

# **REPORT**

## **West EurAsia FMD Control - Roadmap 2020 2<sup>nd</sup> Regional Progress Review Meeting**

**Report of a Meeting**

**held in Istanbul, Republic of Turkey**

*December 8-9<sup>th</sup> 2010*

*Convened by FAO as a Joint Meeting and Workshop of the regional FMD control projects supported by Italy  
(GTFS/INT/907/ITA) and EC (MTF/INT/003/EC)*

## **Vision for the West Asia Roadmap for FMD Control**

Regional cooperation among Eurasian countries for the progressive control of FMD through public and private partnerships leading towards freedom of clinical disease by 2020 for regional economic development, food security, and poverty alleviation.

Региональная кооперация между Евразийскими странами в целях прогрессивного контроля ящура через общественное и частное партнерство ведет к свободе от клинического проявления болезни к 2020 г. для экономического развития и снижения уровня бедности.

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## Summary

1. The 2<sup>nd</sup> Regional Meeting to review the progress of the West Eurasia FMD Roadmap was held in Istanbul, Turkey in December 2010, organized by FAO in consultation with OIE, and hosted by the Ministry of Agriculture, Turkey.
2. The Meeting was supported by the FMD projects implemented by the EuFMD Commission (FAO) in Turkey, Trans-Caucasus, Iran and Syria, and the GTFS/INT/907/ITA project for Central Asian countries. Invitations were sent by FAO, on behalf of the FAO and OIE, to the Chief Veterinary Officers (CVOs) and to the FAO national consultants on FMD (EuFMD or GTFS projects). In total, 14 countries in West EurAsia were represented.
3. The Objectives of the Workshop were:
  - a. to review the progress along the Regional Roadmap towards the vision identified at the Shiraz Meeting in 2008, of a “West Eurasia region free of clinical FMD by 2020”;
  - b. to share information on FMD virus circulation within the West Eurasia FMDV ecosystem to assist planning of preventive measures in the short –term.

## Outcome and outlook

4. The progress of FMD control since the Istanbul meeting in 2009 was reviewed and a provisional revised Roadmap to 2020 developed, for the 14 countries currently participating in the West Eurasia FMD Roadmap.
5. Of the 14 countries participating in the Roadmap:
  - a. One area was considered to have progressed from Stage 3 to Stage 4 (Turkish Thrace).
  - b. 12 countries were considered to remain at the same PCP stage as in 2009.
  - c. 1 country did not present material for evaluation.
  - d. 1 country was demoted on the basis of no action towards progress on the PCP in 2010.
6. The progress in the second year was considered to be good, and the Roadmap remains on track to achieve the vision of freedom from clinical cases of FMD being achieved by the year 2020.
7. The continued realisation of the vision requires a co-ordinated set of national efforts under an overall framework of progressive risk reduction, supported by regional services and sharing of information, technical knowledge, and possible donor support, between countries within the region and which are beneficiaries of the action.
8. Almost all countries in the region are in Stage 1 of the Progressive Control Pathway (PCP), or above, and most continue to invest heavily in FMD vaccination programmes. However, weaknesses in international control of animal movement, and gaps in preventive measures, have allowed the continued circulation of types A, O and Asia-1 in the region. In 2010, the most serious breakdown in control was the regional epidemic of FMD serotype O Panasia II (ANT-10 lineage).
9. The international organisations indicated their strong continued support for the Roadmap process, with the EC, and the EuFMD Commission, having shown their commitment through supporting FMD control in Turkey (EuropeAid), Iran (through EuFMD) and the TransCaucasus (through EuFMD), and the commitment of the Government of Italy for further support to 5 Central Asian countries. In addition Pakistan will, through FAO, receive a major support for FMD control in 2011-13.

10. A Secretariat remains necessary to provide co-ordination of the supportive services, particularly to promote the laboratory network and services, and the epidemiology and risk monitoring, and for monitoring and communication of progress.
11. Annual meetings should continue to be convened by FAO/EuFMD/OIE to monitor progress.

## WEST EURASIA FMD CONTROL ROADMAP TO 2020 – revised after Istanbul 2010 (PROVISIONAL)

This table indicates the FINAL assessment of the Country Stage position for 2010, together with the expected progression to 2020. A provisional Roadmap was produced at the Istanbul meeting (see Chart), and if any countries considered that the status that had been assigned was not accurate, time was given until the end of January 2011 to produce an evidence-based request for the status to be changed. The progression from 2011 to 2020 is based on self-assessment completed during the Istanbul meeting.

### Assessment of country Stage position for 2010, together with the expected progression to 2020.

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Comment
West Eurasia	Kazakh			1 (NEW)	2	2	2	2	3	3	3	3	4	4	
	Kyrgyz			0	1	1	2	2	3	3	3	4	4	5	
	Tajik			1	1	2	2	2	3	3	3	3	4	4	
	Turkmen			0 (NEW)	1	1	2	2	3	3	3	4	4	4	
	Uzbek			0 (NEW)	1	1	2	2	3	3	3	3	3	3	Return to Stage 0; no PCP activities reported in 2010
	AFG			1	1	2	2	2	3	3	4	4	4	4	
	IRN			2	2	2	3	3	3	4	4	4	4	5	
	PAK			1	1	2	2	2	3	3	3	4	4	4	
	East Anatolia (TR)			2	2	2	2	2	2	2	2	3	3	3	
	Thrace (TR)			new	4	4	4	5	5	5	5	5	5	5	FMD-free with vaccination (OIE recognized)
	Marmara Aegean (TR)				2	2	3	3	3	4	4	4	4	4	
	Central Anatolia (TR)				2	2	2	2	2	3	3	3	3	4	
	Syria			1	2	2	3	3	3	4	4	4	4	5	
	Iraq														Not evaluated in 2010 (Outlook as per 2009 meeting)
	Armenia			2	2	2	2	3	3	3	4	4	4	4	
	Azerbaijan			2 (NEW)	2	2	2	3	3	3	3	4	4	4	
	Georgia	pending		1	2	2	2	2	3	3	3	4	4	5	

## Acknowledgements

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## **Recommendations of the 2<sup>nd</sup> Regional meeting to review progress West EurAsia FMD Control - Roadmap 2020**

The 14 countries here represented, agree the following:

