

REPORT



Workshop to Develop Regional Roadmap for Progressive Control of *peste des petits ruminants* (PPR) for South Asian countries

7-9 December 2011, Kathmandu, Nepal





Participants from Nepal, Pakistan and Bhutan during a group exercise session



Dr Santanu Kumar Bandyopadhyay, Senior Technical Coordinator & Team Leader, Emergency Centre for Transboundary Animal Diseases, FAO Viet Nam, giving his keynote address

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Acronyms and abbreviations

AGPT	Agar Gel Precipitation Test
BLRI	Bangladesh Livestock Research Institute
BSL	Bio-safety level
CIE	Counter Immunoelectrophoresis
cELISA	Competitive Enzyme Linked Immunosorbent Assay
CVO	Chief Veterinary Officer
DLD	Department of Livestock Development
DLS	Department of Livestock Services
ECTAD	Emergency Centre for Transboundary Animal Diseases
EMPRES	Emergency Prevention System for Transboundary Animal and plant pests and Diseases
EPT	Emerging Pandemic Threats
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FETP	Field Epidemiology Training Programme
FETP-V	Field Epidemiology Training Programme for Veterinarians
FMD	Foot and Mouth Disease
GDP	Gross Domestic Product
GF-TADs	Global Framework for the progressive control of Transboundary Animal Diseases
GIS	Geographical Information System
GLP	Good Laboratory Practices
GLEWS	Global Early Warning System
GREP	Global Rinderpest Eradication Programme
HA	Haemagglutination
HPAI	Highly Pathogenic Avian Influenza
HPED	Highly Pathogenic and Emerging Disease
IC-ELISA	Immunocapture Enzyme Linked Immunosorbent Assay
LDIS	Livestock Disease Information System (Bangladesh)
LIMS	Laboratory Information Management System
MDGs	Millennium Development Goals
NADRES	National Animal Disease Referral Expert System (India)
OFFLU	OIE-FAO Network of Expertise on Avian Influenza
OIE	World Organisation for Animal Health (Office International des Epizooties)

PCP	Progressive Control Pathway
PCR	Polymerase Chain Reaction
PD_ADMAS	Project Directorate on Animal Disease Monitoring and Surveillance
PPR	Peste des Petits Ruminants
PVS	Performance of Veterinary Services
RAP	FAO Regional Office for Asia and the Pacific
RCM	Regional Coordination Mechanism
REC	Regional Epidemiology Centre
RLDL	Regional Leading Diagnostic Laboratory
RSU	Regional Support Unit
RT-PCR	Reverse Transcriptase Polymerase Chain Reaction
SAARC	South Asian Association for Regional Cooperation
SARS	Severe Acute Respiratory Syndrome
SMS	Short Messaging Service
SOP	Standard Operating Procedure
TEPHINET	Training Programs in Epidemiology and Public Health Interventions Network
VI	Virus Isolation
WHO	World Health Organization

Summary

A regional workshop was held in Kathmandu, Nepal with an aim to develop a regional road map for progressive control of *peste des petits ruminants* (PPR) in South Asia.

Peste des petits ruminants is endemic in all countries in South Asia except Sri Lanka which is free from PPR. Preliminary assessment of disease situation and control issues was done through a questionnaire based survey emailed to the country representatives before the workshop. This assessment revealed that all the participating countries had motivation to progressively control PPR. However, legislation regarding movement control, quality assurance of vaccine, and compensation mechanism was inadequate. While concurrently the participants indicated different capacities of the respective countries in terms of having adequate epidemiology infrastructure and comprehensive PPR control plans they emphasized the need to enhance coordination/ information sharing mechanism through the Regional Support Unit (RSU).

Since disease status recognition mechanism for PPR does not exist within the global network as we have for FMD-PCP, the questionnaire based information indicated that all countries except Nepal have no robust surveillance system and disease information system in place for PPR. A comprehensive plan for control of PPR is either lacking important information/mechanism such as socio-economic impact assessment across the value chain are yet to be developed by the participating countries. Among the countries which participated in the workshop from South Asia, Pakistan, Nepal and Bangladesh are producing PPR vaccine but quality and quantity of this vaccine needs to be enhanced to meet the national and regional requirements.

Development of strategic plan and assured budget for implementation of the plan; enhancement of technical expertise and skills; awareness among farmers about PPR; formulation and implementation of regulations regarding animal movement etc, availability and delivery of quality assured vaccine and harmonization of diagnostic assays/test were the identified challenges to the control of PPR in the SAARC region.

The participants outlined essential components of a comprehensive control plan for PPR control, such as (1) policy, (2) institutional setup and capacity building, (3) outbreak response and contingency plan, (4) legislation, (5) epidemiology/surveillance/outbreak investigation/reporting/information sharing, (6) vaccine and vaccination, (7) diagnosis, (8) impact assessment/food security/poverty alleviation, (9) advocacy and communication, and (10) monitoring and evaluation. After intensive discussions the participants proposed actions for roadmap 2011-2020 with respect to each of the essential component of PPR control plan.

The participants identified at least five major and five minor milestones each for 2011-2015 and 2016-2020 for the progressive control of PPR in SAARC countries.

Based upon the outcome of group discussions, an outline for comprehensive control plan for PPR was presented for consideration of member countries in the region to develop their own control plans for PPR.

The major recommendations made during the workshop were:

- i. There is a need to develop and agree upon a regional roadmap for progressive control of PPR on the lines of PCP-FMD through consultations in South Asia.
- ii. The draft roadmap for progressive control of PPR developed as an outcome of this workshop will be circulated to the member states for their consideration and preparation of their country plan.
- iii. Member states should consider updating the legislation regarding animal/products movement/transportation and isolation, quarantine and compensation etc leading to effective control of animal diseases locally and regionally or should identify/include PPR as an emergency disease where such legislation exists.
- iv. Sharing of outbreak information on PPR between SAARC Member States and RSU was considered as an important step to be taken up.
- v. The Member States and/or region enhance the technical capabilities to diagnose PPR infection and to develop DIVA system for surveillance.
- vi. RSU shall consider organising follow up meetings as required to discuss the outcomes of this workshop at country level.
- vii. Training/capacity building on PPR diagnosis, epidemiology, proficiency testing, and development of diagnostic kits, developing and harmonizing protocols shall be organized at regional and national level.
- viii. All stakeholders may consider public awareness and education on disease surveillance as a priority tool in order to enhance the reporting mechanism for early detection of the disease.

Chapter 1

Objectives of the workshop

The objective of the workshop was to develop a regional roadmap for progressive control of *peste des petits ruminants* for SAARC countries.

Building upon the achievement of global eradication of rinderpest, the SAARC countries were urged to look beyond the geographical boundaries while using the Regional Support Unit (RSU) to progressively control and ultimately eradicate another disease of socio-economic and trade importance.

The expected outcome of this workshop was to seek an agreement of the countries over a reasonable time frame to undertake certain activities to progressively move forward to control and ultimately eradicate PPR by 2020 from the South Asian countries. The RSU will facilitate the member countries to enhance their capacities and abilities to prevent, control and eradicate the PPR.

Inaugural of session

Dr Mohinder Oberoi, Sub regional ECTAD Manager, FAO Nepal welcomed the delegates and briefly explained the objective and role of RSU in holding this workshop under the HPED project. Almost all the countries in South Asia except Maldives and Sri Lanka are endemic for PPR but only a few countries have launched control programmes with wide coverage while the others are still in initial phases of planning and or observing reactionary measures including vaccination of small animals maintained in the outbreak areas. All endemic countries for PPR in South Asia have the ability and modest infrastructure for the production of high quality PPR vaccine. The concept of regional roadmap for progressive control of PPR was to urge the decision/policy makers to prioritize the PPR control activities while setting important milestones within the time frame of 2012-2020.

Dr Santanu Bandyopadhyay, FAO ECTAD Team Leader in Viet Nam and an eminent virologist facilitated the workshop. He made a detailed presentation on the socio-economic impact and global distribution of PPR. He quoted an example of India and urged to control PPR through vaccination. He stated that the economic losses due to PPR could be to the tune of US\$ 180 million and approximate cost of control programme (vaccination) is to the tune of only US\$ 40 million over a period of five years with gross benefit to cost ratio of 4.83. He stated that eradication of PPR from South Asia is possible using the logistic, technology and experience of rinderpest eradication coupled with regional cooperation.

The workshop was formally inaugurated by Dr Nar Bahadur Rajwar, Director General and Chief Veterinary Officer, Department of Livestock Services, Nepal. He emphasized the importance to control PPR as it has a significant negative impact on the livelihood of small and poor rural households.

