Appendix 20

Project document: Strengthening active surveillance and veterinary service capacities for FMD control in Syria

I. BACKGROUND AND JUSTIFICATION

A. Background

1. Context of the project

Syria has a surface area of around 187,000 km² divided in 14 governorates and has border with five countries (see Fig 1). Rainfalls vary from more than 350 mm/year to less than 200 mm/year. The human population of Syria was estimated to be around 18.5 million in 2005 with an annual growth rate of 2.5%, a doubling period of around 30 years.

Fig 1: Map of Syria

2. Description of the cattle and sheep production in Syria

The estimated populations of cattle and sheep are around 1 million and 18.5 millions, respectively. There is a high density of ruminants both in the north and in the south area. These two areas are separated by a lower density area, the Governorate of Homs, which is mostly desert (Al Badia). Syria is a country in which livestock production is and will remain important because of the nature of the land, around half of which is arid and not suitable for crop production.

Syrian sheep are of the Awassi breed, a fat tailed type that is highly prized in the region. They fetch a price reported to between USD200-300 per head, as opposed to USD50 for sheep from Australia. This would put the trade in sheep at a value of USD400-600 million per year. Syria is one of the largest exporters of sheep by numbers and even more so by value. Only male animals (cattle, sheep or goats) may be slaughtered for human consumption and female animals may be slaughtered under special licence (e.g. for infertility or injury).

In recent years, 2 million heads of live animals have been exported per year from the region to the Gulf States, mostly Saudi Arabia. Exports normally take place all months of the year but with a peak in numbers around the time of the Haj. However, exports were suspended in September of 2006 but are expected to recommence shortly. Most exported sheep come from the Hamah Governorate.

The further development of this market would seem to be attractive and is a potential justification for an FMD program. However, in September 2006, the price of sheep meat on the local market rose to around USD10 per kilo and provoked complaints from the Syrian population that too much meat was being exported, leading to this price rise. For this reason, the export of sheep has been blocked.
and the local price has fallen back to USD8 per kilo. Efforts are made to increase sheep fertility to increase the lamb production. However, this might not be enough compared to the population growth and importation of live animals is foreseeable. Introduction of animals from countries where FMD is present will increase the risk of an epidemic and Syria might become a threat to neighbouring countries.

Movement of nomadic Bedouin with their sheep and cattle are mainly within Syria (see mission report N. Honhold and Dr Anne Mayer-Scholl)

OIE standards are followed as the minimum standard for the licensing of imports of animals or animals products. Live animal imports must be from countries free of all List A diseases and some List B diseases. Live cattle and sheep are imported only for slaughter (though they may undergo a period of fattening first). In 2006 around 10-20,000 sheep and cattle were imported from countries such as Uruguay, Romania and Moldova. These are regarded as FMD free countries, though necessarily free without vaccination. The animals arrive by sea at Latakia or Tartus ports and are not held in a quarantine station or tested after import. Whilst alive they are under the authority of the local veterinary services who are expected to ensure that they are slaughtered. No ruminants are imported for the purposes of breeding.

There are no known imports of animals from Turkey, Jordan, Iraq or Lebanon. In addition smuggling activities are probably very low since animals are worth more in neighbouring countries than in Syria. There may be some illegal movement of animals across the borders, but it is likely to be at a low level and much of it is likely to be temporary movement of animals across the border for grazing. The transit of animals through the country is not permitted because all bordering countries have list A diseases, including FMD. Meat is rarely imported. The most recent was single import of frozen sheep meat from Uruguay at the end of 2006. This was in response to the previously mentioned increase in the local price of sheep meat during 2006.

3. FMD Situation in Syria

No source of the recent outbreaks (1998 and 2002) is known with any certainty. The 2002 outbreak has no known source. The disease was seen in the Damascus area in sheep. The 1999 outbreak was on the border with Iraq. They were thought to be due to the smuggling of animals from Iraq Jordan or Lebanon, but no real evidence is available. No cases are thought to have originated from Turkey. In recent years, border controls have increased. There are no benefits to smuggle animals into Syria as prices are higher in neighbouring countries. The border with Iraq is said to have become more secure in the last few years because of the security situation in Iraq. The Bedouin in the area move much less across the border.

