIVE REPORT FOR JANUARY - DECEMBER, 1995

COUNTRY	No. of samples	FMD virus serotypes							SVD (a)	NVD (b)
		O	A	C	SAT1	SAT2	SAT3	ASIA 1		
AFGHANISTAN	10	-	-	-	-	-	-	-	-	10
BAHRAIN	3	2	-	-	-	-	-	-	-	1
BRAZIL	3	1	2	-	-	-	-	-	-	-
COTE D'IVOIRE	3	1	-	-	-	-	-	-	-	2
GREECE	38	-	-	-	-	-	-	-	-	38
HONG KONG	5	5	-	-	-	-	-	-	-	-
INDIA (c)	12	7	-	-	-	-	-	6	-	-
IRAN	124	45	13	-	-	-	-	-	-	66
ISRAEL	2	2	-	-	-	-	-	-	-	-
ITALY	16	-	-	-	-	-	-	-	16	-
JORDAN	3	3	-	-	-	-	-	-	-	-
KUWAIT	3	3	-	-	-	-	-	-	-	-
MALAWI	2	-	-	-	-	-	-	-	-	2
MALAYSIA	68	9	9	-	-	-	-	32	-	18
NEPAL	51	3	-	-	-	-	-	7	-	41
PHILIPPINES	11	9	-	-	-	-	-	-	-	2
PORTUGAL	32	-	-	-	-	-	-	-	2	30
SAUDI ARABIA	33	25	8	-	-	-	-	-	-	-
SENEGAL	8	-	-	-	-	-	-	-	-	8
TUNISIA	5	-	-	-	-	-	-	-	-	5
TURKEY	3	1	1	-	-	-	-	-	-	1
UGANDA	4	-	-	-	-	-	-	-	-	4
UNITED KINGDOM	2	-	-	-	-	-	-	-	-	2
YEMEN	10	7	-	-	-	-	-	-	-	3
TOTAL	451	123	33	-	-	-	-	45	18	233

* Institute for Animal Health, Pirbright Laboratory, Woking, Surrey GU24 ONF, UK

(a) swine vesicular disease

(b) no virus detected

(c) one sample from India contained both FMDV types O and ASIA 1.
122 out of 181positive samples tested as original suspension were typed by ELISA (67%) and the remainder (33%) were typed as tissue culture.

Table 2: OIE/FAO World Reference Laboratory for Foot and Mouth Disease*
CUMULATIVE REPORT FOR JANUARY - DECEMBER, 1996

COUNTRY	No. of samples	FMD virus serotypes							SVD (a)	NVD (b)
		O	A	C	SAT1	SAT2	SAT3	ASIA 1		
ALBANIA	4	-	4	-	-	-	-	-	-	-
AFGHANISTAN	13	5	-	-	-	-	-	-	-	8
BAHRAIN	23	7	-	-	-	-	-	-	-	16
BULGARIA	1	1	-	-	-	-	-	-	-	-
BURKINA FASO	31	-	-	-	-	-	-	-	-	31
COTE D'IVOIRE	7	-	1	-	-	-	-	-	-	6
ETHIOPIA	3	1	-	-	-	-	-	-	-	2
ERITREA	2	2	-	-	-	-	-	-	-	-
F.R.YUGOSLAVIA	6	-	-	-	-	-	-	-	-	6
GHANA	4	-	3	-	-	-	-	-	-	1
GREECE	38	19	-	-	-	-	-	-	-	19
HONG KONG	23	21	-	-	-	-	-	-	-	2
INDIA	2	-	-	-	-	-	-	-	-	2
IRAN (c)	25	2	24	-	-	-	-	-	-	1
ISRAEL	2	1	-	-	-	-	-	-	-	1
JORDAN	4	3	-	-	-	-	-	-	-	1
KENYA (d)	11	-	1	1	-	10	-	-	-	-
KUWAIT	5	5	-	-	-	-	-	-	-	-
MACEDONIA	15	-	11	-	-	-	-	-	-	4
MALAYSIA	29	10	3	-	-	-	-	5	-	11
MAURITANIA	9	-	-	-	-	-	-	-	-	9
MYANMAR	1	1	-	-	-	-	-	-	-	-
NEPAL	100	30	4	1	-	-	-	-	-	65
PHILIPPINES	4	3	-	-	-	-	-	-	-	1
PORTUGAL	18	-	-	-	-	-	-	-	-	18
RWANDA	13	-	-	-	-	1	-	-	-	12
TANZANIA	5	2	-	-	3	-	-	-	-	-
TUNISIA	15	-	-	-	-	-	-	-	-	15
TURKEY	9	8	1	-	-	-	-	-	-	-
UGANDA	31	6	-	-	-	1	-	-	-	24
U.ARAB EMIRATES	20	-	-	-	-	-	-	-	-	20
TOTAL	473	127	52	2	3	12	-	5	-	275

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(a) swine vesicular disease

(b) no virus detected

(c) two samples from Iran contained both FMDV types O and A

(d) one sample from Kenya contained both FMDV types C and SAT2.

119 out of 164 positive samples tested as original suspension were typed byELISA (73%) and the remainder (27%) were typed as tissue culture.

Appendix 6

Security and Quality Assurance in National FMD Laboratories

The present document is intended to provide an overview of proposals and recommendations issued by the various proceedings of the Commission since 1995.

THIRTY-FIRST SESSION, APRIL 1995

A document on quality assurance in national FMD laboratories and the role of the World Reference Laboratory (WRL) was presented and adopted as agenda item 8.

The session agreed on the following points:

- *the WRL report should include a list of national laboratories that cooperate with the WRL;*
- *the Executive Committee should determine whether European laboratories have sufficient capacity for serological tests;*
- *the Executive Committee should examine the possible need to designate a regional laboratory for southeastern Europe.*

Following a recommendation of the 57th Session of the Executive Committee, a questionnaire on national laboratories, their equipment, activities, capacities and needs was sent out to all member countries of the Commission.

RESEARCH GROUP

Meeting at Vladimir, the Russian Federation, September 1995

The replies to the questionnaire were presented in detail at the Research Group Session (see the report of the Research Group Meeting held at Vladimir, 20–22 September 1995).

Countries having an FMD Laboratory

- 24 of the 32 member countries of the Commission answered that they had a laboratory carrying out FMD analyses.
- 3 of the countries with a laboratory said that in case of suspicion, they send duplicate samples to another laboratory for confirmation and/or fuller examination.
- 8 countries—Cyprus, Finland, Iceland, Ireland, Luxembourg, Malta, Norway and Portugal—do not have a national laboratory for FMD diagnosis. In case of suspicion, 4 countries send samples to the WRL, 2 to the Lindholm Laboratory, Denmark, 1 to both laboratories, and 1 to the Ukkel Laboratory, Belgium.

Needs of Laboratories

Staff training was needed by 17 national laboratories, equipment by 12 laboratories, and 10 hoped for assistance in meeting security standards.

Cooperation between Laboratories

15 national laboratories offered to make their expertise available in basic diagnosis, molecular biology and analysis automatization available to less advanced laboratories.

On the basis of the replies to this survey, *the Research Group recommended that:*

1. *every country should have access to a properly equipped FMD laboratory with competent personnel working under conditions of security as defined by FAO/OIE/EC standards;*

2. *FMD laboratories be encouraged to apply quality assurance programmes on the basis of EN 45000 and ISO 9000 international standards.*

Meeting at Ma'ale Hachamisha, Israel, September 1996

The following material was presented at this meeting:

- explanation of the EN 45001 and ISO 9000 standards;
- "OIE Guidelines for Laboratory Quality Evaluation";
- "Draft OIE Guidelines for Laboratory Proficiency Testing".

The Group discussed the problems of implementing these guidelines and drew up the following recommendations:

1. FMD laboratories carrying out diagnostic tests to qualify animals and animal products for international movement should participate in a Quality Assurance Programme. This programme should include laboratory quality evaluation and proficiency testing, based on "OIE Guidelines for Laboratory Quality Evaluation" and "Draft OIE Guidelines for Laboratory Proficiency Testing" respectively.

2. FMD laboratories are encouraged to adapt their tests until they pass an evaluation for proficiency.

3. Lack of participation in or failure to pass proficiency testing by a laboratory should temporarily prevent this laboratory from making tests to qualify animals or animal products for international trade. (This recommendation was rewritten at the request of the 59th Session of the Executive Committee.)

4. Clarification should be sought from international organizations about responsibility for establishing, running and financing an internationally recognized proficiency testing scheme for FMD diagnostic tests. Clarification is also required about official recognition and accreditation of FMD laboratories in recognized schemes.

5. The Chairman should present recommendations to the meeting which will be convened at OECD, Paris, on 13 September 1996.

EXECUTIVE COMMITTEE

Fifty-eighth Session of the Executive Committee, Milan, Italy, April 1996

The Committee agreed:

– on the necessity to separate FMD National Laboratories into two categories, those which fulfil the FAO/OIE security requirements and those which do not; the second category should not be allowed to manipulate virulent material; their activity should be limited to serology by ELISA;

– that the international standards ISO 9000 and EN 45000 be the basis for the quality assurance programmes in laboratories ... [and the Committee consequently endorsed] the guidelines for laboratory quality evaluation as proposed by the OIE Standards Commission in September 1995.

Two other points concerning national laboratories were also examined by the 58th Session:

– The problem of discordant results in the serology between exporting and importing countries. *The Committee agreed on the necessity to use only the OIE prescribed test for trade and in case of persisting discrepancies to refer the sera to the WRL for a final decision.*

– The request from Poland for its National Laboratory to be designated as a Reference Diagnostic Centre for the countries of central and eastern Europe. The Committee did not feel that there was a need for a third reference laboratory in Europe—in addition to the WRL and the ARRIAH at Vladimir, recently designated a Regional Reference Centre by the OIE—and therefore took no decision in this respect. *However the Committee noted Poland's capacity to test large quantities of sera, which could be very beneficial to the countries in the region in case of a necessity to perform large-scale serosurveys.*

h Session of the Executive Committee, Budapest, Hungary, December 1996.

The q f ensuring security standards in FMD laboratories was again raised.

In 'ct of the new laboratory in Bulgaria it was agreed that a formal request for security in: . ıon could be sent to the EC because it will be EC funded.

Appendix 7

Progress in the Implementation of Contingency Plans in Member Countries

The aim of contingency plans is that of **setting up procedures for dealing with foot-and-mouth disease (FMD) should it occur**. These plans are particularly important in the current situation in Europe, where preventive vaccination has not been practised since 1991, and whenever the virus is introduced it is no longer arrested or slowed down by vaccination coverage.

For the countries of the EU, Community Directives 90/423/EEC and 91/42/EEC envisioned **the termination of preventive vaccination and the parallel obligation of each member country to prepare a contingency plan**. In March 1991 the DG VI drew up guidelines (document vi/1324/91-GD/ml) for drafting such a plan. Every country in the EU now has an FMD contingency plan drawn up in accordance with these directives and guidelines. European countries that are not EU members have also been encouraged to draw up contingency plans based on the same model.

The Thirtieth Session in April 1993 recommended a general outline for the use of member countries in drawing up national contingency plans, with twelve broad headings:

1. **Legal powers**
2. **Financial provisions**
3. **National disease control centres**
4. **Local disease control centres**
5. **Expert teams**
6. **Resources required for disease emergencies (personnel)**
7. **Resources required for disease emergencies (material, equipment and facilities)**
8. **Instructions for dealing with FMD outbreaks**
9. **Diagnostic laboratories**
10. **Contingency plans for vaccination**
11. **Training**
12. **Publicity and disease awareness**

Although a contingency plan should by now be operational in each member country of the Commission, the progress made with such plans, and particularly the capacity to implement them, varies considerably from country to country.

The present document is intended as a survey of the level of implementation of the proposals and recommendations issued by the various bodies of the Commission since 1993 as well as by other competent authorities (the EU PHARE Programme).

THIRTY-FIRST SESSION, APRIL 1995 The 31st Session stressed how vital it is that each country has a plan suited to its particular situation, that this plan be regularly updated, and that **its practical implementation be possible**. It is also essential that the contingency plan be validated through **simulation exercises** involving the various participants in the field, the laboratory and administrative offices.

THE PHARE PROGRAMME In 1995/1996 EU experts visited the ten countries bordering on the EU and participating in the PHARE Multi-Country Veterinary Diagnosis and Control Programme. In their report, these experts concluded that at the time of their mission not one of the ten countries visited had

a contingency plan in line with EU directives. (However, it should be noted that this conclusion was probably too harsh on some countries that had already set up contingency plans following the EU model.)

The February 1996 PHARE Programme Report made the following recommendations:

1. *Each country participating in the Programme should draw up a contingency plan on the model of those of the EU to meet FMD emergency situations.*
2. *A blueprint of working instructions for veterinary service staff responsible for epidemic control should be drawn up as a guide for veterinary authorities in the countries in the Programme.*
3. *Each country in the Programme should have adequate material, equipment and facilities to control outbreaks, including slaughtering facilities, disinfectant and disinfecting equipment.*
4. *Consideration should be given to establishment of an FMD vaccine bank.*
5. *Consideration should also be given to establishment of an emergency fund to cope with an epidemic in the ten countries.*

EXECUTIVE COMMITTEE SESSIONS IN 1996

Fifty-eighth Session, Milan, Italy, April 1996

The Committee approved the following recommendations included in the PHARE Programme Report, and expressed the hope that they would also be implemented in the other member countries of the Commission.

Each country should:

1. *have a national authority with a short chain of command between the Director of Veterinary Services and staff responsible for controlling outbreaks in the field;*
2. *have speedy access to a reliable diagnostic laboratory (national or reference laboratory); see also Item 6;*
3. *draw up a contingency plan and standardized working instructions;*
4. *organize training programmes; in the Committee's view, coordination of plans and their successful implementation in member countries are directly linked to the competence of veterinary services, which means that this competence must be boosted.*

Fifty-ninth Session, Budapest, Hungary, November 1966

The Committee noted that despite the Commission's repeated recommendations on the need to draw up contingency plans, the outbreak of FMD in the Balkans showed that some countries were as yet incapable of coping with such a situation. Much therefore still needs to be done in a number of countries, especially in the Balkans.

It is vital that the financial resources needed for the plan be anticipated and readily available when required.

TRAINING NEEDS AND PROPOSALS

-The most recent news bulletin on the FMD situation in the Balkans, sent out at the beginning of February 1997, reported that **veterinary services in the countries affected by FMD in 1996 have now prepared contingency plans** using the experience gained during the 1996 outbreak. Some countries mentioned a lack of resources, and said that they hoped to receive assistance for training and equipment.

