



Country Report – Pakistan

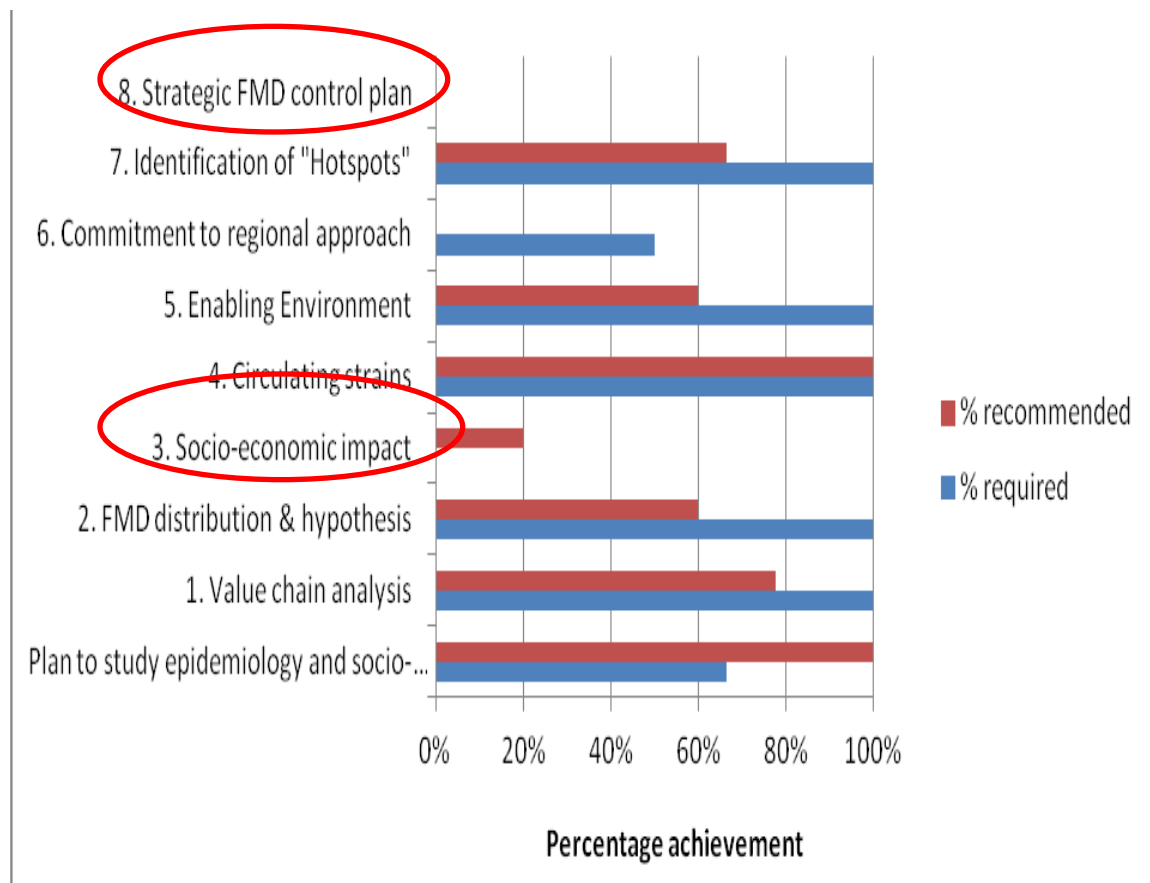
Justification for FMD-PCP Stage-2

Dr. Muhammad Akram
Dr. Muhammad Afzal
Dr. Manzoor Hussain
Dr. Rashid Minur
Dr. Aftab Ahmad
Dr. Qurban Ali

**M/o National Food Security & Research, L&DD Punjab &
FAO's National FMD Control Program**



Gaps Identified in 2014 Roadmap Meeting



1. Strategic FMD Control Program for Pakistan has been developed and endorsed by Federating Units.
2. A baseline socio-economic study has been completed to evaluate the impact of vaccination in different dairy production systems



