Situation Of Foot and Mouth Disease and its Progressive Control Initiatives in Nepal

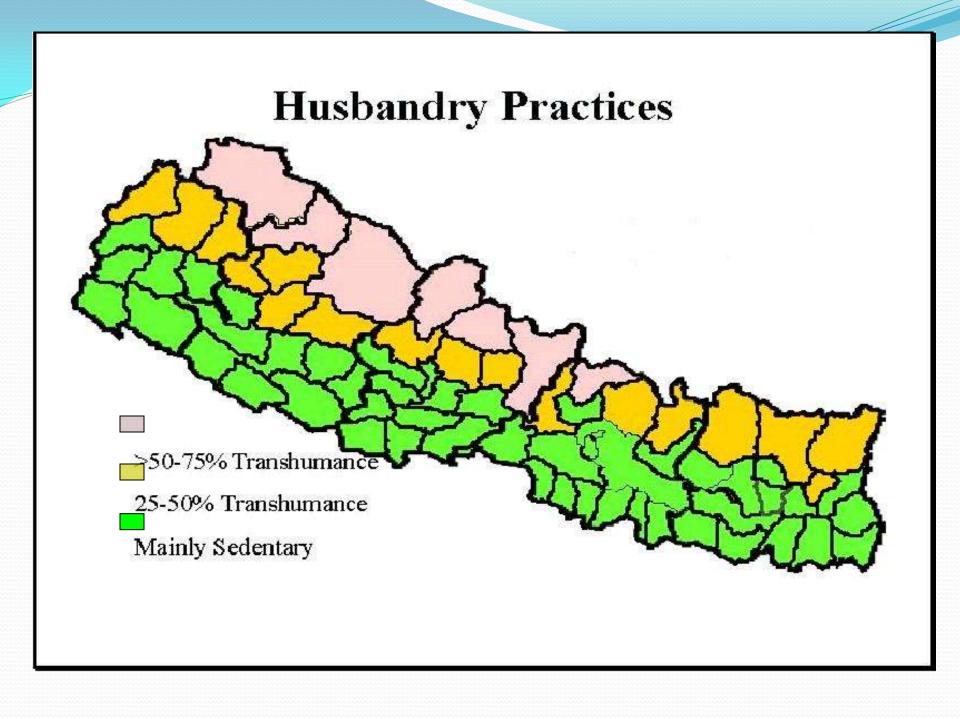
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Importance of Livestock

- Sixty six percent of the population engaged in agriculture
- Livestock is an integral part of complex farming system (livelihood, food security, nutrition, Agric. operation, soil fertility, transport etc.)
- Contribution of Livestock: 31% of AGDP and about 13% to GDP

FMD susceptible Livestock population

Animal Species	Population (Million)			
Cattle	7.17			
Buffalo	4.68			
Goat	8.47			
Sheep	0.80			
Pig	1.04			
Total	22.16			



Foot and Mouth Disease:

 FMD is endemic in Nepal and is present in almost all parts of the country and occurs round the year.

 On an average from 2001-2010 above 873 outbreaks per year have been reported.

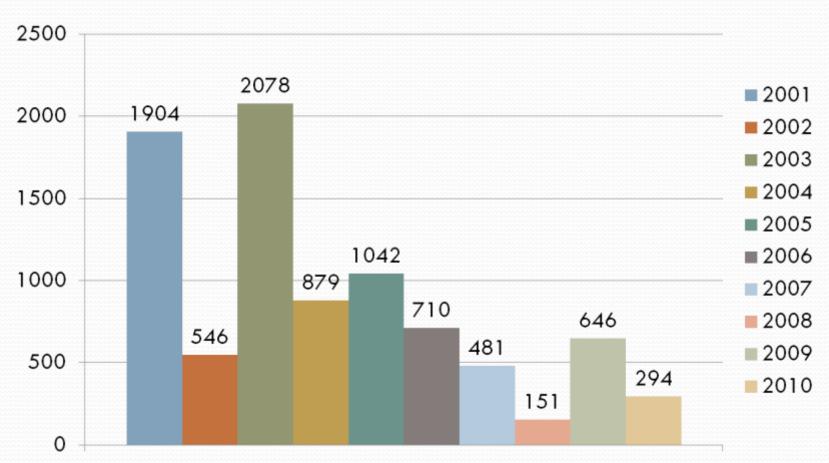
Substantial economic loss to livestock industry

