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Avian Influenza Control and Pandemic Preparedness in Asia

*Report of the Conference of
Ministers of Health, Agriculture/Livestock
New Delhi, 28 July 2006*

WHO Project: ICP CSR 001



**World Health
Organization**

Regional Office for South-East Asia
New Delhi

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Acronyms used

ACIAR	Australian Centre for International Agriculture Research
ADB	Asian Development Bank
AI	Avian Influenza
ASEAN	Association of South-East Asian Nations
AusAID	Australian Agency for International Development
BSL	Bio Safety Level
CMU	Central Monitoring Unit
DHHS	Department of Health and Humanity Services
FAO	United Nations Food and Agriculture Organization
GDP	Gross Domestic Product
GF-TADs	Global Framework for Transboundary Animal Diseases
GOARN	Global Outbreak Alert and Response Network
HPAI	Highly Pathogenic Avian Influenza
HQ	Headquarter
IEC	Information, Education and Communication
IHR	International Health Regulation
IPAPI	International Partnership on Avian and Pandemic Influenza
JICA	Japan International Cooperation Agency
MDG	Millennium Development Goal
OFFLU	OIE/FAO Network on Avian Influenza
OIE	Office Internationale des Epizooties
PPE	Personal Protection Equipment

RRT	Rapid Response Team
SAARC	South Asian Association for Regional Cooperation
SARS	Severe Acute Respiratory Syndrome
SEARO	WHO Regional Office for South-East Asia
SHOC	Strategic Health Operation Centre
UN	United Nations
UNICEF	United Nations International Children's Emergency Fund
US	United States
USAID	United States Agency for International Development
USD	United States Dollar
VHV	Village Health Volunteer
WHO	World Health Organization

1. Introduction

The South-East Asia Region is faced with a number of emerging infectious diseases. In recent years, the Region has witnessed outbreaks of Nipah and SARS virus and it is now facing the threat posed by the avian influenza virus. Until recently, the avian influenza (AI) virus was predominantly a pathogen affecting animals, particularly birds and poultry, but rarely infecting humans directly. However, at present, H5N1 infections of human have been noted in some countries of the South-East Asia Region.

The outbreaks of avian influenza reported in Asia, Europe and Africa in recent years have been unprecedented in terms of their geographical scope, spread and consequences. They have resulted in the culling of more than 200 million poultry with huge economic loss to the affected countries. Never before have countries been so widely affected by this disease, and with an impact on farmers and households as well as on the poultry industry, tourism and trade.

Recent events in Asia clearly highlight the fact that the H5N1 Avian Influenza virus infection is being transmitted from wild birds to poultry and from them to human beings. Many countries in the South-East Asia Region are on the flight paths of migrating birds, some of which may be carrying Avian Influenza virus. In view of the epidemiological situation, all countries in the Region are vulnerable to the influenza pandemic.

What is equally alarming is that this H5N1 virus has crossed over the species barrier and caused fatal human infections in several countries including Indonesia and Thailand in the Region. As of 26 July 2006, 232 human cases of laboratory confirmed avian influenza have been reported globally of which 134 have been fatal. Of the global cases, 77 cases are from our Region, of which 57 have been fatal. Indonesia is second to only Vietnam in the number of human cases. The disease has been characterized by a high mortality rate.

Recognizing the seriousness of the situation, WHO has assisted Member States to take steps to avert any potential pandemic. When the first case of human influenza was detected, WHO convened a meeting of experts in Geneva in December 1999 to formulate an influenza pandemic plan. This plan was updated in 2004 when more cases of human influenza were reported. The plan is a blueprint to assist Member States and those responsible for public health and medical emergency preparedness to respond to the pandemic effectively. It also includes guidelines for the international community on the various phases of a potential pandemic and on the appropriate public health steps to be taken. The WHO Regional Office for South-East Asia has fielded country missions and provided technical assistance for the formulation of national pandemic preparedness plans based on existing local needs and infrastructure. These plans have been developed on the fundamental principle of public health measures.