-A joint EUFMD/EC workshop on preparing and implementing contingency plans is proposed for the countries of central and eastern Europe in autumn 1997 or spring 1998 along the lines of that organized in May-June 1995 at Velingrad in Bulgaria for the countries of southern Europe and the Near East. This workshop would be open to both member and non-member countries of the region. Those to be invited would be Croatia, the Czech Republic, Hungary, Lithuania, Poland and Slovenia, while the following non-member countries could also be invited: Belarus, Estonia, Latvia, Moldova, Slovakia and Ukraine. The cost of the workshop would be shared fifty-fifty by the Commission's Trust fund (904200) and the EU fund (911100) with the agreement of Brussels (see Item 11). The member countries concerned have been consulted, and Poland has offered to host this workshop at Pulawy.

- **France has a National School of Veterinary Services in Lyons, and plans to offer training to non-nationals. This school can organize specialized training and workshops on contingency planing and emergency preparedness if requested.**

Two important conditions have to be met, however, for training to be useful to member countries:

- the country must have started to prepare its contingency plan;
- the people actually in charge of preparing and implementing the emergency plan are those who must participate in such workshops.

TEACHING MATERIAL

The recognition of FMD or its very early clinical suspicion by field veterinarians (those in contact with the animals) is a major factor in the detection and effective and speedy control of the disease. It has been shown that such swift action will significantly reduce the costs and consequences of an outbreak of the disease for the country concerned, since in most cases ring vaccination will not be necessary.

Creating awareness in all member countries of the dangers of the introduction of FMD must, therefore, be stressed. **The great majority of veterinarians have never seen clinical cases of FMD** (and let us hope they never will!). The use of teaching aids such as videos and slides is therefore important, to allow these veterinarians to see the symptoms and lesions of FMD. They must also be provided with written instructions so that they clearly understand the procedure to be followed in the case of suspected infection.

The Secretary noted **a lack of extension material in many countries** during visits to member countries in 1996, although such material (especially videos) does exist in many countries and in different languages, while some cassettes, slides or diskettes are also commercially available. The Secretariat drew up a provisional list of available videos and other material plus the addressees from which they can be obtained, and this was published in the first issue of the Bulletin. If judged necessary, the Commission could also buy some videos and make them available to member countries, which could then copy them in their national languages, with the prior consent of the producers.

THE AVAILABILITY OF FOOT AND MOUTH DISEASE VACCINE FOR EMERGENCY VACCINATION IN EUROPE.

A.J.M. Garland (*).

1. INTRODUCTION :

A review of vaccine banks and an assessment of certain specific associated topics were called for during the 59th Session of the Executive Committee of the European Commission for the Control of Foot and Mouth Disease at their meeting in Budapest in November 1996.

Foot and mouth disease (FMD) vaccines banks are of two types: those holding reserves of fully formulated and tested vaccine ready for immediate use but with limited shelf life, and those holding reserves of tested antigen of long shelf life which can be formulated into vaccine and filled as required. This paper is principally concerned with antigen banks in Europe.

Vaccine antigen banks for FMD became a reality with the demonstration that inactivated, concentrated viral antigens could retain their potency for extended periods under conditions of low temperature storage and that such antigens could be readily reconstituted and formulated as potent vaccines when required.

These developments provided the possibility of creating vaccine antigen banks for use in emergency in regions which were already free of FMD (such as North America and Australasia) or in regions where zoosanitary controls, including vaccination, were progressively reducing the incidence of the disease (such as Western Europe). The incentives for the creation of the vaccine banks included the insurance which they provide against the introduction of FMD and increased convenience, flexibility and reduced cost compared with the policy of routine, annual, mass vaccination using fully formulated vaccines, as practised in several countries and throughout Europe, until 1991/92.

Stockpiles of FMD antigen have been in existence for over 20 years. The first was created in Denmark in 1976 while international banks were formally inaugurated in North America in 1982 and in Europe in 1985. National banks have also been created. Commercial manufacturers provide much of the antigen for these banks and also hold stocks in their own right.

To date stocks of antigen in international banks have been called upon to supply emergency vaccine rather rarely i.e. from the European commission Vaccine Bank to the Balkans in 1996.

Although FMD has been increasingly brought under control in several parts of the world, in

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many other areas it remains endemic. Thus the threat of FMD persists and the risk of spread is exacerbated by political and economic developments, expanding free trade areas and ever more rapid movement of animals, animal products and people around the globe [1]. In the European context the continuing risk from FMD is emphasised by the presence of endemic disease in Anatolian Turkey and recent outbreaks in Turkish Thrace, Greece, Albania, the former Yugoslav Republic of Macedonia and the Former Republic of Yugoslavia.Vaccine banks constitute one of the several vital control measures deployed against the disease.

The organisation of the international government vaccine banks has been reviewed by House [2] from the Australian perspective and by Callis [3] from an international perspective. In 1996 Pastoret prepared an extensive report on the control of FMD in the EU, including the topic of vaccine banks [4].

2. EXISTING FMD VACCINE BANKS .

There are essentially three existing types of FMD vaccine bank.

- **International, Government administered and financed banks.**
- **National, Government administered and financed vaccine banks.**
- **Commercially maintained vaccine banks.**

2.1. International Governmental Vaccine Banks:

2.1.1. The International Vaccine Bank (IVB)

The IVB came into being in 1985. The founder members were comprised of seven countries, all of which were free of FMD at the time and which have since maintained that freedom, namely: Australia, Finland, The Republic of Ireland, New Zealand, Norway, Sweden, and the United Kingdom. Malta joined the bank as an associate, non-voting member in 1995.
Each member pays a joining fee and an annual subscription to the bank for the purchase and storage of antigens, the maintenance of facilities, plant and equipment and housekeeping, including regular testing of the potency of stored antigens. Drawing rights vary between 100,000 and 500,000 doses, according to member's financial contributions. Members are obliged to pay for the replacement of any vaccine which they utilise from the bank as soon as possible after its withdrawal.

The bank is located at the UK Institute of Animal Health (IAH)laboratory at Pirbright, England, which is also the World Reference Laboratory (WRL) and European Reference Laboratory for FMD. Antigens are purchased according to open tender from commercial sources. The IVB is unique among the FMD vaccine banks in having its own facilities for the formulation and filling of vaccines in dedicated premises under licensed conditions and in compliance with Good Manufacturing Practice. The WRL is also the only laboratory officially authorised to work with live virus of all seven types and all subtypes of FMD virus.

The bank maintains stocks of inactivated, concentrated viral antigens stored in the gaseous phase over liquid nitrogen. The choice of antigens is determined according to the prevalent epidemiological conditions world wide and to reflect the likely needs of member countries in Europe and Australasia, The selection process takes cognisance of the latest information available from the WRL, the Office International des Epizooties (OIE) and the Food and Agriculture Organisation (FAO) of the United Nations Organisation. Currently the stocks include antigens equivalent to half a million doses of finished vaccine of each of the types and subtypes of virus and of the potencies shown in table 1.

Table 1 : IVB Vaccine Stocks and Potency Values :

Vaccine Type and Strain.		PD50 value as most recently assayed in 1996 [4].
Type A15	Thailand	> 112 PD50 per dose.
Type A22	Iraq	75 PD50 per dose.
Type A24	Cruzeiro	18 PD50 per dose.
Type O1	Lausanne	41 PD50 per dose.
Type O1	Manisa	> 112 PD50 per dose.
Type C1	Oberbayern	> 112 PD50 per dose.
Type Asia1	India 8/79	61 PD50 per dose.

The policy and financing of the bank are entrusted to a commission which includes all the Chief Veterinary Officers of the member states while a technical advisory group deals with regulatory, technical and scientific matters and makes recommendations to the commission on such matters as the selection of vaccine strains and methods and equipment for vaccine formulation and testing. In practical terms the UK Ministry of Agriculture, Fisheries and Food administers the bank on behalf of the commission while operational matters are in the hands of the Pirbright laboratory.

The bank is maintained in a constant state of readiness and has the capability of formulating, filling and despatching up to 500,000 doses of vaccine within three days of receiving a request from a member state. Both aqueous-saponised and oil adjuvanted vaccines can be formulated.

The IVB is also charged with the responsibility of testing the potency of stored antigens. This is programmed as an initial acceptance test as a condition of approval for purchase and subsequent testing at one, five and ten years after the primary test, unless the results of testing indicate otherwise.

2.1.2 The North American Vaccine Bank (NAVB) :

The North American continent has been free of FMD for twenty three years, with outbreaks last recorded in the USA in 1929, in 1952 in Canada and in 1954 in Mexico.

The NAVB was formed in 1982 with membership comprising Canada, Mexico and the United States of America, based initially on the US Department of Agriculture's (USDA) existing stockpile of frozen antigens [3,4].

The bank is located at the USDA Plum Island Animal Disease Center off the coast of New York State where the antigens are stored and tested periodically by in vitro investigation of viral integrity.

The original antigens, prepared from European virus strains and supplied commercially in the late 1970s, were equivalent to seven million doses of vaccine. After the bank was founded further antigens were produced using strains of South American origin at the USDA Plum Island Laboratory, adding four million doses to a current total of antigen equivalent to eleven million doses of vaccine.

Subsequent supplies of antigen will be purchased from commercial sources in open tendering. Manufacturers are subject to inspection and approval by bank personnel and antigens must meet specific criteria, particularly in respect of potency.

The management, funding and scientific and technical direction of the NAVB are similar to that of the IVB. One important difference is that the functions of formulation, filling, labelling, storage and despatch of the reconstituted antigen are to be undertaken commercially using the antigen supplied by the bank. Arrangements have been made for these operations but there has not as yet been occasion to implement them during the 16 years since the bank was established.

2.1.3. The European Union Vaccine Bank (EUVB) :

The control of FMD in Western Europe from the 1950s onwards relied heavily on routine, compulsory, biannual, prophylactic vaccination, together with the control of the import and internal movement of live animals and animal products. By the 1980s the incidence of FMD in Western Europe had been generally reduced to a sporadic level.

However, eight of the then twelve member states of the European Union (EU) continued to apply mass vaccination at significant cost in terms of financial and human resources. At this time investigations also indicated that a significant number of residual FMD outbreaks were attributable to either the escape of virus from laboratories and vaccine plants or to the application of ineffectively inactivated vaccines containing live virus [5].

The control policy was therefore re-examined within the EU. In 1989 following extensive debate - and with support from cost-benefit and risk analyses of the various options for the future control of FMD - the Council adopted a recommendation that vaccination should be phased out in member states, but made the provisos that the control of imports should be further strengthened and that a vaccine bank should be established. In 1990 the decision was taken to cease routine FMD immunisation in member states and the last round of vaccination took place in January 1992.

The establishment of the European Union Vaccine Bank (also earlier referred to as the European Commission Vaccine Bank) was formally authorised in 1991 by EC Decision 91/666/EEC [6]. This Decision stipulated that the bank would eventually hold antigen equivalent to at least five million doses of vaccine of ten subtypes, these being specified in Annex 1 of the Decision. The Directorate General VI of the EU in Brussels manages the bank with technical advice from the Research Group of the Standing Technical Committee of the EU Commission for the Control of FMD.

Antigens are purchased from European manufacturers with a minimum acceptance level of 6.0 PD50 per dose. For ease of geographical access and for reasons of security the inactivated concentrates are divided between at least two of three designated storage locations situated at: the IAH Pirbright laboratory in the UK; the Laboratoire de Pathologie Bovine du Centre National d'Etudes Veterinaire et Alimentaire at Lyon in France; and the Instituto Zooprofilatico Sperimentale di Brescia in Italy. The bank was inaugurated in 1993 and antigen stockpiling was expected to be complete by 1996.

The current quantities and locations of antigen in the EUVB are shown in Table 2.

Table 2: EUVB antigen stocks and locations :

Virus type and subtype.	Quantity (Antigen equivalent doses).	Location.
O1 Manisa	2,500,000	Lyon
O1 Manisa	2,500,000	Brescia
O1 BFS	2,500,000	Pirbright
O1 BFS	2,500,000	Lyon
A24 Cruzeiro	2,500,000	Lyon
A24 Cruzeiro	2,500,000	Pirbright
A22 Iraq	1,900,000	Lyon
A22 Iraq	2,500,000	Brescia

In 1994 the Research Group made recommendations on the types and subtypes to be included in the bank [7], including new and additional subtypes, together with prioritisation as follows:

High Priority:

O1 Manisa; O1 BFS or O1 Lausanne; A22 Iraq;
Asia 1 Shamir; C Noville.

Medium Priority:

Sat 2 Zimbabwe; A15 Bangkok-related strain;
A87 Argentina-related strain; A Saudi Arabia;
SAT 1 South Africa; C Philippines; A Turkey.

Low Priority:

SAT 1 Kenya; SAT 2 Kenya; SAT 3 Zimbabwe;
O Thailand; A Kenya; O Hong Kong.

The Community Co-ordinating Institute (CCI) for FMD Vaccines at Lelystadt in the Netherlands was appointed to assess commercial antigens for compliance with technical specifications, including safety and potency. However there have been difficulties in implementing this comprehensively and the future approach to this topic following the expiry of the CCI contract in 1997 remains to be determined.

In common with the NAVB the formulation, filling, storage and distribution of the vaccine is to be undertaken by the IVB and /or by commercial vaccine manufacturers within Europe, using antigen provided by the bank. Negotiations continue on some contractual aspects of these arrangements.

2.1.4. The proposed All Russian Research Institute for Animal Health (ARRIAH) Vaccine Bank.

The ARRIAH Institute at Vladimir near Moscow has for many years supplied vaccine for a number of regions within Russia and for countries formerly included in the USSR prior to the break up of the soviet block. In 1994 the Institute applied to the OIE for recognition as a Regional Reference Laboratory for FMD for the countries of Eastern Europe, Central Asia and Transcaucasia, including the function of acting as the vaccine bank for these regions. The application remains under consideration but meanwhile ARRIAH has negotiated contracts for the supply of vaccine to Bulgaria, Ukraine, Kazakhstan, Belarus, Moldavia and Turkmenistan [3, 8]. In some instances these vaccines can be prepared on demand from frozen antigen.

2.2. National Government Vaccine Banks (NGVB) :

The first NGVB was established in Denmark in 1976 followed by the USA in 1983.

The status of NGVBs was reviewed in an international context by Callis in 1994 [3] and in an European context by the EUFMD Commission in 1993 [9] and again in 1995 [10]. The latter two reviews utilised a questionnaire sent to all European states - including both members and non members of the European Union - and a number of associated countries. This exercise was repeated in January 1997 and the detailed results are given in Appendix A.