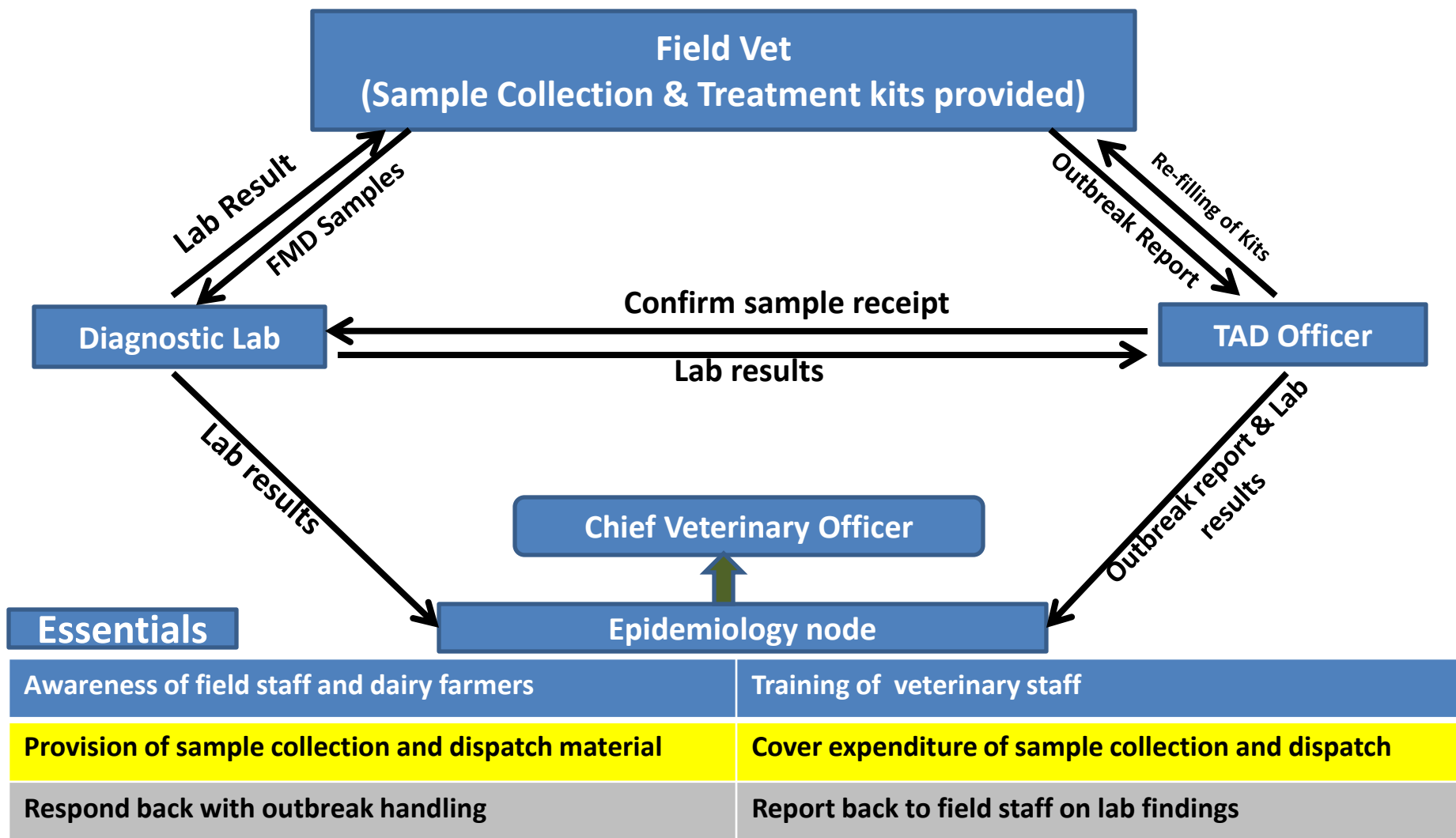
Justification for PCP stage-2

- **Outcome 1: Requirements**

- Ongoing monitoring of circulating strains and FMD risk in different husbandry systems at least annually
- Full characterization including sequencing and vaccine matching-30 samples by Regional and/or the World Reference Laboratory
- Integration of field, laboratory and epidemiology services