These plans need to be fully implemented. First, it is clear that good inter-sectoral collaboration between the ministries of agriculture and health are paramount to successfully implement the pandemic preparedness plan. In countries where these two sectors have collaborated, the outbreaks in animals as well as in humans have been contained. Such success stories are seen from Thailand in this Region and Hong Kong in our neighbouring Western Pacific Region. Therefore, to combat this grave threat to global and regional health and security, it is essential for countries to take concerted efforts in coordinating appropriate strategy and to consolidate inter country collaboration.

To help achieve this goal, the World Health Organization and Government of India in collaboration with the Food and Agriculture Organization jointly hosted a Conference of Ministers of Health and Agriculture/Livestock and their respective advisers from 9 countries in the South-East Asia Region including Afghanistan and People's Republic of China in Hotel Oberoi in New Delhi. The agenda of the conference is presented in Appendix I.

The conference consisted of two parts: A pre-conference meeting that was held on 27 July 2006 and was attended by health and agriculture secretaries (See Appendix II for programme and III for details). This was followed by the main conference on 28 July 2006 (See Appendix IV for programme) and it was attended by the ministers and all delegates. At the pre-closing session, the Ministers and Senior Officials adopted "the Delhi Declaration" as presented in Appendix V. There were 148 participants in

the Conference representing Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka and Thailand in addition to Afghanistan, People's Republic of China and major donor agencies. (See Annex VI for full list of participants, observers and secretariat).

1.1 Objectives

The overall objectives of the pre-conference and conference were:

- (1) To review the situation on Avian Influenza and the risk of a pandemic;
- (2) To identify mechanisms for integrated and multi-sectoral response at the national level;
- (3) To develop inter-country collaboration for effective action against the pandemic threat; and
- (4) To develop a common strategy for combating avian influenza.

2 Conference of ministers of health and agriculture

The Conference consisted of three parts; the inaugural, technical and closing sessions. During the inaugural session welcome addresses were given by Dr Samlee Plianbangchang, WHO Regional Director for South-East Asia Region, Mr He Changchui, FAO Regional Representative for Asia and the Pacific and Dr Teruhide Fujita, OIE Regional Representative for Asia and the Pacific. Opening remarks were also given by H.E. Mr Sharad Pawar Minister of Agriculture and Consumer Affairs Food and Public Distribution and H.E. Dr Anbumani Ramadoss Minister of Health and Family Welfare of the Government of India.

2.1 Inauguration session

Welcoming the participants, Dr Samlee stated that there was a formidable challenge of emerging diseases in the region namely Nipah and SARS, and now avian influenza.

With the H5N1 virus having crossed over the species barriers, it has already infected humans in ten countries. As of today 232 human cases of

avian influenza have been reported world wide. Of these 134, more than 50 percent have been fatal.

Recognizing the seriousness of the situation, WHO has been assisting Member states in taking steps to avert any potential for a pandemic. WHO had been actively assisting Member States in attempting to avert a potential pandemic. In 1999, a meeting of experts was convened wherein a global influenza preparedness plan was formulated, which was updated in 2004. The plan has been used by persons responsible for public health. The plan contains various phases of a potential pandemic. WHO/SEARO has supported countries in formulating national pandemic preparedness plans. Member States have already prepared national pandemic preparedness plans – but these need to be implemented.

If the virus undergoes mutation or re-assortment, it could cause a major, devastating pandemic, as few would have immunity to it and the window for action to contain it would be very short. “Therefore we need to be really well prepared now. The catastrophic impact of not preparing or inadequate preparation for this pandemic will be beyond human imagination”, Dr Samlee added. We are now in Phase III of pandemic alert, i.e., infection in humans is rare. However, the need for inter-sectoral collaboration, especially between agriculture and health sectors is vital for rapid containment of the outbreak. It is necessary to act promptly, effectively and in a transparent manner. Member states reaffirmed the need for transparency in sharing information concerning AI.