### ***Considering that***

1. A regional epidemic of FMD serotype O Panasia II (ANT-10 lineage) has affected many countries in the region in the past year, and other type O Panasia II lineages have affected countries in the region;
2. Genetically distinct lineages of FMDV serotypes A (3 lineages of A Iran 05, O (4 lineages of O Panasia II) and Asia-1 (2 lineages) circulate within parts of the region, with the potential for further emergence and spread throughout the region;
3. Some countries in the region remain at an early stage of the PCP, with limited actions to monitor and control the movement of FMD;
4. High investments in FMD control in Turkey and the I.R of Iran, and other countries in the region are at risk as a result of epidemic developments in some parts;
5. Progress has been made to better map the emergence and spread of strains within the region, and to communicate between risk managers in the veterinary services, but an early warning system to allow countries to adapt their control measures is not yet in place;
6. Most countries have demonstrated their commitment to the Roadmap through undertaking PCP activities, with evidence of monitoring and control actions being applied , but some remain in Stage 0 and 7 of 14 remain in Stage 1;
7. There is a need for the countries of the region to express their voice and to assist direction of the initiative, working with the international organizations;
8. The countries of the region require effective regional services to achieve the progress in monitoring and surveillance, and assist raising the capacity of the national reference laboratories to service the national control strategies;
9. There has been a unprecedented demand for virus typing in 2010, and clear demonstration of the need for additional laboratory capacity in the Regional and national laboratories in order to provide rapid FMDV typing and vaccine matching services for the countries concerned;
10. FMD vaccines being used in the region are of generally low potency (3 PD50) , and include vaccines which are not purified in respect of NSP, and are produced by a range of suppliers whose adherence to the quality standards of the OIE and European Pharmacopoeia are uncertain;
11. Preventive vaccines of 3PD50 potency cannot be expected to prevent all outbreaks, and that additional measures, efforts in critical control points will be needed if disease and viral circulation is to be prevented.

## **Recommendations**

### *On virus circulation*

1. Veterinary Services should reconsider their vaccination plans for the coming year, taking note of the reservoir/persistence of Asia -1 in Pakistan and Afghanistan, and of serotype A Iran 05 and O Panasia II in at least 4 Roadmap countries (Pakistan, AFG, Turkey, Iran);
2. Veterinary Services should be aware of the continual risk of movement of viral variants within the region, taking note of the sublineages of each serotype in the region.

### *On vaccine recommendations*

3. Veterinary services should ensure that vaccines used are appropriate for the risk from viruses circulating in the West Eurasia region; the most appropriate vaccines for current risk in the region for use in 2011 are A Iran 05/A TUR 06 and O Manisa/O Panasia II in routine vaccination programs, and Asia-1 Shamir (in risk zones);
4. Veterinary services should review the re-vaccination intervals in countries in PCP Stage 2 to 4, should be based on vaccine performance in the field, through an assessment of the duration of population immunity in the species, and the risk posed by the gap in immunity in the species and age group concerned;

### *On the overall Roadmap approach and PCP*

5. Endorsed the approach and recommended continuation of the Roadmap process, with annual survey for indicators of progress;
6. Endorsed the revision of the PCP Stages and criteria that have been proposed by FAO and delegate the responsibility for assessment in 2011 to the FAO, which should select the team to undertake the evaluation process with the agreement of the Advisory Committee.

### *On the FMD monitoring and early warning activities*

7. Recommends far greater effort to achieve the rapid sharing of laboratory information on FMD between the 4 main countries of Pakistan, Iran, Afghanistan and Turkey, through support to the WELNET and to reference laboratories providing vital services to the Roadmap;
8. Continued support to evaluate the benefit/cost of swab sampling from high risk markets in this region, including support to WELNET laboratories willing to undertake the services and information sharing required;
9. Satellite laboratories serving international surveillance for typing FMDV should provide their reports in a harmonised manner to that of the WRL, in order that the VS of the sending countries, FAO, OIE, are informed of the results;
10. Greater communication on a regular basis to the 14 countries in the Roadmap, plus their international partners, through newsletter, bulletins or other means of bring attention to new findings/threats to FMD control.

### *On progress along the Roadmap since 2009*

11. That the international organizations, and national stakeholders, take note of the progress achieved in parts of the region since 2008, with progress of several countries along the pathway;
12. That the 2010 Roadmap be finalized before the end of January, after allowing another month for the missing information to be provided;
13. That an information portal be established and greater effort be made to communicate the Roadmap principles and progress to national and international stakeholders.

### *Recommendations of the West Eurasia FMD Lab Network*

14. Support is provided to WELNET in 2011 to better plan activities and achieve regular communication between the reference and national laboratories in the region;
15. Comprehensive Plan to address the training needs over the next 3 years, should be developed, if required supported by FAO consultancy;
16. First priority is to achieve a rapid and sensitive means of confirming the FMD serotype in all countries, and secondary to achieve the capacity to undertake NSP (Stage 1) and SP (Stage 2) needed in countries according to their Stage in the PCP;
17. That the Annual Workplan for 2011 be considered and supported by EuFMD and /or other international agencies, and calls upon the EuFMD to provide support for the action plan;
18. Actions to harmonise quality of reporting of suspected vaccination failure (WELNET protocol for investigating suspected vaccine failure, developed with the EpiNetwork and pilot study in at least two countries);
19. More work on the stability of type O vaccine strains, and the duration of immunity of various type O vaccines used in region;
20. Develop a simple PTS to be serviced within the region, with results that can be brought back to the Annual Meeting.

### *Recommendations of the Epidemiology/Risk assessment group*

21. To organize training courses on epidemiology that will assist countries at same stage of the PCP to better plan and make use of the studies needed to meet the PCP requirements (initial action by FAO-GTFS/INT/907/ITA project, by end of January 2011);
22. In addition , or part of this, to identify survey designs for countries that use non-pure FMD vaccines;
23. To develop a West Eurasia Roadmap mechanism, for analysis of information to assist early warning of new threats/epidemics for the region, that may include developing agreements over the next year on monthly or more frequent information provision between Roadmap countries, with focus on the countries which have cases in most months of the year (Action: EuFMD/FAO, to develop proposal);
24. That the Annual Workplan for 2011 be further elaborated, a budget identified, and follow up agreed with the international agencies.



*Recommendations on Vaccination Program Monitoring*

25. Improvement of the questionnaire in order to better understand the quality and coverage of vaccines used in the region, including the POTENCY, and better communication to countries on the issues affecting vaccine selection and vaccination program performance.

*Recommendations on Governance of the West Eurasian FMD Roadmap Initiative*

26. The Advisory Committee (AC) should be extended to include representatives, normally at CVO level, from 3 countries in the Region, and 4 international bodies, with the two network leaders being present as Observers; these should continue to report to the annual meeting and to the relevant GFTADS Steering Committees. The President should be a CVO, or higher, from the 14 countries of the Roadmap, and should serve for 3 years after election. The technical representatives that can represent the FMD Laboratory Network and the Monitoring and Surveillance network should also serve for 2 years after election. The AC should meet twice per year, with meetings that could be back to back with the Annual Meeting and with the OIE or EuFMD General Sessions.

## Day by day report of the Meeting : West EurAsia FMD Control - Roadmap 2020.

### 2<sup>nd</sup> Regional meeting to review progress

#### Opening

The Meeting was opened by Dr Haluk Askaroglu, CVO and Head of the Animal Health Department, GDPC, Turkey. He indicated the serious commitment of Turkey to FMD control, the progress made in the past two years and the scale of the challenges; in 2010, as a result of the very high animal prices in the region, Turkey had been badly affected by FMD despite undertaking higher level for vaccination than ever before in her history. The control of FMD is therefore a regional issue, and far greater information exchange is needed in order to be able to prevent recurrence of epidemics. The West Eurasia Roadmap therefore must take serious measures to address the reasons why epidemics arise and move so rapidly.