Surveillance Model for FMD





FMD Virus Serotypes (January-December 2014)

Province	Total FMD outbreaks	Outbreaks (#) due to serotype				ELISA Negative Outbreaks
		O	A	Asia-I	Mixed	
Punjab	417	291	37	19	2	68
Sindh	1168	679	92	115	111	171
Khyber Pakhtunkhwa	407	187	24	38	0	158
Balochistan	193	107	15	16	0	55
Gilgit-Baltistan	10	7	3	0	0	0
FATA	29	17	0	0	0	12
AJK	534	310	6	5	6	207
Islamabad	55	31	11	3	0	10
Total	2813	1629	188	196	119	681

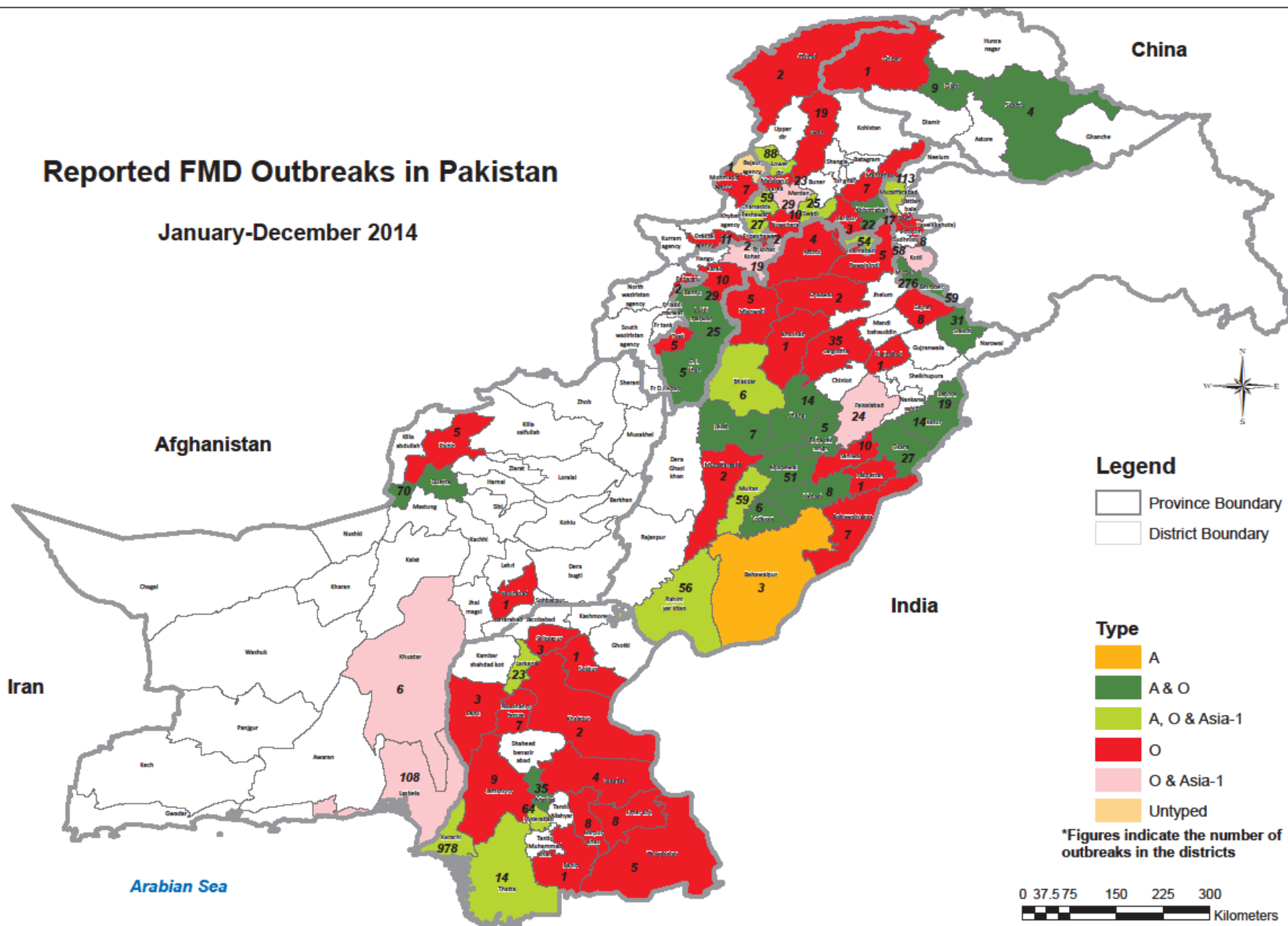


FMD Virus Serotypes (January-March 2015)

Province	Total FMD outbreaks	Outbreaks (#) due to serotype				ELISA Negative Outbreaks
		O	A	Asia-I	Mixed	
Punjab	80	35	20	1	-	24
Sindh	163	29	66	18	35	15
Khyber Pakhtunkhwa	25	7	10	5	-	3
Balochistan	29	6	17	-	1	5
Gilgit-Baltistan	-	-	-	-	-	-
FATA	2	1	1	-	-	-
AJK	43	11	18	2	-	12
Islamabad	8	2	2	3	-	1
Total	350	91	134	29	36	60

Reported FMD Outbreaks in Pakistan

January-December 2014





Enhanced Capacity for FMD diagnosis

- 8 labs fully functional for undertaking serotyping of FMD (NVL, Peshawar, Lahore, Tandojam, Karachi, Quetta, Gilgit, Mirpur)
- Antibody titres against SP and NSP done at NVL
- Molecular diagnostics (rtPCR – conventional and real time) and virus isolation working at NVL
- Nucleic acid sequencing started at NVL
- 15 days training in FMD ELISA to 2 persons from each lab