Although there have been many Iraqis moving to Syria in the last few years, these are said to have come mainly from urban centres and therefore do not bring livestock. The border with Jordan is also said to become better controlled. There is a fence along the border and a significant army presence in the border area.

Sheep herds rarely mix in the countryside although they may cross the same areas at different times. The climate of Syria helps to prevent any potential spread with a mostly hot dry climate.

4. FMD Vaccination in Syria

All FMD vaccines are imported via international tenders. Recently the vaccine used has been a trivalent vaccine produced by Merial. The virus types to date have been A (A Iran 95), O (Manisa) and Asia 1. A recommendation has been made to change the A type to A22 because of the recent development of the A Iran 05 subtype. Five to six million doses are purchased every year. The vaccine quality is tested at FAO FMD WRL (IAH Pirbright) and must contain at least 6 PD50 per dose. All ages of cattle and sheep are vaccinated across the whole country. Cattle are vaccinated twice a year, in Mar-Apr and Oct-Nov, accounting for around 1.9 million doses. The remainder are used for sheep, with each animal receiving one third of the cattle dose, allowing up to 12 million sheep and goats to be vaccinated once a year. The small ruminant vaccination campaign is in Sep-Oct, timed to be shortly before the main lambing season (Dec-Feb) so as to maximise maternal antibody levels in new born lambs. FMDV vaccine is free to producers and is only available via government vet services.

Regular meetings are held with veterinary authorities in Jordan and Turkey. With Jordan, a coordinated approach to the timing of vaccination campaigns on either side of the border has been initiated. This approach used to be common with Lebanon but the arrangements have broken down in the last few years. No meetings are held with the Iraqi veterinary authorities.
5. Contingency plan for FMD and surveillance activities

There is no written contingency plan for FMD control. There are standing instructions to the veterinary services of what actions to take in the event of a suspect case. This requires them to inform immediately the central authorities of any suspect case. A contingency plan has been contemplated but is not yet fully developed or approved.

Passive Surveillance activities are performed for OIE Listed diseases, although these data have never been analysed retrospectively, and no FMD active surveillance activities occurs.

6. Veterinary services of Syria and FMD Laboratory

Structure of the Veterinary service is complex but seems to have a certain degree of efficacy. A PVS evaluation has never been performed up to now (see mission report N. Honhold and Dr Anne Mayer-Scholl).

The laboratory has abilities to run basic FMD diagnostic techniques but is missing additional laboratory equipment and further training (e.g. technical, quality assurance, biosecurity) to be able to fulfil the needs of serosurveillance activities or in case of outbreak.

7. Monitoring of international animal health

There is a section with responsibility to record international animal health reports. OIE reports are received by e-mail and FAO bulletins by fax. Reports are stored in Excel spreadsheets, with one file per region and one worksheet per country. This allows for rapid searching of reported disease from any country. The system has been run for several years. There are reports going back as far as 1999. However, improvement in gaining efficacy could be made by adopting a software designed for this purpose.

B. Rationale - Justification

FMD causes high losses and has a severe effect on food security. In addition, as countries develop a capacity to export livestock, the presence of FMD represents a constraint to trade and is often totally precluding a country from exporting live animals to another country or region.

In Syria, livestock production is important to the agricultural economy and as source of protein for inhabitants. Despite FMD vaccine measures, FMD occurs sporadically in Syria and might be underestimated since no active surveillance is performed. Even if live animal export activities are resumed there is a risk of spread to other countries if the disease is not detected, particularly in sheep where clinical signs are discrete. By strengthening the veterinary service and the laboratory, an adequate surveillance and response can be provided in case of an FMD outbreak for the benefit of the country.

Finally, the assessment of the FMD situation and strengthening of the capacities to control an outbreak in Syria will also benefit neighbouring countries in which efforts are made to control FMD, (e.g. Turkey and Transcaucasian countries).