- Considering the fact that 20% reduction in milk production and 10% in meat loss, Gongal (2002) estimated an economic loss of 66 million US\$ per year due to FMD.
- Actual loss could be much more higher (reduction in breeding efficiency, draft power and cost of control program)
- China did not allow Nepalese dairy product (butter) to enter into its country during 2002 due to presence of FMD in Nepal
- Restriction on trans-frontier grazing (Tibet)

Epidemiology of FMD

- Outbreaks of FMD have been reported throughout the country irrespective of season and altitude.
- During year 2000-2010 the month-wise pattern of FMD outbreaks revealed that this disease is prevalent throughout the year.
- Occurrence of the disease was found to be slightly high in the month of May and June and again during November and December.

Year wise trend of FMD outbreak (2001-2010)

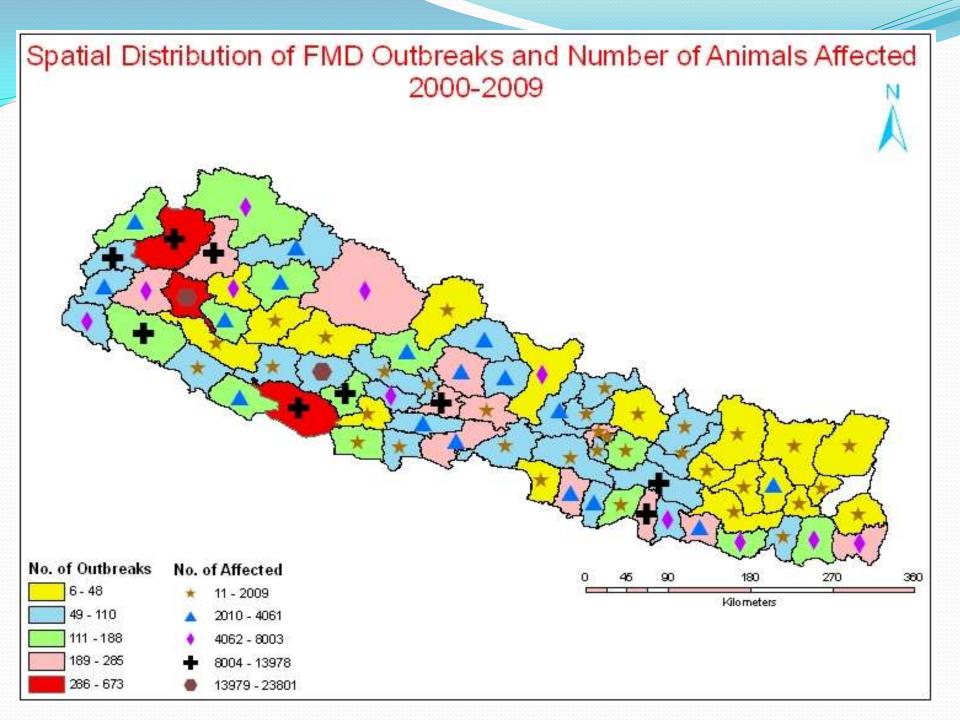


Epidemiology of FMD

 Species-wise distribution of FMD outbreaks from 2000-2009 was highest in cattle (42%) followed by buffalo (32%), goats (19%), sheep (4%) and swine (3%).