Chapter 2

Background of PPR situation in SAARC Member States

The world community has set Millennium Development Goals (MDGs) to reduce the global poverty by half by 2015. South Asia is the flash point not only because it is among the world's identified hotspots for possibilities of the emergence or re-emergence of infectious diseases both in human and animals but also because it is inhabited by 533 million people who are living below poverty line, of whom 192 million are livestock keepers. The animal diseases like PPR are badly impacting their food security and livelihoods due to high mortality and significant productivity losses.

The PPR is endemic in most of the South Asian countries or reported at least once in most recent times except Sri Lanka which is free from PPR. Based upon the epidemic notifications to OIE during 2009, 2010 and 2011 the current situation of PPR in South Asia is shown Figure 1.

PPR was first seen in South Asia during 1990's and Afghanistan, Bangladesh, India, Pakistan and Nepal which constitute about 99% of total population of small ruminants in South Asia are now endemic for PPR.

Afghanistan has been reporting PPR to OIE since 2002 from all over the country however; Badakhshan, Balkh and Herat provinces have significantly higher number of outbreaks of PPR during 2010 and 2011. Nigerian strain (75/1) vaccine is being imported for use in the country.

PPR in Bangladesh is distributed across the country throughout the year however significantly higher in western provinces.

Bhutan has probably got PPR in 2006 however first case of PPR was confirmed in 2010.

PPR has been reported as sporadic infection from India around 1987 but became endemic since 1994 and at least 16 states of India including West Bengal, Andhra Pradesh, Karnataka and Maharashtra have reported PPR during 2009-2011. Indigenous virus PPR Sungri/96 and Arasur/87 strains are used for a live-attenuated vaccine production commercially.

Maldives reported the disease for the first time in May 2009 from Kaafu Atoll.

PPR was first reported in 1994 in Nepal and its cases peaked in 2001 with about 60 000 cases and more than 20 000 deaths of susceptible animals mainly in Terai region.

Pakistan has been experiencing outbreaks almost from all parts of the country ever since first confirmation of PPR in 1993 but significantly higher outbreaks are reported in Central Part of Punjab and remote rural areas of Sindh and Baluchistan.

Sri Lanka remains free from PPR till date.

Four different lineage of PPR virus are prevalent globally however, only virus lineage IV has been prevalent in South Asia. Only once in 1987 lineage III has been detected in India. Nigerian strain (75/1) and local strain in Bangladesh called 'Tito' strain are being used for vaccine production. The PPR virus distribution in South Asia and global virus lineage distribution are shown in figure 1 and 2 respectively.

Fig.1 PPR virus distribution in South Asia

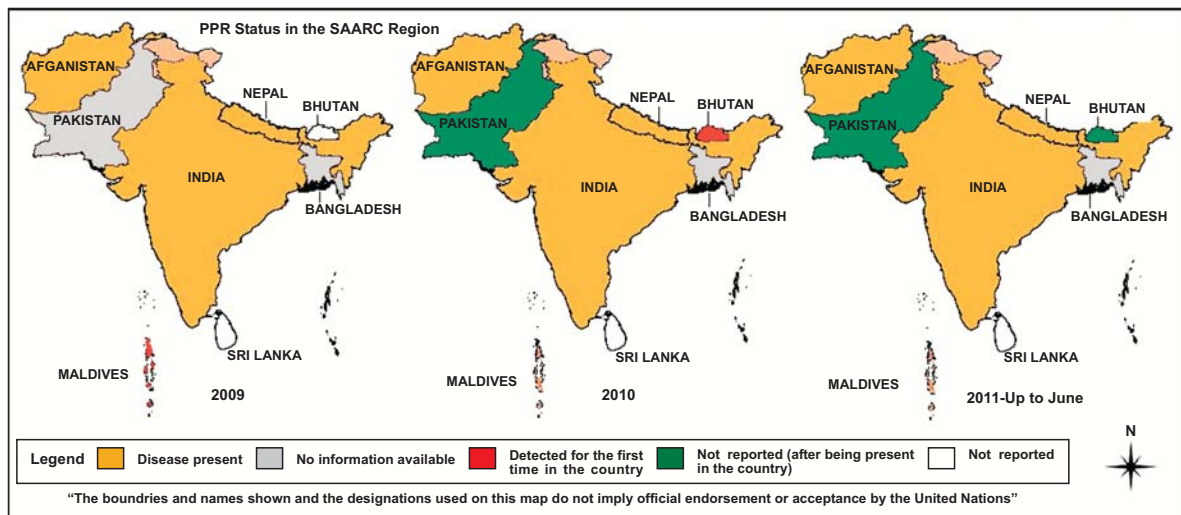
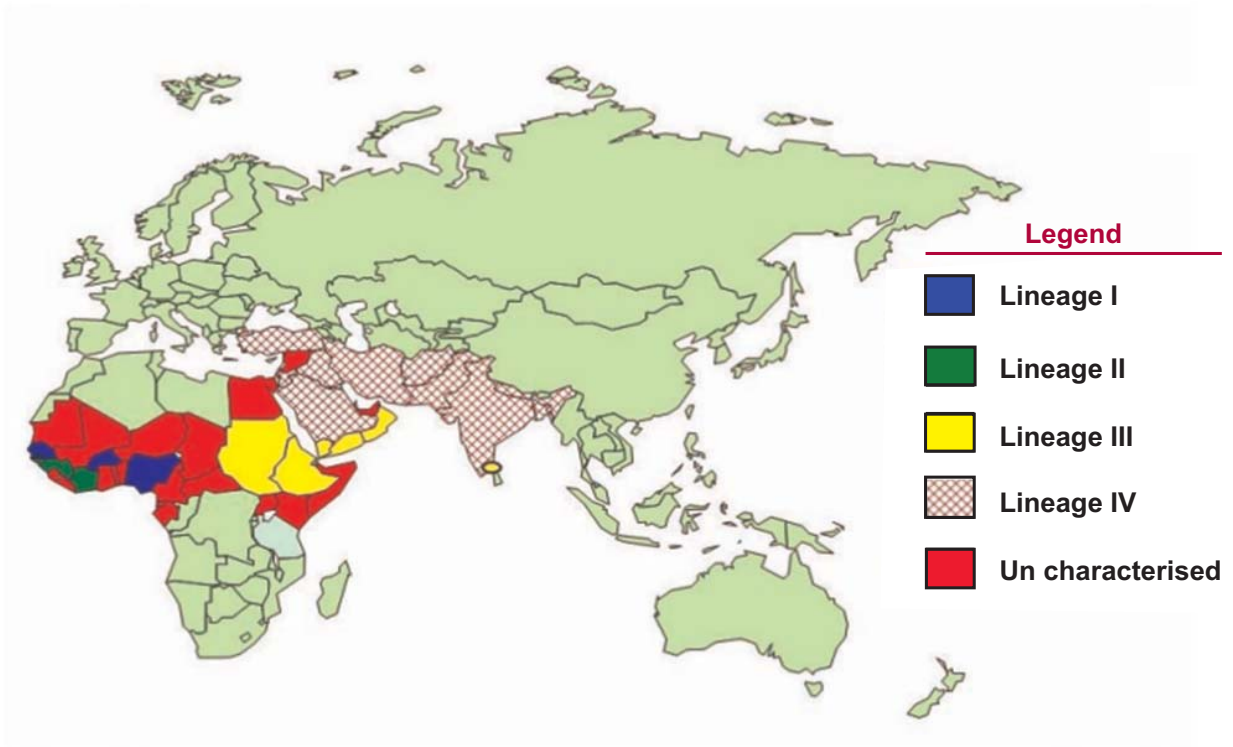


Fig.2 PPR virus lineages and global distribution



Chapter 3

Questionnaire based self assessment of PPR control status of SAARC countries

Based on the questionnaire (Annex-III) sent to the participating countries prior to the workshop an overview of the current PPR control situation was consolidated. The questionnaire contained total 42 questions related to various requirements of PPR control including, regulation and legislation (4), disease reporting and investigation (15), comprehensive control plan (15), and vaccine and vaccine production (6). The countries were also asked to identify challenges (1) and remedies (1) for PPR control in their respective countries.

3.1 Questionnaire based stocktaking of PPR progressive control in SAARC region

All countries in the SAARC except India, Afghanistan and Sri Lanka submitted the filled in questionnaires before and on the day of workshop. The responses of the respective countries (Table 1) to the questions were collated in to four major components, analyzed and presented in the workshop. The overview of analysis is shown in Fig 3 and briefly discussed below:

3.1.1 Regulation and legislation: All the participating countries except Pakistan have appropriate legislation and regulations pertaining to animal disease control such as animal movement/transport, marketing, compensation, taxes etc however these have not been updated during the last five years.

