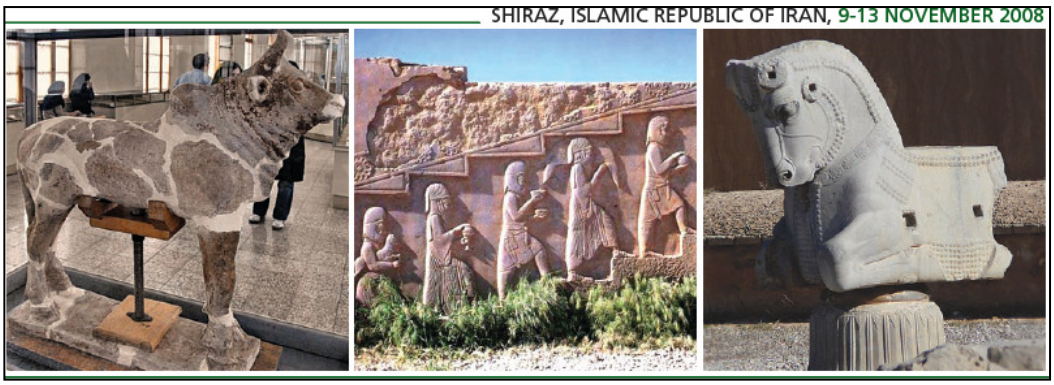
FINAL REPORT



DEVELOPMENT OF A ROADMAP FOR THE PROGRESSIVE CONTROL OF FOOT-AND-MOUTH DISEASE IN WEST EURASIA

Report of a Workshop

held in

Shiraz, Islamic Republic of Iran

9-13th November 2008

INDEX

DEVELOPMENT OF A ROADMAP FOR THE PROGRESSIVE CONTROL OF FOOT-AND-MOUTH DISEASE IN WEST EURASIA

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

Summary

A four-day Workshop was held in Shiraz, Islamic Republic of Iran, organized by FAO in consultation with OIE, and hosted by the Iran Veterinary Organization. The Workshop was convened as a joint meeting under 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 two organizations, to the Chief Veterinary Officers (CVOs) and to the FAO national consultants on FMD (EuFMD or GTFS projects). In total, fifteen countries in West EurAsia were represented, with the Russian Federation represented through the OIE Reference Laboratory (FGI-ARRIAH).

The Objectives of the Workshop were:

1. To develop consensus on the vision and long term goals for FMD control in the region, and on the main element of a **long term strategy for Foot-and-Mouth Disease control in the West EurAsian FMD ecosystem**[1].
2. A secondary objective is to share information on FMD virus circulation within the ecosystem to assist planning of preventive measures in the short-term.

Outcome and outlook

3. A vision statement and "West EurAsian FMD Roadmap" were developed, for the progressive control of FMD in the region with the vision of freedom from clinical cases of FMD being achieved by the year 2020.
4. The 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.

[1] this can be defined as the area within which a continuous presence of genetically distinct types A, O and Asia-1 are found and which is affected directly (outbreaks) or indirectly (change in vaccine strains) by sweeping epidemics which emerge within the region or via one or more countries. It approximates to the borders of the area affected by the type A Iran 05 epidemic (2003-8) and type O PanAsia II epidemic (2006-8).

5. The workshop recommended that at regional level, programs be established to elevate laboratory services, information systems and planning tools, FMD vaccination campaigns and to resolve trans-boundary animal movement issues; a Secretariat should be established to provide co-ordination of these supportive services, and for monitoring and communication of progress.
6. A framework for monitoring progress was developed, based on indicators of country progress in risk identification and risk management, along a progressive control pathway, with 5 stages (0-4). Despite the great disparity in risk and resources, it was foreseen that all countries should attain at least level 3 (FMD under control and approaching disease freedom) by 2020.
7. The "West EurAsia regional Roadmap" that was developed should, if implemented, benefit countries in Europe by reduced risk from this region. It should also benefit countries in the middle-east which import livestock from the region, especially the Gulf countries, Saudi Arabia and Egypt, which in the recent past have been affected by extension of epidemics from West EurAsia.
8. In addition, the implementation of the Roadmap should encourage and complement the efforts in the China, India, and South-east Asia to address the problem of FMD in the whole of EurAsia on a long term basis.
9. The Workshop recommended that at least annual meetings be convened by FAO/OIE to monitor progress, with the follow up regional meeting to be held in November 2009.
10. A framework for securing long term national participation in the Roadmap is needed, and it was recommended that a Shiraz declaration, or other instrument, is developed for endorsement by the relevant Ministries in each of the participant countries, ahead of the OIE/FAO International Conference on FMD control planned in June 2009.

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.

Vision for the West Asia Roadmap for FMD Control

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.

Recommendations of the West EurAsia Regional Workshop on FMD

General

1. Each country is encouraged to adhere to the principle of initiating actions along the West EurAsia 2020 Roadmap, through a set of sequential activities and stages involving assessment of the risk of FMD, and development and implementation of National FMD Risk Reduction (Control) Programme to manage the risk.
2. Each country should develop a National FMD risk reduction Control Programme in the next twelve months, where they do not exist, and revise legislation where appropriate. The involvement of the private sector is strongly encouraged in developing such National Plans.
3. A Secretariat should be established in the Region for the progressive control of foot-and-mouth disease (with introduction of transboundary animal disease regional issues as needed); such Secretariat could be placed within or become the OIE/FAO Regional Animal Health Centre for the Region.
4. FAO/OIE should assist the development of national and regional expertise on FMD control through establishing regional working groups and networks, especially to build capacity in epidemiology and diagnostic laboratory services.
5. Countries should actively participate in the monitoring or progress and action plans to implement the West EurAsia FMD 2020, involving at least an annual progress meeting for decision makers and their technical advisors from each country.
6. Regional working groups should be established, with appropriate levels of support, to improve the capacity of each veterinary service to develop and implement their national risk reduction plans and to safeguard against new epidemics. These are:
    a. a laboratory working group for virus characterization and vaccine selection;
    b. a working group to improve planning disease control measures, use of epidemiology and risk analysis;
    c. multi-lateral actions to reduce risk associated legal and informal trade across land borders;
    d. actions to harmonize, optimize and monitor the use of FMD vaccination across the region;
    e. Communication, Awareness and Training.
7. Increased effort should be made by the international agencies, and by the national veterinary Services, to communicate the importance of FMD control and bring attention to the Ministries (of Agriculture and others – Finance, Commerce, Foreign Affairs) to the impact of epidemics and cost of preventive programmes to the public and private across the entire region.