Questionnaires were despatched to 34 countries and 28 replies were received. Four countries have no reserves of antigen or vaccine. Thirteen countries maintain a national bank of formulated vaccine, 4 of these also to belong to the EUVB. A further 5 countries have contracts with commercial companies for the supply of ready to use vaccine or for the formulation of vaccine from stored antigen on demand. Ten countries hold stocks of concentrated antigen. Six European countries are members of the IVB, 2 of which are also members of the EUVB.

2.3 Commercial Vaccine Banks :

Earlier reviews considered the status of commercial sources of both stored antigens and formulated vaccines in Europe [3, 4, 9, 10] and further afield [4]. An EU FMD survey was carried out in 1995 and repeated in early 1997 the results of which are summarised in Appendix B.

Three commercial companies are currently engaged in FMD vaccine manufacture within the EU namely: Bayer AG in Germany ; Intervet in the Netherlands; and Merial (formerly Rhone -Merieux) in England and in France.

Vaccine manufacturers outside the EU include: the government ARRIAH facility in Russia and regional vaccine plants in Shelkovo and Povrov [8]; the Dyntec company at Terezin in the Czech Republic; the government SAP Institute in Ankara and the new, private Vetal company at Adiyaman in Turkey; There are also active private and government vaccine manufacturing facilities elsewhere, principally located in Africa
(in Botswana, Kenya and the Republic of South Africa); in India; and in South America (in Argentina, Brazil and Colombia).

As in the previous survey the information provided by private companies is reported in general terms to protect commercial confidentiality. Six commercial manufacturers in and around Europe currently have the combined capability of producing at least 155 million doses of vaccine annually at a rate of approximately 13 million doses per month. All employ first order, aziridine inactivation of virus accompanied by the calculation of inactivation kinetics. All employ target species for the assesment of potency and safety and most test their vaccines in accordance with the European Pharmacopoeia.

Table 3 summarises some of the principal characteristics of existing vaccine banks.

It is clear that commercial suppliers currently fulfil a crucial role in the provision of both fully formulated vaccines and inactivated concentrates to third parties, in the maintenance of their own vaccine reserves and in the formulation of vaccines from antigens stockpiled in national and international vaccine banks. Indeed, several national and international banks have arrangements whereby a company is contracted to undertake some or even all of the functions of the bank under direction from the contractor.

Earlier arrangement whereby the NAVB and a number of the national European banks produced antigens in their own vaccine plants, often associated with a national research laboratory, has been almost totally superseded in North America and in Western Europe by supply from private manufacturers. Many former national vaccine production facilities have been closed or mothballed. This change has been driven by a number of factors including: the reduction in the overall European demand for formulated vaccine; the requirement for increasingly stringent and costly disease security in FMD laboratories and plants; the financial restrictions which have been brought to bear on national FMD laboratories; and a shift in emphasis to other priorities.

Table 3 : Features of Commercial Vaccine Manufacture in Europe.

Total Annual Production Capacity:	155 Million doses	One company now starting production intends to have a capacity of 30M doses. Another company states that facilities would allow the doubling of capacity to 40M doses. These figures are not included in the 155M dose total.
Monthly Production Capacity:	13 Million doses.	One company starting production intends to have a capacity of 3M doses. Another company states that facilities would allow the doubling of capacity to 3.2 M doses. These figures are not included in the 13M dose total.
Inactivating Agent.	Binary Ethleneimine	All manufacturers use BEI. Some as a single dose, others as a double dose.
Inactivation Tests.	Inactivation Kinetics. Inoculation of Tissue Culture and Target Species.	Most manufacturers test according to The European Pharmacopoeia. One also tests according to the US Federal Code, according to purchaser's requirements.
146S viral content per dose of vaccine. Minimum / Mean.	1.48-6.0 / 2.8-15. Strain dependent.	Some producers incorporate 'sufficient 146S antigen to produce a minimum PD50 level of 6 or 7 PD50'.
Vaccine formulations routinely available.	Aqueous Aluminium Hydroxide-Saponin and Oil emulsion vaccines.	All manufacturers can produce both aqueous and oil emulsion vaccines.
Safety and potency testing.	Target species testing in cattle or pigs	Most producers test potency according to the European Pharmacopoeia. Serum neutralisation data also used. One producer also uses guinea pigs.
Quality Assurance Responsibility.	Both In-House and Independent testing responsibility.	All european manufacturers submit their products to independent testing by national authorities.
Time to supply vaccine from antigen stock.	3-5 days.	Dependent on sterility testing requirement.
Time to produce vaccine from a new strain.	1 to 6 months.	Dependent on adaptation and potency characteristics.

3. SOME FACTORS INVOLVED IN EMERGENCY VACCINATION.

3.1 Safety Testing of Antigens and Vaccines :

Inactivated, concentrated antigens destined for vaccine formulation either immediately or after storage should be tested for innocuity according to pharmacopoeial requirements [11].

In the past inactivated FMD vaccines have been responsible for outbreaks of disease due to failure to secure total inactivation of viral infectivity [5]. Good manufacturing Practice during production of antigens and the use of modern aziridine inactivating agents, together with the determination of inactivation kinetics and innocuity assays in tissue culture and in animals - including target species - should mean that inactivation failures are avoided [11], yet the possibility cannot be totally excluded.

The value of the pharmacopoeial, target animal test performed in cattle and/or pigs has been questioned since it is much less sensitive than tissue culture methods for the detection of residual live virus and is also costly to perform. It may have value in detecting abnormal toxicity due to factors other than residual infectious virus but there are other established methods for this purpose, such as weight gain tests in small laboratory animals as used for human vaccines. It would be useful to investigate such alternatives with the possibility of eventually phasing out the target animal test.

3.2. Potency Testing of vaccines :

The potency criterion for vaccine antigens for the IVB and EUVB has been set at 6 PD50 per dose. Approved methods of assaying FMD vaccine potency are prescribed in National and International Pharmacopoeiae, e.g. in the European Pharmacopoeia [12] and the methods employed have given adequate results over many years. In the case of stored antigens sequential potency testing can give increased confidence in the observed potency value.

However, the prescribed method using groups of animals, usually cattle or pigs, vaccinated with reducing amounts of the vaccine antigen and their subsequent challenge to enable the calculation of the 50 percent protective dose (PD 50) suffers limitations. Various constraints, including cost, restrict the number of groups and constituent numbers of animals employed so that the statistical confidence limits of the observed PD50 value are wide. The test is laborious, time consuming, demands high security facilities and is expensive. Animal welfare considerations also impinge.

There are allowances to dispense with live virus challenge in potency tests and to rely on serological results from the vaccinated groups, but only where a sufficient correlation has been demonstrated between the results of challenge and those of serology. Similar dispensations are permitted for the use of laboratory animals (usually guinea pigs or mice) rather than target species, with the same precondition [12]. These correlations have been

established for some but not all vaccine strains and have to be derived from first principles when a new strain is required. Even when a PD 50 test is based on the serological response of groups of vaccinated cattle a single test can cost in the order of £20,000. Under these circumstances there is a pressing need for international action to establish reliable correlations which are based on serum neutralisation rather than challenge.

High levels of antigen incorporation in vaccines can broaden the protective spectrum of immunisation across subtypes within the same serological virus type [13, 14] and it has been recommended that emergency vaccines should contain higher levels of antigen than vaccines which are used in routine vaccination campaigns (currently 2 to 15 micrograms of 146S antigen per dose). In practice the antigens currently stored in some vaccine banks can have PD 50 values greatly in excess of the 6 PD 50 acceptance level (Table 1), offering the option to formulate vaccine to contain high levels of immunising antigen. It is inevitable however that increased antigen incorporation results in higher costs per vaccine dose and also limits the number of doses which can be produced from a batch of antigen.

There are reports that single oil emulsion vaccines containing exceptionally large amounts of intact, inactivated viral antigen (up to 100 micrograms of 146S antigen per dose) gave bovine PD50 values of around 300 per dose, elicited protection in cattle within 24 hours of application, engendered levels of neutralising antibody which exceeded those seen in convalescent animals and which persisted for 24 months, providing protection against challenge for at least two years [13]. Independent testing over a 3 month period of observation of a Type A22 vaccine of the above formulation confirmed that extremely high levels of serum antibody were engendered and that the antibodies provided a significantly wider antigenic spectrum than did a conventional aqueous vaccine of the same serotype [15]. However the oil vaccine was associated with severe and persistent reactions at the site of inoculation.

Reports concerning an oil emulsion vaccine prepared from stored antigen and containing 50 micrograms of 146S antigen per dose showed early protection of pigs and antibody responses exceeding convalescent levels which persisted for at least one year post vaccination. There have been proposals that such a vaccine could be used in emergency for the reduction of viral excretion in outbreaks involving large pig farms[16], linked with the subsequent slaughter of vaccinated animals.

3.3 Product Liability :

An area of potential difficulty is that of product liability. The usual treatment of liability claims involving a licensed vaccine concern damage due to side effects or failure to protect against disease.

The protective effeciency of a vaccine in a given outbreak is dependent on many inter-related factors. These include: the potency of the vaccine; the degree of relatedness between the vaccine and outbreak strain of virus; the interval between the diagnosis of disease and the decision to vaccinate; the transmissability and invasiveness of the outbreak strain; the

opportunities for and the extent of spread of the outbreak - including the species involved; the susceptible livestock population density and disposition; geographical, topographical and metereological conditions; the efficiency of vaccine storage and application; the speed with which vaccine can be produced, delivered and administered; and the rapidity of onset, level and duration of vaccinal immunity.

Given this complexity it may be difficult to measure the efficiency of emergency vaccination quantitatively and objectively. It may also be difficult to decide where any liability for lack of vaccine efficacy may lie, even more so when a number of organisations are involved in the initial manufacture, storage, formulation, transport, and administration of the vaccine - as is the case with several of the arrangements currently in place or envisaged for the supply of vaccines from vaccine banks.

Where reputable vaccine manufacturers and well organised and resourced veterinary services are involved the total failure of emergency vaccine seems unlikely. The question of product liability should however be considered in contracts and professional legal advice should be taken in all cases. Two solutions appear worthy of consideration. The first could be that product liability is waived by the country receiving the emergency vaccine on the grounds of national emergency (assuming that all other aspects of the supply are according to contract). The second could be that a fund be set up to cover compensation without accepting liability where vaccine can be shown to be at fault. Such arrangements may require changes to existing legislation.

3.4 The Logistics of Vaccine Supply :

Speed of response is crucial to the sucess of emergency vaccination. In this context it is instructive to consider the supply to the Balkans from the ECVB in 1996. Some 614,000 doses of monovalent type A22 aluminium hydroxide-saponin vaccine and 110,000 doses of oil emulsion vaccine were formulated and supplied. The delays between deciding to vaccinate and the actual supply and commencement of vaccination varied between 11 and 26 days and were attributed to a combination of factors including the following [14]:-

- the bureaucracy of the EU tendering system
- the need to secure an EU Commission decision on financial support
- manufacturer's delivery time
- the recipient country's insufficient readiness, including lack of a contingency plan and essential equipment.

These findings emphasise the necessity for improved coordination and clearly defined decision making to minimise delay [4,17]. Present arrangements should be examined with a view to their being streamlined.

3.5 Opportunities for Collaboration and Rationalisation.

The IVB holds antigen equivalent to 3.5 M doses of formulated vaccine, the EUVB antigen stocks are equivalent to 36 M doses and commercial banks in the EU currently hold antigens equivelant to 29 M doses of formulated vaccine. Thus there are antigen stocks capable of producing some 78.5 M doses in the EU, excluding some stocks maintained by individual

European countries and the antigens held in both the ARRIAH bank and the NAVB. Since these stocks have seldom been called upon it would seem appropriate to examine ways in which these stocks might be rationalised and reduced according to risk. It is acknowledged that individual nations may wish to preserve their right to act autonomously but this must be balanced against economic factors and the also, at least within the EU, the legislation which governs FMD vaccination [4]. This aspect should be addressed by national and international authorities as a priority.

The international and commercial antigen banks carry stocks of all 7 types of FMD virus and a variety of strains within each type, e.g. the 3 private companies within the EU hold stocks of 6 type A strains, 5 type O strains and 2 type C strains. The number of strains increases further when national stocks are considered.

It is known that strains of FMD virus differ in their stability and immunogenic potential [11]. However, given the evidence suggesting that the antigenic spectrum of a vaccine widens as the incorporation level of 146S antigen increases [13,15] it would be useful to investigate this phenomenon more extensively with a view to the possible reduction of the strains routinely held in antigen banks. Further investigation of the effect of antigen dose on the onset and the duration of immunity would also be worthwhile.

Studies on the stability of inactivated, concentrated antigens stored at -196 and -70 degrees centigrade should continue. Results to date show that some antigens stored over liquid nitrogen retain their potency for at least 8 years and published reports commonly claim that such antigens can be stored indefinitely. It will be important to confirm this assertion experimentally. Similarly, further investigation is called for to examine the shelf life of vaccine after reconstitution from low temperature storage, since there are conflicting reports in this area [11].

In FMD free areas emergency vaccination is normally recommended as an adjunct to a 'Stamping Out ' policy, to be used when other zoosanitary measures are seen to be failing to control the outbreak. Computer-aided disease modelling is increasingly seen as an important tool in reaching the decision on whether and when to deploy vaccination and work should be extended on this approach [17,18]. This decision is difficult and complex, not least because vaccination brings consequences for international trade in animals and animal products which are extremely serious [18,19].

A most important aspect of emergency FMD vaccination is the consequential problem of differentiating between animals which have been vaccinated and animals which have been vaccinated and subclinically infected. Studies on the serological response to live virus multiplication and to the antigenic components of inactivated vaccines, including the non structural proteins, have shown promising results and should be pursued.

Research on novel FMD vaccines has recently been reviewed [11]. The approaches have included synthetic peptides, recombinant DNA vaccines and various adjuvant formulations, including notably oil emulsion formulations. Promising results have been reported and proposals put forward for further work, including the use of vaccines which include a marker allowing the identification of animals which have been vaccinated rather than vaccinated and infected [4,11,18,20]. An approach which appears to merit increased attention is that of

developing vaccine in a freeze dried formulation with potential for extended shelf life without cold storage. It is important to recognise however that if novel vaccines are to be accepted they will have to offer significant advantages over existing vaccines, - whether these concern safety, potency, speed and duration of response, antigenic spectrum, shelf life or other improvements - and that they will have to be available at a cost which is perceived as giving value for money when measured against existing products which have long been associated with successful control and eradication of disease.

It is recommended that collaboration between Governments, Academia and Industry be explored in the further development of improved FMD vaccines and, as appropriate, in progressing the other research and development proposals identified in the investigation of more effective ways of combating the continuing problem of FMD.

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Agenda Item 8, Annex A :
Strategic Reserves of FMD Vaccine and Antigen held by Countries mainly in Europe as of March 1997.