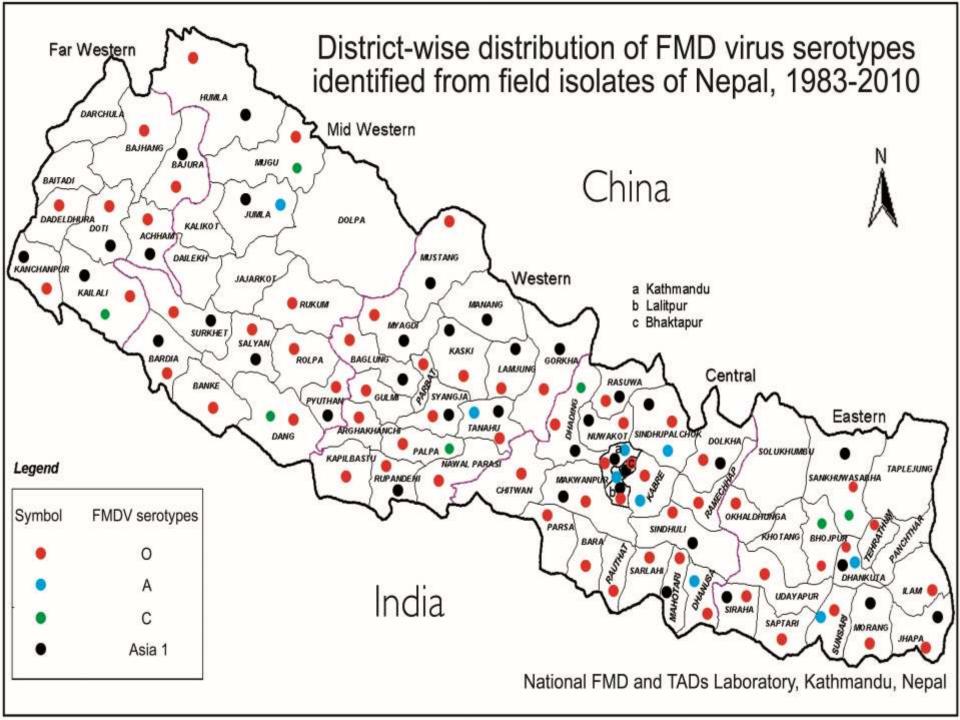
 Spatial distribution of FMD during 2000-2009 shows that 74 districts were affected with FMD.

 The lowest number of districts affected during the last 10 years was 21 districts in 2008.



Serotypes of FMD Virus Prevalent in Nepal

- From 1965-2010, O is the most predominant serotype (76.4 %) followed by Asia 1 (15.8 %), A (6.5 %) and C (1.2%).
- Serotype C was observed only during the period from 1990-1996.
- From 2001 to 2010 serotype O is in increasing trend (82%) followed by serotype Asia 1 (15%) and serotype A (3%).
- Out of 75 districts in Nepal, serotyping of FMD virus has been done in 65 districts.



- According to WRLFMD, Pirbright, UK serotype O isolates from Nepal belong to the Middle East-South Asia (ME-SA) topotype.
- In 2003 both PanAsia and Ind2001 strains of serotype O were prevalent in Nepal.
- In 2007 PanAsia-2, in 2008 PanAsia-2 and Ind2001 strains of serotype O were found.
- In 2009 and 2010 Ind2001 strain of serotype O was found.

 According to WRLFMD in 2009 and 2010 based on virus neutralization test (VNT), serotype O isolates from Nepal best match against O IND R2/75 vaccine strain.

 Based on liquid phase blocking (LPB) ELISA, among the tested vaccine strains O Manisa is best match for protecting against serotype O isolates from Nepal. O IND R2/75 was not included in this test.

Current FMD Control measures in Nepal:

- The socio-economic situation in the country is not conducive to adopt a slaughter policy in the control of FMD.
- Regular vaccination measure as a prophylactic measure alone could be the option
- Control of FMD outbreaks through ring vaccination in the surrounding outbreak areas is in practice.
- At present, FMD vaccine which includes serotype O, A and Asia1 is being imported from India
- Vaccination coverage against FMD is very low in the country.

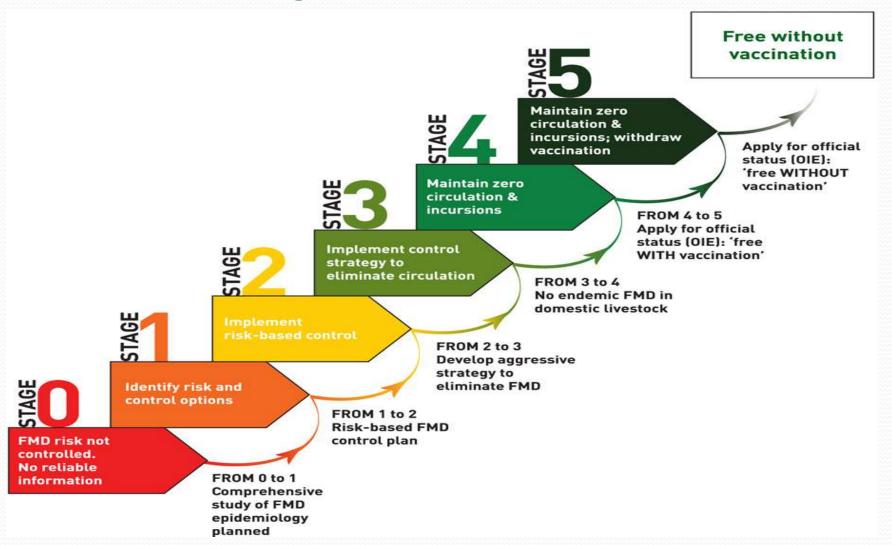
FMD Progressive Control Initiatives in Nepal