Dr Kim, OIE Scientific Department, Dr de Leeuw, FAO, and Dr Herzog, EuFMD Chairman, gave their support to the Roadmap. Dr de Leeuw indicated that national efforts and regional efforts must work in the same direction, and the Roadmap was an example for other regions, and the PCP a valuable tool for self assessment and for setting goals for progress. List of participants in **appendix 1**.

#### Organization of the Workshop

The Workshop was structured as follows:

- **Day 1:** first an overview of the Progressive Control Pathway (PCP) approach and the Regional Roadmaps for WestEurasia. There was a report from the WRLFMD on epidemic events in the region in 2009-2010. The meeting then considered progress reports and outlook for FMD control from the program activities of GTFS/Italy project (in 5 countries) and EuFMD projects; thereafter an overall assessment of progress given on basis of the survey findings, and country representatives a self-assessment on their rate of future progress and needs for assistance. (**Appendices 2-13**).
- **Day 2** reviewed the provisional Roadmap to 2020, results from the vaccination questionnaire, reports from the laboratory and epidemiology networks the draft recommendations, and elected the regional Roadmap advisory group representatives. (**Appendices 14-16**).

### Day 1- Session 1. Roadmap Progress since 2009

#### *Roadmap principles and processes*

The Session first received a presentation from Keith Sumption (EuFMD) giving the back ground to the West Eurasian FMD control Roadmap, ( **Appendix 2**). The WestEurasia Roadmap had been developed at a meeting in November 2008 in Shiraz, Iran, attended by representatives of 14 countries. Following on this success, a continental roadmap for Africa was developed in January 2009 (Nairobi meeting). For both, the vision, and plan to 2020, used the Progressive Control Pathway (PCP) approach, in which FMD control level of a country or zone is categorised on the basis of monitoring, control and surveillance actions, moving from basic monitoring for FMDV strains and risk points for infection, to a stage where FMDV circulation in a country has ceased and each new event detected by surveillance is controlled and the absence of further circulation verified; this Stage (3) precedes the official recognition of FMD freedom by the OIE.

The Roadmap/PCP approach provides a framework for comparing the level of action against FMD between countries, and, at the minimum, provides information essential for planning preventive measures in neighbouring countries. It is under study by the OIE as a major tool in a Global FMD Control Strategy (FAO/OIE). In 2008, several countries in WestEurasia were considered, on their own assessment, to be in Stage 0, and the aim of international support was to progress these countries to Stage 1 in 2009. At the 2009 and 2010 meetings, countries submitted evidence to prove their PCP status. Ten of 14 countries undertook seromonitoring in 2009, and 2 countries were “downgraded” due to lack of monitoring evidence submitted. In the 2010 progress review, the modified PCP approach (following October 2010 Consultative Group review) will be applied.

Peter de Leeuw, representing FAO, then described the Global FMD Control Initiative and the PCP-FMD (Appendix 3). As part of the Global FMD Control initiative, the Global FMD Working Group is developing a Global FMD Control Strategy. The PCP is expected to become the cornerstone of the Global FMD Initiative. The PCP had recently been reviewed, and the Stages and ‘gateways’ between them clearly defined. The focus of each Stage and key actions are summarized in Figure 1 below, and were reviewed in this presentation.