Regional Epidemiology Unit

8. To Establish a Regional Epidemiological Unit at Secretariat level to interface with existing national epidemiological units to collate and analyse data, and serve as a training facility for advanced epidemiology techniques, including GIS, risk analysis, and modelling.

Diagnostic Laboratory Services

9. To establish a FMD laboratory network for the West EurAsia region, with the following expectations:
   a. the harmonisation of laboratory procedures to improve the confidence of veterinary services in the results obtained across the region;
   b. to improve early detection of emergent viruses, and communicate information to assist the preparedness of each country for epidemic threats;
   c. to build expertise in each country, and improve capacity and performance of laboratories across the region;
   d. to implement in network members a system for ring (proficiency) testing;
   e. that one laboratory will serve as a leading facility for gap analysis, training, and manage proficiency tests (with OIE or FAO reference laboratories), will interface with Regional Epidemiological Unit, and host a regional laboratory network website.

FMD Vaccines and Vaccination

10. That a regional vaccination campaign database is developed to assist member countries with standardized country information on vaccination campaigns, coverage of species, epidemiology units across the region at risk.
11. That FMD vaccination campaigns should make increasing use of the targeting of high risk animal populations or sectors for virus transmission, particularly where vaccine is a limited resource and complete population coverage is not affordable or feasible.
12. Each country should ensure vaccines are selected that are appropriate to the expected risk, and so doing should refer to the recommendations of the FAO/OIE FMD laboratory network reports.
13. FAO/OIE should establish a mechanism to guide countries and the Region of the relevant vaccine antigens that should be used, through the regional working group on in conjunction with WRL and Regional Reference Laboratory).
14. Promote and develop synchronised vaccination time tables for application across shared borders, especially where these are of regional priority to prevent epidemic spread
15. That protocols for post vaccination monitoring are harmonised across the region, and that each veterinary service undertakes an appropriate level of assessment including coverage, determination of effective flock/herd immunity, and duration of immunity.

Transboundary animal movement

16. Greater emphasis is encouraged on developing bilateral and multilateral protocols that will
    a. legalise animal movements across borders and reduce the associated risk;
    b. manage informal movements, by the provision of holding facilities across border with no negative repercussion to the transporters;
    c. manage the risks of transhumant livestock across common borders, reaching agreement on vaccination, animal identification and other measures.
17. In support of the above, greater effort should be made to refine understanding of temporal and spatial movements across borders at the local level.

Report of the Workshop proceedings:

DEVELOPMENT OF A ROADMAP FOR THE PROGRESSIVE CONTROL OF FOOT-AND-MOUTH DISEASE IN WEST EURASIA

Opening

The workshop was opened by Dr. Nourouzi, Head of the Iran Veterinary Organization (IVO), who welcomed the participants to the Workshop, and emphasised the historic nature of the meeting, which brought together for the first time the veterinary services of countries affected by the same epidemiological situation of FMD strains circulating in the West of Asia. He thanked FAO for the effort to organise the meeting, and re-iterated the commitment of Iran to FMD control, emphasising the high investment in vaccination, active surveillance and risk based control that is made each year in Iran, and the risk to this investment from the situation in countries which are not able to control the infection at present. he indicated that the IVO wishes to play an active role in promoting the regional effort, and is willing to use its human and financial resources to provide training in epidemiology and use of GIS for the region, to provide reference lab services, and to provide some vaccine for bilateral programs with Afghanistan and Pakistan, to reduce the risk of westward spread of infection in animals from those countries.
On behalf of FAO and OIE, Dr. Lubroth thanked the IVO for their willingness to host the meeting, to play an active role in supporting regional capacity building, and to commit to supporting long term control of FMD in Iran. He also gave apologies from Dr. Primot, OIE, who had not been able to participate in the meeting because of visa issues.

Organization of the Workshop

The Workshop was structured as follows:

- Day 1 focussed on the country situation in 2008; presentations were made by each country represented, and a table summarising recent FMD history, vaccination programs and constraints to improved control was constructed (**Appendices 2-17**).

- Day 2 first considered examples of FMD risk management in the region, before the concept of progressive pathway was introduced, thereafter country representatives undertook a self-assessment on their position on the pathway (**Appendices 18-22**).

- Day 3 considered the need for regional working groups on cross-cutting issues including laboratory services, and harmonisation of vaccination; the afternoon was devoted to sub regional project meetings.
- Day 4 received the feedback from the regional working groups, and examined the draft Roadmap, vision statement and report of the workshop. It concluded with statements from each country and organization present on their future contribution and support for the Roadmap process and principles. (**Appendices 23-27**)

Closing of the Workshop

At the final plenary session, the vision of the West EurAsian Roadmap, and the recommendations of the workshop were first reviewed and agreed. Thereafter, the country representatives were asked to indicate their position on the proposed roadmap, and what support, if any, they could provide to the regional effort.
All representatives voiced their strong support for the principals, and two countries indicated a willingness to offer regional services to the effort: Iran and Kazakhstan. The IVO offers to host the Secretariat, to provide lab services, training in epidemiology, and to provide some vaccine. The latter as part of bilateral agreements on animal movement into Iran. Kazakhstan offered to host the regional secretariat. Dr. Lubroth, for FAO, thanked all participants for their strong support, and hoped that it was possible to accommodate all offered support, as their is a large amount of activities that need to be undertaken and several major country groupings that could require a sub regional grouping of effort.

In closing, Dr. Khalaj re-iterated the support of Iran, and urged each participant to return to their countries with the message to their Ministry to support the principles of the roadmap, and to make the first steps in surveillance required by the program.

Mr. Najam, representative of FAO to the I.R of Iran, commended the participants for the long term vision and interest in co-operation demonstrated, and urged that follow-up to the meeting be not delayed, but capture the energy shown and transfer this to the competent authorities of each country, indicating that future benefits will arrive more quickly if each country accepts to play its role, according to the current resources, and that additional resources should arrive once it is clear that states are willing to work together, at least to share information and best practises.

Dr. Sumption thanked the IVO for their hosting of the meeting. The participants showed their high appreciation, and unanimously called on FAO to organise a follow-up meeting to gauge progress, within a year (expected date: November 2009).

Proceedings: Report by Day

Day 1: FMD situation in the West EurAsian Region - Country Reports

Purpose:

- to summarise the FMD control situation in each country and give participants a view of the main challenges to be faced in improving FMD control
- to summarise information on the use of vaccination in the region

Format:

The Workshop first received reports on the two regional FAO programs, given by Dr Ferrari for the GTFS/Italian project (Appendix 2), and Dr. Sumption for the EuFMD Commission/EC program (**Appendix 3**).