COUNTRY	STRATEGIC RESERVES OF VACCINE OR ANTIGEN
Albania	Does not maintain a vaccine antigen bank. In 1996 a total of 370,000 doses of monovalent A22 Iraq vaccine were supplied from the **EUVB** [1] (260,00 doses of aqueous vaccine) and via the EU FMD Commission from commercial sources (110,000 doses of oil vaccine). 354,000 doses were used for vaccination and revaccination in the face of the outbreak in Korcha Region and the balance of 16,000 doses is held at the regional veterinary laboratory.
Austria	Member of the **EUVB** . The competent Austrian authorities are entitled to use the EU vaccine bank in case of an emergency.
Belgium	Maintains a **National Vaccine Bank** of formulated vaccine in Brussels comprising 1,200,000 doses of trivalent vaccine including the serotypes: A5 Leffrage ; O1 Bruges ; and C1 Loupogne with an expiry date of the year 2000. The supply has never been activated. Member of **EUVB** since 1993. Antigens are stored at Lyon in France. Stored antigens are equivalent to 1,200,000 doses of each of the following serotypes: A22 Iraq; O1 Manisa; C1 Noville; and Asia1 Israel. The antigens had a potency of at least 6 bovine PD50 per dose when last assayed in October 1995. See entries for Italy, France and UK for further details of the **EUVB.**
Bulgaria	Has contracted with the ARRIAH, Vladimir, Russia for the provision in case of need of 20,000 doses of aluminium hydroxyde monovalent vaccine against O1, A22, Asia1 and 10,000 doses of oil-adjuved vaccine against O1, and A22 .
Croatia	A stock of formulated type A22 vaccine was supplied by contract with the private German company Bayer AG, in July 1996. The vaccine was not used and forms a reserve held by the Croatian private company, Veterinaria d.o.o, in Zagreb with an expiry date of November 1998.

Cyprus	No antigen or vaccine bank is maintained.Proposes that the question of access to the **EUVB** for non EU countries be discussed again. Also that in the event of non EU members not being able to gain access to the **EUVB** there should be discussion of the possibility of creating a bank for European countries outside the EU.
Czech Republic	An annual contract for the emergency supply of vaccine has been in place since 1991 with the private company, Dyntec RSO, at Terezin in the Czech Republic. The company holds stocks of inactivated, concentrated antigen equivalent to 2,000,000 monovalent doses of each of the following types and strains: A5 LBR; O1 Brent and C LBR.
Denmark	Has maintained a **National Antigen Bank** of inactivated, concentrated virus since 1976, held at the State Veterinary Institute for Virus Research at Lindholm. The bank contains antigen equivalent to 840,000 doses of vaccine of serotype A 10; 800,000 doses of serotype O 1; and 720,000 doses of serotype C 1. The potency has not been estimated in terms of PD50 values. The supply has never been activated.
Finland	Member of **IVB** [2] since 1985. Antigens are held at the Institute for Animal Health Laboratory, Pirbright, UK. Supply never yet activated. See under United Kingdom entry for details of **IVB**.
France	Maintains a **National Bank** of formulated vaccine at the Laboratoire Pathologie Bovine, Lyon, established in 1992, containing 300,000 monovalent doses of O1 Manisa and 100,000 monovalent doses each of A22 Iraq and Asia 1 Shamir, Israel. All stocks have a potency of at least 6 bovine PD50 per dose. Member of the **EUVB** since 1993. One of the designated repositories of antigen for the **EUVB** at Lyon. Formulated 120,000 doses of emergency A22 Iraq vaccine for possible use in the Balkan outbreaks of 1996. These were not eventually used and remain in stock. A22 Iraq antigen immediately replaced. Holds concentrated, inactivated antigen equivalent to 1,900,000 doses of A22 Iraq 64 and 2,500,000 doses of each of O1 Turkey 1/78, A24 Cruzeiro and O1 BFS.

Germany *	Maintains a **National Vaccine Bank** under contract with the private German company, Bayer AG, in Cologne and under the authority of the federal state of Northrhine Westphalia. The bank holds 100,000 doses of formulated vaccine of each of the serotypes A5 Berbeuren ; A22 Iraq ; A24 Cruzeiro ; A87 Argentina ; O1 Kaufbeuren ; O1 Manisa ; C1 Oberbayern ; SAT 1 Zimbabwe ; SAT 2 Zimbabwe ; and Asia 1 Shamir. An increase of vaccine stocks from 100,000 to 200,000 doses is under consideration for the most important strains. Antigen concentrate is also held of 10 strains equivalent to 1- 4 million doses of vaccine of each. The bank has never been activated.
Greece	Member of **EUVB** since 1993. Antigens stored at Lyon(France), Pirbright (UK) and Brescia (Italy). See entries for these countries for details of the **EUVB**
Hungary	Has had contracts with the private French company Merial (Rhone-Merieux) since 1989 for the emergency supply of formulated vaccine and since 1995 for supply from concentrated, inactivated antigen. The current contract is for 350,000 doses of each of the following serotypes: A22 Iraq 64; O1 Manisa 69; C1 Noville; and Asia1 Israel 69. The vaccines are specified to contain at least 6 bovine PD50 per dose and current stocks carry an expiry date of the year 2000. The supply has never yet been activated.
Iceland	No antigen or vaccine bank is maintained.
Ireland	Member of the **IVB** since 1985. See under the UK entry for details of the IVB. Member of the **EUVB** since 1993. See under Italy, France and the UK for details of the **EUVB.** Neither bank has as yet been activated.

Israel	Has a contract with the private French company, Merial (Rhone-Merieux) for the routine supply 600,000 doses of trivalent cattle vaccine containing types: A22 Iran; O1 Manisa; O1 Geshur; and Asia1 Shamir. Also for the supply of 700,000 doses of monovalent vaccine. Vaccines have a potency of at least 6 bovine PD50 per dose. Current stocks have an expiry date of January 1999. Routine annual vaccination is practiced and ring vaccination in case of an outbreak. Has an experimental pilot plant for vaccine production which has produced 35,000 doses of type O1 vaccine which is currently on test.
Italy	Member of the **EUVB** since 1993. One of the central repositories for inactivated, concentrated antigen maintained at the Instituto Zooprofilatico Sperimentale at Brescia which has facilities for the formulation and filling of emergency vaccine. Current stocks of antigen comprise the types and subtypes A22 Iraq and O1 Manisa equivalent to 2,500,000 doses of each type with a potency of at least 6 bovine PD50 per dose.
Lithuania	No antigen or vaccine bank is maintained. In case of emergency intends to apply to the **EUVB** or to the Czech Republic for assistance.
Luxembourg	No antigen or vaccine bank is maintained.
Malta	Associate Member of the **IVB** since 1995. Vaccine stored at the Institute of Animal Health Laboratory, Pirbright, UK. Drawing rights of up to 100,000 doses of vaccine. See UK entry for details of the **IVB**.
Netherlands	Maintains at the ID-DLO, Lelystad a **National Antigen Bank** comprising the equivalent to 2,430,000 doses of A 5 Westerwald; 1,100,000 doses of O1 BFS; 730,00 doses of C1 Holland and 1,600,000 doses of C1 Detmold. The antigens, tested between 1991 and 1994 have a potency higher than 6 PD50 per dose.

Norway	Member of the **IVB** since 1985. Antigen stored at the Institute for Animal Health Laboratory in Pirbright, UK. The supply has never been activated. See entry under UK for details of the **IVB.**
Poland	A **National Antigen Bank** has been maintained since January 1996. The bank is situated at the National Veterinary Research Institute, Zdunska Wola, Poland. The antigens are equivalent to 80,000 doses of A22 Iraq; 100,000 doses of O1 Manisa; 80,000 doses of C1 Noville and 70,000 doses of Asia 1 at a potency of at least 6 bovine PD50 per dose, last tested in 1995. The supply has never yet been activated.
Portugal	No antigen or vaccine is maintained Member of the **EUVB** since 1993
Romania	Maintains a **National Vaccine Bank** of formulated vaccine established in 1993 at the Institut National de Medecine Veterinaire "Pasteur" in Bucharest. The bank has never yet been activated. 1,000,000 doses of monovalent vaccine is held of each of the following Types and Subtypes: A5 Romania; O1 Romania; and C Romania, each with a potency of at least 21 bovine PD50 per dose in 1996.
Russia	Maintains a **National Vaccine Bank** with stocks of both formulated and inactivated, concentrated antigens. Formulated vaccines are in stock of the following types and subtypes: A22 N550; O1 N194; C1 N564; Asia1 N48; SAT1 N96; SAT2 N183 and SAT3 N324. The vaccines have a potency of at least 7 bovine PD50 per dose and a shelf life of 18 months. The antigen bank contains the equivalent of 100,000 doses of each of the following types and strains: A22 N550; O1 N194; C1 N594 and Asia1 N48. Has contracts for the supply of vaccine to Bulgaria, Ukraine, Kazakhstan, Belarus, Moldavia and Turkmenistan.

Russia (continued).	Has applied to the OIE for recognition as a Regional Laboratory for FMD for the countries of Eastern Europe, Central Asia and Transcuacasia, including the functions of a vaccine bank. Maintains national vaccine production facilities. See also Agenda Item 8, Annex B.
Slovak Republic	Has a **National Antigen Bank** organised under contract with the private company, Dyntec S.R.O., at Terezin in the Czech Republic. Inactivated antigen is held equivalent to 200,000 monovalent doses of each of the types and subtypes A5 Allier; O1 Brent and C Strain 6000, each with a potency of at least 6 Bovine PD50 per dose as established by serological testing by state authorities in 1996.
Slovenia	Has had a contract with the private company Bayer AG in Cologne since 1993 for the maintenance of inactivated, concentrated antigen and its supply as formulated vaccine on demand. Current antigen stocks are equivalent to 100,000 doses of each of the following serotypes: A22 Iraq; A Saudi Arabia; O1 Manisa; C1 Bavaria; and Asia 1 Shamir. The supply has never yet been activated.
Spain	Member of **EUVB** since 1993. Antigens stored at Lyon (France), Pirbright (UK) and Brescia (Italy). See entries under these countries.
Sweden	Member of both the **IVB** since 1985 and the **EUVB** since 1993. Drawing rights on the **IVB** are for up to 100,000 doses of each of the constituent types and strains. The supply has never yet been activated from either the **IVB** or the **EUVB**. See under the UK entry for details of the **IVB.** See under the entries for France, Italy and UK for details of the **ECVB.**
Switzerland	Has had a contract with the French private company Merial (Rhone-Merieux) for the maintenance of inactivated, concentrated antigens and their formulation and supply as vaccine on demand since September 1996. Stocks of antigen are held equivalent to 330,000 doses of each of the serotypes: A 22 Albania; O1 Iran 94 and C1 Europe; and 220,000 doses of Asia 1. The supply has never yet been activated.

United Kingdom	No stocks of formulated vaccine are maintained. Member of **IVB** since 1985. Central storage repository for IVB at The Institute for Animal Health Laboratory at Pirbright which is responsible for the day to day management of the **IVB**. The bank has the capability to formulate and fill both aluminium hydroxide - saponin and oil adjuvant vaccines. Supply never yet activated. Holds concentrated, inactivated antigen equivalent to 500,000 doses of vaccine of each of the following types and subtypes: A15 Thailand; A22 Iraq; A24 Cruzeiro; O1 Lausanne; O1 Manisa; C1 Oberbayern; Asia1 India 8/79. Potencies ranged from 18 to > 112 bovine PD50 per dose in 1996. Member of the **EUVB** since 1993. One of the designated storage repositories for **EUVB**. Formulation and filling capabilities as for the IVB. Supply never yet activated. Holds concentrated, inactivated antigen equivalent to 2,500,000 doses of each of types and subtypes O1 BFS and A24 Cruzeiro with a potency of at least 6 bovine PD50 per dose in 1996. The Merial (Rhone-Merieux) private FMD vaccine facility is also located at Pirbright in the UK. See Agenda Item 8, Annex B.
Yugoslavia	No antigen or vaccine banks are routinely maintained. In 1996 in response to an outbreak of FMD in neighbouring Macedonia 114,600 doses of monovalent type A22 vaccine were supplied to Yugoslavia (14,600 doses from OIE and 100,000 doses from EU FMD Commission), but these were not finally required. This vaccine remains in stock with expiry dates of January 1998 (OIE supply) and July 1998 (EU FMD supply) at the Veterinary Institute at Zemun, Belgrade. Given more favourable future economic circumstances Yugoslavia would like to establish a contract for the emergency supply of vaccine with a commercial supplier.

[1] EUVB: European Union Vaccine Bank.

[2] IVB: International Vaccine Bank.

[*] No information received for 1997. Data based on information received in 1995.

Agenda Item 8, Annex B:

STOCKS OF FMD VACCINE AND ANTIGEN HELD BY MANUFACTURERS IN THE EUROPEAN UNION AS OF MARCH 1997

Virus type and strain	Doses Formulated Vaccine	Expiry Date	Antigen Stocks (Dose Equivalents)
A5			1.0 M
A 10 Holland			1.0 M
A 22 Iraq	0.5 M	1997	5.0 M
A 24 Cruzeiro	0.1 M	1997	1.0 M
A SAU 23/86			0.5 M
A SAU 41/91			0.5 M
O 1 BFS	15,000	1998	3.5 M
O 1 Manisa	0.6 M	1998	2.0 M
O 1 Kaufbeuren	0.1 M		1.0 M
O 1 Middle East			5.5 M
O1 Hong Kong			0.5 M
C 1 Oberbayern	0.1 M	1997	1.0 M
C 1 Detmold			2.5 M
SAT 1 Zimbabwe	0.1 M	1997	1.0 M
SAT 1 ?	0.3 M	1998	
SAT 2 Zimbabwe			1.0 M
SAT 2 ?	0.3 M	1998	
SAT 3 ?	0.3 M	1998	
Asia 1 Shamir	0.1 M	1997	2.0 M
Asia 1 ?	0.25 M	1998	0.2 M
TOTALS	2.76 M		29.2 M

CONSTITUTION, RULES OF PROCEDURE AND FINANCIAL REGULATIONS OF THE EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

As amended by the Commission at its Twenty-Second Session (29 March - 1 April 1977) and approved by the FAO Council at its Seventy-Second Session (8-10 November 1977) and by the the Commission at its Twenty-Eighth Session (9-12 May 1989) and approved by the FAO Council at its Ninety-Sixth Session (6-10 November 1989)

Left column represents Constitution in its present form
Proposed amendments are shown in right column; proposed deletions are indicated in italics in square brackets, new text is underlined; only the modified articles are mentionned.