II. OBJECTIVES OF THE ASSISTANCE

a) To enable a sero-survey to establish absence or presence circulation of FMD virus in South-West region (Damascus, Dar’a and Suweda Governorates) of Syria in the recent past by detecting antibodies to non-structural proteins (NSP) to a determined level of confidence of detecting a determined level of circulation.

b) Strengthen capacities disease detection, reporting and control strategies for FMD.

c) Improve overall disease reporting, recording and reporting systems.

d) Sustainably enhance laboratory capacities to detect FMD virus within a biosecure facility.

e) Assess the overall functioning of the veterinary services in Syria to identify strengths and weaknesses.
III. TARGET BENEFICIARIES

The target beneficiaries are Syrian livestock producers and neighbouring countries and the international community. Evidence of absence of circulating FMD virus will maintain present export markets and may open new ones for Syrian producers. Neighbouring countries such as Turkey or Transcaucasian countries and FMD project that is already funded will also benefit by enforcing a dynamic surveillance of FMD in Syria. The international community will benefit from increased knowledge of the circulation of the virus in the region.

IV. EXPECTED PROJECT OUTPUTS

Result 1: Results of a sero-survey to detect antibodies to non-structural proteins (NSP) in ruminant livestock in the southwest of Syria, indicating recent circulation of the virus

Activities:
1.1 Procure and provide non-consumable equipment required.
1.2 Procure and provide consumable equipment required.
1.3 Finalize sero-survey design and select primary sampling units.
1.4 Collect sheep serum samples according to the design.
1.5 Backstopping mission to assess progress and sample design (to be combined with activity 2.2).
1.6 Collect cattle serum samples according to the design.
1.7 Test serum samples for antibodies to NSP.
1.8 Backstopping mission to assess progress and assist with lab procedures (to be combined with activity 4.2).
1.9 Investigate positive results.
1.10 Analyze results.
1.11 Write and present report. To include input from FAO epidemiologist for the statistical interpretation, either in a mission to Syria or from home station.

Result 2: Strengthened capacity for disease detection, reporting and control strategies for FMD

Activities:
2.1 Syrian veterinary authorities to finalise and obtain government approval of a contingency plan for FMD containing regulatory and operational details.
2.2 A separate mission of one to two weeks be part of the further support to develop basic epidemiology skills with particular reference to those required for the detection and control of FMD (to be combined with activity 1.5).
2.3 Syrian veterinary authorities to establish a standardized outbreak investigation methodology.
2.4 Syrian authorities to carry out a period of intensified border inspections.
2.5 Syrian authorities to assess the risks associated with the use of a vaccine not reflecting the current regional FMD risk situation should be stressed. FAO will collaborate with this.

Result 3: Improved overall disease reporting, recording and reporting systems
Activities:

3.1 Syrian veterinary authorities and FAO to evaluate the introduction of the TAD-INFO computerized diseased recording and reporting system.

Result 4: Sustainably enhanced laboratory capacities to detect FMD virus within a biosecure facility

Activities:

4.1 Laboratory veterinarians should be given the opportunity to see the diagnostic routine, esp. quality and laboratory management in an internationally recognized laboratory. Training should include:
   o Strong promotion of the concept of general problem identification and solving
   o Strong promotion of concepts of bio-security
   o Underlining the importance of quality control and management and the introduction of routine quality management to assure that large sample numbers can be handled
   o Increase understanding of data analysis and promotion of understanding of its importance in disease monitoring and control
Increasing the biological background information of FMD disease, disease control (especially NSP concept) and laboratory methods.

4.2 Reinforce training overseas lab training by in country training (to be combined with activity 1.8).

4.3 Improve biosecurity of FMD diagnostic laboratory to internationally acceptable standards. The risks associated with the missing compliance with the minimum standards for bio-security and the necessity to change current laboratory facilities and routines.

4.4 Organisation of a comparative study of testing results of sero-monitoring samples between the Department of Virology and an internationally recognized laboratory. Depending on the results, further assessment, including trouble shooting and potentially in country training could be planned.

4.5 Regional cooperation with neighbouring countries (laboratory and field) should be promoted.

Result 5: Overall functioning of the veterinary services in Syria assessed to identify strengths and weaknesses

Activities:

5.1 Syrian veterinary authorities to contact OIE about the possibility and modality undertaking an assessment of the veterinary services of Syria

V. WORK PLAN

The elements of the work to be undertaken are shown in the activities above. The detailed work plan is shown in Annex 1 below.