3.1.2 Disease reporting and investigation: All the countries get reports of PPR outbreaks from the farmers and share their information on PPR with the neighbouring countries except Pakistan who did not report PPR to OIE during the previous 12 months. All countries except Nepal have no robust surveillance system and disease information system in place for PPR.

Bangladesh, Pakistan and Nepal have estimated the prevalence of PPR across the country and the later two countries (Pakistan and Nepal) have also identified hotspots of PPR for future control interventions.

3.1.3 Comprehensive control plan: Pakistan and Bhutan have strategic PPR control plan including studies on epidemiology and the socio-economic impacts of PPR while characterising the animal movement pattern across the borders. Nepal and Bangladesh have yet to develop a strategic plan officially endorsed by government for control of PPR.

3.1.4 Vaccine and vaccine production: All countries have identified the particular lineage of causative agent in their respective country during the last five years. They have determined their annual requirement of PPR vaccine and are producing the vaccine locally except Bhutan.

3.2 Self identified challenges to the control of PPR

Development of strategic plan and assured budget for implementation of the plan, enhancement of technical expertise and skills, awareness among farmers about PPR, formulation and implementation of regulations regarding animal movement etc, availability and delivery of quality assured vaccine and harmonization of diagnostic assays / test are among the self identified challenges to the control of PPR in the region. Self identified challenges and their remedies to PPR control at policy and field level by individual countries are indicated in Table 2 and 3 respectively.

Fig 3. Overview of current status of PPR control capacities in SAARC Member States

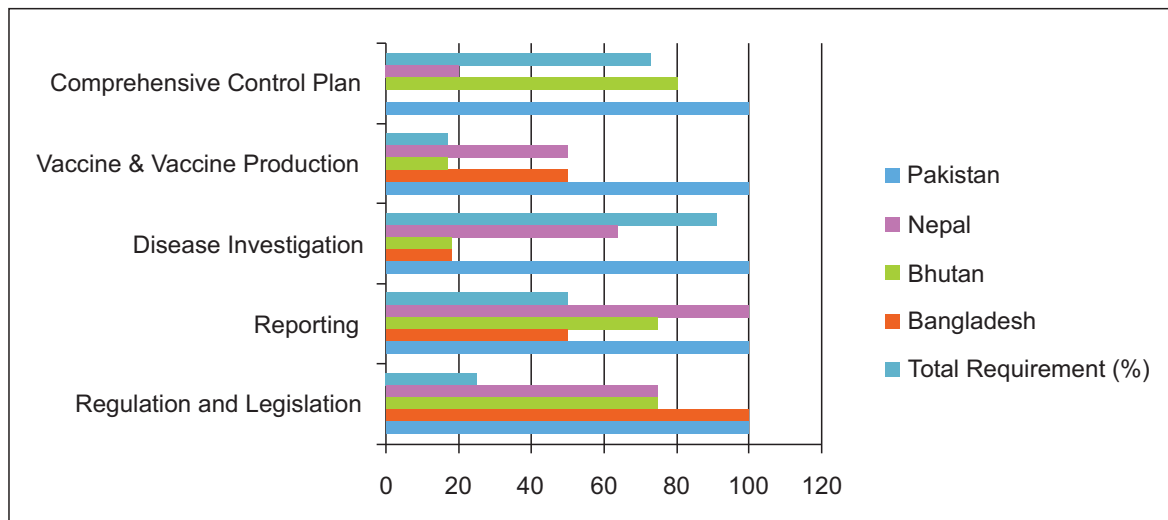


Table 1. Questionnaire based stocktaking of PPR progressive control in SAARC region

Component of PPR Control	Indicator	Status in the Region BD= Bangladesh; BH= Bhutan; NP= Nepal; PK= Pakistan			
		BD	BH	NP	PK
Regulation and Legislation	Is PPR a notifiable disease according to national regulations?	+	+	+	+
	Has an OIE PVS or Gap analysis mission been done in the last 5 years?	+	+	+	-

		BD	BH	NP	PK
	Are regulations pertaining to animal disease control, manure disposal, animal movement / transport, marketing, taxes etc) described and understood?	+	+	+	-
	Has the veterinary legislation been reviewed within the last 5 years with respect to legal authority to carry out disease control?	+	-	-	-
Disease Reporting	Do you have PPR reported by farmers/other stakeholders during the last 5 years in your country?	+	+	+	+
	Did the country report PPR outbreaks within the previous 12 months to the OIE?	+	+	+	-
	Has the country shared official information with other countries in the region concerning the PPR situation?	-	+	+	+
	Is there a robust surveillance system and disease information system in place that helps early detection of disease and guide control measures in the field?	-	-	+	-
Comprehensive Control Plan	Is there comprehensive strategic plan in place to study the epidemiology and socio-economic impact of PPR and control?	-	+	-	+
	Is this plan officially documented?	-	-	-	+
	Is this plan endorsed by competent authority?	-	-	-	+
	Is there a specific funding mechanism (public/private) to implement this plan?	-	+	-	+
	Does the plan include activities to estimate the losses due to PPR?	-	+	+	+
	Does the plan include information of the structure of production systems for small ruminants throughout the country?	-	+	-	+
	Does this plan contain list of stakeholders involved in farming, breeding, transportation, marketing, slaughtering and processing of small ruminants?	-	+	-	-
	Are the livelihoods (i.e. source of income, expenses, losses) of each and every stakeholder associated with small ruminants well described?	-	+	-	-
	Does the plan include a timeline for activities?	-	+	-	+
	Does the plan include a budget estimate for each activity?	-	+	-	-
	Does this plan define roles and responsibilities of each and everyone involved in its implementation?	-	+	-	-

		BD	BH	NP	PK
	Does this plan include in built monitoring and evaluation system?	-	+	-	+
	Have any of the activities described in the plan been initiated?	-	+	-	+
	Are the movements of sheep and goat within the country well characterized?	-	-	+	+
	Are the movements of sheep and goats into (import, porous borders etc) the country well characterized?	-	+	+	+
Disease Investigation	Have you got the details of imports of Sheep/goats and their disposal/ destination during the last 3 years?	-	-	-	+
	Have field epidemiological units been defined to understand distribution of PPR across the country?	-	-	+	+
	Has a sero-survey, specifically designed to estimate PPR prevalence, been done in the 3 years?	-	-	+	+
	Has the prevalence of PPR been estimated for one or more regions (e.g. province/state, district) of the country, using robust epidemiological data collection techniques within the last 3 years)?	+	-	+	+
	Has the prevalence of PPR been estimated across the country (all provinces /states, districts) and in different husbandry systems (Subsistence, occupational, nomadic, corporate etc) using robust epidemiological data collection techniques in the last 3 years?	-	-	+	+
	Has the prevalence of PPR been estimated for each and every, using robust epidemiological data collection techniques during the last 3 years)? Have 10 or more outbreak investigations been carried out to describe the clinical presentation and to identify source of infection, mechanisms for spread and virus strain?	-	-	-	+
	Have 5 or more isolates from outbreaks been genetically characterized in the last 5 years by national, regional or international reference laboratories?	-	-	-	+

		BD	BH	NP	PK
	Have you set measurable targets to reduce the impact of PPR? (e. g, number of outbreaks decreased to XX, level of prevalence reduced, direct losses reduced by a target %..)	-	+	+	-
	Have specific practices or areas been identified that are believed to be major contributors to PPR spread in the country?	-	-	+	+
	Have you identified hot spots based on magnitude of risk of PPR infection across the country?	-	+	+	+
Vaccine and Vaccine Production	Has the causative PPRV lineage been identified in the last 5 years?	+	+	-	+
	Do you import PPR vaccine?	-	-	-	-
	Do you produce PPR vaccine?	+	-	+	+
	Have you estimated the total annual requirement of PPR vaccine for the country?	+	-	+	+
	Have you estimated the cost of vaccine per unit (Dose)?	-	-	+	-
	Have you set measurable targets/ indicators for implementation? (e.g. defined vaccination coverage to be targeted, specific number of markets to be covered, number of training sessions to be conducted)?	-	-	-	-

Table 2. Self identified challenges to PPR control

Bangladesh	Bhutan	Nepal	Pakistan
<ol style="list-style-type: none"> 1. Development of strategic plan and assured budget for implementation of the plan 2. Awareness among farmers about PPR is not high 3. DLS is understaffed at field level 	<ol style="list-style-type: none"> 1. Funds 2. Technical expertise and skills 3. Policy support (Animal health policy still at draft stage) 	<ol style="list-style-type: none"> 1. Policy Level: No contingency Plan for PPR; low budget allocation, Government commitment is poor. 2. Field Level: Multi sectoral responsibility to the field staff, they could not pay much time for the control, containment etc for PPR. 	<ol style="list-style-type: none"> 1. Formulation and implementation of regulation regarding animal movement 2. Availability of Quality assured vaccine 3. Harmonization of diagnostic tests at provincial/regional levels 4. Formulation of regional/national program for control of PPR 5. Production and proper delivery system for PPR vaccine 6. Development and dissemination of cost effective diagnostic assays e.g. HA test

Table 3. Self identified remedies to meet the challenges to PPR control

Bangladesh	Bhutan	Nepal	Pakistan
<p>Developing a strategy and making financial arrangement and undertake PPR control campaign</p>	<ol style="list-style-type: none"> 1. Defined source of funds supported by policy 2. Enhance skill and expertise 	<ol style="list-style-type: none"> 1. Government should develop contingency plan for PPR control 2. Commitment of Government for sufficient budget allocation should be made for vaccine production, mass vaccination campaign (recruiting or hiring the extra human resource such as vaccinator, extension workers etc), logistics and cold chain maintenance facilities in the field 	<p>No response</p>

Chapter 4

PPR control status of SAARC countries in 2011 based on country presentations and OIE reports

Afghanistan has more than 16 million heads of small ruminants. The PPR is a notifiable disease. Targeted surveillance and vaccination are documented measures of control for PPR.