CONSTITUTION

Present text

PREAMBLE

The contracting Governments, having regard to the urgent necessity of preventing the recurrence of the heavy losses to European agriculture caused by the repeated outbreaks of foot-and-mouth disease, hereby establish, within the framework of the Food and Agriculture Organization of the United Nations, a Commission to be known as the European Commission for the Control of Foot-and-Mouth Disease, whose object shall be to promote national and international action with respect to control measures against foot-and-mouth disease in Europe.

ARTICLE I

Membership

1. Membership in the European Commission for the Control of Foot-and-Mouth Disease (hereinafter referred to as "the Commission") shall be open to such European Member Nations of the Food and Agriculture Organization of the United Nations, and to such European Member Nations of the International Office of Epizootics that are Members of the United Nations, as accept this Constitution in accordance with the provisions of Article XV. The Commission may, by a two-thirds majority of the membership of the Commission, admit to membership such other European States that are Members of the United Nations, any of its Specialized Agencies or the International Atomic Energy Agency as have submitted an application for membership and a declaration made in a formal instrument that they accept the obligations of this Constitution as in force at the time of admission.

Proposed amendments

PREAMBLE

The contracting Governments, having regard to the urgent necessity of preventing the recurrence of the heavy losses to European agriculture caused by the repeated outbreaks of foot-and-mouth disease, hereby establish, within the framework of the Food and Agriculture Organization of the United Nations, a Commission to be known as the European Commission for the Control of Foot-and-Mouth Disease, whose object shall be to promote national and international action with respect to preventive and control measures against foot-and-mouth disease in Europe.

ARTICLE I

Membership

(The following amendment was proposed to and adopted by the Twenty-eighth Session held in Rome from 9 to 12 May 1989)

1. Membership in the European Commission for the Control of Foot-and-Mouth Disease (hereinafter referred to as "the Commission") shall be open to such European Member Nations of the Food and Agriculture Organization of the United Nations, to such States participating as members in the Regional Conference for Europe of the Food and Agriculture Organization of the United Nations and serviced by the Regional Office for Europe of the Food and Agriculture Organization of the United Nations, and to such European Member Nations of the International Office of Epizootics that are Members of the United Nations, as accept this Constitution in accordance with the provisions of Article XV. The Commission may, by a two-thirds majority of the membership of the Commission, admit to membership such other European States that are Members of the United Nations, any of its Specialized Agencies or the International Atomic Energy Agency as have submitted an application for membership and a declaration made in a formal

instrument that they accept the obligations of this Constitution as in force at the time of admission.

2. The Food and Agriculture Organization of the United Nations (hereinafter referred to as "the Organization"), the International Office of Epizootics (hereinafter referred to as "the Office") and the Organization for Economic Cooperation and Development shall have the right to be represented at all sessions of the Commission and its committees, but their representatives shall not have the right to vote.

ARTICLE II

Obligations of Members regarding National Policies and International Cooperation for the Control of Foot-and-Mouth Disease.

1. Members undertake to control foot-and-mouth disease with a view to its ultimate eradication by the institution of suitable quarantine and sanitary measures and by one or more of the following methods:

1) a slaughter policy;

2) slaughter together with vaccination;

3) maintenance of totally immune cattle population by vaccination;

4) vaccination in zones surrounding outbreaks.

Methods adopted shall be rigorously carried out.

2. Members adopting policy 2 or 4 undertake to have available a supply of virus for vaccine production and a supply of vaccine sufficient to ensure adequate protection against the disease in case of an outbreak. Each member shall collaborate with and assist other members in all concerted measures for the control of foot-and-mouth disease and in particular in the provision of vaccine and virus where necessary. The quantities of virus and vaccine to be stored for national and international use shall be determined by Members in the light of the findings of the Commission and the advice of the Office.

2. The Food and Agriculture Organization of the United Nations (hereinafter referred to as "the Organization"), the International Office of Epizootics (hereinafter referred to as "the Office"), the European Community, and the Organization for Economic Cooperation and Development shall have the right to be represented at all sessions of the Commission and its Committees, but their representatives shall not have the right to vote.

ARTICLE II

Obligations of Members regarding National Policies and International Cooperation for the Control of Foot-and-Mouth Disease.

1. Members undertake to control foot-and-mouth disease with a view to its ultimate eradication by the institution of suitable quarantine and sanitary measures and by one or more of the following methods:

1) a slaughter policy;

2) slaughter together with vaccination;

3) maintenance of totally immune cattle population by vaccination; other susceptible livestock may be vaccinated.

4) vaccination in zones surrounding outbreaks.

Methods adopted shall be rigorously carried out.

2. Members adopting policy 2 or 4 undertake to have available a supply of [*virus for*] vaccine or antigen for vaccine production sufficient to ensure adequate protection against the disease in case [*of an outbreak*] the spread of the disease can not be controlled exclusively by sanitary measures. Each member shall collaborate with and assist other members in all concerted measures for the control of foot-and-mouth disease and in particular in the [*provision of vaccine and virus*] supply of vaccine or antigen for vaccine production where necessary. The quantities of [*virus*] antigen and vaccine to be stored for national and international use shall be determined by Members in the light of the findings of the Commission and the advice of the Office.

3. Members shall make such arrangements for the typing of virus from outbreaks of foot-and-mouth disease as may be required by the Commission and shall immediately notify the Commission and the Office of the results of such typing.

4. Members undertake to provide the Commission with any information which it may need to carry out its functions. In particular, Members shall immediately report to the Commission and to the Office any outbreak of foot-and-mouth disease and its extent and shall make such further detailed reports as the Commission may require.

ARTICLE IV

General Functions

1. To enter into arrangements, through the Director-General of the Organization, with the Office within the framework of any agreements between the Organization and the Office to ensure that:

1.1 all Members are provided with technical advice on any problem relating to the control of foot-and-mouth disease;

1.2 comprehensive information on outbreaks of the disease and identification of virus is collected and disseminated as quickly as possible;

1.3 special research work required on foot-and-mouth disease is carried out.

2. To collect information on national programmes for the control of, and research on, foot-and-mouth disease.

3. To determine, in consultation with the Members concerned, the nature and extent of assistance needed by such Members for implementing their national programmes.

3. Members shall make such arrangements for the typing of virus from outbreaks of foot-and-mouth disease as may be required by the Commission and shall immediately notify the Commission and the Office of the results of such typing.

4. Members shall make arrangements for the rapid dispatch of new isolates to the FAO designated World Reference Laboratory for further characterization.

4 become 5. Members undertake to provide the Commission with any information which it may need to carry out its functions. In particular, Members shall immediately report to the Commission and to the Office any outbreak of foot-and-mouth disease and its extent and shall make such further detailed reports as the Commission may require.

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1.3 special research work required on foot-and-mouth disease is carried out.

2. To collect information on national programmes for control of and research on, foot-and-mouth disease.

3. To determine, in consultation with the Members concerned, the nature and extent of assistance needed by such Members for implementing their national programmes

4. To stimulate and plan joint action wherever required to overcome difficulties in the implementation of control programmes and to this effect arrange means whereby adequate resources can be made available, for example, for the production and storage of vaccine, through agreements between Members.

5. To arrange for suitable facilities for the typing of virus.

6. To study the possibility of establishing international laboratory facilities to deal with the typing of virus and the production of vaccines.

7. To maintain a register of stocks of virus and vaccines available in various countries and to keep the position continuously under review.

8. To offer advice to other organizations on the allocation of any available funds for assisting in the control of foot-and-mouth disease in Europe.

9. To enter into arrangements, through the Director-General of the Organization, with other organizations, regional groups or with Nations not Members of the Commission, for participation in the work of the Commission or its committees, or for mutual assistance on problems of controlling foot-and-mouth disease. These arrangements may include the establishment of, or participation in, joint committees.

10. To consider and approve the report of the Executive Committee on the activities of the Commission, the accounts for the past financial period and the budget and programme for the ensuing biennium, for submission to the Council of the Organization through the Director-General.

4. To stimulate and plan joint action wherever required in the implementation of prevention and control programmes and to this effect arrange means whereby adequate resources can be made available, for example, for the production and storage of vaccine, through agreements between Members.

5. To arrange for suitable facilities for the typing and characterization of virus.

6. To [*study the possibility of establishing*] ensure the availability of an international laboratory (World Reference Laboratory) with facilities [*to deal with the typing of virus and the production of vaccines*] for rapid characterization of virus by appropriate methods.

7. To maintain [*a register of*] information on the stocks of [*virus and vaccines*] antigen and vaccine available in [*various*] member countries and other countries and to keep the position continuously under review.

8. To offer advice to other organizations on the allocation of any available funds for assisting in prevention and control of foot-and-mouth disease in Europe.

9. To enter into arrangements, through the Director-General of the Organization, with other organizations, regional groups or with Nations not Members of the Commission, for participation in the work of the Commission or its committees, or for mutual assistance on problems of controlling foot-and-mouth disease. These arrangements may include the establishment of, or participation in, joint committees.

10. To consider and approve the report of the Executive Committee on the activities of the Commission, the accounts for the past financial period and the budget and programme for the ensuing biennium, for submission to the [*Council*] Finance Committee of the Organization [*through the Director-General*].

ARTICLE V

Special Functions

The following shall be the special functions of the Commission:

1. To assist in controlling outbreaks in emergency situations in any manner considered appropriate by the Commission and the Member or Members concerned. For this purpose the Commission or its Executive Committee, in conformity with the provisions of Article XI (5), may use any uncommitted balances of the Administrative Budget referred to in Article XIII (7) as well as any supplementary contributions which may be provided for emergency action under Article XIII (4).

2. To take suitable action in the following fields:

2.1 Production and/or storage of virus and/or vaccines by or on behalf of the Commission, for distribution to any Member in case of need.

2.2 Promotion when necessary of the establishment by a Member or Members of "cordons sanitaires" to prevent the spread of disease.

ARTICLE VI

Sessions

1. Each Member shall be represented at Sessions of the Commission by a single delegate who may be accompanied by an alternate and by experts and advisers. Alternates, experts and advisers may take part in the proceedings of the Commission but not vote, except in the case of an alternate who is duly authorized to substitute for the delegate.

2. Each Member shall have one vote. Decisions of the Commission shall be taken by a majority of the votes cast except as otherwise provided in this Constitution. A majority of the Members of the Commission shall constitute a quorum.

3. The Commission shall elect, at the end of each regular session, a Chairman and two Vice-Chairmen from amongst the delegates. These officers shall hold office until the end of the next regular sessions, without prejudice to the right of re-election.

ARTICLE V

Special Functions

The following shall be the special functions of the Commission:

1. To assist in [*controlling*] the prevention and control of outbreaks in emergency situations in any manner considered appropriate by the Commission and the Member or Members concerned. For this purpose the Commission or its Executive Committee, in conformity with the provisions of Article XI (5), may use any uncommitted balances of the Administrative Budget referred to in Article XIII (7) as well as any supplementary contributions which may be provided for emergency action under Article XIII (4).

2. To take suitable action in the following fields:

   2.1 [*Production and/or*] Storage of [*virus*] antigen and/or vaccines by or on behalf of the Commission for distribution to any Member in case of need.

   2.2 Promotion when necessary of the establishment by a Member or Members of "cordons sanitaires" to prevent the spread of disease.

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3. The Commission shall elect, at the end of each regular session, a Chairman and two Vice-Chairmen from amongst the delegates. These officers shall hold office until the end of the next regular sessions, without prejudice to the right of re-election. The Commission shall also appoint the members of special or standing Committees.

ARTICLE VII

Committees

1. The Commission may establish temporary, special or standing committees to study and report on matters pertaining to the purpose of the Commission, subject to the availability of the necessary funds in the approved budget of the Commission.

2. These committees shall be convened by the Director-General of the Organization in consultation with the Chairman of the Commission, at such times and places as are in accordance with the objectives for which they were established.

3. Membership in such committees may be open to all Members of the Commission or consist of selected Members of the Commission or of individuals appointed in their personal capacity because of their competence in technical matters, as determined by the Commission.

4. Each committee shall elect its own chairman.

ARTICLE VII

Committees

1. The Commission may establish temporary, special or standing committees to study and report on matters pertaining to the purpose of the Commission, subject to the availability of the necessary funds in the approved budget of the Commission.

2. These committees shall be convened by the Director-General of the Organization in consultation with the Chairman of the Commission and with the Chairman of the special or standing committee concerned, at such times and places as are in accordance with the objectives for which they were established.

3. Membership in such committees may be open to all Members of the Commission or consist of selected Members of the Commission or of individuals appointed in their personal capacity because of their competence in technical matters, as determined by the Commission. On proposal of the chairman, observers may be invited to participate in the meetings of the special and standing committees.

4. Members of the committees shall be appointed at the regular session of the Commission and each committee shall elect its own Chairman.

ARTICLE XII

Administration

1. The staff of the Secretariat of the Commission shall be appointed by the Director-General with the approval of the Executive Committee, and for administrative purposes shall be responsible to the Director-General. They shall be appointed under the same terms and conditions as the staff of the Organization.

2. The expenses of the Commission shall be paid out of its Administrative Budget except those relating to such staff and facilities which can be made available by the Organization. The expenses to be borne by the Organization shall be determined and paid within the limits of the biennial budget prepared by the Director-General and approved by the Conference of the Organization in accordance with the General Rules and the Financial Regulations of the Organization.

3. Expenses incurred by delegates, their alternates, experts and advisers when attending sessions of the Commission and its committees as government representatives, as well as the expenses incurred by observers at sessions, shall be borne by the respective governments or organizations. The expenses of experts invited by the Commission to attend meetings of the Commission or its committees in their individual capacity shall be borne by the budget of the Commission.

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4. When travel costs are borne by the Commission as provided for under Article XII. 3., experts invited by the Commission to attend meetings of the Commission or its committees in their personal capacity may either receive the ticket from the Commission or purchase it directly. In the latter event the expert shall be reimbursed actual costs not exceeding the amount the Commission would have paid had it purchased the ticket. This also applies to all travel for which the Commission has undertaken to pay.

ARTICLE XIII

Finance

1. Each Member of the Commission undertakes to contribute annually its share of the administrative budget in accordance with a scale of contribution. This scale of contribution shall be adopted by the Commission with a two-thirds majority of its Members in accordance with the Financial Regulations of the Commission.

2. Contributions of States which acquire membership between two regular sessions of the Commission shall be determined by the Executive Committee in accordance with the Financial Regulations of the Commission; for this purpose such criteria as may be specified in the Financial Regulation shall apply. The determination made by the Executive Committee shall be subject to confirmation by the Commission at its next regular session.

3. Annual contributions provided for under paragraphs 1 and 2 above shall be payable before the end of the first month of the year to which they apply.

4. Supplementary contributions may be accepted from a Member or Members or from organizations or individuals for emergency action or for the purpose of implementing special schemes or campaigns of control which under Article V the Commission or Executive Committee may adopt or recommend.

