Report on OIE/J(S)TF Project for Strengthening HPAI control in Asia

4th Meeting of the FAO/OIE Regional Steering Committee Meeting of GF-TADs for Asia and the Pacific
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Major activities of OIE Asia-Pacific

- Improvement of Animal health information systems and communication
- Standardization of registration for veterinary medicinal products
- Prevention and control of HPAI
- Prevention and control of emerging/ transboundary animal diseases
- Prevention and control of Aquatic animal diseases
- Support for control of FMD
- Prevention and control of BSE and other TSEs
- Support for WTO-SPS Agreement including risk analysis
HPAI control and Prevention Projects in Asia by OIE Asia-Pacific
HPAI Control projects in the Region

• Big concern of the disease in the Region:
  HPAI: Resurgent and continuously reported since 2003 and even in 2009, and negative economic impacts and risks to animal and human health

1. OIE/J(S)TF Project for the Region
   OIE Project of HPAI control in Southeast Asia
   (2006-2007: Phase I)

2. Epidemiological changes of HPAI in Asia
   OIE/J(S)TF Project for strengthening HPAI control in Asia
   1) 5 year Project for Asia (2008-2012)
   2) 2 year Project for Asia (2008-2009: Phase II)
OIE HPAI Control Projects in Asia (1)

1. OIE/JSTF Project for HPAI control in Southeast Asia (2006-2007; Phase I)

8 participating countries: Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailand and Vietnam

(1) Improvement of Regional and National HPAI control strategies
   - Suggestion on control strategies including a contingency plan

(2) Encourage HPAI information sharing to further strengthen regional early warning system
   - Workshop on Epidemiology and Joint workshop on control of HPAI

(3) Strengthen diagnostic capacity of National and Regional collaboration laboratories
   - Regional and National Training courses on diagnosis of HPAI
   - Improve the capacity of diagnostic equipment such as a Real-Time PCR etc

(4) Improvement surveillance of field veterinarian and para-professionals
   - Training courses for field veterinarian and para-professionals
Strengthen Regional and National Diagnostic laboratories by JSTF Phase I (3rd component)

(Improve of the capacity in National and District level Lab)
- Dispatch Contact Mission and Selection of laboratories to be supported (8 countries, 19 Laboratories)
- Identification of the equipment, materials & renovation lab (RT-PCR, DNA Sequencer, safety cabinet, Mobile laboratory etc.)
- Procurement of the equipment and Renovation of Laboratories (Contract with procurement Agent for services)

(Training for the diagnosis techniques of HPAI)
- On the job Training for laboratory staff (general laboratory techniques) (from Laos and Myanmar in Thailand)
- National training workshops (Hands on training) for Real Time PCR in Laos (Feb.2008), Myanmar (March.2008) and Philippines (March. 2008)
- Regional Workshop for DNA Sequencing from 6 countries in Thailand (March, 2007)
National training: On-site Hands-on training on Real-Time PCR for rapid diagnosis
Regional training: DNA analysis for Central laboratories in the region
Capacity building of the laboratories for diagnosis and surveillance for HPAI

- Procurement Equipment and Renovation of the laboratories

  To improve the capacity of the diagnosis (Real Time PCR, DNA Sequencer and other equipment)
  To improve the biosecurity condition in the laboratories (Safety Cabinet II, Renovation of Laboratory, etc.)

Cycler for Real-Time PCR

Sequencer (for central ref. lab)

Biosafety Cabinet C II
OIE HPAI Control Projects in Asia (2)

1 OIE/JTF Project for strengthening HPAI Control in Asia
   (5 year project under Regular Fund; 2008-2012)
   (1) Strengthening Information networking in Asia (including
       HPAI control strategies)
   (2) Strengthening capacity of Veterinary Services (Evaluation
       of Veterinary Services, and Capacity building including
       legislation)
   (3) Surveillance of wild birds and domestic animals along
       migratory flyways, and strengthening Data-base at
       OIE Reference Laboratory

2 OIE/JSTF Project for strengthening HPAI Control in Asia
   (under Supplementary Special Fund; Phase II, 2008-2009)
   (1) Capacity building of HPAI laboratory diagnosis and surveillance
   (2) Procurement of Laboratory equipment and materials
       participating countries:
       : India, Sri Lanka, Pakistan, Nepal, Bhutan and Bangladesh
       + Mongolia
I Strengthening Information Networking in Asia
To facilitate animal health information exchange and regional cooperation and alliance for disease control

II Strengthening capacity of Veterinary Services
For good governance of VSs, and thus early detection and rapid response for disease control
- II-1 Evaluation of performance of veterinary services (VSs)
- II-2 Training on legislation and diagnostic technologies for HPAI control

III Surveillance of wild birds and domestic animals along migratory flyways
To provide supportive information for awareness and effective control measures
- Surveillance of AI viruses, and epidemiological study related to flying routes of migratory birds

Monitor and characterize the virus for preparedness and effective control
- Establishment of a database for AI accessible by OIE Members

Database

Diagnosis
Capacity building for diagnosis
- National laboratories
- OIE Reference Laboratory (Hokkaido University)

Virus characterization
AI viruses

HPAI control in Asia
Activities under OIE HPAI Control Projects in Asia (3)