National representatives presented reports from 14 countries in the West EurAsia region on the FMD situation and control programme (**Appendices 4-17**). A template for presentations was provided in advance, and the data in the reports was used to assemble Table 1.

Output:

A summary table was produced, and reviewed by participants on days 2-4. All presentations are found in the Appendices.

In summary:

- Six of the 14 did not report FMD in 2008 (UZB, TURKMEN, GEO, AZB, SYR, KAZ).
- The other eight countries reported type A or O outbreaks; Asia-1 was only recorded in the reports of AFG for 2007.
- The situation with Asia-1 in West EurAsia remains unclear; the situation appears to be calm (inter-epidemic absence from most of the region). The reservoir is considered to be in Pakistan of genotypes unique to the region, but no Asia-1 has been found among samples submitted by Pakistan to the WRL in recent years.
- Each of the 14 countries reported using vaccination against FMD in 2008.
- The extent of vaccination coverage varied by country, from a national (blanket vaccination) policy in Turkey reaching > 80% of the bovine population twice per year, to a situation of private good policy with negligible use of vaccination in Pakistan.
- There was little evidence of harmonisation in vaccine selection or quality standards; Iran, Turkey, Pakistan and Kyrgyzstan used national vaccine producers, the other major suppliers were Merial (France/UK), FGI-ARRIAH (Russian Federation) , Indian Immunologicals, and Vetal (Turkey).
- Most programs included trivalent (A/O/Asia-1) or bivalent (A/O) vaccination in cattle; the seed virus (antigenic strain) content was not reported by all which suggests the importance of correct selection of FMD vaccines is not appreciated by the veterinary services. Further information is needed to complete the report on vaccine selection.

- Where type A antigens were given, the most frequent was A TUR06, and A22 (presumably A22 Iraq) ; Syria continued to use A Iran 96 which represents the strain circulating before the current A Iran 05 epidemic in 2005-present.
- High bio-containment laboratories suitable for handling live FMDV (BSL3+ , meeting the OIE and/or EuFMD Standard) are only currently present in FGI-ARRIAH (Russian Federation) , and the SAP Institute, Turkey. A BSL3+ facility is also under construction at Golmakan, Iran.
- The level of FMD bio-containment of the non-BSL3+ national reference laboratories remains is not clear; it can be presumed that some of these handle infectious FMDV under conditions that do not meet OIE requirements and may present risk of escape.
- A diverse range of techniques is used between laboratories for confirmation of FMDV, and for serology.

Discussion/Concerns arising from the Country Situation Reports

Concerns raised by participants included:
- the use of vaccines that are not known to meet OIE or European quality standards, which could fail in the face of epidemic FMDV challenge;
- the range in antigens used in vaccination campaigns, which together with low potency could lead to failure to protect against epidemic spread;
- the lack of systematic vaccination in several large livestock populations in the region, especially Pakistan and Afghanistan, which leaves a reservoir for infection and emergence;
- the situation with Asia-1 infection, which is probably still circulating in Pakistan but surveillance efforts may be insufficient to identify the true situation;
- the lack of information flow between countries on the FMDV strain typing information, which leads to lack of early warning of virus emergence.

Table 1. Summary of information in the Country FMD situation reports for 2008

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
Iran	1m	A 05 in W provinces in since 2005 + A 87, mainly central prov, O majority + wide spread, since 2nd half of 08 less than 30/months, majority outbreaks in villages	LR 11m, SR 75m, 72k epi units	State control plan, vacc; 2-3x LR, 1x SR, emergency vacc 3km around OB, movement restrictions, good biosec. & quarantine in intensive farms, quarantine	Razi (30m doses/a): A05, 87, O manisa, Asia1 Shamir; Merial (5m doses/a): A22, A87, O manisa, Asia1 Shamir	3 national labs: Razi (BSL2): ELISA, VNT, SN; CVL: ELISA, PCR; Goldmakan lab (soon functional); no. of samples: 2006&07: 1200/a, 2008: 175	FMD task force central & provincial; advanced GIS based reporting and data analysis	9 neighbours; 10 disinf. points at borders, quarantine stations for imported animals	animal movements; unknown immunity; beef herd vacc.; farmers' cooperation
Pakistan	0.8m	endemic, 153 point OB 2002-08; 61% 0, Asia1 & A, 98% NSP prev in dairies, mainly Punjab/Sindt	32m cattle, 29m buffalo, 84m SR; LR & goats in Punjab, SR in Balochistan, large dairy	no State control plan, voluntary vacc., "progressive Control of FMD in P." by the new Ministry of Livestock &	local vacc (1m/a): Lahore (O,A, Asia1) & Vet. Uni in Lahore, private lab; imported (1.5m/a)	NRL Islamabad (BSL2): 2008: 39/69 Ag pos. for A,O; PCR, ELISA	EU improving, pass. disease surveill., under-reporting, OB flash reporting to provinces and central, electronic reports from districts & provinces	quarantine facilities on all entry points, only vacc animals imported, traditional animal	no State control plan; awareness of farmers (subsistance farming and local breeds experience low losses);

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
			units and household farms	Dairy devlpm. (since 10/08)	Merial (2$/dose), Pfizer, Russian; infomally imported: Indian, Iranian/Razi; Vaccine quality control institute			movements betw. Afgh-Iran-Pak; informal movements India-Afgh-Iran	low quality local vacc.; under-reporting of FMD; low lab capacities, uncontrolled animal movements
Turkey		endemic; A 05 in Anatolia si. 2005, O PanAsia II since 06, Asia1 not since 02, 2008: 134 A, 34 O, 53 untyped; E/SE Turkey underreported	10.5m LR, 30m SR, west: intensive farms/ dairies, central: fattening farms, east extensive farms	State control plan, vacc. free of charge, 2x LR, 1xSR/a, movement control, slaughter in Thrace, extensive sero suveillance, Thrace: "freedom with vacc." In 2010 planned	vacc: O Panasia II, A 05, Asia1 shamir from: SAP-Inst., Merial, Intervet, CEDIVAC; in spring 08: 10.2m LR and 7 m SR	SAP Institute and 8 regional labs (VCRI), Ag (2008 350 samples): ELISA, multiplex PCR; Ab: LPBE, SPCE, VNT, NSP ELISA; routine: 23k and	GDPC Epi division, SAP Inst Epi Unit; electronic reporting (TURK Vet), cattle ID system	no imports, illegal cross-border movements in E/SE Turkey, 2m movements during Kurban Bayram	socio economics of FMD control: low awareness, poor notification; incursion of new strains; severe winters, high animal movement, immunity gap