Bangladesh has about 22.7 million of small ruminants with more than 80 percent of household maintained herds comprising of 4-5 animals. Black Bengal is dominant goat breed. The PPR is notifiable disease. The disease information is derived through general surveillance. The control of PPR mainly hinges on vaccination however; Department of Livestock Services is engaged in developing a National control strategy and plan to be endorsed formally by the government.

Bhutan has only little more than fifty thousand heads of small ruminants. It is mainly because of forestry legislation which allows raising not more than four goats per household. It has a fairly good epidemiology, diagnostic capacity and disease response system in place. Bhutan intends to observe stamping out policy for PPR in future as no outbreak of PPR after first case in 2010 has been detected.

India has more than 220 million heads of small ruminants. Fifteen to eighteen percent of Indian rural population is engaged in rearing of small ruminants. The PPR is notifiable in India. Prevalence of PPR is about 32 percent in India and control of PPR is hinged on vaccination. Epidemiology of PPR is well studied and diagnostic capacity (rapid test and molecular based) is very advanced in India.

Nepal has recorded over eight million heads of sheep and goats maintained mainly by poor and marginal farmers in the country. The PPR is notifiable disease and disease information is generated through general passive surveillance. Vaccination is the main tool for its control however, national control plan for PPR is in place. Mass vaccination is future plan for eradication of PPR.

Pakistan has large resource base numbering more than 88 million small ruminants kept mainly by landless farmers therefore presence of PPR is directly threatening the food security and livelihoods of rural communities. Passive surveillance is used to gather data surrounding PPR however, epidemiology of PPR is well understood and explained in Pakistan due to a number of studies undertaken by individual efforts of researchers. Control is through vaccination which is claimed to confer immunity even at half dose rate for three years.

The summary of PPR control Status in SAARC Countries in 2011 is given in Table 4.

Table 4. Summary of PPR control status of SAARC countries in 2011

Indicators	Current status in relation to PPR control			
	Bangladesh	Bhutan	Nepal	Pakistan
Susceptible population	27.22 million sheep and goat (Black Bengal) (2010-11)	52 382 sheep and goat (2008). Population drastically declined by 50% during last decade	8.2 million	88 million sheep and goats
Husbandry system	Mainly small holding. 4-5 goat and 5-7 sheep per household	Small holding (by Forestry legislation- <4/Household), integral part of crop production	Poor and marginal farming	Landless farmers (nomadic-44%, transhumant-38% and sedentary - 18%)
Disease situation	Endemic, Lineage IV, first seen during 1990's. Across the country especially in western part, occurs throughout the year	No case after first ever confirmed case of PPR 2010, Lineage IV virus	Endemic, first seen in 1994, reported in 68 districts, PPR, Lineage IV	Endemic, Lineage IV, first confirmed in 1993
National control plan and policy	Vaccination, national control strategy is in planning phase	Veterinary emergency preparedness plan is in place	National PPR control program is in place	No formal plan & strategy existed
Diagnostic capacities and capabilities	PCR, cELISA, IC-ELISA and Rapid test at National Reference Laboratory in BLRI	PCR	ELISA, VI, PCR, RT-PCR, gene sequencing	ELISA, VI, PCR, RT-PCR, gene sequencing
Value chain analysis	No formal value chain analysis and economic impact analysis done however, movement pattern of small animals is known	Not done	Not done	Not done however, economical losses estimated through small scale studies
Disease surveillance, early warning and information sharing	Passive surveillance, however limited active surveillance real-time information sharing with neighbouring countries does not exist however through OIE	Clinical surveillance by field extension services and laboratory surveillance	Regular sero-surveillance and monitoring by laboratories	Passive surveillance is in place, no formal information sharing with bordering countries except through OIE

Table 4. (Continued)

Indicators	Current status in relation to PPR control			
	Bangladesh	Bhutan	Nepal	Pakistan
Outbreak investigation	Usually by local veterinary office however, central teams investigate in case of unusual surge, BLRI analyse samples	Epidemiology unit is in place	Epidemiology unit in place	Not formally done usually
Vaccine production	3.4 million doses produced annually capacity of 10 million doses using local 'Tito' strain	Nil	Imported initially from African continent however started local production using Nigeria 75/1 strain in 1999. Capacity is 4.5 million but 2.1 million doses produced per year	Local production is in place using Nigeria 75/1 strain
Future plan	Development of PPR control strategy, mass vaccination, enhancing capacity of field laboratories for PPR detection, final aim is to eradicate PPR	Sero-surveillance- baseline information on national status (2012 end); National PPR Control Programme (stamping-out strategy is to be adopted); capacity (laboratory) development with FAO support	Mass vaccination (PPR Vaccination Week) and eradication	Not known

Chapter 5

Technical presentations

Lead presentation on progressive control (PC) of peste des petits ruminants (PPR) in South Asia: Dr Santanu Bandyopadhyay, FAO-ECTAD Team Leader Vietnam.

Dr Bandyopadhyay reminded the participants that already agreed road map for the control of TADs in South Asia in 2008 is a guide/tool toward the PC of PPR. The presentation also outlined the level of poverty, large high risk small ruminant population, PPR prevalence in the region ultimately causing the loss of livelihood and leading to food security crisis. Global domestic small ruminant population at risk is about 62.5 percent.

Looking at the annual loss due to disease, suggesting disease control by vaccination would be a beneficial and meaningful programme. There are four different lineages of PPR virus and out of this lineage IV is prevalent in South Asia.

In the concluding remarks he highlighted the importance of disease as it affects food security, rural livelihoods and development. He said PPR eradication program is necessary as it is desirable, achievable, technically feasible and economically viable in South Asia. In addition, there must be political and administrative commitment, regional cooperation and harmonisation in surveillance and laboratory protocols, regional mandate, regional resources and sharing of knowledge and information within the region. The lessons learned from rinderpest eradication, and delivery of veterinary service provides a strong justification of progressive control of PPR.

Lessons learnt from rinderpest eradication: Prospects for enhancing PPR control in SAARC countries: Dr Mohinder Oberoi, FAO Sub Regional ECTAD Manager (SAARC) Kathmandu, Nepal

Dr Oberoi mentioned that rinderpest (RP) is a disease of the past and one should learn from RP eradication to develop a progressive control pathway for PPR as a priority disease in the future. Both the diseases have common clinical manifestation and antigenically are similar.

While highlighting the potential implications of RP eradication one should evaluate the role of different species implicated in the epidemiology of the disease and test the consequences of control programmes, especially by partial or total vaccination, also evaluate the necessity to vaccinate during the national vaccination campaigns. There are many practical issues which need to be addressed before significant progress can be assured. The most challenging are epidemiological issues and delivery of vaccines to at risk population of about 300 million small ruminants in SAARC Member States.

Finally he underlined that PPR is an excellent candidate for international attention. Food and Agriculture Organization of the United Nations (FAO) would play a coordinating role on the regional campaign and provide technical backstopping similar to the approach used during RP eradication. There are good reasons to believe that the eradication of PPR is an achievable goal like rinderpest.

Spatio-temporal distribution of *peste des petits ruminants* (PPR) outbreaks in South Asia: Dr Pasang Tshering- Regional Epidemiology Centre Coordinator

In his brief introduction he described PPR, its spatial and temporal distribution patterns between 2005 and 2011. He also highlighted the first time disease occurrence/reporting in the respective member states. India reported PPR in South Asia first in 1987 which is confined to certain states, Bangladesh and Nepal reported the disease since 1996, Pakistan started reporting in 1997 followed by Afghanistan since 2002. Maldives reported the disease for the first time in May 2009 and Bhutan in June 2010. Sri Lanka is the only free country in South Asia.