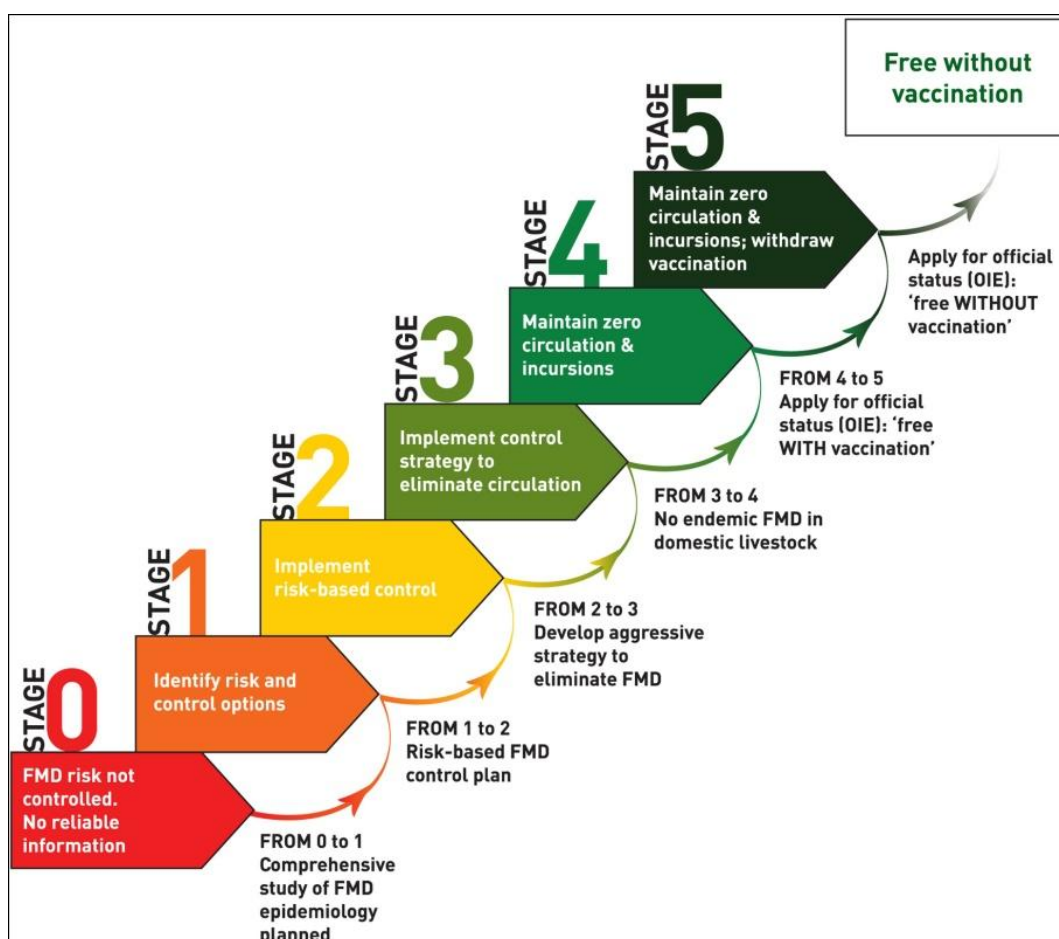


Figure 1

### *Epidemic Events and FMDV circulation in the West Eurasia region*

A global and regional overview was presented by Dr Jef Hammond, WRL Pirbright (Appendix 4). In 2010 the region had been seriously affected by an "explosive" epidemic of O-PanAsia-2, and circulation of serotype A-Iran-05 lineage had continued throughout. Several sublineages have evolved from A-Iran-05, including A-Iran-05<sup>ARD-07</sup>, A-Iran-05<sup>AFG-07</sup> and A-Iran-05<sup>BAR-08</sup>. There are also several sublineages of O-PanAsia-2 (PanAsia-2<sup>YAZ-09</sup>, PanAsia-2<sup>FAR-09</sup>, PanAsia-2<sup>ANT-10</sup>, PanAsia-2<sup>BAL-09</sup>, PanAsia-2<sup>SAN-09</sup> and PanAsia-2<sup>PUN-10</sup>). A high number of samples were submitted to WRL for vaccine matching from Iran (238), Pakistan (45), Turkey (61) and Afghanistan (176). Serotype A field isolates appear relatively well matched to the vaccine strain vaccines used, but a significant proportion of isolates of serotype O were not well matched and so the vaccine may not be protective. Type Asia-1 probably remained circulating in Pakistan and Afghanistan, but had not been confirmed from Turkey since 2002 or Iran since 2004.

### *FMD monitoring in 5 central Asian countries- progress under GTFS/INT/097/ITA support*

A review of findings of the FMD monitoring program supported under GTFS project, in 5 countries, was given by Dr Ferrari (Appendix 5). The program has 3 main components: 1) Serology (NSP antibodies to assess virus circulation even in absence of notified clinical outbreaks) carried out in all 5 countries; 2) Detection of viral genome from non-clinically affected animals (mainly in Live Animal Markets) carried out in Afghanistan, Pakistan and Tajikistan and 3) Detection of FMD virus from clinically affected animals (project is supporting attendance of outbreaks) with results available from Afghanistan and Pakistan. Results were presented from 2009, and the sampling plan for 2011 described.

Significant findings included evidence that FMD risk was 28% lower in vaccinated compared to unvaccinated villages in Afghanistan; whereas there was no difference in risk between vaccinated and unvaccinated villages in Uzbekistan.

### *Progress in FMD control in Turkey and Iran*

Progress in these two countries was presented (**Appendices 6 & 7**). On the 25<sup>th</sup> May, 2010, Thrace was declared FMD-free with vaccination. However, 1501 outbreaks were reported in Anatolia in 2010. 58% of these were type O, 8% type A and the remaining 34% unconfirmed. These outbreaks occurred despite an extensive vaccination campaign in which 91-92% of large ruminants in Anatolia were reported vaccinated in the 2010 spring and autumn vaccination campaigns, and 73% of small ruminants in the spring campaign. Ongoing outbreaks underline the importance of early detection of new strains.

There was a large NSP serological survey with samples from both large and small ruminants, with over 67,700 sero collected. Overall, approximately 12% of LR samples and 17% of SR samples were positive, but this result varied by region and age group. In addition to these activities, there is also a large public awareness campaign about FMD.

Dr. Rasouli described the FMD situation in Iran. He highlighted the diversity of the livestock population and the large extent of animal movements, including illegal animal movements, which are driven by differences in meat prices. Some breeds from neighbouring countries are believed to be resistant to FMD. Iran controls FMD through vaccination, which costs approximately \$21 million/year using locally produced vaccines (Razi Institute) and Merial vaccine. Cattle are vaccinated 3x/year and small ruminants 1/year.

There are also movement controls and public awareness campaigns. There is an extensive active surveillance system, and outbreaks are reported using the GIS system.

### **Day 1- Session 2: Country reports**

Progress in FMD control in Pakistan, Uzbekistan, Turkmenistan, Kazakhstan and Afghanistan

These countries made brief presentations about their FMD situation in general and specifically progress along the PCP (Appendices 8-12)

**Pakistan:** In 2010, there was progress on training and awareness for both veterinarian and farmers. 76 samples were submitted to the WRL, and most were found to be type O (PanAsia-2<sup>ANT10</sup> and PanAsia-2<sup>PUN10</sup>), although there were a few type A (Iran-05<sup>AFG07</sup>). Further serological surveys (NSP) and antigen detection (including samples from non-clinically infected animals in markets) are planned for 2011.

**Uzbekistan:** FMD prevention and control takes 70% of budget for veterinary services. In the buffer zone, Vaccination is done 2x/year in cattle and 1/year for small ruminants, primarily using a trivalent vaccine (A,O, Asia-1) imported from Russia. An NSP sero-survey is planned for 2011. Lack of movement control, laboratory supplies, training for laboratory and epidemiology staff, and lack of support for compensation for the owners of infected animals are seen as the biggest challenges in Uzbekistan.

**Turkmenistan:** A serological survey was carried out in the border areas in 2010 for both FMD and PPR, and results were presented.

**Afghanistan:** The CVO is informed of FMD outbreaks throughout the country rapidly by radio. Because of the GFTS project support, several of these outbreaks were attended and samples collected. Several samples were submitted to WRLFMD, and determined to be O PanAsia-2 (ANT-10, BAL-09) and A Iran-05-<sup>AFG-07</sup>. Samples were collected from clinical cases (247) and also non-clinical cases (200) at live animal markets.

**Presentation of Report on country progress:** Keith Sumption presented an assessment of country progress along the Roadmap since the Istanbul meeting in November 2009 (**Appendix 13**). A survey was sent through the CVO of each country to allow an evidence-based assessment of progress, using the newly revised PCP stage definitions. The survey was conducted in English and Russian, with a very good level of response. The results were presented and the country representatives had the opportunity to review the position and provide supporting arguments/information if they considered the PCP position to be incorrect.

Subsequently, a table was provided to representatives, to complete their own assessment of the timeline through 2020 with respect to progress to the next and subsequent PCP Stages. The returned papers, together with the responses to the questionnaire were used to complete a *Provisional Roadmap to 2020*.

## **Day 2 – Session 1: Reports of the Technical Networks**

### **Lab Network (WELNET) (Appendix 14)**

Since its formation at the Istanbul meeting last year, the WELNET has been very active. The 14 countries present at the Istanbul 2009 meeting are members of the network (Turkey, Iran, Pakistan, Afghanistan, Azerbaijan, Armenia, Georgia, Turkmenistan, Uzbekistan, Tajikistan, Kyrgyzstan, Kazakhstan, Syria and Iraq). Activities in 2010 included:

- Setting up website: first quarter of the year
- Organization of lab proficiency test scheme: third and fourth quarter of the year
  - WRL sent panels and received results from 4 countries (Georgia, Armenia, Azerbaijan, Syria). Proficiency testing planned, but pending LoA for 3 more countries (Iran, Iraq, Pakistan)
- Organization regular quarterly meetings : achieved two teleconferences up to now
  - The meeting facilitated valuable sharing of information and highlighted the value of submitting samples to the WRL and sharing information regionally. Specific key points included:
    - low r-values by VNT for O Manisa against 2009 type O isolates from Iran, and Turkey;
    - short duration/breakthrough of vaccinal immunity vs type O (and A?) in Iran;
    - uncertain spread of type O Ind 2001 after first isolation in Iran (2009);
    - increased incidence FMD in 2010 in Turkey, emergence of a type O lineage from within Turkey;
    - serotype Asia-1 from Pakistan in 2009, unmatched to Asia-1 Shamir vaccine.
- Training on Laboratory Diagnostic Methods of FMDV: (July 2010)
  - Involved 8 participants from 4 countries

### **Epidemiology Network – summary and recommendations (Appendix 15)**

The epidemiology network met on 6 December. Key issues that became apparent include:

- Countries are at different level within the region and have different demands.
- Different levels of motivation and political commitments exist;
- Some of the requirements indicated in the PCP may not be immediately clear;
- The issue of early warning has been raised particularly by those countries making significant investments (Iran, Turkey).