5. All contributions from Members shall be payable in currencies to be determined by the Commission in agreement with each contributing Member.

6. All contributions received shall be placed in a Trust Fund administered by the Director-General of the Organization in conformity with the Financial Regulations of the Organization.

7. At the end of each financial period, any uncommitted balance of the Administrative Budget shall be placed in a special account to be available for the purposes outlined in Articles IV and V.

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1. Each Member of the Commission undertakes to contribute annually its share of the administrative budget in accordance with a scale of contribution. This scale of contribution shall be adopted by the Commission with a two-thirds majority of its Members in accordance with the Financial Regulations of the Commission.

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6. All contributions received shall be placed in a Trust Fund administered by the Director-General of the Organization in conformity with the Financial Regulations of the Organization.

7. At the end of each financial period, any uncommitted balance of the Administrative Budget shall be [*placed in a special account*] retained in the Trust Fund [*to be*] and made available for the [*purposes outlined in Articles IV and V*] following years's budget.

RULES OF PROCEDURE

Rule II - Agenda

1. A provisional agenda for each regular session of the Commission shall be drawn up by the Director-General and dispatched to Members and to participating Nations and international organizations not less than 50 days before the date fixed for the opening of the session.

2. The provisional agenda for a regular session shall consist of:

   (a) All items the inclusion of which may have been decided upon by the Commission at a previous session.

   (b) Election of Chairman and Vice-Chairmen of the Commission (Article VI of the Constitution).

   (c) Application for membership in the Commission, if any (Article I of the Constitution).

   (d) Draft programme and Administrative Budget (Articles IV and XI of the Constitution).

   (e) Report of the Executive Committee on the activities of the Commission during the past biennium (Articles IV and XI of the Constitution).

   (f) Reports by comittees established under Article VII of the Constitution.

   (g) Proposals of the Executive Committee concerning policy matters (Article XI of the Constitution).

   (h) Any modifications of the Scale of Contributions including the confirmation of the determination of the contribution of any States having acquired membership since the last regular session (Article XIII of the Constitution).

   (i) Audited accounts for the preceding financial period (Articles IV and XI of the Constitution).

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   (h) Any modifications of the Scale of Contributions including the confirmation of the determination of the contribution of any States having acquired membership since the last regular session (Article XIII of the Constitution).

   (i) Audited accounts for the preceding financial period and the budget and programme for the ensuing biennium (Articles IV and XI of the the Constitution).

   (j) Amendments to the Constitution, if any (Article XIV of the Constitution).

   (k) Any items the inclusion of which has been requested by Members in accordance with Rule II.5.

   (l) Any items which the Conference, Council or the Director-General of the Organization refer to the Commission.

   (m) Other business arising out of the Commission's functions.

Rule VII - Executive Committee

In accordance with Article X of the Constitution, the Chairman of the Commission shall be the Chairman of the Executive Committee. He shall have, in relation to meetings of the Executive Committee, the same powers and duties as he has in relation to meetings of the Commission. In the absence of the Chairman during a meeting of the Executive Committee or any part thereof, one of the Vice-Chairmen of the Commission shall preside. A Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman. A majority of the members of the Committee shall constitute a quorum. Decisions of the Commitee shall be taken by a majority of the votes cast. Each Member of the Committee shall have one vote. Meetings of the Committee shall be held in private unless otherwise determined by the Commission.

(j) Amendments to the Constitution, if any (Article XIV of the Constitution).

(k) Any items the inclusion of which has been requested by Members in accordance with Rule II.5.

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FINANCIAL REGULATIONS

Regulation I - Applicability

1.1 These regulations shall govern the financial administration of the European Commission for the Control of Foot-and-Mouth Disease.

1.2 The financial rules and procedures of FAO shall apply to the activities of the Commission unless otherwise provided.

Regulation II - The Financial Period

2.1 The financial period shall be two calendar years, coinciding with the financial period of FAO.

Regulation III - The Budget

3.1 The Budget Estimates shall be prepared by the Director-General of FAO.

3.2 The Estimates shall cover income and expenditures for the financial period to which they relate, and shall be presented in United States dollars.

3.3 The Budget Estimates shall be presented on a chapter basis and divided into sub-chapters where necessary. The Budget Estimates shall include the programme of work for the financial period, such information, annexes or explanatory statements as may be requested

on behalf of the Executive Committee or the Commission and such further annexes or statements as the Director-General may deem appropriate.

3.4 The Budget shall comprise:

(a) The Administrative Budget relating to the regular contributions of Members of the Commission payable under Article XIII of the Constitution and expenditures arising from Articles IV, V and XII (2);

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[3.3] becomes 3.2 [*The Budget Estimates shall be presented on a chapter basis and divided into sub-chapters where necessary*]. The Budget Estimates shall include the programme of work for the financial period, such information, annexes or explanatory statements as may be requested on behalf of the Executive Committee or the Commission. [*and such further annexes or statements as the Director-General may deem appropriate*].

[3.4] becomes 3.3 The Budget shall comprise:

(a) The Administrative Budget relating to the regular contributions of Members of the Commission payable under Article XIII of the Constitution and expenditures arising from Articles IV, V and XII (2);

(b) The Special Budgets relating to funds made available during the financial period from (i) the Special Account described in Article XIII (7) for expenditures on activities listed under Articles IV and V, or (ii) Supplementary Contributions paid under Article XIII (4) for expenditures listed under Article V.

3.5 The Administrative Budget for the financial period shall consist of three chapters:

Chapter I Administrative Expenditures under Articles IV and XII (2).

Chapter II Expenditure under activities listed under Article V. Estimates under this chapter may, if necessary, be presented in a single total only but detailed estimates for each particular project will be prepared and approved as "supplementary details" of the Administrative Budget.

Chapter III Contingencies.

3.6 The Administrative Budget shall be presented by the Director-General to the Executive Committee which shall submit it with comments to the Commission.

3.7 Special Budgets (3.4 b) shall be submitted by the Director-General at appropriate times to the Commission or the Executive Committee as the case may be.

3.8 The Budgets of the Commission shall be submitted to the Council of the Organization.

(b) The Special Budgets relating to funds made available during the financial period from [*(i) the Special Account described in Article XIII (7) for expenditures on activities listed under Articles IV and V, or (ii)*] supplementary Contributions paid under Article XIII (4) for expenditures listed under Article V.

[3.5] becomes 3.4 The Administrative Budget for the financial period shall consist of [*three chapters*] provisions for

- Administrative Expenditures under Articles IV and XII (2).

- Expenditure under activities listed under Article V. Estimates under this chapter may, if necessary, be presented in a single total only but detailed estimates for each particular project will be prepared and approved as "supplementary details" of the Administrative Budget.

- Contingencies.

[3.6] becomes 3.5 The Administrative Budget shall be [*presented by the Director-General to*] prepared by the Executive Committee [*which shall submit it*] and submitted [*with comments*] to the Commission.

[3.7] becomes 3.6 Special Budgets (3.4 b) shall be prepared [*submitted by the Director-General*] at appropriate times [*to*] by the Commission or the Executive Committee as the case may be.

[3.8] becomes 3.7 The Administrative Budget[*s*] of the Commission shall be submitted to the [*Council*] Finance Committee of the Organization.

Regulation IV - Appropriations

4.1 After the budgets have been adopted the appropriations therein will be the authority for the Director-General to incur obligations and make payments for the purposes for which the appropriations were voted and up to the amounts so voted.

4.2 In cases of emergency, the Director-General is authorized to accept Supplementary Contributions from a Member or Members of the Commission or grants from other sources and incur expenditure against them for emergency action for which the said Contributions or grants were specifically provided. Such Contributions or grants and expenditure relating thereto will be reported in detail to the next session of the Executive Committee or Commission.

4.3 Such portion of appropriations as is required to meet outstanding legal obligations as at the last day of the financial period shall remain available for 12 months.

4.4 At the end of the 12-month period provided in Regulation 4.3 above, the then remaining balance of any appropriations retained shall be transferred to the Special Account in accordance with the provisions of Article XIII (7) of the Constitution. Any unliquidated prior year obligation shall at that time be cancelled or where an obligation remains a valid charge, transferred against current appropriations.

4.5 Transfers between chapters may be effected by the Director-General on the recommendation of the Secretary of the Executive Committee. Details of the transfers so effected will be reported to the Executive Committee.

Regulation IV - Appropriations

4.1 After the budgets have been adopted the appropriations therein will be the authority for the [*Director-General*] Organization to incur obligations and make payments for the purposes for which the appropriations were voted and up to the amounts so voted.

4.2 In cases of emergency, the Director-General is authorized to accept Supplementary Contributions from a Member or Members of the Commission or grants from other sources and incur expenditure against them for emergency action for which the said Contributions or grants were specifically provided. Such Contributions or grants and expenditure relating thereto will be reported in detail to the next session of the Executive Committee or Commission.

[*4.3 Such portion of appropriations as is required to meet outstanding legal obligations as at the last day of the financial period shall remain available for 12 months*].

[*4.4 At the end of the 12-month period provided in Regulation 4.3 above, the then remaining balance of any appropriations retained shall be transferred to the Special Account in accordance with the provisions of Article XIII (7) of the Constitution.*]

becomes 4.3 Any unliquidated prior year obligation shall at the end of the financial period [*time*] be cancelled or where an obligation remains a valid charge, [*transferred against current appropriations*] retained for future disbursement.

[4.5] becomes 4.4 Transfers between [*chapters*] provisions as per Regulation 3.5 may be effected by the [*Director-General*] Organization on the recommendation of the Secretary of the Executive Committee. Details of the transfers so effected will be reported to the Executive Committee.

Regulation V - Provision of Funds

5.1 The appropriations of the Administrative Budget shall be financed by contributions from Member Governments determined and payable in accordance with Article XIII paragraphs 1, 2 and 3 of the Constitution.

5.1.1 Pending receipt of annual contributions, the Director-General is authorized to finance approved expenditure from the Special Account. Such drawings from the Special Account shall be refunded upon receipt of contributions.

5.2 For determining the annual contributions of each Member, the assessment for such member for the financial period shall be divided into two equal instalments, one of which shall be payable in the first calendar year of the financial period.

5.3 At the beginning of each calendar year the Director-General shall inform Member Governments of their obligations in respect of annual contributions to the budget.

5.4 Contributions shall be due and payable in full within 30 days of the receipt of the communication of the Director-General referred to in Regulation 5.3 above, or as of the first day of the calendar year to which they relate, whichever is later. As of 1 January of the following calendar year, the unpaid balance of such contributions shall be considered to be one year in arrears.

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5.1 The appropriations of the Administrative Budget shall be financed by contributions from Member Governments determined and payable in accordance with Article XIII paragraphs 1, 2 and 3 of the Constitution.

5.1.1 Pending receipt of annual contributions, the [*Director-General*] Organization is authorized to finance [*approved*] budgeted expenditure from the uncommitted balance of the Administrative Budget [*Special Account. Such drawings from the Special Account shall be refunded upon receipt of contributions*].

5.2 For determining the annual contributions of each Member, the assessment for such member for the financial period shall be divided into two equal instalments, one of which shall be payable in the first calendar year of the financial period and the other one in the second calendar year.

5.3 At the beginning of each calendar year the Director-General shall inform Member Governments of their obligations in respect of annual contributions to the budget.

5.4 Contributions shall be due and payable in full within 30 days of the receipt of the communication of the Director-General referred to in Regulation 5.3 above, or as of the first day of the calendar year to which they relate, whichever is later. As of 1 January of the following calendar year, the unpaid balance of such contributions shall be considered to be one year in arrears.

5.5 The annual contributions to the Administrative Budget shall be assessed in United States dollars and calculated on the basis of national income of each country as expressed in the scale of contributions to FAO and the number of livestock to be protected. The currency in which contributions shall be paid is determined by the Commission in accordance with Article XIII (5) of the Constitution.

5.6 Any State acquiring membership shall pay a contribution to the budget in accordance with the provisions of Article XIII (2) for the financial period in which the membership becomes effective, such contribution beginning with the quarter in which membership is acquired.

Regulation VI - Funds

6.1 All contributions, supplementary contributions and other receipts shall be placed in a Trust Fund administered by the Director-General of FAO.

6.2 With respect to the Trust Fund referred to in Regulation 6.1, the Organization shall maintain accounts:

6.2.1 A General Account to which shall be credited receipts of all contributions paid under Article XIII (1) and (2) of the Constitution, drawings from the Special Account under Financial Regulation 5.1.2 and Miscellaneous Income other than Supplementary Contributions under Article XIII (4) and from which shall be met all expenditure chargeable against the sums allocated to the annual Administrative Budget and repayments to the Special Account.

5.5 The annual contributions to the Administrative Budget shall be assessed in United States dollars and calculated on the basis of national income of each country as expressed in the scale of contributions to FAO and the number of livestock [*to be protected*]. The currency in which contributions shall be paid is determined by the Commission in accordance with Article XIII (5) of the Constitution.

5.6 Any State acquiring membership shall pay a contribution to the budget in accordance with the provisions of Article XIII (2) for the financial period in which the membership becomes effective, such contribution beginning with the quarter in which membership is acquired.

Regulation VI - Funds

6.1 All contributions, supplementary contributions and other receipts shall be placed in a Trust Fund administered by [*the Director-General of*] FAO.

6.2 With respect to the Trust Fund referred to in Regulation 6.1, the Organization shall maintain accounts:

6.2.1 A General Account to which shall be credited receipts of all contributions paid under Article XIII (1) and (2) of the Constitution, [*drawings from the Special Account under Financial Regulation 5.1.2 and Miscellaneous Income other than*] and supplementary contributions under Article XIII (4) and from which shall be met all expenditure chargeable against the [*sums allocated to the*] annual Administrative Budget [*and repayments to the Special Account*].

6.2.2 A Special Account to which shall be credited any excess of income over obligations incurred under the Administrative Budget at the end of each financial period, and from which shall be met expenditures for purposes outlined in Articles IV and V. Furthermore, the advances provided for under Financial Regulation 5.1.2 will be made from and repaid to this Account. Any deficit shown at the end of each financial period on the General Account may be made good from the Special Account.

6.2.3 Such additional accounts as may be necessary to which shall be credited the Supplementary Contributions and the expenditures relating thereto as envisaged in Article XIII (4).

[*6.2.2 A Special Account to which shall be credited any excess of income over obligations incurred under the Administrative Budget at the end of each financial period, and from which shall be met expenditures for purposes outlined in Articles IV and V. Furthermore, the advances provided for under Financial Regulation 5.1.2 will be made from and repaid to this Account. Any deficit shown at the end of each financial period on the General Account may be made good from the Special Account.*]

6.2.3 becomes 6.2.2 Such additional accounts as may be necessary to which shall be credited the Supplementary Contributions and the expenditures relating thereto as envisaged in Article XIII (4).