The Regional Director’s inaugural address was followed by a summary of technical session by Dr Poonam Khetrapal Singh, Deputy Regional Director, WHO-SEARO. The salient features of the secretarial meeting that focused on the role of animal husbandry in preventing the pandemic at source and the prevention of a pandemic were presented.

The H5N1 is a new disease that has threatened the livelihood of farmers; affected regional and international trade. Therefore, it is imperative to have effective disease control strategies. There is a need for legislation and political commitment encompassing notification, quarantine and Intellectual Property Rights. However, resource constraints and cultural differences are affecting control, warranting transparency and listening to community. There is a need for cooperation and coordination at inter-sectoral, inter-regional and international levels. There is an urgent need for stockpiling of antivirals and capacity building through improved laboratory

and surveillance networks. However, despite our rapid strides, some questions still remained about whether the origin of the virus is linked to migratory birds or trade and the reasons why outbreaks occur in waves.

The draft document of the Delhi Declaration was discussed by senior officials from participating countries and was ready to be endorsed in the meeting. The formulation of the final draft of the Delhi Declaration based on common understanding was the outcome of the pre-conference meeting which highlights collaboration and cooperation between animal and human health sector; promoting prompt and open exchange of information and conducting research in key areas of animal and human health.

Mr He Changchui, Assistant Director General and Regional Representative for Asia and the Pacific, FAO, Bangkok, emphasized the need for effective control of the spread of the disease in poultry, and for the need of adequate resources to support countries to be able to do so effectively.

In control measures undertaken, already some 200 million poultry have been culled and in the South-East Asia Region alone, losses of US \$10 billion have been borne. HPAI (Highly pathogenic avian influenza) would likely be present in the region for many years and in order to control the disease, it would need continued investment. HPAI should be seen as a public good issue and should be given high priority nationally and internationally when it comes to funding. To ensure effective response to control Avian Influenza in birds is costly but necessary. There is a need of continued international financial and technical support to developing countries in their efforts to develop and implement effective control and prevention strategies.

FAO has initiated several technical cooperation projects to counter the disease but the re-emergence of the disease in Lao DPR and Thailand indicates the need for continuous vigilance. In addition, FAO is committed to work with national government and other UN agencies including WHO and OIE.

Dr Teruhide Fujita, Regional Representative for Asia and the Pacific, OIE, the World Organization for Animal Health, said the controlling and reducing the disease occurrences at source are crucial in order to prevent the further spread of the disease. Given the transboundary nature of HPAI,

it is difficult for countries to individually tackle and eradicate the disease. It needs a regional and international alliance for disease control and preparedness.

The strengthening of building capacity of national veterinary services, consolidation of effective legal frameworks including notification of suspected cases of diseases and the application of more quick and reliable diagnosis of suspected cases are key areas of international cooperation.

OIE will continue its normative role through scientific information on prevention and control of animal diseases; promoting safe international trade in animal and animal products and encouraging strengthening of legislation and resources. A new mechanism of OIE/FAO Network on AI (OFFLU) was created in 2005 for offering veterinary expertise to developing countries to assist control of AI, and OIE has started new cooperation scheme for HPAI control in South-East Asia in collaboration with the Government of Japan. The new HPAI control programme will be linked with existing mechanism of Global Framework for Progressive Control of Transboundary Animal Diseases (GF-TADs) initiated by FAO and OIE. The GF-TAD mechanism puts an emphasis on AI control, in collaboration with WHO, for provision of a forum for regional alliance and partnership.

After the above welcome address, the ceremony of lightning of the lamp took place. The lamp was lit by H. E. Mr Sharad Pawar, Dr Samlee Plianbangchang, Mr He Changchui, Dr Teruhide Fujita and H. E. Dr Anbumani Ramadoss.

The inauguration continued with opening remarks from H. E. Mr Sharad Pawar and H. E. Dr Anbumani Ramadoss.