The epidemiology network meeting presented the following recommendations to the meeting:

- Capacity building on epidemiology (possibly courses assembling together countries at the same level of PCP) considering the requirements of each PCP stage.
- Information generated by the different countries should be assembled together and disseminated throughout the region.
- GTFS/INT/907/ITA project can take the initiative of designing training modules (activity to be prepared before the end of January 2011).

## **Advisory Group –West Eurasia Roadmap (Appendix 16)**

The advisory group was selected at the meeting last year and is composed of the President (Haluk Askaroglu, Turkey), Leaders of the WELNET (Naci Bulut) and Epidemiology Networks (Vahid Otarod) and representatives from OIE, FAO, EuFMD and the EC. The advisory group met on the evening of the 1<sup>st</sup> day and all were present except apologies from EC. Concerning the Progress from 2009, several concerns were raised and the following points were made:

- Concern on the lack of a functioning early warning system
- Concern that the major type O epidemic could have been predicted and early warnings received
- Concern for progress – level of participation in Roadmap meetings
- Need for greater communication between meetings, useful for decision makers and stakeholders in all levels of the vet services
- Need for clear Terms of Reference for Officers of the AG
- Need for structure/program to generate information, analyse, advise, communicate: ensure actions, communications, analysis
- Concern some countries remain in Stage 0, some concern over progress of Stage 1 countries
- Debate on priorities – focus of attention on particular countries?

It was decided that:

- Advisory Group should be expanded to include 3 country representatives of which one is the President
- President elected for 2 year term
- Country representatives each Annual meeting
- Network Leaders elected for 2 years
- Terms of Reference of Officers to be developed
- AG should meet twice per year, at Annual meeting and at another occasion
- Document setting out Program (5 years) , budget, organization to be developed (Jan-Feb 2011)
- FAO should write to CVOs of Roadmap countries giving update on progress and asking them to re-affirm commitment to the Roadmap
- Pledging conference – national and international commitments –to be considered by international organizations.

### **Concerning the Assessment of PCP progress:**

- Re-affirmed principle that should not accept claims without evidence
- The principle for evaluating control programs is that they should demonstrate that they act in relation to the risk
- Expertise in PCP; team of experts in PCP should be trained, from this pool PCP evaluators could be in future selected
- Adaptation to the revised PCP; training and period of adaptation and technical guidance required in first 6 months of 2011 in order that to produce better quality Country Strategic Plans and supporting documentation for the 2011 assessments.

**Roadmap progress:** major presentation to the EuFMD General Session (April 2011)

**WELNET and EpiNetwork** Plan of actions for 2011; FAO/EuFMD projects to support (if these fall within the scope/budget of the projects). Decision on these by end of December 2010 (FAO-GTFS/EuFMD).

## West Eurasia - FMD Vaccination survey – 2010 results

Dr. Potzsch presented a brief summary of the 2010 survey on use of FMD vaccination in the 15 countries. Detailed responses are available in table

### FMD occurrence

Reported FMD cases 2009-10:

8/15 countries have reported cases, 6 reported A Iran 05, four O PanAsia2, two Asia 1, two untyped O, and one report for each O PanAsia 3, AFG07, AFG08, O SEA, untyped A - most recent case reported during Nov (in 3 /8 countries).

### Vaccination

14/15 countries reported compulsory vaccination in whole country or parts

vaccination frequency LR 12/15 twice a year, 1/15 thrice a year

vaccination frequency SR 9/15 once a year, 4/15 twice a year

Vaccine , Trivalent O. A. Asia1 9/15

vaccine matching tests conducted 6/15 yes (5/8 outbreak countries)

strains poorly/not matching field virus circulation in the region: 1x O94; 2x A22 (ARRIAH); 5-11 O PanAsia I; A 32; O 13

schedule = spring / autumn 14/15 countries

Doses used in region: > 55 Million doses 2010

Vaccine suppliers: 8 (countries reported )using FGI-ARRIAH, 3xShelkov, 2xPokrov, 2xMerial, 2xRazi, 2xIndian Imm., 1xIntervet, 1x SAP, 1xJovac (Jordan), 1xLahore

Approximate population cover (14 replies) LR (14 replies): 5%-100% (4/14 ≥80%: 4 countr.), SR: 0%-100% (1/14 ≥ 80%)

- internal variation in vaccine use: variations yes: 9/15 (reasons: spatial (borders), temporal/seasons, species)

### Monitoring and diagnostics

Monitoring of the vaccination: 12/15 post vaccination sero surveys - 9/12 monitor one month after vaccination; 3/15 pre vaccination sero surveys; 3/15 no monitoring

National Lab used in 14/15

International Lab used in 4/15

Methods used = Elisa 15/15

= PCR 11/15

It was concluded that

- Although mass vaccination is the main FMD control measure with it has to be combined with:
  - The improved monitoring of vacc. Programs, incl. pre vaccination surveys
  - improved surveillance, incl. reporting of suspicions & cases
  - Risk based FMD control and vaccination
- Improved cooperation with regional & international FMD laboratories is necessary and should be assisted by international projects
- Vaccine selection for national/regional use should be based on the risk from circulating field strains. Here also improved knowledge about vaccines is necessary and should incl. potency and duration of immunity.



## **FMD vaccination and surveillance database training workshop**

Participants included the database focal persons from EUFMD project countries and interested epidemiologists from Central Asian project countries. The workshop was conducted by Petra Kranz, database developer from the Friedrich-Loeffler Institute in Germany and Carsten Pötzsch, EuFMD consultant.

During the workshop the newly developed EuFMD FMD database on vaccination and surveillance was introduced to potential users and interested parties, and users were trained in main functions of the database. The workshop was also used to receive feedback from potential users and for trouble shooting. The database will be routinely used after the workshop in the Trans Caucasus and the use in the other participating countries will be prepared. Participants from GTFSS project countries agreed in the possible future database use. This would assist to in the harmonised surveillance and vaccination data collection and analysis. An interface between the EuFMD database and the FAO-EMPRES-i GIS is planned for 2011.

### ***Day 2 – Session 2: Provisional Roadmap to 2020***

The individual country responses describing expected progression on the PCP until 2020 were collated and used to develop a new estimate for progression through the Roadmap.