 Nepal participated in various consultative workshops organised by Highly Pathogenic and Emerging Diseases (HPED) in South Asia (SAARC Component) OSRO/RAS/901/EC

 Involved in self-evaluation of the country status for FMD-PCP

Participated in FMD laboratory diagnosis training

Stages of FMD-PCP



FMD Control Roadmap 2020

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Nepal	1	1	1	1	2	2	2	2	2	3

Status and initiatives of Nepal to meet the eight key outcomes of FMD-PCP Stage 1

- ■1. Husbandry system, livestock marketing network and socio-economic drivers well described and understood for FMDsusceptible species (value-chain analysis).
- Most of the data available but needs to be analysed and documented systematically.
- Value chain analysis of ruminants has been planned in the coming annual programme.

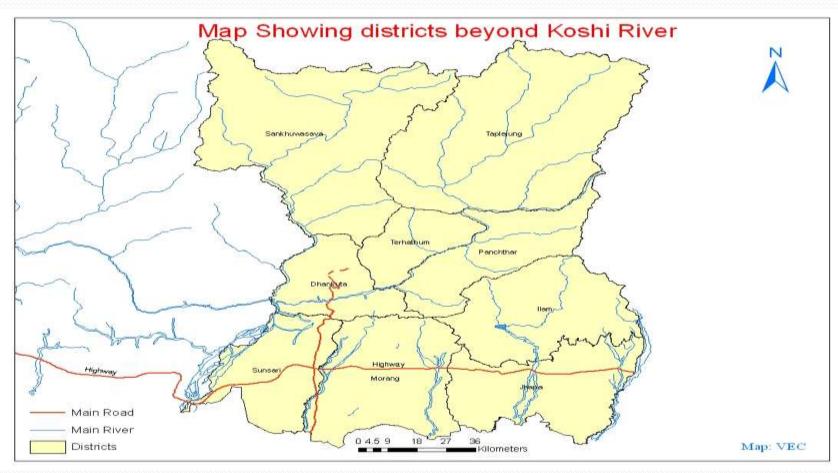
- 2. Distribution of FMD in the country is well described and understood Knowledge on how FMD virus circulates in the country.
- Regular disease reporting and outbreak investigation but still FMD has to be made notifiable
- NSP ELISA available but needs to start systematic serological survey
- Epidemiological information flow is on regular basis but needs to be strengthened
- Risk assessment to identify important risk hotspots for FMD transmission, including wildlife still to be done

- 3. Socio-economic impacts of FMD on different stakeholders have been estimated.
- Some study report and data available but needs to be systematically estimated in detail (To start from coming annual programme)
- 4. The most common circulating strains of FMDV have been identified.
- Regular Sampling and laboratory testing for FMDV but coverage is not sufficient
- Shipment of samples regularly to WRLFMD for virus characterization

- 5. There has been progress towards developing an enabling environment for control activities.
- Training to support field and laboratory activities occasionally being conducted
- Develop information system to support field activities (Support through VEC is under way)
- Outbreak reporting and decision making
- Assessment of legal framework to allow the Veterinary Services carry out FMD control activities underway
- 6. The country demonstrates transparency and commitment to participating in regional FMD control.
- Outbreaks notified to OIE
- Participate and share results of PCP activities at regional level, e.g. Regional Roadmap meeting.

- 7. Important risk hotspots for FMD transmission are identified
- Data analysis on epidemiology of FMD and husbandry systems
- Identify critical points for FMD entry and spread.
- 8. A strategic FMD control plan to reduce the impact of FMD in at least one zone or husbandry sector is developed.
- ❖ A draft of national FMD control strategy is available but needs to be revised as per the FMD –PCP guidelines to be endorsed by the government veterinary authority.

Pilot FMD Control programme through zoning



Constraints to follow FMD-PCP

Resources

- Vaccine production and availability
- Enforcement of animal movement regulations
- Advocacy and awareness

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