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
						serosurveill: 52k samples; 165 sequencing samples/a			in young animals
Afghanistan	650k	no pre-war documentation, endemic, all year/all provinces; A, O, Asia1; between 20-3000 outbreaks 1995-08, mainly O	3.7m LR, 8.8m sheep 7.2 goats ; tanshumant and sedentary, Karakul sheep	no State control plan, patchy vacc. (by NGOs) with little coordinaton, quarantine not fully functional	imported from: Jordan, ARRIAH, Razi/Iran and Merial (1m/a); illegal import (1.5m/a); A (A85, Ir 05),O, Asia1; Russian vacc "most effective"	one serological lab, 2 vets, Ag-PCR & ELISA	no FMD surveill., EU established, no consistant reporting	animal movements from E and S-Afgh., common livestock markets Afghan-Tajik border; no animals crossing from Uzbek., Turkmen. & China	poor vacc.; poor FMD awareness; no State control plan
Armenia		last OB A: 98, O: 01, Asia1:01, type A and O OB in N.Karabakh in 2007	623k LR, 87k pigs, 64k SR	State control plan, vacc. of all cattle	286k/a from FAO; A 05, O, Asia1 from ARRIAH	central lab: FAO project: NSP serology, national	TADInfo ("NADSS"), electronic data storage and basic analysis	illegal border crossing Armen.-Turkey	vacc of SR and pigs needed, animal ID system

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
						surveys: SP serology, regional labs: ELISA			needed
Azerbaijan		last OB A: 96, O: 78, Asia1:01, type A and O OB in N.Karabakh in 2007	2.8m LR, 8.1m SR	State control plan, vacc 2x/a, autmn '08 plan: all LR and 20% SR	A 05, O, Asia1 from ARRIAH, 867k/a doses FAO, 1.4m/a national vacc.	NRL (BSL2): ELISA, PCR; and 12 regional labs; 3500 sera for NSP in 2008	EU, mobile groups, no electronic disease reporting	73 BIPs (9 air)	animal ID system needed; no electronic reporting; limited resources of vet. services
Georgia	70k	no OB reported since 2002	1,2m SR, 900k LR	State control plan, serosurveill 3.5k planned in 2008	vacc. > 2m since 2004, 650k in 07, 240k in spring and 80k in autumn 2008 vacc (A 05, O, Asia1 from ARRIAH); national vacc. From Altyn Tamyr	3 DETRA labs	EU, mobile groups, no electronic disease reporting	Vet. dept. has no control over border inspection (=Ministry of Finances)	more vet. staff needed, no effective border control

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
					Kyrgyzstan				
Iraq		endemic, A, O, Asia1, 2000/02 A96	1.5m LR: small farms, 19m SR	State control plan, 2006: 34% of L+SR vacc, 2007/08: 18%, TADs centers in '08 established	2.5m from India,(O, A22, A1); 5m monovalent O from Turkey	2 Labs (Baghdad, Erbil): ELISA, PCR, serology 145 samples in 2006, 1280 in '07, no in '08	EU and field teams, TADs centers	no imports, 16 BIPs & quarantine units, SR: seasonal grazing to Syria, Iran, Jordan and KSA	poor vacc.; international cooperation and training needed; poor lab capacity, lab facilities & reagents needed
Kazakhstan		O in 2001 in 2 districts central, 2007 in W type O, and A?	6m LR, 19m SR	State control plan, vacc. LR 3.5 mill, 10 mill SR/a in 2006-08, also revacc.	vacc Merial and ARRIAH, especially at borders (Tadj., Kygyz, China and central trade routes)	district, regional and central lab; > 2000 staff	immediate reporting of events	livestock import from FMD free countries only	if budget problems they are solved
Kyrgyzstan	200k	OB in 2001, 2006-08, 2007 1 OB O, 2008 10 OB of O, A	4.2m SR, 1.2m LR	State control plan	improvement of nat. vacc. since 2007, import from	ELISA and real time PCR, FAO and WB	EU: 6 vets	4 neighbors, import of animals	insufficient vacc. of population, no post-vacc

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
					India 2m	support		and products, quarantine stations with China, seasonal grazing movements	surveill
Syria		2002 O India FMD, SR since 1999		State control plan (incl. emergency vacc.), vacc. LR 2x, SR1x/a, free of charge, serosuveillance if reagents available	import from Merial, Bayer, Intervet; A Ir 96, O India 53/97, Asia1	1 central lab and 14 vet labs, 3 with FMD diagnosis,	EU: 2 vets, active & pass. surv.	imports (S.America, Moldova), Al Badia: sheep internal seasonal movements	diagnostic support, reagents, GIS and training (lab & epi) needed
Tajikistan	14k	endemic A,O, As1	1.4m LR 3.7m SR	no State control plan, mass vacc. 1 mill LR and 2.2 mill SR vacc. = 67% population vacc.	ARRIAH, .8.1m??? doses, 2- and 3valent	NRL and FMD Inst., both ELISA & CFT, sero-mon. 2800 samples in '05-08; close coop. with ARRIAH	monthly reports, no active surveill for FMD	15 BIPs, quaranite of imported animals	not enough vacc.; virus typisation; diagn. Resources; no TADInfo

Country	Country size (km2)	FMD Situation and Trends	Livestock (most recent census)	Control Strategies	Vaccines and vaccination	Diagnostics and laboratories	Epidemiology Unit	Border and Movement Control	Weaknesses
Turkmenistan	491k	now no Obs, last OB in 99 (O in cattle), before in 94 (A22)	1,2m LR, 18m SR	State control plan???, vacc. buffer zone with neighbours,	ARRIAH, A,O,Asia1 in 2005 & Bayer, 300-700k doses/a, 2007 111k LR, 287k SR vacc.	central and regional labs, until 1999 FMD lab, now no FMD diagnosis	??	no imports and exports in past 5 a	??
Uzbekistan		last OB in 91, no typisation, high FMD risk areas identified: W Uzb (bordering Kygyz, Tadj, Afg)	7.5m LR, 12.6m SR	State control plan (FMD =70% of disease control budget), since 2004 vacc. in buffer zone at national borders, vacc in BZ and patchy in other parts	4-5mm doses/a: A,O, Asia1, 2.2m LR and 1.7m SR vacc./a, from ARRIAH, Bayer.	3 BSL labs (DETRA), 3 more under construction (here viral diseases diagnosed), 13 regional labs; 3-5000 sero samples/a, 3200 in'07; tested for SP, no NSP resultls	Monthly reports, immediate reporting of events. No active surveillance for FMD.	quarantine for imported animals	lack of diagnostic kits and training

Day 2: FMD risk management: Identification of country positions along a progressive pathway to FMD control in West EurAsia

Purpose:

- To introduce the concept of a progressive pathway to FMD control, which has a sequential set of stages/activities leading towards official (OIE) recognition of disease freedom.
- To develop a summary of the current position of countries along this progressive pathway.
- To estimate the time required for each country to progress to the 3rd or higher stage on the pathway and the overall progress towards FMD control by 2020.