#### **Summary:**

##### **1/ Indicators of progress:**

###### **Forward progress:**

- **Progress from Stage 3 to Stage 4**
  - Thrace (Turkey)

###### **Regression/Negative assessment:**

- **Uzbekistan:** reclassified to Stage 0, because there were no PCP activities implemented in 2010. A serological survey is planned for 2011

##### **2/ Review of the timetable 2010-2014:**

- Kazakhstan did not progress to Stage 2 in 2010, but remains in Stage 1. It anticipates to move to Stage 2 in 2011, and remain in stage 2 until 2015.
- Turkmenistan did not progress to Stage 1 in 2010, but remains in Stage 0 and expects to **enter Stage 1 in 2011**. It foresees that it will further progress to in Stage 2 in 2013
- Uzbekistan foresees to progress **to stages 2 in 2013**
- Pakistan, Tajikistan and foresee to **progress to stage 2 earlier**
- Turkey plans **further zoning** . The Marmara Aegean region is expected to enter Stage 3 in 2013, while Central Anatolia and Eastern Anatolia will remain in Stage 2. Thrace is previewed in Stage 5 in 2014.
- Armenia and Azerbaijan both preview to **remain in stage 2** until 2013.
- Syria expects to **progress to Stage 2** in 2011 and Stage 3 in 2013.

- Iran expects to **progress to Stage 3 in 2013**.

3/ See recommendations of the meeting for more information on: Monitoring and early detection, virus circulation, circulating strains, and laboratory network

## ROADMAP 2020

The PROVISIONAL ROADMAP TO 2020, based on countries forecast of progression through 2020

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Comment
West Eurasia	Kazakh			1 (NEW)	2	2	2	2	3	3	3	3	4	4	
	Kyrgyz			0	1	1	2	2	3	3	3	4	4	5	
	Tajik			1	1	2	2	2	3	3	3	3	4	4	
	Turkmen			0 (NEW)	1	1	2	2	3	3	3	4	4	4	
	Uzbek			0 (NEW)	1	1	2	2	3	3	3	3	3	3	Return to Stage 0; no PCP activities reported in 2010
	AFG			1	1	2	2	2	3	3	4	4	4	4	
	IRN			2	2	2	3	3	3	4	4	4	4	5	
	PAK			1	1	2	2	2	3	3	3	4	4	4	
	East Anatolia (TR)			2	2	2	2	2	2	2	2	3	3	3	
	Thrace (TR)			new	4	4	4	5	5	5	5	5	5	5	FMD-free with vaccination (OIE recognized)
	Marmara				2	2	3	3	3	4	4	4	4	4	
	Aegean (TR)														
	Central Anatolia (TR)				2	2	2	2	2	3	3	3	3	4?	
	Syria			1	2	2	3	3	3	4	4	4	4	5	
	Iraq														Not evaluated in 2010 (Outlook as per 2009 meeting)
	Armenia			2	2	2	2	3	3	3	4	4	4	4	
	Azerbaijan			2 (NEW)	2	2	2	3	3	3	3	4	4	4	
Georgia	pending		1	2	2	2	2	3	3	3	4	4	5		

## Election of additional members to the Roadmap Advisory Group

This Session was Chaired by Keith Sumption. He reminded the meeting of the procedures recommendation that additional countries be represented in the Advisory group, The group would comprise 7 persons, of which 4 would be from the international organisations, and 3 from the official veterinary services of countries in region, plus the Epidemiology and Laboratory network leaders.

He indicated that Dr Askaroglu was willing to remain as Chairman , if no other candidates were proposed.

This being the case, the Meeting applauded his willingness to serve the region.

He then called for nominations, each of which required a proposer, for the positions of representatives.

Dr Askaroglu (Turkey) proposed Azerbaijan and Pakistan for the two vacant country representatives. These were supported unanimously.

The Advisory Group therefore would comprise:

The Chairman, Dr Askaroglu (2<sup>nd</sup> year of 2 year Term, finishes December 2011)

The CVO or his alternate from Azerbaijan, Pakistan (1 year Term; to finish or be re-elected December 2011).

The nominated Representative of the OIE, FAO, EuFMD Commission and EC.

The Leaders of the Epidemiology and Laboratory Networks (Dr Otard and Dr Bulut, in 2010)(2<sup>nd</sup> year of 2 year term, finishes December 2011).

The final Session was Chaired by Dr Sumption.

The Draft recommendations were read, and the text amended or comments noted for revision of the final Version.

## **Closing Remarks**

Delegates of the 14 countries and the international organisations (FAO, EC, OIE, EuFMD Commission) gave closing remarks on the proceedings of the 1<sup>st</sup> Annual Meeting. The remarks were, without exception, positive on the outcome of the Meeting, and on the importance of the Roadmap as a framework for increasing action against FMD in the region, and for stimulating investment and achieving greater impact of national and regional efforts.

**Table: detailed responses to vaccination questionnaire**

	Question	Turkey S2	Uzbek S1	Geo.S1	Tadjik.S1	Turkm.S0	Afgh.S 1	Kazak.S1	Arm.S2	Azerb.S2	Kyrg.S0	Syria S 1	Pak.S 1	Iran S 2	Iraq S1	Russia
1	Were there cases of FMD notified in 2009-10?	Yes	No	No	No	No	yes	yes	No	No	2009: no; 2010: yes	No	Yes	Yes	YES	2009: no; 2010: yes
2	Which type (s) of FMD-virus were involved (A, O, Asia1, Non Type)	A Iran05, O PanAsia 2	-	-	-	-	A (Iran05, AFG07, AFG08), O (PanAsia II & III), Asia1	2010: O	-	-	2007: Asia-1, 2010: O	-	A, O Pan Asia II, Asia1	2010: A Iran 05, AFG 07 & O PanAsia II ANT 10	2009: A Iran 05 ARD-07	2010: O SEA
3	When did the last confirmed case occur (month/year) ?	Nov 2010	-	Sep 2002	May 2004	2000	Nov 2010.	Jun2010	2002	2001	Oct 2010 (type O)	Feb 2002	endemic & sporadic occurrence	Nov 2010	Apr 2009	Aug 2010
4	Specify the number of cases in 2009	>200	0	0	0	0	> 500 (not rep. to OIE)	1	0	0	no rep. to OIE since 2008	0	see OIE 6-monthly reports	Mar-Sep 2010: in 3500 Epi-Units, 76 cases in Oct	-	0
5	Number of cases in 2010	1192	0	0	0	0	approx. 100 in several provinces	1	0	0	10	0	45	-	16659 until Oct	2
6	Period(s) In which the cases have occurred	Jan 2009 - Nov 2010	-	-	-	-	continous	Jun 2010	-	-	Feb-Aug 2010	-	Feb-Aug 2010 (endemic & sporadic occurrence)	Mar-Sep 2010	Jun-Oct 2010	Jul-Aug 2010
7	Describe the strategy for vaccination of cattle	Compulsory	Free & compulsory	Preventive vacc. in high	Compulsory	prophylactic	No specified strategy, carried out when	compulsory (in Akmolon district)	Free & compulsory	compulsory preventive vacc.	Preventive vacc. with 3-v Indian vacc. in spring.	compulsory & free, 2x/yr	preventive vacc. 2x/yr	compulsory	compulsory	in buffer zone