PPR and Millennium Development Goals (MDGs) on the cross road: Dr Muhammad Akram, Regional Epidemiology Centre Assistant Coordinator

Dr Akram explained the MDGs definition and introduction relevant to livestock sector. The goal 1: eradicate extreme poverty and hunger and goal 8: develop a global partnership for development is more relevant to livestock. The current status of poverty in the region was highlighted as the region is categorised as a thickly populated, least developed, highest poverty, least integrated for trade and with diverse economy.

He emphasised that the strategy to combat PPR would be developing a comprehensive, practicable and robust plan for progressive control of PPR while bridging the gaps, constraints and bottlenecks at national and regional levels and maintaining the collaboration and cooperation in the SAARC countries.

Challenges in eradicating PPR in South Asia: an inclusive communication approach: Mr Prakash Nayak, RSU Communication Expert

Mr Nayak while presenting challenges in eradicating PPR in South Asia pointed to the socio-economic losses that affect small and marginal farmers. He elaborated on the role of communication and its inclusion in the larger control strategy right from the individual households, community, system and at policy levels. He discussed on the over arching themes in handling communication activities in the region and One Health approach while handling disease affecting small ruminants under the broad regional communication strategy framework adopted for the Asia-pacific regions and deciding upon short-term activities and long-term communication activities.

Chapter 6

Outcome of group discussions

6.1 Identification of essential components of comprehensive control plan for PPR

After threadbare discussions, the participants identified following components and actions for respective component for further discussions to develop a comprehensive control plan/progressive road map for PPR:

Component	Proposed actions/Recommendation by group
Policy	Human resource Vaccination policy-coverage and frequency (mass, targeted, etc) Vaccine bank SAARC PPR control strategy document?
Institutional set-up and capacity building	Institutional set-up and institutional linkages/implementing capacity Capacity building including technical capabilities (human resource, lab reagents) Continual research local and regional knowledge generation on PPR Vaccine bank Human resource capacity development
Outbreak response and contingency plan	Response mechanism during outbreak Contingency plan/guidelines Outbreak investigation SOP Quarantine procedures
Legislation	Legal policy for PPR control <ul style="list-style-type: none"> • Before outbreak • During outbreak • Livestock movement control Regulate import/export of live animals (small ruminants)
Epidemiology/ surveillance/ outbreak investigation/ reporting/ information sharing	PPR outbreak information sharing at national/regional/global level Surveillance strategy/plan and activities Reliable and authentic data Epidemiology of the PPR outbreaks Risk factor analysis/identification of high risk areas (hotspots) National serological surveillance Value chain evaluation/analysis Disease reporting system Import risk analysis

Component	Proposed actions/Recommendation by group
Vaccine and vaccination	Knowledge on quality Availability of quality vaccine Quality vaccine production capacity in-country Resources available for vaccine production Good Laboratory Practices (GLP) for vaccine production Cold chain maintenance Vaccine bank Marker vaccine production/DIVA system
Diagnosis	Laboratory testing facilities Field diagnostic test Laboratory diagnostic test Diagnostic reagent availability/production Harmonization of diagnostic protocols
Impact assessment/ food security/ poverty alleviation	Systematic socio-economic impact assessment due to PPR
Advocacy and communication	Advocacy Awareness and communication Strengthening regional communication Proper procedure for control and communication
Monitoring and evaluation	Independent monitoring and evaluation

6.2. Developing a road map for PPR control in the SAARC region

Following detailed discussions the participants proposed following roadmap 2011-2020 with respect to each of the essential component of PPR control Plan:

Essential Component	Road map 2016-2020 for PPR control in the SAARC region
Policy	<ol style="list-style-type: none"> 1. Prioritise sub-regions in the endemic areas and conduct compulsory vaccination with clear-cut exit policy 2. Follow ring vaccination or stamping out policy in non endemic/PPR free clusters/areas 3. Mobilize resources (national and foreign funds) on priority needs including PPR control 4. Consider involving NGOs in PPR control for resource mobilisation and implementation of control interventions
Institutional set-up and capacity building	<p>Institutional set-up</p> <ol style="list-style-type: none"> 1. Strengthen epidemiological units at National and sub-national levels and link them to Regional Epidemiology Centre (REC) 2. Develop dedicated national PPR laboratories and establish vertical linkages with International reference laboratory and Regional Leading Diagnostic Laboratory for PPR as well as horizontal linkage with sub-national laboratories and surveillance laboratories in the respective countries 3. Develop and establish consultation and implementation mechanism for agreed/planned interventions including National implementation focal organization, GO, NGOs, private veterinary services etc 4. Establish regional and national PPR control centres and identify focal institutions for national and regional networking to enhance national and regional coordination to address the emergencies 5. Strengthen diagnostic, surveillance and veterinary services at national and provincial levels 6. Consider establishing a Regional/National vaccine bank for PPR and develop mechanism for its operations to ensure availability/supply of vaccine to meet the emergency requirements at national and regional level <p>Capacity Building:</p> <ol style="list-style-type: none"> 1. Review existing institutional capacities in relation to PPR controls (epidemiology and diagnostic laboratories) identify gaps and fill them accordingly 2. Each country should identify national and regional institutions for capacity building and training in the field of epidemiology, diagnosis of PPR and vaccine production and vaccine quality control etc 3. Review and strengthen national vaccine production institutions and determine their capacities and capabilities for quality vaccine production and safe transportation

Essential Component	Road map 2016-2020 for PPR control in the SAARC region
	<ol style="list-style-type: none"> 4. Develop human resource capacity in the field of epidemiology, surveillance and diagnostic capacity and ensure inter-regional transfer of technology and expertise 5. Strengthen PPR reference Regional Leading Diagnostic Laboratory (RLDL), Bangladesh and use this lab for regional networking 6. Strengthen national research institutions in terms of equipment and expertise to ensure continuous research on pathogenesis, means of transmission dynamics of PPR virus and role of buffalo and camel in epidemiology of disease
Outbreak response and contingency plan	<ol style="list-style-type: none"> 1. Develop and implement contingency plans /guidelines/SOPs for PPR reporting, outbreak investigation, control interventions as well as timelines for activities to be undertaken such as epidemiological and laboratory investigation, disinfection and disposal, outbreak notification along with declaration of area to be considered as infected, ring/emergency vaccination etc 2. Designate dedicated rapid response teams and regulatory teams; logistic and vaccination teams to implement outbreak control measures including isolation of infected flocks, movement control, disposal and disinfection of infected premises, vehicles etc, arrangement, supply and delivery of vaccines 3. Ensure investigation of all outbreaks while considering involvement of local veterinarians, para-veterinarians and NGO activists at least at the implementation level of control interventions such as ring vaccination 4. Develop and simulate outbreak response mechanism including (a) disease notification (based on clinical signs and laboratory confirmation), (b) isolation and movement control, (c) vaccination/stamping out, (d) compensation, (e) disposal of carcasses (supervised burials and burnings), (f) disinfection of the area/infected premises 5. Develop SOPs and mechanism for mobility of response teams including arrangement of transport, cold chains for delivery of vaccine, vaccination equipment and or destruction/disposal of animals etc 6. Define clearcut SOPs for isolation and movement control of animals to and from affected premises 7. Equip and train the response teams to undertake response interventions already planned and or revised from time to time including disinfection of the area/infected premises, disposal of carcass-supervised burials and burnings, vaccination/stamping out, awareness and social mobilisation in the area develop and implement communication and awareness creation strategy for PPR control;