- 47 district laboratory vets trained in collection and despatch of samples from field outbreaks
- 5 scientists trained in molecular diagnostics of FMD at NIBGE
- 5 scientists trained in nucleic acid sequencing
- NVL completed proficiency test 2012, 2013 & 2014 of FMD World Reference Lab, Pirbright. Practically able to correctly identify A,O and Asia-1 antigens and antibodies
- Proficiency testing of provincial labs started in 2015



Characterization of FMD virus (2012 – 14)

Serotype	Genotype	Reporting Lab
O	PanAsia-2^{ANT-10} Unnamed	WRL, Pirbright PIADRC, New York
A	Iran-05^{FAR-11} Iran-05^{FAR-09} Iran-05^{SIS-12}	WRL, Pirbright PIADRC, New York
Asia-1	Sindh ⁰⁸	WRL, Pirbright PIADRC, New York



Sero-monitoring of FMD virus circulation (AJK)

Dairy Production System	Samples Tested (#)	NSP Antibodies	
		Positive (#)	% Positive
Mirpur- Dairy Farms	323	160	49.5
Mirpur-Smallholder Rural Production	309	73	23.6
Muzzaffarabad-Smallholder Rural Production	254	9	3.5
Rawalakot- Smallholder Rural Production	270	23	8.5



Sero-monitoring of FMD virus circulation (Punjab)

Dairy Production System	Samples Tested (#)	NSP Antibodies	
		Positive (#)	% Positive
Lahore - Dairy Colony	317	247	78
Attock - Smallholder Rural Production	153	45	29
Jhang - Smallholder Rural Production	263	97	37
Rahim Yar Khan - Smallholder Rural Production	275	52	19