Referring to the AI outbreaks of poultry in India, H. E. Mr Sharad Pawar, Agriculture Minister of the Government of India said that the AI control and containment operations were successful because of the excellent coordination between the health and animal husbandry departments at both the federal and state levels. Since then the disease has not reappeared in the country and no human cases have been detected in India. However, there is no scope for complacency and the joint efforts between the health and the agriculture sectors must continue. There is need for greater cooperation among the Asian countries which have similar poultry systems to share information and control and containment strategies. Sharing the lessons learnt by India during the successful stamping

out of the avian influenza in the poultry population may be vital for other countries to tackle similar situation in the future.

H. E. Dr Anbumani Ramadoss, Minister of Health and Family Welfare underlined the importance of a global effort to contain the further spread of avian influenza, and to control its potential to turn into a pandemic. On the outbreaks that had occurred in India earlier this year, the government had maintained complete transparency about the outbreak and its management. The coordinated efforts between health and agriculture ministries enabled its successful containment. This included joint monitoring and strategic action. The health ministry undertook a massive surveillance operation of the entire population in the surveillance zone of ten kilometres, which meant that the health status of over 300,000 persons was checked on a daily basis for a fortnight and all households were visited by public health personnel.

We have to evolve common standards for hygienic practices both in poultry rearing and processing as well as in our personal habits. At the same time all countries in the continent need to move forward in establishing hygiene standards as any country that lags behind could compromise the health security of all other countries. All countries should agree to support any country in the region through technical and financial resources to ensure that preparedness against the AI virus does not get derailed. A pooling of resources to ward off the threat of a pandemic is essential. This important meeting reinforced the need for collaboration between animal and human health sectors and reiterated the commitment of the countries to address this issue collectively. There is an urgent need for regional cooperation in the development of a vaccine for human against avian influenza virus.

2.2 Technical sessions

Technical sessions following the inauguration focussed on two themes; human and animal health aspects of avian influenza and the socio-economic impact of avian influenza virus.

The presentation on human health aspects was delivered by Dr M Perdue, from the Global Influenza Centre, WHO, Geneva. Dr Perdue highlighted: 1) overview of types of influenza affecting humans, 2) WHO update on human cases of H5N1 AI infections 3) unique features of H5N1

infections of humans and 4) the public health interventions for an H5N1 pandemic. The WHO preparation for Pandemic of Influenza takes into account the characteristics of influenza epidemics and WHO responsive actions which consist of policy, planning, technical support, guidelines, and infrastructure for response and knowledge management. In the domain of knowledge management, 42 publications and guidelines have been produced since April 2004 on H5N1 with 11 more documents are in the pipeline. Efforts at global coordination of scientific collaborations have concentrated at: 1) Public health measures, 2) Vaccine development, 3) Epidemiology, 4) Diagnosis, 5) Clinical Management and 6) Cluster Investigation.

The presentation on Avian Influenza control in Animals was delivered by Dr Gleeson from the FAO. In particular he highlighted the epidemiology of avian influenza pandemic from the following angles: current status of the outbreaks in poultry in Asia; the impact on trade; disease control strategies; risk communication and concluded by outlining the UN coordination.

The outbreaks have had a severe impact on the poultry industry, with over 200 million birds culled and threatening the livelihoods of poor farmers; 80% of whom live in rural areas. The outbreaks has also severely affected regional and international trade in poultry especially in Thailand with its \$1.2 billion poultry industry as the world's 4th largest poultry exporting country as well as Indonesia, with its \$170 million industry. The total economic effects are estimated to be \$10-15 billion in Asia.

It is important to understand the epidemiology of the disease to be able to institute control measures. The increased outbreaks of avian influenza as being one due to inordinate growth in the poultry population in environments of poor sanitary hygiene in which the virus is sustained, often by co-habitation by different susceptible species of animals. Therefore, there is a need of dividing the poultry into different sectors and of increasing the bio-security for controlling the infection at source.