Essential Component	Road map 2016-2020 for PPR control in the SAARC region
Legislation	<ol style="list-style-type: none"> 1. Develop regulation to restrict movement of human/animal/products to and from infected premises as well as transportation of infected animals/products 2. Develop regulation for isolation/slaughtering of the infected herd
Epidemiology/ surveillance/ outbreak investigation/ reporting/ information sharing	<ol style="list-style-type: none"> 1. Develop case definition (suspected (high fever), probable (stomatitis + diarrhoea + fever), confirmed (isolation of virus, laboratory confirmed PPR) for PPR and widely circulate in the field to enhance PPR reporting 2. Define and code basic epidemiology unit (e.g. one village-one herd) and collect and record field data accordingly 3. Define tools of data collection, storage, management, analysis and dissemination at national, regional and international levels 4. Map the risk in the perspectives of: <ol style="list-style-type: none"> a. Geography, production and marketing system b. Movement patterns /routes c. Cross border relations d. Formal/informal animal trade 5. Identify the high risk areas and or hot spots for PPR in term of seasonal distribution 6. Ease out case reporting by GO, NGOs and private sectors, farmers etc. 7. Consider enhancing existing passive surveillance system by ensuring efficient record keeping and encouraging flash reporting by veterinarians, para-veterinarians and/or farmers and facilitating reporting through toll free numbers 8. Define and develop surveillance plan and ensure collection of diagnostic samples as required in the surveillance plan <ol style="list-style-type: none"> 1. Conduct age specific (5-14 months old animals) sero-surveillance in non-vaccinated animals to identify endemic areas and to be targeted for future interventions 9. Develop and implement SOPs for outbreak investigation including case definition, description of regulatory, logistics and operational dynamics 10. Equip and train the disease investigation teams to undertake investigation activities including collection and dispatch of samples, collection of epidemiological data and investigation, reporting to responsible organisation /authority and compensation 11. Use molecular epidemiology to determine the links between the outbreaks 12. Ensure notification of disease based on clinical signs and laboratory confirmation to quarters concerned 13. Ensure mandatory reporting of notifiable diseases including PPR by all concerned including farmers, veterinary staffs, NGOs, media, and private veterinarians and laboratories etc

Essential Component	Road map 2016-2020 for PPR control in the SAARC region
	<ol style="list-style-type: none"> 14. Identify diseases requiring flash and periodical reporting 15. Ensure analysis, compilation and dissemination of disease data (clinical based on the sign and symptoms, post mortem etc, epidemiological and laboratory surveillance) by laboratories and epidemiology units for effective monitoring and understanding the disease intelligence 16. Conduct value chain analysis covering the production systems, live animal markets, animal fairs and import/export points to devise appropriate measures to restrict the spread of disease to otherwise disease free areas/animals 17. Improve coordination between national epidemiological units and laboratory network; conduct training and awareness sessions with the stakeholders
Vaccine and vaccination	<ol style="list-style-type: none"> 1. Follow OIE guidelines for vaccine standards 2. Develop vaccine and vaccination strategy for PPR including production/import of vaccine; vaccine strain to be used, coverage (species and population, area), frequency of vaccine, pre-post vaccination sero-surveillance/monitoring, quality assurance of vaccine, cold chain and delivery of vaccine, effectiveness of vaccine and cost benefit of vaccination etc 3. Preventive large scale/mass vaccination for five years targeting high risk areas in the first place followed by targeted vaccination 4. Ensure availability of PPR vaccine having appropriate virus strain in required volume for routine use as well as stockpile for emergencies 5. Ensure provision and supply of strains, cell lines, consumables required for uninterrupted production of PPR vaccine 6. Ensure cold chain maintenance from production to use in the field; it may be by using different dosage vials in accordance with the need of end users and or by developing thermo-stable vaccine 7. Consider ring vaccination at the face of outbreak to create an immune belt around infected premises <ol style="list-style-type: none"> a. Develop certain criteria for weighing risk associated with PPR infection, impact etc and identify hot spot based on the magnitude of the risks b. Consider vaccination of small ruminants at borders and/or points of entry/exit used for trade 8. Determine an appropriate time of vaccination campaigns bearing in mind the production systems 9. Conduct statistically valid post vaccination surveys to assess the protection level and review vaccination policy, if necessary
Diagnosis	<ol style="list-style-type: none"> 1. Identify appropriate diagnostic test (cheapest, simple, having good sensitivity and specificity) to be used in the field and laboratory based on availability of financial and human resources

Essential Component	Road map 2016-2020 for PPR control in the SAARC region
	<ol style="list-style-type: none"> 2. Diagnostic assays may include: <ul style="list-style-type: none"> - Virus isolation - C-ELISA - IC-ELISA - RT-PCR - Pen side test - AGPT - CIE - HA 3. Consider exchange of PPR specific specialised reagents among the member states through RSU 4. RSU may arrange training on diagnostic assays by the regional leading laboratories 5. Develop a regular system for Proficiency Testing at regional leading laboratory 6. Develop master trainers at regional level 7. Organise regular training on GLPs and laboratory information management system 8. Organise training of field veterinarians and para-veterinarians on collection and dispatch of samples, basic diagnostic tests and on clinical diagnosis; 9. Organise farmers awareness trainings
Impact assessment/ food security/ poverty alleviation	<ol style="list-style-type: none"> 1. Conduct socio economic study and impact assessment of PPR disease on: <ul style="list-style-type: none"> - Livelihood, income, food safety, food security etc. - Indirect impact on nutrition, education - Psycho-social and emotional impact - Total economic impact - Cost analysis and benefit to be accrued from a control programme
Advocacy and communication	<ol style="list-style-type: none"> 1. Develop a communication plan after having analysed the strengths and weaknesses of existing communication methods, channels, content and inclusive of the regional communication framework 2. Practice information sharing at regional and national level 3. Explore and utilise indigenous knowledge and cultural practices in disease control 4. Identify target group based on stakeholders analysis and develop evidence based messages and tools of communication (possible target groups and important activities) 5. Exchange visits of related scientists/experts

Essential Component	Road map 2016-2020 for PPR control in the SAARC region
Monitoring and evaluation (M & E)	<ol style="list-style-type: none"> 1. Establish M & E cell at national, sub-national and district/sub-districts levels 2. Develop M & E framework/indicators (to monitor and evaluate the progress in terms of): <ul style="list-style-type: none"> - Quality - Quantity - Timeliness - Location - Disease status (numbers of outbreak in a given time in given species in particular epidemiological unit) - Vaccination (coverage i.e. geographic and animal coverage, quality, efficacy, titres etc) - Surveillance (efficiency, sensitivity etc) 3. Ensure compilation of periodic reporting i.e. monthly reports including target and achievements components 4. Conduct district/sub-district review meetings on success and failure 5. Conduct qualitative and quantitative evaluation against given indicators 6. Get feedback on constraints/bottlenecks through consultation meetings with multi-stakeholder 7. Ensure international and external evaluations 8. Review and re-frame implementation plan in accordance with evaluation reports and stakeholders feedback

6.3. Prioritised major and minor milestones for PPR-progressive control roadmap 2011-2015 for SAARC countries

6.3.1 Prioritised top five major milestones/activities to be achieved by 2015

- ▶ Development/formulation of Policy Framework for PPR control/vaccination/availability of vaccine/vaccine production/coverage/resource mobilisation
- ▶ Comprehensive/strategic/action/operation plan developed and adopted for PPR eradication
- ▶ Advocacy and communication/awareness
- ▶ Regional road map in place/laboratory diagnostic test/diagnostic protocols (SOPs) established and harmonised
- ▶ Institutional set-up/impact assessment and socio-economic studies/legislation/surveillance and epidemiology/baseline surveys/capacity building

6.3.2 Prioritised top five minor milestones/activities to be achieved by 2015

- ▶ Advocacy to the government to convince to prepare a strategic plan for progressive control of PPR
- ▶ SOPs for various components developed/outbreak investigation and response mechanism strengthened/quality vaccine production capacity in the country enhanced
- ▶ Policy reviewed/over-all PPR control programme reviewed and revamped/sero-monitoring/surveillance plans are developed and implemented
- ▶ Legislation revisited/formulation and implement of legislation regarding animal movement between and within regional countries
- ▶ Monitoring and evaluation of the PPR control programme

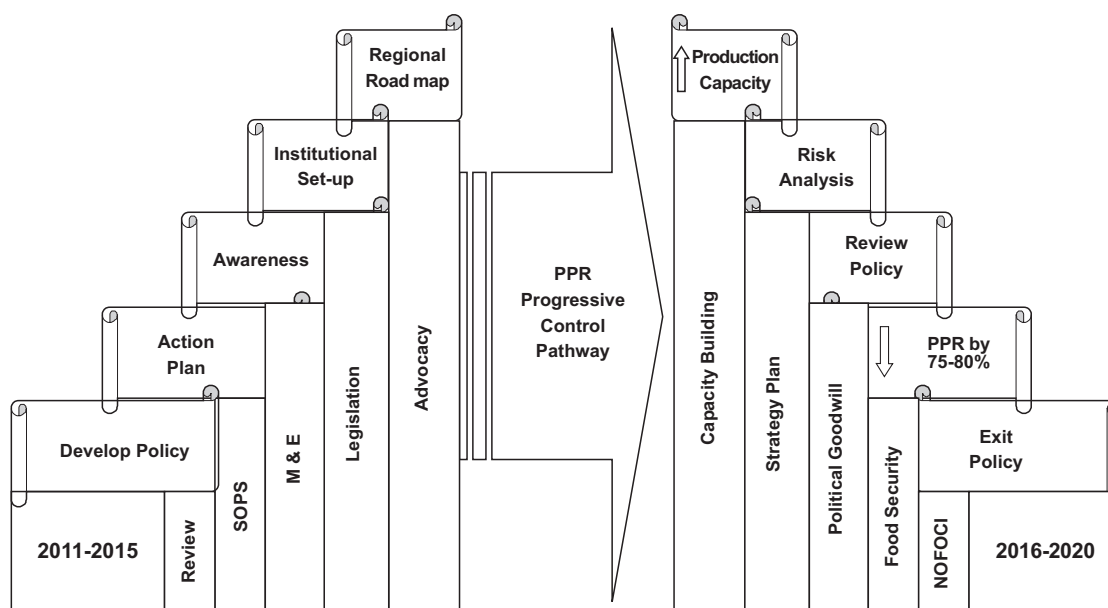
6.4 Prioritised major and minor milestones for PPR-progressive control roadmap 2016-2020 for SAARC countries