				risk zones 2x/yr.			possible				Calves vacc. at ?? age		(Jun/Jul & Oct/Nov)			
8	Describe the strategy for vaccination of small ruminants	Compulsory	Free & compulsory	Preventive vacc. in high risk zones 2x/yr.	Compulsory	prophylactic	no official strategy, private responsibility	preventive vacc.	not in 2010 (due to economic crisis)	compulsory preventive vacc.	Since 2009 routine vacc.	compulsory & free, 1x/yr (start from borders to the central regions)	2x/yr (Jun/Jul & Oct/Nov) less frequently, FMD rarely reported in SR	Compulsory	Free vacc.	in buffer zone
9	Which costs of vaccination does the animal owner pay for?	Vacc. Fee, free in some provinces	none	s. below	none	whole	consumer pays full costs	none	None	None	none (payed by World Bank)	None	All	None	vacc. fee	None
10	SOME - please explain, if possible state the amount paid per vaccination	25 cent/animal (25% of vacc. cost)	-	None for National and Project vaccines; All for commercial vaccines	-	-	In rare occasion vacc. is conducted as public service by the government.	-	-	-	-	-	ranges from Rs. 10-15/animal	-	vacc. fee about 0.09 USD	-
11	WHO does the vaccination?	Local private vet /state vets	Local state vets	Local private vets	Local state vets	Local state vet	Private vets	private contracted vets	local state vets	Local vets	Local private vets contracted by state	Governmental vets and vet assistants.	Private and Local state Vet	Local private vet; Local state vet	Vet in the national state services	Local state vet
12	What is the frequency of vaccination (give timetable, vaccine type, species)?	2x/yr LR, 1x/yr SR	2x/yr LR, 1x/yr SR (Mar/Apr & Sep/Oct)	2x/yr LR, 1x/yr SR	2x/yr LR & SR	2x/yr LR, 1x/yr SR	no strategy except in Government farms	2x/yr LR, 1x/yr SR	2x/yr LR & booster vacc. for calves, polyvalent vacc.	2x/yr LR, 1x/yr SR	2x/yr LR & SR	2x/yr LR (Jan/Feb & Jul/Aug), 1x/yr SR (Oct/Nov)	2x/yr LR (Jun/Jul & Oct/Nov)	3x/yr LR, 1x/yr SR	2x/yr LR & SR (oil adj. vacc.)	2x/yr LR & SR

13	Composition of the vaccine used in each species (valency, serotype, and antigen)	3-v in Thrace and border region/2-v (A Iran05/O 1 Manisa) in other areas	3-v (A-22; O-94; Asia-1)	2-v (A Iran 05, O Panasia II); 2 types of 3-v (A Iran 05, Asia1 Georgia 2001, O Panasia II or O Georgia 2000) by FGI ARRIAH	3-v (A Iran05, O Manisa, Asia1)	A, O, C and Asia 1	A, O, Asia1	3-v (A 32, O 13, Asia1)	2-v (A Iran 05, O Panasia II); 2 types of 3-v (A Iran 05, Asia1 Georgia 2001, O Panasia II or O Georgia 2000)	2-v (A Iran 05, O Panasia II); 2 types of 3-v (A Iran 05, Asia1 Georgia 2001, O Panasia II or O Georgia 2000)	3-v (O Manisa, A 22, Asia1)	3-v (A Ir 05 Asia1 and O Panasia II)	3-v (A,O,Asia 1)	3-v (A Ir 05, O PanAsia II, Asia1) & 4-v (s.before+local O)	until 2008 3-v (O1, A22, Asia1) in LR and 1-v (O1) in SR; since 2008 only 500.000 doses donated by EC	3-v (A22, O PanAsia I, Asia 1)
14	Have vaccine matching tests been conducted on samples from your country in 2010?	Yes	Yes	No	No	no	No.	yes	No	no	Yes	No	Yes	Yes	NO	No
15	If YES, which laboratories did the tests?	Şap and WRL Pirbright	FGI-ARRIAH	-				National RL			Republican Centre for Veterinary Diagnostics and zonal laboratories.	-	WRL Pirbright	WRL Pirbright	-	-
16	Vaccination schedule for 2010	1.Mar-15.May & 1.Sep-15 Nov	Mar/Apr & Sep-Oct	2010: June & Nov/Dec	2010: Jan-Apr	1. & 4. quarter	No schedule	1. & 4 quarter	Spring & autumn	Mar/Apr & Oct/Nov	Mar/Apr	Jan/Feb & Jul/Aug; SR:Oct/Nov	Jun/Jul & Oct/Nov	3 x (Apr/May, Sep/Oct, Feb/Mar)	limited vacc. 2010; planned: 8 mill. doses in 2011 & 16 mill./yr until 2015	Spring & autumn
17	Number of doses planned to delivery to animals in 2010:			526000	2,805,000;	400,000	total 2 mill. (imported by NGOs and private sector)			in autumn 2010:						
	Cattle:	22 mill.	2,600,000	400000	942000	200000		5,928,240	1,272,400	2,749,800	2,400,000	1,893,100	35-40 mill.	14,235,000		5,500,000
	Other species:	18 mill.	1,700,000	126000	1863000	200000		15,543,03	83,000 3-v & 610,000 2-v	2,958,400	1,200,000	12,000,000		40,000,000		8,800,000

18	Approximate coverage of vaccination by species (LR/SR)	92/72%	30/14 %	34/9 %	50/44%	50%25%	5-10/1-2 %	50/60 %	100% in LR	100/20-50%	67/80%	92/58%		Approx. 70% (industrial farms 100%)/50%	aim: 100/80%	27/40%
19	Vaccine Suppliers	SAP-Inst., Merial, Intervet (2009)	FGI-ARRIAH, Shelkov/Russia	FGI-ARRIAH	Pokrov, Shelkov (both Russia)	FGI-ARRIAH	Jovac/Jordan, FGI-ARRIAH, Razi/Iran	FGI-ARRIAH, Indian Imm.	Pokrov/Russia & FGI-ARRIAH	FGI-ARRIAH	Indian Immunologicals Ltd.	FGI-ARRIAH	Public Sector (Veterinary Research Institutes Lahore, Peshawar, Quetta) and private sector	Merial; Razi/Iran	-	Shelkov/Russia
20	Do you consider in your vaccination policy the schedule of your neighbours ?	No, only administrative and climate condition	No, not enough information	YES	Yes, schedule in Uzbekistan and Turkmenistan are known	no	No	No	Yes	Yes	No	Yes, with Lebanon and Jordan	NO	No, not enough information	YES	Yes
21	Is there any difference in the vaccination policy applied in different parts of the country?	Yes	Yes	yes	No	no	Yes	No	Yes	yes	Yes	No	No	No	YES	yes
22	If YES, please give details	3-v vacc. used for border province and SR in Black and Mediterranean regions	Vacc. of all ruminants only in border districts and in commercial & genetic farms	-			vacc. Is farmers responsibility			vaccination of SR in high-risk areas	earlier start in southern regions 20-25 days earlier than in north				type of vaccine and policy used in north/Kurdish area differ from rest	