Regulation VII

7.1 These Regulations may be amended by the Commission in the manner provided for under Article VIII of the Constitution.

Regulation VII

With reference to Article XII.4 of the Constitution, the Organization's liability as far as air transport costs are concerned is limited to the amount which would be reimbursable under FAO's rules and regulations, currently economy class by the least costly fare including non-endorsable tickets for flights up to 9 hours and in business class including non-endorsable tickets for flights of more than 9 hours duration.

Regulation VII becomes Regulation VIII

[*7.1*]8.1 These Regulations may be amended by the Commission in the manner provided for under Article VIII of the Constitution.

Appendix 10

Scale of contributions

BACKGROUND

A preliminary proposal/paper was presented to and discussed at the Thirty-first Session held from 5 to 7 April 1995.
The recommendations of the Thirty-first Session were that:

(1) written views and comments from member countries should be addressed to the Secretariat
(2) a letter should be addressed to each of the countries in the new category 4 to seek their views.
(3) for the period 1995-1997, FAO contributions and converted livestock population (see annex 1) should be considered as criteria with equal value to fit new members into the present category.

ACTION TAKEN BY THE COMMISSION SINCE THE 31ST SESSION

1 - No written views in this respect have been received from member countries since the recommendations of the Thirty- first Session.

2 - A letter has been sent to the member countries in the proposed new category 4 i.e. Albania, Cyprus, Iceland, Malta, Luxembourg, to seek their views. A reply has been received from Malta only. Dr Vella Director of Veterinary Services agrees on the proposed new contribution for 1997 as long as other menber countries also pay the proposed new contribution.

3 - Two new countries became members during the period under review. Slovenia and the FYRO Macedonia became members of the Commission respectively on 25 July 1995 and 24 February 1997. Their level of contribution i.e the category in which they fall, has been decided in conformity with the recommendation of the 31st Session. They all falls under the present Category 6 with an annual contribution of US$ 1,300.

4 - A calculation of the new contribution, has been carried out (see attached annexes 3 and 4) based on:

i) the 1996 livestock population figures as published in the FAO-OIE-WHO Animal Health Yearbook

ii) the 1996-1997 contribution of member countries to the FAO Regular Programme as adopted by the FAO Conference on 31 October 1995.

Table 1 - Actual categories and contributions of the member countries

Actual categories				
II 26000	III 13000	IV 7800	V 3900	VI 1300
France	Belgium	Austria	Bulgaria	Albania
Germany	Denmark	Finland	Greece	Cyprus
Italy	Netherlands	Hungary	Ireland	Iceland
U.K.	Poland	Romania	Israel	Luxembourg
	Spain	Turkey	Lithuania	Malta
	Sweden	Yugoslavia	Norway	Croatia
	Switzerland	Czech Rep.	Portugal	*Slovenia**

* *new member country*

THE FOLLOWING 5 POINTS WILL BE SUBMITTED FOR ADOPTION BY THE THIRTY SECOND SESSION FROM 2 TO 4 APRIL 1997:

Point 1: **the new classification will be based on two criteria of equal value**

- **(a) FAO contribution**
- **(b) livestock population (including all susceptible species with a conversion factor for each species: 1 for cattle, 0.5 for pigs, 0.2 for sheep and goats)**

Point 2: **the countries will be classified in 4 categories of contributions instead of the previous 5**

Point 3: **the category in which a member country is placed be reviewed at intervals of six years**

Point 4: **to accept the new categorisation of the countries as presented in Table 2**

Point 5: **to accept the new levels of contribution as presented in Table 2 going from $2,600 to $26,000 (the ratio of the highest contribution versus the lowest would be 1/10 rather than the present 1/20)**

IT IS IMPORTANT TO NOTE THAT :

i) THE 5 POINTS WHICH ARE PROPOSED FOR DISCUSSION AND POSSIBLE ADOPTION BY THE SESSION ARE NOT LINKED AND THEREFORE MAY BE ADOPTED SEPARATELY.

ii) THE NEW FINANCIAL CONTRIBUTION OF MOST COUNTRIES WILL MAINLY DEPEND UPON POINT 5.

Table 2 - New Categories of the member countries and potential new members (countries for which level of contribution is modified are in bold)

New categories			
I-$ 26,000	II- $ 13,000	III -$7,800	IV - $ 2,600
France	Belgium	Austria **Bulgaria**	**Albania**
Germany	Denmark	Finland **Greece**	**Cyprus**
Italy	Netherlands **Turkey**	Hungary	**Iceland** **Israel (-)** **Lithuania(-)** **Malta**
U.K.	Poland **Romania**	**Norway** **Portugal**	**Luxembourg** **Croatia** ***FYRO Macedonia***
	Spain Sweden Switzerland	Czech Rep. **Ireland**	*Slovenia* *Bosnia**
		FR Yugoslavia	*Armenia** *Moldova**
		*Slovakia**	*Estonia** *Latvia**

* *proposed category for countries which are not yet members (based on 1996 livestock population and contribution to FAO)*

LIVESTOCK POPULATION IN EUROPE (1996 FAO Yearbook) 10-A1-96.wks 07/04/97

COUNTRY	CATTLE	SHEEP	GOAT	PIG	TOTAL LIVESTOCK	PERCENTAGE OF LIVESTOCK	CONVERTED STOCK	% of CONVERTED STOCK
ALBANIA	850,120	2,500,000	1,900,000	200,000	5,450,120	1.14	1,830,120	0.75
ARMENIA	*507,350*	*592,000*	*12,000*	*80,000*	*1,191,350*	*0.25*	*668,150*	*0.27*
AUSTRIA	2,430,000	325,000	40,400	3,800,000	6,595,400	1.38	4,403,080	1.80
BELGIUM	3,127,000	125,000	8,000	7,069,000	10,329,000	2.16	6,688,100	2.73
BOSNIA	*273,800*	*260,000*		*147,000*	*680,800*	*0.14*	*399,300*	*0.16*
BULGARIA	644,000	3,383,000	757,200	2,140,000	6,924,200	1.44	2,542,040	1.04
CROATIA	493,418	452,932	107,685	1,347,080	2,401,115	0.50	1,279,081	0.52
CYPRUS	64,364	255,000	210,000	356,200	885,564	0.18	335,464	0.14
CZECH-REP	1,988,810	134,009	42,385	3,866,570	401,625	0.08	3,957,374	1.61
DENMARK	2,094,000	145,000		10,709,000	12,948,000	2.70	7,477,500	3.05
ESTONIA	*415,000*	*70,000*		*480,000*	*965,000*	*0.20*	*669,000*	*0.27*
FINLAND	1,179,300	114,500	5,500	1,394,000	2,693,300	0.56	1,900,300	0.77
FRANCE	20,524,000	10,320,000	1,069,000	14,523,000	46,436,000	9.69	30,063,300	12.26
GERMANY	15,962,200	2,340,000	89,000	24,698,100	43,089,300	8.99	28,797,050	11.74
GREECE	600,730	9,559,000	6,220,000	1,121,000	17,500,730	3.65	4,317,030	1.76
HUNGARIA	928,000	977,000	52,281	5,032,000	6,989,281	1.46	3,649,856	1.49
ICELAND	73,199	450,583	350	21,000	545,132	0.11	173,886	0.07
IRELAND	6,410,000	5,772,300	9,000	1,498,300	13,689,600	2.86	8,315,410	3.39
ISRAEL	379,477	351,669	90,000	104,800	925,946	0.19	520,211	0.21
ITALY	7,128,000	10,531,000	1,457,000	7,984,000	27,100,000	5.65	13,517,600	5.51
LATVIA	*537,100*	*72,100*	*7,000*	*552,800*	*1,169,000*	*0.24*	*829,320*	*0.34*
LITHUANIA	1,100,000	51,000	12,400	1,150,000	2,313,400	0.48	1,687,680	0.69
LUXEMBOURG	205,000	7,000	1,000	72,000	285,000	0.06	242,600	0.10
MACEDONIA	277,400	2,044,000		195,100	2,516,500	0.53	783,750	0.32
MALTA	18,500	17,600	9,183	103,000	148,283	0.03	75,357	0.03
MOLDOVA rep	*671,500*	*1,418,000*	*78,000*	*948,400*	*3,115,900*	*0.65*	*1,444,900*	*0.59*
NETHERLANDS	4,557,000	2,000,000	50,000	13,958,000	20,565,000	4.29	11,946,000	4.87
NORWAY	1,003,100	2,316,000	89,400	745,085	4,153,585	0.87	1,856,723	0.76
POLAND	7,396,016	551,891		18,758,720	26,706,627	5.57	16,885,754	6.89
PORTUGAL	1,316,000	3,176,000	909,850	2,400,000	7,801,850	1.63	3,333,170	1.36
ROMANIA	3,496,300	10,381,000	705,000	7,959,000	22,541,300	4.70	9,693,000	3.95
*SLOVAK REP**	*929,000*	*430,000*	*25,100*	*2,076,400*	*3,460,500*	*0.72*	*2,058,220*	*0.84*
SLOVENIA	495,535	18,491	10,668	592,030	1,116,724	0.23	797,382	0.33
SPAIN	5,660,000	21,322,800	2,465,000	18,000,000	47,447,800	9.90	19,417,560	7.92
SWEDEN	1,777,000	461,000		2,313,140	4,551,140	0.95	3,025,770	1.23
SWITZERLAND	1,761,900	436,500	52,200	1,610,700	3,861,300	0.81	2,664,990	1.09
TURKEY	12,205,000	35,600,000	9,550,000	8,000	57,363,000	11.97	21,239,000	8.66
UK	11,619,000	28,797,000		7,351,000	47,767,000	9.97	21,053,900	8.59
YUGOSLAVIA	1,935,000	2,628,000		4,422,000	7,351,000	1.53	4,671,600	1.91
TOTAL	123,033,119	160,386,375	26,034,602	169,786,425	479,240,521	100.00	245,210,527	100.00

* *non member countries in italic*

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PROPOSED NEW BASIS FOR CALCULATION OF CONTRIBUTIONS TO EUFMD COMMISSION
(countries classified according to their converted stocks and FAO contribution as in column d)

a	b	c	d	e	f	g
Country	**% converted Stock 1996**	**% FAO Contribution 1996-1997**	**b + c/2**	**Actual Category**	**Proposed Category for new members**	**Proposed new classification in 4 categories**
MALTA	0.03	0.02	0.03	6		4
ICELAND	0.07	0.07	0.07	6		4
*BOSNIA**	*0.16*	0.02	*0.09*		*6*	*4*
CYPRUS	0.14	0.07	0.11	6		4
LUXEMBOURG	0.10	0.19	0.14	6		4
MACEDONIA	0.32	0.02	0.17		6	4
ESTONIA	*0.27*	0.11	*0.19*		*6*	*4*
ARMENIA	*0.27*	0.13	0.20		*6*	*4*
SLOVENIA	0.32	0.19	0.25	6		4
LATVIA	*0.34*	0.21	0.28		*6*	*4*
CROATIA	0.52	0.24	0.38	6		4
ALBANIA	0.75	0.02	0.39	6		4
MOLDOVA rep	*0.59*	0.21	0.40		*6*	*4*
ISRAEL	0.21	0.68	0.45	5		4
LITHUANIA	0.69	0.21	0.45	5		4
SLOVAK REP	*0.84*	0.21	*0.53*		*5*	*3*
BULGARIA	1.03	0.21	0.62	5		3
HUNGARIA	1.48	0.35	0.92	4		3
PORTUGAL	1.36	0.71	1.03	5		3
YUGOSLAVIA	1.90	0.26	1.08	4		3
NORWAY	0.75	1.41	1.08	5		3
CZECH-REP	1.61	0.65	1.13	4		3
FINLAND	0.77	1.58	1.17	4		3
GREECE	1.75	0.97	1.36	5		3
IRELAND	3.38	0.54	1.96	5		3
AUSTRIA	1.79	2.19	1.99	4		3
SWITZERLAND	1.08	3.06	2.07	3		2
ROMANIA	3.94	0.38	2.16	4		2
SWEDEN	1.23	3.11	2.17	3		2
DENMARK	3.04	1.81	2.43	3		2
BELGIUM	2.72	2.54	2.63	3		2
POLAND	6.86	0.84	3.85	3		2
NETHERLANDS	4.85	4.02	4.43	3		2
TURKEY	8.63	0.95	4.79	3		2
SPAIN	7.89	6.00	6.94	3		2
ITALY	5.49	13.22	9.35	2		1
UK	8.55	13.45	11.00	2		1
FRANCE	12.21	16.22	14.22	2		1
GERMANY	11.69	22.90	17.30	2		1
TOTAL	100	100	100			

*countries which are not yet members are in italic.

10-A2-96.wks/10/02

PROPOSED CONTRIBUTIONS TO EUFMD COMMISSION

(countries classified according to the new contribution,
the countries which have their contribution modified are in bold)

Country	Actual Category	Actual Contribution	Proposed Category	Future Contribution
MALTA	6	1300	4	2600
ICELAND	6	1300	4	2600
BOSNIA	*6*	*1300*	*4*	*2600*
CYPRUS	6	1300	4	2600
LUXEMBOURG	6	1300	4	2600
MACEDONIA	6	1300	4	2600
ESTONIA	*6*	*1300*	*4*	*2600*
ARMENIA	*6*	*1300*	*4*	*2600*
SLOVENIA	6	1300	4	2600
LATVIA	*6*	*1300*	*4*	*2600*
CROATIA	6	1300	4	2600
MOLDOVA rep	*6*	*1300*	*4*	*2600*
ISRAEL	5	3900	4	2600
LITHUANIA	5	3900	4	2600
ALBANIA	6	1300	4	2600
SLOVAK REP*	*5*	*3900*	*3*	*7800*
BULGARIA	5	3900	3	7800
HUNGARIA	4	7800	3	7800
YUGOSLAVIA	4	7800	3	7800
NORWAY	5	3900	3	7800
CZECH-REP	4	7800	3	7800
PORTUGAL	5	3900	3	7800
FINLAND	4	7800	3	7800
GREECE	5	3900	3	7800
IRELAND	5	3900	3	7800
AUSTRIA	4	7800	3	7800
SWITZERLAND	3	13000	2	13000
ROMANIA	4	7800	2	13000
SWEDEN	3	13000	2	13000
DENMARK	3	13000	2	13000
BELGIUM	3	13000	2	13000
POLAND	3	13000	2	13000
NETHERLANDS	3	13000	2	13000
TURKEY	4	7800	2	13000
SPAIN	3	13000	2	13000
ITALY	2	26000	1	26000
UK	2	26000	1	26000
FRANCE	2	26000	1	26000
GERMANY	2	26000	1	26000
TOTAL		287300**		325000**

*countries which are not yet members are in italic; ** member countries only

Appendix 11

Financial Statements and Report
Budgets and Accounts 1995 and 1996 - proposed Budgets for 1997 and 1998

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

The European Commission for the Control of Foot-and-Mouth Disease is a body established under Article XIV of the Organization's Constitution for the purpose of promoting and coordinating national and international action for the control of foot-and-mouth disease in Europe and its final eradication. Its funds are handled as a Trust Fund under Financial Regulation 6.7, with the symbol MTF/INT/011/MUL.