VI. CAPACITY BUILDING AND SUSTAINABILITY

The project will build the capacity of the Syrian veterinary service to detect, investigate and report outbreaks of FMD. The laboratory element will lead to a sustainable improvement in the capacity of the laboratory to undertake testing from FMD in conditions of acceptable biosecurity.
VII. **INPUTS TO BE PROVIDED BY FAO**

**Personnel (USD)**
(Terms of Reference and other details can be found in Annexes 5-9)

**International consultants**
  1) Veterinary epidemiologist
     a) Activity 1.3 One week duration:
     b) Activities 1.5 and 2.2 Two weeks duration
     c) Activity 1.10 One week duration
  2) Laboratory specialist
     a) Activity 1.8 and 4.2 Two weeks duration

**Travel (USD)**
- international travel of consultants, technical officers and duty travel of FAO staff.

Four return flights to Syria from home bases

**Training (USD)** (see Annex 4 for details)
- Epidemiology (in country)
- Laboratory (overseas)
- Laboratory (in country)

**Expendable Equipment (USD)** (see Annex 2 for details)

**Non-Expendable Equipment (USD)** (See Annex 3 for details)

**FAO Technical Support Services (TSS)**

**General Operating Expenses (USD)**

**Support Costs** (7 percent of expenditures)

VIII. **REPORTING**

Reports will be produced by each FAO consultant after each input. An overall report on the sero-survey will be produced as a joint work between Syrian authorities and the FAO consultant epidemiologist.

IX. **GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS**

**Input to be provided by the government:**

Syrian veterinary authorities will arrange and pay for the collecting and testing of samples for the sero-survey other than the consumable and non-consumable items detailed in this report. They will provide all local transport for sample collection and field visits in relation to the project.
## PROJECT BUDGET (FAO CONTRIBUTION IN US$)

**Country:** Syria  
**Project Title:**  
**Project Symbol:**

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### TRAINING

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### MATERIAL

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### GOE and freight charges

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TERMS OF REFERENCE
Veterinary Epidemiologist
International Consultant

Under the technical supervision of the Chief, Animal Health Service (AGAH), and direct supervision of the FAO Representative in China, and in close collaboration with the TCES Programme Coordinator in DPRK and the national counterparts and other consultants, the incumbent will:

First mission (one week):
- Finalize sero-survey design and select primary sampling units.
- Perform any other duties as required.
- Submit a BTOR.

Second mission (two weeks):
- Backstopping mission to assess progress and sample design.
- Develop a one week training course with the Syrian veterinary authorities to develop the basic epidemiology skills with particular reference to those required for the detection and control of FMD.
- Deliver the one week training course mentioned above.
- Evaluate with the Syrian veterinary authorities the introduction of TAD-INFO.
- Perform any other duties as required.
- Submit a BTOR.

Third mission (one week):
- To include input from FAO epidemiologist for the statistical interpretation, either in a mission to Syria or from home station.
- Perform any other duties as required.
- Submit a BTOR.

Qualifications: The incumbent will be a veterinarian with recognized specialisation in veterinary epidemiology and extensive practical expertise in the surveillance of transboundary animal diseases, specifically including that of FMD; sampling strategies, data collation and analysis will be important skills required. Prior experience in Syria will be an advantage. Language skills must include English as a working language.

Duty station: Damascus Syria for first mission; either home base or Damascus for second mission.

Duration: Four weeks.

TERMS OF REFERENCE
Laboratory specialist
International Consultant

Under the technical supervision of the Chief, AGAH, and direct supervision of the FAO Representative in China, and in close collaboration with the TCES Programme Coordinator based in Pyongyang and the national counterparts and other consultants, the incumbent will:

- Reinforce training overseas lab training by in country training.
- Advice on the Improvement of biosecurity of FMD diagnostic laboratory to internationally acceptable standards.
- Assist with the organization of a comparative study of testing results of sero-monitoring samples between the Department of Virology and an internationally recognized laboratory.
- Perform any other related duties required.
- Submit a BTOR.

Qualifications: The incumbent will be a veterinarian with recognized expertise in the laboratory diagnosis of FMD and the conditions required for such a laboratory to function to international standards including biosecurity. Previous experience in Syria will be an advantage. Language skills must include English as a working language.

Duty station: Damascus, Syria.

Duration: Two weeks.