1. OIE/JTF Project for strengthening HPAI Control in Asia (5 year project; 2008-2012)
   (1) Inception Meeting for consultation on the Project, Tokyo, Japan, April 2008
   (2) Expert Meeting on HPAI control in Asia, Tokyo, 1st :October, 2008, 2nd: May 2009 and 3rd :June 2010
   (3) Information Networking Meeting, 1st : November, 2008 in Tokyo, 2nd : September, 2009 in Tokyo, and 3rd September ,2010
   (4) Regional training workshop on legislation and disease control strategies
       (Combined with 2nd Information Networking Meeting) September ,2009 in Tokyo
       - Meeting for Improvement of the Legislation and Information Networking for enforcement of disease control measure
       - Visit to Animal Hygiene Service Centres of prefectural government (Kyoto) to study the enforcement of disease control measures in Japan as example.
   (5) Surveillance of wild birds and domestic animals along migratory flyways, Hong Kong and Vietnam, Laos and Mongolia, 2008 -2010
       Vietnam(South) Mongolia and Bangladesh 2010-
   (6) HPAI molecular Data analysis Workshop, OIE Reference Laboratory (Hokkaido University), May 2009
Outline of Surveillance of Wild Birds and Domestic animals

Site of surveillance (2008 - March 2010)
Vietnam (North and South), Mongolia, Laos, Hong Kong SAR

Samples

Domestic Birds (around the sampling area of Wild Birds)
  : 300-400 in each surveillance area
Wild Bird + Environment
  : around 100 Wild Birds, 50-60 from Environment
Virus from Dead Wild Birds : Isolated Viruses from Hong Kong SAR

Result :

• Isolated AI virus from domestic animals (ducks in South Vietnam)
• 6 HPAI virus from Dead Wild bird (from Hong Kong SAR)
• Not isolated AI virus from Samples of alive Wild Birds
• Genetic analysis data of each virus were registered in Data base
Activities under OIE HPAI Control Projects in Asia (4)

2. OIE/JSTF Project for strengthening HPAI Control in Asia (Phase II: 2008-2009)

(1) Capacity building of HPAI diagnosis and surveillance
   - National Hands-on Workshop on Real-Time PCR for diagnosis of HPAI
   - Regional Training course for the staff of National laboratories on Genetic analysis technologies for HPAI

(2) Procurement of Laboratory equipment and materials
   To support (1) above; Laboratory capacity building
   **Phase II:** 7 countries (East and South Asian countries)
   - India, Sri Lanka, Pakistan, Nepal, Bhutan and Bangladesh + Mongolia

   - Identification of national laboratories and listing the required laboratory diagnostic equipment and materials (2008)
     (7 countries, 23 Laboratories are selected)
   - Procurement of the equipment and renovation of the laboratories (2009-March 2010)
HPAI Lab. Training(1)

- **National Hands-on training**;

  Training of Real Time PCR in 4 countries in February-March 2010

- Participants: 38
  - from Bangladesh (6), Bhutan (12), Nepal (10), Sri Lanka (10)

- Training subject
  - HPAI control and Capacity building and Veterinary Services
  - General guidance of Real-Time PCR for the diagnosis of HPAI
  - Hands-on Training of Real-Time PCR
    - Compare SYBR Green Method and TaqMan Method

- H5 sub-type of AI virus was detected by Real-Time PCR with SYBR Green Method in the suspected field samples from outbreak area in Bangladesh, Bhutan and Nepal during the Training.

- It was the first time to achieve the molecular diagnosis by Real-Time PCR successfully in Bhutan.
Regional Hands-on training

Training of Molecular Analysis by DNA sequencer in Kathmandu, Nepal, in March 2010
(from 4 countries: Bangladesh, Nepal, Sri Lanka and Mongolia)

(Subjects)
- Sequence analysis of HA cleavage site (Diagnosis of HPAI and LPAI)
- Introduction of Application of Genetic Analysis in Pakistan
- Hands on Training: PCR and Genetic Analysis

- Understand the differentiation between HPAI and LPAI by Gene sequence in HA cleavage site
- Establish the network of the Laboratory staff in the sub-region
- Understand future prospect of utilization of DNA Sequencer
  (application for whole Genome sequencing, other diseases diagnosis (FMD, PPR viruses) and analysis of genetic disorders etc, by the example in Pakistan)
Location of the National Veterinary Diagnostic Laboratories Strengthened Under OIE/JSTF Project Phase I (2006-2007) and Phase II (2008-2009)

**Phase I**
- 8 countries
- South East Asia
- 19 Laboratories

**Phase II**
- 7 countries
- Total: 23 Laboratories

- Mongolia
- Bhutan
- Nepal
- India
- Bangladesh
- Sri Lanka
- Pakistan

8 countries (Phase I) South East Asia

Total No. of the Laboratories in Phase I: 19

Total No. of the Laboratories in Phase II: 23
Constraints on the project(1)

- Surveillance of Wild bird and Domestic animals
  - Difficulty to capture the target species (Anseriforms)
  - Difficulty in getting information concerning migratory bird, site for capturing etc.
  - No isolation AI viruses from Wild bird samples

- Review the obtained result and revise the basic framework (implementation plan) of the surveillance, if necessary
  : Repeat the surveillance in same countries (in Vietnam, Mongolia in 2010)

- Collaboration and exchange the information with other organizations in the Wild bird surveillance (in Bangladesh, and Mongolia)
Constraints on the project(2)

- Capacity building of the Laboratory for Diagnosis of HPAI
  - Cost problem on procurement of commercial diagnostic kits for Real-Time PCR
  - Low frequency of the utilization of the equipment (in particular of DNA sequencer) in some cases
  - Insufficient technical skill and information for the equipment

- Recommendation on the low price reagents (PCR by SYBR Green Method: not commercial diagnostic kit; TaqMan)
- Introduction of the good examples for utilization of DNA Sequencer for application other than HPAI
- Provide the updated information for technical improvement of Real Time PCR and DNA sequencer (including the follow up trainings in the region)
Thank you for your attention!!