Format:
After an introductory presentation by Juan Lubroth (FAO: **Appendix 18**), three presentations were given illustrating different approaches being applied to manage the risk of FMD across the region.

These were:

- FMD risk management in the I.R of Iran (**Appendix 19**), where Dr V Otarod (IVO/EuFMD project) illustrated how virological surveillance, including active disease search, is being used to identify hot-spots of transmission, and how a different vaccination and control policy is applied to different husbandry sectors and regions, according to risk;
- FMD epidemiology and risk of infection in the Landhi Dairy Colony, Pakistan (**Appendix 20**): Dr M Hussain (GTFS project) reviewed how a study on disease transmission in the colony had proved valuable as a source of virus isolates/information, and may lead to new disease control options to reduce risk from this colony;
- the Trans-Caucasus buffer zone (BZ) to manage the FMD risk to Georgia, Armenia and Azerbaijan (**Appendix 21**) ; Dr Potzsch (EuFMD) reviewed how serological studies were used to show that virus introductions into the BZ had occurred frequently in the recent past but with very few cases of clinical FMD, and without known spread of infection to neighbouring countries (e.g Russian Federation). However the level of serological positives does question the success of BZ if animal movements are also not tightly controlled.

Introduction of the Progressive Pathway to FMD control

Keith Sumption presented the concept of the pathway (**Appendix 22**). The purpose of the pathway is to provide a system for countries to review their progress in FMD risk management, culminating in a sufficient level of control that they may qualify for official (OIE) status of freedom from FMD.
The pathway has a set of stages/activities, with the emphasis on the use of active surveillance activities to identify FMD circulation and to develop national risk management plans to address critical risk points. The initial activities focus on measuring risk, developing plans, and later stages on implementation of the plans and measurement of success through surveys on the incidence of infection.

A worksheet (tool, **Appendix 23**) was then used by country representatives to identify national progress on the pathway, and constraints to progression to higher stages.

Output:

The country positions on the pathway were collated and reviewed in the plenary session and on days 3-4 (Table 2 and 3).

An estimate of rate of progression to the subsequent stages was made by the Secretariat, and reviewed and corrected by representatives in the Plenary session on day 4 (Table 4).

Summary:

Delegates indicated that they found the pathway concept and stages to be useful, providing clarity about major tasks required to progress from the current stage of FMD control.

Despite the large disparity in situation between countries, it appears that all countries in the region could progress to stage 3 (FMD under control and approaching disease freedom).

Several delegations were confident that they could proceed to official freedom from FMD before 2020, at least to achieve freedom with vaccination that is recognised by the OIE.

These were:

- the Thrace region of Turkey (in 2010).
- Syria (whole country, 2009).
- I.R of Iran (zonal in 2014, whole country 2015).

The delegates agreed that such progress assumed that neighbouring countries also undertook a sufficient level of FMD control, and that early warning systems were in place to ensure the borders could be adequately defended against possible entry of infected materials.

If these were not the case, then countries such as Iran would remain affected by the FMD status in their neighbours.

Stages in Progressive Control – Working Group draft report

*Question 2: which stage most accurately describes your position? (***, or * for partly describes).*

Question 4: when do you think it possible to progress to the next (1-2) stages?.

Question 5: priority for international projects/assistance.

Group		0	1	2	3	4 (OIE; maybe zonal?)	Priority
1	Kazakh		***90%	1 yr			Training, Lab capacity Exchange information-regional and global
	Kyrgyz		***	1 yr			Exchange experience, Funding of activities on circ of virus Lab and epid. staff training
	Tajik	***	3 yrs				Diagn kits and reagents for virus circ, Vaccine storage
	Turkmen	***	3 yrs				Financial issues for activities, Training vet staff, Vet legislation
	Uzbek	***	2 yrs				Diagn kits and reagents for virus circulation.
2	AFG	***	2				
	IRN		***	2-3			Regional collab, Training, Lab. improvement.
	PAK	***	2	5			Vaccine production/quality.
	TURK		***	2yrs	Thrace		Epidemiology capacity, Int'l cooperation.
3	Syria				***	pending	
	Iraq		***[2]	3yrs			Training, Lab. methods: typing, virus confirmation Risk analysis
4	Armenia			***			Training in epid. and Lab, Vaccination continued, Provision of kits Animal ID
	Azerbaijan			***	2yrs		As above.
	Georgia		*** (90%)				Continue vaccine supply, Training in epidemiology

[2] Information provided after the meeting on sero-surveillance enabled positioning in Stage 1

Time-line

Group		0	1	2	3	4 (OIE; maybe zonal?)	Priority
1	Kazakh		2008 (90%)	2010			Training, Lab. capacity Exchange information-regional and global
	Kyrgyz		2008	2010			Exchange experience, Funding of activities on circ of virus Lab. and epi staff training
	Tajik	2008	2011				Diagn kits and reagents for virus circ, Vaccine storage
	Turkmen	2008	2011				Financial issues for activities, Training vet staff, Vet legislation
	Uzbek	2008	2010				Diagn kits and reagents for virus circulation.
2	AFG	2008	2010				
	IRN		2008	2010			Regional collab, Training, Lab. improvement
	PAK	2008	2010	2013			Vaccine production/quality
	TURK		2008	2010	Thrace (2008)	2010-11	Epidemiology capacity, Int'l cooperation
3	Syria				2008	Pending	
	Iraq		2008	2011			Training, Lab. methods: typing, virus confirmation Risk analysis
4	Armenia			2008			Training in epid and lab, Vaccination continued, Provision of kits Animal ID
	Azerbaijan			2008	2010		As above
	Georgia		2008(90%)				Continue vaccine supply, Training in epidemiology.