6.4.1 Prioritised top five major milestones/activities to be achieved by 2020

- ▶ No PPR in SAARC region/PPR controlled (freedom from disease) in 80 percent of the total area of the countries/decreased PPR occurrence by 75 percent
- ▶ Diagnostic and production capacity of institutions increased
- ▶ Contingency plan/risk analysis
- ▶ Review of policy and plans- vaccine coverage/animal movement control/outbreak investigation/vaccination and monitoring
- ▶ Exit policy

6.4.2 Prioritised top five minor milestones/activities to be achieved by 2020

- ▶ Political good-will developed in all SAARC countries/ensured political support for PPR
- ▶ Human resource capacity building/capacity of all stakeholders involved in PPR control/management improved
- ▶ Strategy plan completed/targeted vaccination only
- ▶ Ensured food security and poverty alleviated
- ▶ No more outbreak foci in the region



6.5 Summary outline of comprehensive PPR control plan for South Asia

6.5.1 Identification of the essential components of the PPR progressive control roadmap for South Asia

1. Appropriate policy (individual country policies tuned to a generic regional policy)
2. Institutional set-up (regional and national)
3. Capacity development (regional, national and sub-national)

4. Technical programme:
 - ▶ Outbreak reporting, investigation
 - ▶ Diagnosis, notification
 - ▶ Response, vaccination
 - ▶ Epidemiology
5. Legislative support
6. Socio-economic impact
7. Resource mobilisation
8. Communication and advocacy
9. Monitoring and evaluation
10. Cost benefit analysis
11. Status recognition

6.5.2 National PPR control policy: whole country, regions within the country (zonal approach)

6.5.2.1 Elements of the policy:

- i. Objective of the control plan, e.g. loss reduction, freedom from the disease, eradication
- ii. Plan of implementation: disease surveillance, diagnosis, vaccination etc.
- iii. Defined output, outcome, impact
- iv. Institutional set-up (appropriate legislation, technical capacity, diagnostics and vaccines, R&D, notification mechanism, implementing agencies and governance)
- v. Resources (financial, human and infra-structure)

- vi. Stakeholders (producers, GOs, civil societies, financial institutions (banks and insurance)
- vii. Importers
- viii. Communication and advocacy
- ix. Specific requirements (stamping out and compensation, market closure,)
- x. Time-lines, milestones and M&E
- xi. Tuned to the regional control policy

6.5.2.2 Institutional set up:

- i. Laboratories, diagnostic service network
- ii. Implementation focal agencies, GOs, NGOs, producers
- iii. Vaccine production facilities (vaccine bank)
- iv. Epidemiological units
- v. PPR-specific R&D set up
- vi. Legislative support

6.5.2.3 Human resources and capacity building:

- i. HR need assessment
- ii. Diagnostic preparation, handling, quality assurance and harmonisation
- iii. Epidemiology (field) skill enhance enhancement
- iv. Vaccine production, QA, transport, storage, application
- v. Communication and advocacy skill
- vi. Monitoring and evaluation skill

6.5.2.4 Outbreak investigation and response plan (contingency plan)

- i. Reporting channel
- ii. Field investigation, sampling, laboratory diagnosis, notification and communication
- iii. Outbreak response (logistics, operational guidelines, disposal and disinfection, vaccination, isolation and movement control including closure of aggregation points)
- iv. Risk communication
- v. Epidemiological investigation (spatio-temporal data, tracing, molecular epidemiology)
- vi. Risk assessment and value-chain studies

6.5.2.5 Surveillance plan

- i. Case definition, differential diagnosis
- ii. Mandatory reporting and sharing of information
- iii. Purpose of surveillance
- iv. Clinical and laboratory-based surveillance
- v. Surveillance targeted towards high risk and low risk zones, sub-clinical status
- vi. Post-vaccination monitoring and sero-surveillance for status assessment
- vii. Compilation of surveillance data, risk assessment and communication

6.5.2.6 Epidemiology and Value-chain Analysis

- i. Structured and targeted epidemiology data
- ii. Periodical analysis and reporting

- iii. Complete value-chain, including transhumant and pastoralists
- iv. Risk assessment at value-nodes
- v. Formal and informal trade risks
- vi. Spatial and temporal data analysis and early warning
- vii. Indigenous knowledge for control

Chapter 7

Recommendations

The objective of this workshop was to draft a strategic road map for progressive control of *peste des petits ruminants* (PPR) in the South Asian countries between 2011 and 2020 by following a progressive approach for PPR (PPR-PCP) through regional and bilateral consultations.

The expected outcome of this workshop was to identify essential components of a comprehensive control pathway of PPR and define important actions/milestones to be followed up between 2011-2020 divided in to two phases termed as road map 2011-2015 and road map 2016-2020.

Considering that,

- PPR is a notifiable disease of small ruminants that badly affects trade and livelihoods of rural landless famers in South Asia.
- The disease is similar to rinderpest which was successfully eradicated from the globe very recently.
- PPR vaccine is available which may confer lifelong immunity to the sheep and goats however, marker vaccine or DIVA system required to differentiate between vaccinated and infected animals is yet to be developed.
- There is no defined recognition mechanism for progressive control of PPR (PC-PPR) and accreditation for PPR freedom and declaration of eradication status etc.
- Epidemiology and sustained chains of transmission of PPR in endemic areas is not properly understood.
- PC-FMD may be followed in developing PC-PPR.
- RSU is the facilitating mechanism for the coordination of regional control of HPEDs including PPR in the SAARC member countries and monitor the progress of the implementation through its Regional Epidemiology Centre and Regional Leading Diagnostic Laboratories.
- PPR eradication is desirable, achievable, technically feasible and economically viable.

The following recommendations were drafted,

1. There is a need to develop and agree upon a regional roadmap for PPR- progressive control pathway (PC-PPR) on the lines of PC-FMD through consultations facilitated/ to be facilitated by RSU in South Asia.
2. The RSU will promote advocacy to develop a recognition mechanism by international bodies like OIE for PC-PPR and accreditation for PPR freedom and declaration of eradication etc.
3. The draft PC-PPR developed upon the outcome of this workshop will be circulated to the Member States for their consideration and preparation of their country plans.
4. Member States should consider updating the legislation regarding animal/human/products movement/transportation and isolation, quarantine and compensation leading to effective control of animal diseases locally and regionally.
5. Sharing of outbreak information on PPR between SAARC Member States and RSU was realised and considered as an important step to be taken up.
6. The Member States and/or region enhance the technical capabilities to diagnose PPR infection and to develop DIVA system.
7. The RSU shall consider organising follow up meetings as required to discuss the outcomes of this workshop at country level.
8. Training/capacity building on PPR diagnosis, epidemiology, proficiency testing, and development of diagnostic kits, developing and harmonising protocols shall be organised at regional and national level.
9. All stakeholders may consider public awareness and education on disease surveillance as a priority tool in order to enhance the reporting mechanism for early detection of the diseases.