2 3	How is the vaccination program Followed-up/monitored?	Serosurveys 30 d pv	Serosurveys 30 d pv	2010: Pre and Post vaccination survey for SP and NSP (LR, SR and Pigs)	Serosurveys (CFT) in 10 % of vaccinated animals 30d pv	not	not	sero surveys of 10% of vacc. Animals 30d pv	2010: Pre and Post vaccination survey for SP and NSP (LR, SR and Pigs)	2010: Pre and Post vaccination survey for SP and NSP (LR, SR and Pigs)	sero surveys in 5% of vaccinated animals 30d pv	Supervising visits by state vets to all provinces; sero survey 30d pv	Occasional Random Sero surveys in vaccinated animals	Sometimes by serology	not	Sero surveys on 16000 vaccinated animals in spring and autumn
2 4	Diagnostic capacity reference laboratory used – National or international	NRL for FMD-Şap Institute	Republican Special Veterinary Laboratory on Extremely Dangerous Infectious Animal Diseases and FGI-ARRIAH	Laboratory of Ministry of agriculture (LMA)	National Animal Health research Institute; (Former FMD Institute, Dushanbe)	National Animal Health research Institute		Nat. Res. Institute of Animal Health	National Scientific centre of stock breeding and veterinary	Republican Veterinary Laboratory	National Research Institute for Animal Health	National central laboratory in the Directorate of Animal Health in Damascus.	Nat. Vet. Laboratory, Islamabad, Vet. Res. Institutes Lahore, Quetta; Nat. Agricultural Res. Centre (NARC), Islamabad; WRL, Pirbright	WRL Pirbright and Iran central vet. Lab, CVL	National Lab. (serology) WRL (virus isolation and typing)	FGI-ARRIAH
2 5	Which methods are used?	ELISA, multiple x RTPCR	ELISA, PCR	ELISA; PCR	CFT, ELISA	ELISA; PCR	Penside test, ELISA, PCR; to WRL for confirmation	Ag & Ab ELISA, PCR	CFT, virus isolation, ELISA, PCR	CFT, ELISA, PCR	ELISA, PCR	SP & NSP ELISA, PCR, VNT, cell cultures	ELISA, PCR	ELISA	ELISA	SP & NSP ELISA
2 6	Is the vaccination program against FMD planned for 2011?	as 2010, vacc. Strain O Manisa replaced with O PanAsiall	as 2010.	as 2010	as 2010	as 2010	No	as 2010	as 2010, possibly incl. SR vacc.	as 2010	as 2010.	as 2010	as 2010	as 2010 (may be revised)	2011-2016 planned to implement mass. Vacc.	as 2010



Table 4: Country responses to PCP survey : Plan for FMD related actions in 2011 and request for assistance

1. Next activities to progress

Country	UZB	TURKMEN	KYRG	GEO	PAK	TAJIK	KAZAK	SYRIA	AFG	ARM	AZER	Iran	TURK (M-A)	TURK (E. ANA)	TURK (C. Ana)	TURK (Thrace)
Sero-survey	X	X	X (SP)	X		X	x	X		X	X	X (sp)		X		
Outbreak invest	X	X				X				X			X	X	X	
Survey for ag detection	X	X														
Training			X (field vets)			X	X	X <sup>a</sup>		X						
Samples from non clinical cases			X (abattoir)													
Risk-based control plan				X	X	X		X <sup>b</sup>	X		X	X <sup>e</sup>				
Vaccinate				X	X				X	X	X <sup>d</sup>	x	X		X	
Socio-econ study						X				X	X		X	X	X	X
Virus typing						X										
Info system						X										
Risk analysis						X					X	X <sup>f</sup>	X		X	X
Animal ID							X				X		X	X		
Passive surv/monitoring	X	X					X							X		
Improve reporting								X	X <sup>c</sup>							
Mvt control								X	X	X	X		X	X	X	X
Lobby gov't										X			X		X	
Vaccine matching									X		X					
Improve legislation									X	X						
Compensation										X			X	X (2020)	X (2016)	
Road/border ctrl										X			X	X	X	X
Public awareness										X	X		X	X	X	X
Active surveillance													X	X	X	X <sup>g</sup>

<sup>A</sup> capacity building for epidemiology, training field vets in differential diagnoses (outbreak investigation)

<sup>B</sup> review own plan, and also in cooperation with neighbouring countries

<sup>C</sup> to OIE

<sup>D</sup> and implementing random checks on cold chain etc

<sup>E</sup> Regional information sharing and harmonized control

<sup>F</sup> studies on role of sheep and goats, and cattle cross-border movements

<sup>G</sup> Incl wildlife surveillance

## REQUEST FOR ASSISTANCE

COUNTRY	REQUEST
UZB	Epidemiology and PCP training for field vets Laboratory “expendable” items for sample collection Diagnostic kits for TADS
TURKMEN	Epidemiology and PCP training for field vets Laboratory “expendable” items for sample collection Diagnostic kits for TADS
KYRG	International FMD experts Technical and financial support
TAJIK	Funding to upgrade diagnostic capacity, technical support
Kazak	Technical support
SYRIA	Technical support in molecular biology, quality control and lab biosecurity Training courses in epidemiological studies (serosurveys) and GIS Technical support in FMD vaccine production Reagent and kits for FMD diagnosis
ARM	Support for seromonitoring and FMD diagnosis Support for sample collection Support to provide training (farmers, vets, lab, epi) Epi support for outbreak investigation Support for training in cost-benefit and value chain analysis Provide lab equipment to replace obsolete technologies
AZER	Diagnostic kits (SP, NSP, PCR, Ag ELISA) Vaccine Support for seromonitoring Training for lab specialists in molec epi, sequencing Training in epidemiology Support in public awareness (leaflets, posters, clips)
TURK (Marmara Aegean)	Epidemiology training Compensation fund Accreditation FMD institute GMP FMD vaccine Value chain analysis training and consultancy Cost-benefit analysis training and consultancy
TURK (E. Ana)	Epidemiology training Accreditation FMD institute GMP FMD vaccine Value chain analysis training and consultancy Cost-benefit analysis training and consultancy
TURK (C. Ana)	Epidemiology training Compensation fund Accreditation FMD institute Value chain analysis training and consultancy Cost-benefit analysis training and consultancy
TURK (THRACE)	Value chain analysis training and consultancy Cost-benefit analysis training and consultancy COMPENSATION FUND