Roadmap to 2020

Stages towards FMD freedom (stage 4 or above). Red Text/shaded box = participants estimate

In black = Secretariat estimate (** means uncertainty in estimate)

Z = Zone, N= national

Group		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	Kazakh	1		2			3Z?		3N					
	Kyrgyz	1		2			3							
	Tajik	0			1		2				**	3	**	
	Turkmen	0			1		2			**	3	**		
	Uzbek	0		1		2			3Z?		N			
2	AFG	0		1			2					**	3	**
	IRN	2 *80%			3			4Z	4					
	PAK	0		1			2					**	3	**
	TURK	1		2			**	3	**					
	Thrace	**3Z**		**4Z**										
	added zones													
3	Syria	3	4											
	Iraq	0			1		2			**	**	**	3	**
4	Armenia	2		3	**									
	Azerbaij	2		3										
	Georgia	1	2			3								

Day 3: Report of the Thematic Working Groups

Purpose:

- to identify the types of regional support services needed to improve national capacity in FMD diagnosis, surveillance and risk assessment, optimising vaccination programs, and addressing trans-boundary animal movements

Format:

After introduction of the main topics and questions to be addressed by each group, including the value of sharing information on vaccination programs through an information system (Appendix 24) participants chose the groups of interest, and worked on issues common to each country in the region:

- laboratory services;
- surveillance, risk assessment, and regional GIS based information systems;
- harmonisation and monitoring of FMD vaccination;
- trans-boundary (TB) animal movements.

The participants in each group are given in Table 1

Regional surveillance, risk assessment, and regional GIS based information systems	
Dr.Manzoor Hussain	Pakistan
Dr.Ehtisham Khan	Pakistan
Dr. Vahid Otorod	Iran
Dr. Manoochehr G. Mombeini	Iran
Dr. Khalaj Mehdi	Iran
Ms. Kazminia	Iran
Dr. Abdul Karem I. Ibrahim	Iraq
Dr. Al del Fi-sabah Jasim Mozam	Iraq
Dr. Ziad Namour	Syria
Dr. Sanginmurod Murvatulloev	Tajikistan
Dr. Aliev Bakytbek	Kyrgyzstan
Dr. Asadov Kliment	Azerbaijan
Dr. Khelaya Demna	Georgia
Harmonisation and monitoring of FMD vaccination	
Nawroz Abdul Habib	Afghanistan
Eranov Mukhiddin	Uzbekistan
Salamov Utkir	Uzbekistan
Afzal Mohammed	Pakistan
Tatov Amanguly	Turkmenistan
Nuryev Dovlet	Turkmenistan
Askarov Zhumabek	Kyrgyzstan
Sargysan Khachick	Armenia
Isoev Iskandar	Tajikistan
Abdullahi Darab	Iran
Borisov Vladimir	Russia
Ferrari Giancarlo	FAO
Carsten Potzsch	FAO
Support and Governance	
Mohammed Afzal	Pakistan
Dowlet Nuryev	Turkmenistan
Wahid Ottarov	Iran
Juan Lubroth	FAO

Table 1. Participants in each Workgroup

Outputs:

Each group selected their own Rapporteur and produced a report which was discussed in the Plenary Session on Day 4. A summary of their presentations and the following discussion in Plenary, is given below.

Report of the Laboratory Services Group

Terms of Reference: Regional laboratory capacity and performance group

i. What should be the minimum national lab capacity for each stage?.
ii. What should be the minimum EQA for each FMD test offered ? (or each stage).
iii. What type of networking is needed between labs/lab scientists and what are the ideas for developing this?

Rapporteur: Naci Bulut, SAP Institute, Turkey.

Current Capacity of laboratories presented in the working group.

	AZERBAIJAN	ARMENIA	IRAN	KAZAKHSTAN	TURKEY
AG DETECTION					
AG DETECTION ELISA	***	***	***	***	***
CELL CULTURE	***	***	***	***	***
PCR	***	***	***(SETING UP)	***	***
PEN-SIDE TEST?	***	***			
CFT	***	***	***	***	
AB DETECTION					
LPBE/SPCE	***	***	***	***	***
VNT			***		***
SEROSURVEILLANCE					
NSP	***	***	***		***
METHODS FOR FOL.UP					***
R VALUE					
VNT/ELISA			***		***
CROSS-CHALAINGE					***
MOL. EPIDEMIOLOGY					
PCR			***		***
NUC. SEQUENCING			***		***

GAPS	
1	On the supply of diagnostic kits.
2	On the availability and use of pen-side tests (ag detc.)
3	Training needed to properly conduct vaccine matching (r value test(vnt/lpbe)).
4	Performance comparison of currently used tests.
5	Training is needed to increase their capacity.

Item I Capacity required for each stage of the Progressive Pathway

This area provoked much debate in the plenary Session; the group considered that antigen and antibody detection tests, NSP ELISA, PCR and sequencing were required in all stages, including Stage O. This was questioned in the plenary session. The consensus was that even during Stage 0, all countries should have access to these lab. services ideally, within their country but they could also be provided by an OIE/FAO ref Lab. or by contract with another country.
The lab. group considered that in stage 3, all tests should be available on emergency basis, i.e a state of continual preparedness.

REQUIREMENT MIN. CAPACITY FOR EACH STAGE			
STAGE 0	**STAGE 1**	**STAGE 2**	**STAGE 3**
AG DET. FOR TYPING	AG DET. FOR TYPING	AG DET. FOR EMERGENCY	AG DET. FOR EMERGENCY
METODS FOR AB DETECTION	METODS FOR AB DETECTION	METODS FOR AB DETECTION	METODS FOR AB DETECTION
METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.	METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.	METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.	METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.
NUC. SEQUENCING	NUC. SEQUENCING		NUC. SEQUENCING FOR EMERGENCY

Item II what should be the minimum EQA for each FMD test offered? (or each stage)

The group considered it essential that a proficiency test (PT) service be offered to all labs in the region in order to improve their performance and achieve confidence between labs and within countries, and to progress towards accreditation and ISO management levels.

The service should be:
- confidential, so to protect the participants, the performance of labs is known only by the organiser and the lab and country concerned;
- focus on priority tests relevant to the labs concerned;
- have reagents/antisera provided by an independent body, e.g. OIE/FAO reference centre;
- be repeated annually.

REQUIREMENT MIN. CAPACITY FOR EACH STAGE			
STAGE 0	**STAGE 1**	**STAGE 2**	**STAGE 3**
AG DET. FOR TYPING	AG DET. FOR TYPING	AG DET. FOR EMERGENCY	AG DET. FOR EMERGENCY
METODS FOR AB DETECTION	METODS FOR AB DETECTION	METODS FOR AB DETECTION	METODS FOR AB DETECTION
METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.	METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.	METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.	METHODS FOR SURVEILLANCE ACTIVITIES; NSP ELISAs, PCR ECT.
NUC. SEQUENCING	NUC. SEQUENCING		NUC. SEQUENCINGFOR EMERGENCY
ITEM II			
EQA ISSUE			

ITEM III what type of networking is needed between labs/lab scientists and what are the ideas for developing this?