FUNDS

The Organization does not maintain separate bank accounts for each Trust Fund, but instead manages and invests Trust Fund monies combined in pooled bank accounts. The balance of funds held by the Organization on behalf of the European Commission for the Control of Foot-and-Mouth Disease as at 31 December 1996 amounted to US$150,481.

INCOME AND EXPENDITURE

Contributions to the Commission's Trust Fund amounting to US$286,663 were received from Member countries of the Commission in 1996. Contributions for 1996 amounted to US$263,910, contributions paid in advance for 1997 amounted to US$7,800 and contributions received in arrears for earlier years amounted to US$14,953. The Commission's Trust Fund was credited with interest earned during 1996 amounting to US$13,056. Administrative costs for 1996 amounted to US$284,971.

SERVICES PROVIDED BY THE ORGANIZATION

During 1996 the Organization made available without charge the use of accommodation and facilities, to a total estimated value of $50,000.

Plato M. Kastanias
Chief, Accounting and Financial Service
Finance Division

STATEMENT 1

MTF/INT/011/MUL - TF number 904200

EUROPEAN COMMISSION FOR THE CONTROL OF FOOT-AND-MOUTH DISEASE

Financial Report as at 31 December 1996 (Final)

	US$	US$
Balance as at 1 January 1996		135,733
Interest received (average rate 9.86%)	13,056	
Contribution from member countries (As per statement 2)	286,663	299,719
Expenditure		
Commission Secretary	127,169	
Admin. Support Personnel	80,133	
Duty Travel	45,292	
Contracts	20,000	
General Operating Expenses	2,000	
Expendable Equipment	6,081	
Non-Expendable Equipment	4,296	
Total Expenditure		(284,971)
Balance as at 31 December 1996 (Final)		**150,481**

STATEMENT 2

TRUST FUND No. 9042.00 - MTF/INT/011/MUL -
Inter-Regional European Commission for the Control of Foot-and-Mouth Disease

Status of Contributions as at 31 December 1996 (final)
(expressed in US$)

Member Governments		Outstanding 31/12/1995	Contribution due for 1996	Received up to 31/12/1996	Outstanding 31/12/1996
ALBANIA		1,307.85	1,300.01	1,285.00	1,322.86
AUSTRIA		0.00	7,800.71	7,800.71	0.00
BELGIUM		0.00	13,000.40	13,000.40	0.00
BULGARIA		11,364.81	3,900.09		15,264.90
CYPRUS		0.00	1,300.01	1,300.01	0.00
CROATIA		0.00	1,300.01		1,300.01
CZECH REPUBLIC	/1	(7,800.00)	7,800.71	7,800.00	(7,799.29)
DENMARK		0.00	13,000.40	13,000.40	0.00
FINLAND		0.00	7,800.71	7,800.71	0.00
FRANCE	/2	0.83	26,000.83	26,000.83	0.00
GERMANY		0.00	26,000.83	26,000.83	0.00
GREECE		36.24	3,900.09	3,900.09	36.24
HUNGARY		0.00	7,800.71	7,800.71	0.00
ICELAND	/2	0.00	1,300.01	1,300.00	0.00
IRELAND		0.00	3,900.09	3,900.09	0.00
ISRAEL		0.00	3,900.09	3,900.09	0.00
ITALY		0.00	26,000.83	26,000.83	0.00
LITHUANIA		0.00	3,900.09	3,900.09	0.00
LUXEMBOURG		0.00	1,300.01	1,300.01	0.00
MALTA	/2	0.00	1,300.01	1,300.00	0.00
NETHERLANDS		13,000.40	13,000.40	26,000.80	0.00
NORWAY		17.50	3,900.09	3,917.59	0.00
POLAND		0.00	13,000.40	13,000.40	0.00
PORTUGAL		0.00	3,900.09	3,900.09	0.00
ROMANIA	/2	1.42	7,800.71	7,800.71	0.00
SLOVENIA		650.00	1,300.01	1,950.01	0.00
SPAIN		0.00	13,000.40	13,000.40	0.00
SWEDEN		0.00	13,000.40	13,000.40	0.00
SWITZERLAND		0.00	13,000.40	13,000.40	0.00
TURKEY		0.00	7,800.71	7,800.71	0.00
UNITED KINGDOM		0.00	26,000.83	26,000.83	0.00
FED. REP. OF YUGOSLAVIA	/3	36,659.88	7,800.71		44,460.59
TOTALS		55,238.93	286,011.79	286,663.14	54,585.31

1/ US$ 7,800 paid in advance for 1997
2/ o/s amounts under $10 are not to be called as they are assumed to be differences on exchange
3/ o/s amount not to be called

STATEMENT 3

Summary of Contributions Received in Arrears in 1996

Received in arrears for earlier Years	US$
ALBANIA	1,285.00
NETHERLANDS	13,000.40
NORWAY	17.50
SLOVENIA	650.00
	14,952.90

STATEMENT 4

MTF/INT/004/MUL - TF number 909700

FOOT AND MOUTH DESEASE - EMERGENCY AID PROGRAMME

Financial Report as at 31 December 1996 (Final)

	US$	US$
Balance as at 1 January 1996		95,706
Interest received (average rate 9.86%)		5,948
Expenditure		
Expendable Equipment	41,878	
Total Expenditure		(41,878)
Balance as at 31 December 1996 (Final)		**59,776**

STATEMENT 5

MTF/INT/003/EEC - TF number 911100

FOOT AND MOUTH DISEASE

Financial Report as at 31 December 1996 (Final)

	US$	US$
Balance as at 1 January 1996		1,251,036
Interest received (average rate 9.86%)		90,972
Expenditure		
Consultancy	10,972	
Admin. Support Personnel	1,383	
Duty Travel	44,921	
General Operating Expenses	9,993	
Expendable Equipment	193,050	
Support Costs 6% (on all items except expendable equipment)	4,036	
Total Expenditure		(264,355)
Balance as at 31 December 1996 (Final)		**1,077,653**

TF 904200: Budgets & breakdown of expenditure for 1995 & 1996 / Proposed Budgets for 1997 & 1998 for approval by 32 nd Session

	Budget 1995	Expenditure 31/12/95	Budget 1996	Expenditure 31/12/96	Proposed Budget 1997	Proposed Budget 1998
1101 Secretary	133,873	129,282	131,633	127,169	133,592	142,943
1151 Consultant					5,000	
1300 Adm Assis	69,000	70,974	76,600	75,232	77,489	79,814
overtime	1,000	701	500	4,901	4,000	2,500
31st/32nd Sessions	15,000	14,292			15,000	
Sub total Personal Services	**218,873**	**215,249**	**208,733**	**207,302**	**235,081**	**225,257**
2000 Duty travel Secretariat	20,000	10,651	20,000	14,638	22,500	22,500
3000 Contracts:						
Annual contract - WRL	35,338	36,400	30,000	20,000	30,000	30,000
Special support for serum bank - WRL					11,000	
Collaborative study ($18,000 over 2 years)					9,000	9,000
4000 GOE -Hospitality	1,400	1,358		2,000	1,500	500
5000 Expendable Equipment		1,754	6,000	6,081	1,000	1,000
6000 Non Expendable Equipment			20,000	4,296	1,000	1,000
Sub Total	**56,738**	**50,163**	**76,000**	**47,015** *	**76,000**	**64,000**
TOTAL	**275,611**	**265,412**	**284,733**	**254,317**	**311,081**	**289,257**
SPECIAL ACCOUNT						
1300 Sec. Assistance for max. 6 months - 1997					20,136	
2000 Travel Res Group/Coll between Institutes	35,000	18,771	25,000	30,654	30,000	30,000
8000 Training(Workshop Central Europe)					30,000	
3000 Milk testing	10,000	10,000		*		
TOTAL	**320,611**	**294,183**	**309,733**	**284,971**	**391,217**	**319,257**

** $ 5,857 corresponding to expenditures for the control of the epidemic in Balkans paid under TF 904200 and covered by EC decisions 96/968/CE and 96/439/CE will be reimbursed to TF 904200 in 1997*

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TF 911100: Budgets & breakdown of expenditure for 1995 & 1996 / Proposed Budgets for 1997 & 1998 for approval by 32 nd Session

		Budget 1995	Expenditure 31/12/95	Budget 1996	Expenditure 31/12/96	Proposed Budget* 1997	Proposed Budget* 1998
1151	Consultant	10,000		50,000	10,972	50,000	50,000
	Training	10,000		10,000			
1300	Admin.support				1,383		
2000	Duty travel	33,000	26,796	30,000	44,921	20,000	20,000
4000	GOE	2,500	7	2,500	9,993	2,500	2,500
5000	Vaccine	100,000		100,000	193,050	100,000	100,000
6000	Other expandible equip.						
8000	Workshop on contingency planing					30,000	
9100	Support cost 6 %	3,330	1,608	5,550	4,036	6,150	4,350
	Transfert to the TF 904200 **					5,857	
TOTAL		**158,830**	**28,411**	**198,050**	**264,355**	**214,507**	**176,850**

** Budgets1997 and 1998:*
Consultants: for surveillance of the programme in Turkey = $ 50,000
Worshop proposed in October 1997 in Poland = 30,000

*** Expenditures for the control of the epidemic in Balkans paid under TF 904200 and covered by EC decisions 96/968/CE and 96/439/CE*

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TF 909700: Budgets & breakdown of expenditure for 1995 & 1996 / Proposed Budgets for 1997 & 1998 for approval by 32 nd Session

		Budget 1995	Expenditure 31/12/95	Budget 1996	Expenditure 31/12/ 96	Proposed Budget 1997	Proposed Budget 1998 ***
2000	Duty travel	5,000		5,000		5,000	5,000
4000	GOE		2				
5000	Expendable Equipment	50,000	5,137	50,000	41,878	40,000	40,000
6000	Other Expendable Equipment (reagents etc..	300	2,563	300		5,000	5,000
9100	Support cost 6 %					600	600
		*		*	**		
TOTAL		**55300**	**7,702**	**55,300**	**41,878**	**50,600**	**50,600**

** For use in non-EU countries in special emergency situations*
expected expendable equip. corresponds to vaccine supply in case of outbreak
** Provision of vaccine to the F.R. of Yugoslavia
****Budget 1998 depends upon on utilization of funds in 1997 or not.*

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Appendix 12

Any other business

Circulation of information by the Secretariat

Hard copy

Up to the present two types of information are circulated by the secretariat:

Reports of Statutory Meetings

- Report of Sessions of the Executive Committee (E/F)
- Report of Sessions of the Commission (E/F)
- Report of Sessions of the Research Group - English

Epidemiological information

Bulletins are circulated by fax when outbreaks occur (in English and in French). These bulletins contain the following type of information:

-information received from member countries
-reports of missions
-information from the WRL
-summaries prepared by the Secretary

Electronic mail

Circulation by e-mail

This method has up to now mainly been used by the secretariat to send information to the National Veterinary Laboratories and from time to time to communicate with the National Veterinary Services. Despatch of attachments may sometimes cause decoding difficulties due to the utilisation of different software. If the National Veterinary Services so wish, the secretariat may address information to them by e-mail.

The Internet

Following agreement by the Fifty-eighth Session of the Executive Committee, the secretariat prepared the Home Page of the EUFMD Commission. This Page will be under the FAO site at the worldwide WEB address (HTTP://WWW.FAO.Org) Agriculture Department, Animal Production and Health Division. It is suggested that the information circulated by the Commission through Internet should be restricted to what is really of interest to member countries. What would member countries like to see circulated on the Internet?

The following information on the EUFMD Commission and its activities has already been prepared for circulation on line if member countries agree:

- brief presentation and history of the Commission
- list of member countries
- list of national and reference laboratories
- report of the Research Group meetings
- Information Bulletin - Issue No. 1

Post of associate expert

The Secretary informed the Fifty-ninth Session of the Executive Committee of the possibility of the Commission to avail of the services of an associate professional officer (APO) from a member country of the Commission participating in the FAO/APO programme. Following the agreement of the Committee, the terms of reference for this post have been prepared by the secretariat and sent to the Directors of Veterinary Services of the countries concerned. The task of this expert, recruited for a period of two years, would be to assist the secretariat with the circulation of information and also take part in the other activities of the Commission. It is important to underline that salary and other costs related to APO's are covered by the government and that the cost for the Commission would be minimal. To date only France has proposed a candidate. No other proposal has been received from other member countries.

List of FMD experts

The epidemic in the Balkans in 1996 demonstrated that cooperation between member countries is of major importance for rapid control of the disease when it occurs in a country. This collaboration and the support of other countries are of particular importance when the infected country has no experts or other resources in personnel and equipment to cope with the situation as was the case during the epidemic in the Balkans. The first step in this cooperation is to field an expert mission in the shortest delay possible. In 1996 each of the infected countries was visited by such missions, most of which were jointly organised by EUFMD and EC.

To shorten the delay in fielding teams of experts, the secretariat proposed at the 59th Session that a list of FMD experts from member countries ready to intervene in case of an emergency in Europe be established. The Chairman of the Committee suggested that two lists be established - one for the national experts working for their governments for whom the Commission would cover travel and DSA, one for private or retired experts who could request an honorarium in addition to DSA (it must be noted that the recruitment of experts of the second category by FAO is longer and more complex which makes their availability at short notice difficult). This suggestion was accepted by the Committee.

It is also important, as was the case in 1995 and in 1996, that experts from the WRL take part in such missions. The role of expertise is included in the letter of agreement signed by FAO and IAH.

Provision of reagents for ELISA to Bulgaria

The Fifty-eighth Session accepted the request from Bulgaria for financial support for the purchase of ELISA reagents to carry out the serosurvey in the south of the country. Reagents, at a cost of US$6,000 paid from the Commission's TF904200 have been provided in January 1997 to the National Laboratory of Bulgaria by the WRL.

The question of involvement of scientists from private companies in the Sessions of the Research Group was raised at the Fifty-ninth Session of the Executive Committee and it was agreed that:

- scientific participation could be considered on a case by case basis
- however, such participation should not have any commercial implications,
- sponsorship of EUFMD meetings is not acceptable,
- organization of publicised social events should be avoided.

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