Agenda

DAY-1

7 December 2011 (Wednesday)

Opening Session

08.30-09.00	Registration	
09.00-10.30	Welcome by FAO/DLS/MOAC	Host country/FAO
	Setting of the agenda	RSU-SAARC
	Overview of regional roadmap for PPR-PCP	Dr Santanu Bandyopadhyay, FAO Viet Nam, Facilitator
Opening Session		
10.30-10.45	Tea/Coffee Break	
10.45-12.00	Overview of current PPR situation in SAARC countries	Presentation by member states: Plenary session
12.00-12.30	Spatio-temporal distribution of <i>peste des petits ruminants</i> (PPR) outbreaks in South Asia	Dr Pasang Tshering REC-Coordinator
12.30-13.00	Challenges in eradicating PPR in South Asia: An inclusive communication approach	Mr Prakash Nayak RSU Communication Expert
13.00-14.00	Lunch	
14.00-14.30	PPR and millennium development goals (MDG) on the cross roads	Dr Muhammad Akram REC-Assistant Coordinator
14.30-15.00	Building strengths/Lesson learned from RP eradication programme	Dr Mohinder Oberoi Sub-regional ECTAD Manager
15.30-15.45	Tea/Coffee Break	
15.45-16.00	Questionnaire Survey	Dr Muhammad Akram REC-Assistant Coordinator
15.45-17.00	Essential components to develop the comprehensive plan	Group Discussion

DAY-2**8 December 2011 (Thursday)**

09.00-09.15	Feedback, comments and suggestions from day-1	Plenary Session
	Roadmap for PC-PPR during 1st Phase-2011-2015	
09.15-10.30	Comprehensive plan- (what need to be done?/ essential components to prepare comprehensive plan) SOP developed for surveillance, vaccine and quality control, outbreak investigation, tracing and dissemination of information, communication	
10.30-10.45	Tea/Coffee Break	
10.45-12.00	Group Discussion (continued) SOP developed for surveillance, vaccine and quality control, outbreak investigation, tracing and dissemination of information, communication	Group discussion
12.00-13.00	Group presentations	Plenary session
13.00-14.00	Lunch	
14.00-14.45	Capacity Enhancement: (what need to be done? /essential components to prepare) Vaccine production and coverage/strategy and diagnostic production, disease epidemiology and surveillance, disease outbreak reduced activities (what need to be done?/essential components to prepare) -Disease surveillance, disease diagnosis, disease outbreak investigation and mass vaccination	Group discussion
14.45-15.30	Group presentations	Plenary session
15.30-15.45	Tea/Coffee Break	
15.45-16.30	Vaccine monitoring and quality standards Production capacity Vaccine sero monitoring Vaccine quality standards	Group discussion
16.30-17.00	Group Presentations	Plenary session

DAY-3

9 December 2011 (Friday)

09.00-09.15	Feedback comments suggestions from day-2 Roadmap for PC-PPR during 2nd Phase-2016-2020	Plenary Session
09.15-10.30	- Comprehensive plan implemented - Vaccination coverage achieved, flock/herd immunity achieved based on Sero-monitoring - Activities Disease surveillance, disease diagnosis and tests, disease investigation, mass vaccination	Group Discussion
10.30-10.45	Tea/Coffee Break	
10.45-11.15	Continue Group Discussion (continued)	
11.15-12.00	Group presentations	Plenary Session
12.00-12.30	Existing tools and animal health systems for providing a solid foundation for initiating progressive control operations for PPR Two Groups 1. Policy level issues and recommendations 2. Technical issues and recommendations	Group Discussion
12.30-13.00	Group presentations	Plenary Session
13.00-14.00	Lunch	
14.00-14.45	Finalised roadmap scheme by facilitator	Dr Santanu Bandyopadhyay, FAO Viet Nam
14.45-15.30	Draft Recommendation and closing remarks	Plenary Session

Stocktaking Questionnaire PPR Progressive Control Pathway

Country _____

Date: _____

Regulation and Legislation

Q.1	Is PPR a notifiable disease according to national regulations? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q.2	Has an OIE PVS or Gap analysis mission been done in the last 5 years? Yes <input type="checkbox"/> No <input type="checkbox"/>
Q.3	Are regulations pertaining to animal disease control, manure disposal, animal movement/ transport, marketing, taxes etc etc) described and understood? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q.4	Has the veterinary legislation been reviewed within the last 5 years with respect to legal authority to carry out disease control? Yes <input type="checkbox"/> No <input type="checkbox"/>

Reporting

Q.5	Do you have PPR reported by farmers / other stakeholders during the last 5 years in your country? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q.6	Did the country report PPR outbreaks within the previous 12 months to the OIE? Yes <input type="checkbox"/> No <input type="checkbox"/>
Q.7	Has the country shared official information with other countries in the region concerning the PPR situation? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q.8	Is there a robust surveillance system and disease information system in place that help early detection of disease and guide control measures in the field? Yes <input type="checkbox"/> No <input type="checkbox"/>

Comprehensive Control Plan

Q.8	Is there comprehensive strategic plan in place to study the epidemiology and socio-economic impact of PPR and control? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q.9	Is this plan officially documented? Yes <input type="checkbox"/> No <input type="checkbox"/>
Q.10	Is this plan endorsed by competent authority? Yes <input type="checkbox"/> No <input type="checkbox"/>	Q.11	Is there a specific funding mechanism (public/ private) to implement this plan? Yes <input type="checkbox"/> No <input type="checkbox"/>

Q.12	Does the plan include activities to estimate the losses due to PPR? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.13	Does the plan include information of the structure of production systems for small ruminants throughout the country? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.14	Does this plan contain list of stakeholders involved in farming, breeding, transportation, marketing, slaughtering & processing of small ruminants? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.15	Are the livelihoods (i.e. source of income, expenses, losses) of each and every stakeholder associated with small ruminants well described? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.16	Does the plan include a timeline for activities? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.17	Does the plan include a budget estimate for each activity? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.18	Does this plan define roles and responsibilities of each & everyone involved in its implementation? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.19	Does this plan include in built monitoring & evaluation system? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.20	Have any of the activities described in the plan been initiated? If yes, please specify		Q.21	Are the movements of sheep and goat within the country well characterised? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.22	Are the movements of sheep and goats into (import, porous borders etc) the country well characterised? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.23	Have you got the details of imports of sheep/goats and their disposal/ destination during the last 3 years? Yes <input type="checkbox"/> No <input type="checkbox"/>	

Disease Investigation

Q.24	Have field epidemiological units been defined to understand distribution of PPR across the country? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.25	Has a sero-survey, specifically designed to estimate PPR prevalence, been done in the 3 years? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.26	Has the prevalence of PPR been estimated for one or more regions (e.g. province/state, district) of the country, using robust epidemiological data collection techniques within the last 3 years)? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.27	Has the prevalence of PPR been estimated across the country (all provinces /states, districts) and in different husbandry systems (subsistence, occupational, nomadic, corporate etc) using robust epidemiological data collection techniques in the last 3 years? Yes <input type="checkbox"/> No <input type="checkbox"/>	

Q.28	Has the prevalence of PPR been estimated for each and every, using robust epidemiological data collection techniques during the last 3 years)? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.29	Have 10 or more outbreak investigations been carried out to describe the clinical presentation and to identify source of infection, mechanisms for spread and virus strain? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.30	Have 5 or more isolates from outbreaks been genetically characterized in the last 5 years by national, regional or international reference laboratories? Yes <input type="checkbox"/> No <input type="checkbox"/>			Has the causative PPRV lineage been identified in the last 5 years? (Lineage 1,2,3,4) Yes <input type="checkbox"/> No <input type="checkbox"/>	

Vaccine and vaccine production

Q.32	Do you import PPR Vaccine? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, please specify below: Number of doses being imported last year:----- Strain used in Vaccine?----- -----		Q.33	Do you produce PPR Vaccine? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, please specify below: Number of doses being produced last year:----- Strain used in Vaccine?-----	
Q.34	Have you estimated the total annual requirement of PPR vaccine for the country? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, please indicate:----- -----		Q.35	Have you estimated the cost of vaccine per unit (Dose)? Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes, please indicate:----- -----	
Q.36	Have you set measurable targets/indicators for implementation? (e.g. defined vaccination coverage to be targeted, specific number of markets to be covered, number of training sessions to be conducted...) Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.37	Have you set measurable targets to reduce the impact of PPR? (e.g. number of outbreaks decreased to .XX, level of prevalence reduced, direct losses reduced by a target %..) Yes <input type="checkbox"/> No <input type="checkbox"/>	
Q.38	Have specific practices or areas been identified that are believed to be major contributors to PPR spread in the country? Yes <input type="checkbox"/> No <input type="checkbox"/>		Q.39	Have you identified hot spots based on magnitude of risk of PPR infection across the country? Yes <input type="checkbox"/> No <input type="checkbox"/>	

Q.40	Is there a robust surveillance and disease information system in place that helps early detection of disease and guide control measures in the field. Yes <input type="checkbox"/> No <input type="checkbox"/>				
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Miscellaneous

Q.41	What are the challenges to PPR control (Policy level and Field Level)? 1. 2. 3.
Q.42	How you will meet the above challenges? 1. 2. 3.

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Md Asraf Ali, Director General, Department of Livestock Services and Ms Asifa Khatoon, Deputy Secretary, both representing Bangladesh Government with RSU staff members during workshop



Country participants in different group exercise sessions. Facilitators are seen moderating the groups

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