The lecture on "Socio-economic Impact of Avian Influenza" was delivered by Mr Hans Timmer from the World Bank. The World Bank team has undertaken a macro-economic analysis to model the potential socio-economic impacts of avian influenza in Asia. However, the economic consequences of AI cannot adequately measure the loss of human lives which are immeasurable and beyond simple monetary valuation.

The GDP of a country is relatively refractory to the influence of the avian influenza outbreaks. This is because, when GDP is considered as a whole, the poultry sector contributes less than 0.5% although it indirectly contributes in a major way to the world nutrition requirements – for instance, 30% of the world’s meat demand is met by this sector. Therefore AI is not likely to affect the GDP in a major way but the effect on the poultry sector would be catastrophic with steadily declining exports.

While the largest macro-economic effects originate in high-income countries, by virtue of the high consumption of poultry and poultry products, it is, however, the poor producer communities that are most vulnerable. This is because of the indirect effects of the economic consequences. The economic consequences are amplified by consumer reactions. The poor farmer is hit doubly; chicken have to be killed and then, prices also go down. For instance, big decline in poultry sale have been recorded in Vietnam (20%); in Romania (80%) and in France (40%).

Based on this modelling for a mild, moderate and severe avian flu epidemic for the world, it has been concluded that, in the unlikely event of a severe scenario of human pandemic, the direct loss would be much lesser than the economic impact. We must therefore, limit economic costs by communicating clearly the risks and effectiveness of infection avoidance strategies; strengthen human and animal health, and prepare for prevention and plan for peak healthcare demand scenarios.

Discussions on Delhi declaration on avian influenza

H. E. Dr A Ramadoss opened the draft Delhi Declaration for discussions. The salient points that were discussed and incorporated in the Delhi Declaration included: the consistency of the use voluntarily adoption from the relevant articles of IHR; defining the scope of international cooperation and participation; mentioning AI as an emerging infection; harmonization of legal framework, and including a recommendation for commitment of resources in an analogous manner to the recommendation of the MDGs.

Adoption of the Delhi declaration on avian influenza

After inputs from all the delegates, the Delhi Declaration was declared adopted by H.E. Mr Somnath Chatterjee, Speaker of the Lok Sabha, Government of India. While declaring the Delhi Declaration adopted,

Mr Chatterjee, said he was happy to be associated with this important Conference convened to address the threat looming large in different parts of the world including in our Region.

Diseases do not respect boundaries. The world should take note of this threat which has the potential to become a pandemic. These outbreaks had resulted in huge economic losses. The virus is beginning to transmit to humans. Therefore, effective check is particularly needed among poultry and wild birds. The magnitude of the threat calls for comprehensive national and international collaboration. Political commitment at the highest level and regional cooperation for strengthening of the capacity of countries was also emphasized.

The virus has the potential to cause human influenza which calls for cooperation within and between the regions. Adherence to International Health Regulations could be a first step in tackling such outbreaks. Reliable information, building awareness, engaging the medical and public health services effectively, carrying out research, adoption of new technology including vaccines development could provide new means of treatment to deal with the virus. Hence, this calls for cooperation between the countries in the Region.

The deliberations were fruitful and the outcomes would be relevant not only to this Region but also for other Regions. He congratulated all the delegates who deliberated upon this urgent and important issue and he considered it was his privilege to announce the Delhi Declaration for adoption by this Assembly of Ministers of Health, Agriculture and Livestock.

The Delhi Declaration is given in Appendix V. In brief the Delhi Declaration expresses the resolve of the delegate to develop a common strategy for prevention and control of avian influenza and be prepared for an eventual pandemic influenza threat. It acknowledges that while avian influenza is a serious human health problem that could lead to a pandemic of human influenza, the key to its containment lies with animal health.

It highlights the need for high biosafety standards that ought to be common for the region. It also underlines the need for improved laboratories, stocks of essential drugs, vaccines and equipments.