LAB NETWORK ISSUE
LED BY ONE LAB IN THE REGION
• Analyze what is currently done – strengths, weaknesses, gaps.
• Bring together scientific expertise and encourage consensus building and sharing of best practice.
• Establish networks, collaborative agreements and recommendations for future work/research.
GOALS OF THIS NETWORK
– Improve interaction and co-operation between reference Laboratories.
– Agree procedures for exchange of materials including viruses.
– Develop equivalence in testing – especially vaccine matching.
– Develop common systems for providing and sharing information in real-time.
HOW
ESTABLISH A WEB-SITE: for FMD network ► WESTEUROASIA NATIONAL REF.LABS INFORMATION SYSTEM►WEARELIS
– System for recording and reporting laboratory virus detection and characterisation data (in real time).
– FMD lab related information exchange (such as sequences) between reference labs and other partners.
– Provision of laboratory based information to FAO/OIE.

Working Group on regional surveillance, risk assessment, and regional GIS based information systems

Terms of Reference:

i. information systems: these need upgrading, but what should be the minimum specification for an information system required to identify FMD risk control points, and plan preventive measures? GIS with a set of standard types of epidemiological units that could be applied across the region? what is the vision for establishing the information system capacity across the region?;
ii. critical risk control points: should each country undertake a set of standard serological studies to identify FMD risk by production system? if so, when

should this take place, and which countries (have not yet conducted these exercises)?;

iii. should there be a system for sharing risk information on new virus strains, for example reporting of FMDV that are significantly different in genetic or antigenic characteristic (more than 2% sequence change)?.

The group had the following composition:

Group on regional surveillance, risk assessment, and regional GIS based information systems	
Dr. Asadov Kliment	Azerbaijan
Dr. Khelaya Demna	Georgia
Dr. Vahid Otorod	Iran
Dr. Manoochehr G. Mombeini	Iran
Dr. Khalaj Mehdi	Iran
Ms. Kazminia	Iran
Dr. Abdul Karem I. Ibrahim	Iraq
Dr. Al del Fi-sabah Jasim Mozam	Iraq
Dr. Aliev Bakytbek	Kyrgyzstan
Dr.Ehtisham Khan	Pakistan
Dr. Sanginmurod Murvatulloev	Tajikistan
Dr. Ziad Namour	Syria

The Group agreed that an efficient Information System is a key component in order to improve surveillance activities and generate information to better assess the risk. The group outlined the structure of how an Information System should look like and the following structure was proposed:

Regional Epidemiological Unit

(REU)

National Epidemiological Unit in each country

(NEU)

Epidemiological Sub Units in each country

(NSEU)

For each one of the sub-components of the system the group reported the minimum requirements.

Regional Epidemiological Unit.

It would be established in one of the countries in the Region.

Facilities and staff required:

- Regional Epidemiologist 1
- Epidemiologist 1
- Information Technology Expert 1
- Support Staff 3-4

Necessary transport facility, office and office equipment.

***Responsibilities*:**

- Receiving data/information from all National Epidemiological Units.

- Management of all data.
- Communication of information about FMD status in the Region to international bodies (FAO/OIE etc).
- Conduct regional meetings for staff at NEUs.
- Developing protocols, contingency plans and assistance for submission of samples to FMD-WRL.
- Conduct trainings for NEUs.

National Epidemiological Unit.

Facilities Required.

Epidemiologist: 1
IT Expert (GIS, Data management) 1
Veterinarian 2-3
Office, transport facility and office equipments.

Responsibilities:

- Define Livestock population structure in different production systems (e.g: dairy farms, beef farms, villages, nomadic, commercial, wildlife etc);
- Registration of animal units described above;
- Receiving data from Sub-units for further analysis;
- Communication with REU;
- Early warning/Early Reaction;
- Developing surveillance plans for Sub-units;
- Training to staff at Sub-units;
- Awareness of FMD at national level;
- Developing contingency plan;
- Inform and update Veterinary Authorities/Policy makers about FMD situation in the country.

Epidemiological Sub-Units

Facilities required

- Veterinarians: 2-3
- Data entry operator: 1
- Support staff 2-3
- Office, transport facility and office equipment
- Sample collection and storage
- Capacity to investigate outbreaks and implement control measures

Responsibilities:

- Implementation of surveillance activities (passive, active, sero-surveillance) ;
- Investigate FMD outbreaks, collect samples/information for submission to diagnostic laboratory and implement control measures;
- Data collection and reporting to NEU;
- Conduct trainings for the field staff on sampling, and sero-surveillance etc;
- FMD awareness of veterinarians, livestock farmers and other stakeholders.

The group has deemed necessary that databases across the Region are more uniform and that should at least enable to: (i) register animal production units; (ii) geo-reference the animal production units; (iii) incorporate a software able to generate some basic maps (already available in some countries in the Region).

The issue of carrying out serological studies at critical risk control points was considered necessary by the group and while noting that countries such as Iran, Iraq and Syria have already carried out such activities, the group recommended such studies to be carried out also in other countries.

The existence of an Information System (to be linked with the FMD national reference laboratories) would be essential also to facilitate sharing of information related to the occurrence of new serotype/subtypes so that appropriate measures can be taken.

The group has also defined the minimum set of data that should be present at regional and national level. For the regional level the following minimum set of data should be present: (i) area (with GPS coordinates); (ii) total animal population (species wise); (iii) species affected (with number); (iv) morbidity (%); (v) mortality (%); (vi) pattern of animal Movement in and out of the area; (vii) vaccination history (Brand name, sero –types included); (viii) basis of diagnosis (clinical, laboratory); (ix) number of samples collected and name of the labs to which these samples were sent; (x) control measures taken; (xi) date and duration of previous outbreaks; (xii) serotype isolated from that outbreak.

At national level in addition to what mentioned above the following data should be present: (i) who reported the disease (Government official; Farmer; Private vet /Para- vet; Media); (ii) number and type of samples collected; (iii) name of the laboratory to which the samples were sent (with date);

(iv) clinical sign /symptoms of the disease; (v) history of previous disease outbreaks and control measures; (vi) brief account of current control measures and status of the disease.

Working Group on harmonisation and monitoring of FMD vaccination

Terms of Reference:

i. should vaccine specification for cattle be harmonised (yearly) across western Eurasia? (e.g. 3 PD50, antigenic content, age and frequency, OIE standard of potency test).
ii. should each country undertake vaccine performance monitoring, for example a simple sampling of sufficient animals 12-24 mo, prior to re-vaccination?).
iii. should the EuFMD regional database on vaccination implementation be extended to include all interested countries in the region? is it feasible for each to supply the minimum required data?).