FMD Virus circulation in Desert Cattle Farming

Area	Tobas #	Blood samples #	NSP antibody positive #	% Positive
Greater Cholistan	5	110	65	59.1
Lesser Cholistan	7	263	167	63.5
Total	12	373	232	62.2



Justification for PCP stage-2

- **Outcome 2- Requirements**
 - Activities targeting the reducing the probability of FMD entry and spread; and/or the consequences of FMD entry and spread- Bio-security, vaccination, movement controls and awareness campaigns



Legal Framework

- With constitutional amendments, animal health activities have been devolved to provinces
- Animal health legal framework has been reviewed
- Legal consultant hired to develop a federal legal instrument dealing with animal health issues of international and national concerns (like TADs)
- A model provincial animal health legal instrument also being framed
- Recently concluded PVS has also indicated need for updating legal framework



FMD control using good quality vaccine

- The studies indicated that some of the locally produced and imported vaccines do not provide optimal protection field observations indicated that some imported vaccines failed to provide protection in 2013 and 2014 due to inappropriate FMD strains in vaccines and cold chain and inappropriate administration of vaccine..
- Vaccine currently in use by project contains **serotype O (PanAsia-2), A (Turkey 06), and Asia-1 (Sind 08) having > 6 PD₅₀ concentration of each strain.**



Vaccination in different production systems

Dairy production system	Epi units	Farmers #	Animals #
Urban / peri-urban dairy colonies	956	1648	75553
Rural smallholders market oriented	145	19143	96507
Rural commercial farms	28	28	10689
Desert cattle raising	60	514	7500
Yaks farming	9	356	2615
Total	1198	21689	192,864



Stakeholders involvement & Awareness

- Awareness material including posters (English and Urdu) and brochure (Urdu) prepared and widely distributed
- A documentary on FMD is prepared in collaboration with US Embassy in Islamabad. Launched in June 2014
- 124 farmers' awareness seminars / workshops held involving 5232 livestock keepers
- Regular participation in livestock exhibitions, radio and TV programs to highlight control of FMD
- 47 training workshops for field and laboratory vets held; 1378 vets from public and private sector trained in FMD epidemiology, disease control and prevention, sample collection and dispatch kits provided to 967 vets
- Senior management of livestock departments (Secretaries and DGs) visited Turkey to study FMD control activities



Vaccination on Cost Sharing Basis

Province	Production System	No. of Farmers	No. of Animals
Sindh	Dairy Colonies	912	35377
	Commercial Farms	42	9348
	Small Holders	33	12672
Punjab	Commercial Farms	01	2700
	Small Holders	570	25450
Balochistan	Dairy Colonies	01	40
	Commercial Farms	01	600
Total		1560	86187



Justification for PCP stage-2

- **Outcome 3- Requirements**
 - Reduced impact viz-a-viz Control measure – incidence (national, zone and or husbandry system) vs past 3 years
 - Impact and implementation indicators
 - Outbreak investigation to determines reason of failure of control measure & to suggest corrective measure.
- **Outocme-4- Requirements**
 - The Role of Veterinary Authority in Decision making: Finance, Trade, Legal etc
 - legal right to enter premises and examine animals
 - Centralized, computerized information systems
 - Geo-referencing of epidemiological units



Justification for PCP stage-2

- **Outcome-5- Requirements**
 - Objective of FMD control-Shift from impact to reduce virus circulation
 - Stakeholder consultation during development and their endorsement
 - In built M&E including targets and indicators.



Strategy for FMD Control

- Strategic approach is to institutionalize the control efforts such as emergency vaccination, availability of good quality vaccine, establishing lab and epi networks, Awareness and training to bring the change through behaviour change and finally however most important review of legislation for animal health is underway.



Thank you for your kind attention