Output: the group made a presentation to the plenary Session (**Appendix 25**)

The group had the following composition:

Harmonisation and monitoring of FMD vaccination working group	
Nawroz Abdul Habib	Afghanistan
Sargysan Khachick	Armenia
Abdullahi Darab	Iran
Askarov Zhumabek	Kyrgyzstan
Afzal Mohammed	Pakistan
Borisov Vladimir	Russia
Isoev Iskandar	Tajikistan
Tatov Amanguly	Turkmenistan
Nuryev Dovlet	Turkmenistan
Eranov Mukhiddin	Uzbekistan
Salamov Utkir	Uzbekistan
Ferrari Giancarlo	FAO
Potzsch Carsten	FAO

The general context (for most of the countries) is the one where mass vaccination programs could hardly be carried out. Reasons for this are mainly because of: (i) huge animal population; (ii) lack of

financial and human resources for extensive vaccination programs to be carried out. The group retained more realistic that vaccination programs can be intensively carried out provided that target sub-populations are clearly identified. There was a general consensus in the group that harmonization across Western EurAsia is worth to be pursued. Harmonization rather than being seen as "the same vaccine for all" should address the issue of having available and documented information so that whenever individual countries are about to purchase vaccines for their use appropriate guidelines are available and the most important issue was related to the circulating serotypes/subtypes. There is a clear need to ensure that vaccine strains match well the field strains identified across the Region and need for a mechanism enable to make this information available and disseminated. The group discussed the creation of a regional or inter-regional commission with a panel of experts from the participating countries that could possibly meet every year, review the global and regional situation and prepare guidelines aimed at assisting and advice countries to formulate their technical specifications. The issue of harmonization was also addressed from a slightly different point of view and it is related to the synchronization of vaccination activities in specific bordering areas between two or more countries that could be worth to target because of known common pasture areas where mixing of animals is likely to occur.

As per the vaccination performance the participants agreed that this type of activity is essential. Two different issues were addressed: (i) sero-monitoring following the administration of vaccine to evaluate the immunological response (in terms of detectable level of antibodies specific for the serotypes included in the vaccine); (ii) serological survey aimed at evaluating the overall efficacy of vaccination in reducing virus circulation through the detection of NSP antibodies (both in vaccinated and non-vaccinated animals).
The group agreed that protocols for addressing such issues can be developed and that it may be as well one of the topics that could be discussed on a yearly basis.
It was raised the issue of sustainability of such activities due to the cost of reagents. While national programs may contribute in terms of sample collection, support from donor may be required for purchasing the reagents. One possible way to overcome this problem was to ensure that any future project on FMD should have such activities as a sub-component in order that sufficient funds are earmarked.

As per the regional database the group considered premature to discuss the possibility of up-loading such database. The concept of sharing this type of information was indeed found to be useful.

During the discussion two main points were highlighted: (i) the WRL periodical report already contains all the relevant information regarding the most recent serotypes and subtypes identified in different countries and so it appears that the commission proposed by the group should work on collating this information on a regional basis and create a platform for the countries of the region to discuss and summarize what already available; (ii) the regional database, even if still in the stage of design, can generate information that countries will may need for monitoring their own vaccination programs.

Working Group on trans-boundary (TB) animal movements group

Terms of Reference

i. where in the region are the problems?
   a. TB illegal and legal trade
   b. TB movement across borders for seasonal grazing
ii. what are the best practises to deal with transboundary animal trade (turning risky informal/illegal into safe formal/legal trade)
iii. what are the best practises to deal with animal populations that seasonally cross borders (transboundary grazing patterns)
iv. what actions are needed to improve - as part of a regional roadmap? (bilateral, and multi-lateral)

Output: the group made a presentation to the plenary Session (Appendix 26)

i. Movements:

The group agrees that animal movements are mainly informal (illegal) trade, characterized by:

Movements of cattle from east to west;

Movements of sheep from west to east;

Movements can change direction, depending on market laws (offer and demand)

There is also an important seasonal transboundary movement for grazing.

ii-iii. Best practices:

The group members agree that, it could be appropriate to facilitate the FORMAL movements in order to prevent illegal movements by having more quarantine centres.

It should be requested also for regular movements but which are currently informal, that the country of provenance vaccinate on its territory, before expedition.

Finally The group considers that it could be useful to have more idea on the animal movements by survey of animals by satellite (microchip).

iv. Actions needed to improve:

The members of the group have agreed on the necessity of developing and signing comprehensive protocols with neighbouring countries, including:

Establishment of buffer zones;

Establishing coordinated vaccination;

The final aim is reaching an agreed multilateral protocols that improve the ratio of safe animal movements to unsafe/informal trade.

Three possible clusters have been identified for transboundary common actions:

- Pakistan-Afghanistan-Iran;
- Iran-Iraq-Syria-Turkey;
- Tajikistan-Kyrgyzstan-Uzbekistan-Kazakhstan.

May be another cluster could be: Turkey-Georgia-Armenia-Azerbaijan.
The difficulty off vaccinating animals before shipping in other counties seems difficult to establish. However the modalities should be studied when preparing the bilateral protocols.

Support and Governance

The group was composed by:

Support and Governance	
Wahid Ottarov	Iran
Mohammed Afzal	Pakistan
Dowlet Nuryev	Turkmenistan
Juan Lubroth	FAO

Output: the group made a presentation to the plenary Session (Appendix 27)

The group while considering that the stepwise approach provide a good criteria for facilitating countries to recognize their progress has formulated the following statement: **"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 economic development and poverty alleviation".**

The governance may be done through a Regional Secretariat that should address the work of technical thematic groups such as:

- Virus characterization and vaccine selection;
- Laboratory techniques, interpretation, EQC;
- Epidemiology and Risk Analysis;
- Border control and management;
- Communication, Awareness and Training.

Joint annual meetings appeared to be the natural platform where the technical thematic groups meet together.

Country audits (rather than being seen as a control mechanism) may represent a tool to provide assistance at individual level to identify bottlenecks and outline possible solutions.
During the discussion two countries offered to host the Secretariat (Kazakhstan and Iran).
Iran also offered assistance for the development of a GIS System in light of the good experience gained during the last years.

During the final round-table discussion all countries expressed agreement in the proposed approach. Countries such as Iran, Russian Federation, Kazakhstan and Turkey where major efforts aimed at controlling and eradicating FMD are already on-going and receive adequate financial support, have offered their availability, in terms of expertise and training, to the other countries should this be required.