The importance of communications, endorsed by all delegates, is emphasized – Risk communication both for policy makers and the

community. It underlines: a) the importance of transparency in informing the public about the present dangers and likely future scenarios, to be able to maintain credibility and achieve public confidence and b) at the same time, the importance of understanding the fears and motivations of communities so as to provide information which empowers them to take actions appropriate to protecting themselves. They also agreed to voluntary compliance with relevant provisions of the revised International Health Regulations.

2.3 Recommendations

The Ministers and senior officials from countries of WHO's South-East Asia Region, Afghanistan and China adopted "the Delhi Declaration on prevention and control of Avian Influenza and pandemic preparedness in Asia" and also recommended that existing regional Asian forums like ASEAN and SAARC together with WHO, FAO and OIE should:

- (1) develop a common framework within which countries could build specific strategies for prevention and control of AI and to be prepared for pandemic influenza threat;
- (2) define uniform technical standards and monitor their implementation for reducing the risk of H5N1 infection to humans by appropriate control measures of its outbreaks in poultry and other animals;
- (3) share available knowledge and expertise and also take leadership in the respective regions in surveillance and outbreak investigation, laboratory support, risk communication and research, and;
- (4) further intensify efforts to make sufficient resources available to address this public health threat.

2.4 Closing session

The workshop was declared closed by H. E. Dr A Ramadoss. H. E. Dr Ramadoss said that we witnessed a momentous event in the adoption of the Delhi Declaration. It symbolizes our eager determination to work in unison to fight against Avian Influenza. We are working towards a new model of regional collaboration in countries of Asia.

While congratulating all concerned on the adoption of Delhi Declaration, the Hon. Minister sounded a note of caution by saying that policy document remains a policy document unless it is implemented. The commitments made require considerable cooperation within and between the countries and also between international organizations. Hence, we should put in that extra effort to ensure that the Delhi Declaration is carried forward and the commitments made are realized.

He thanked the Honourable Speaker for overseeing the adoption of Delhi Declaration and the ministers for committing their support to a joint strategy against Avian Influenza. He also thanked WHO, OIE, FAO, UNICEF, USAID, US Government and other international agencies for supporting this Conference. He urged that this support will need to be strengthened and deepened.

Annex 1

Agenda

- (1) Inauguration
- (2) Review of the present situation on Avian Influenza (AI) and assessment of the risk of a pandemic; global, regional and countries
- (3) Review status of international and country preparedness and response for AI including national preparedness plans, contingency plans; use of antivirals and vaccines, risk communication, donor perspectives, and resource needs
- (4) Outline issues in inter-country and inter-sectoral collaboration; WHO's role, sharing of information and communication
- (5) Identification of mechanisms for integrated and multisectoral programs at the national level; financing and coordination issues
- (6) Develop inter-country collaboration for effective action against pandemic threat.
- (7) Closing ceremony

Annex 2

Programme (for pre conference meeting, 27 July 2006)

Thursday, 27 July 2006

*Chairperson / #Co-chairperson

08:30 – 09:00 hrs	Registration	
09:00 – 09:15 hrs	Welcome remarks: Mr PK Hota, Secretary, Department of Health and Family Welfare, Govt. of India. (15 minutes)	
09:15 – 10:45 hrs	Session I: Prevention of Pandemic at Source, Role of Animal Husbandry Sector: Dr L Gleeson, Food and Agriculture Organization (20 minutes)	*Mr PMA Hakeem, Secretary (Animal Husbandry, Dairying & Fisheries), India
	Country Experience (20 minutes each) India Indonesia	# Mr Ganesh Kumar KC, Secretary(Agri), Nepal
	Discussion (30 Minutes)	
10:45 – 11:15 hrs	Tea Break	
11:15 – 13:00 hrs	Session II: Preparation for Pandemic of Influenza: Dr Michael Perdue, World Health Organization (20 minutes) Role of Partnerships in Avian Influenza Control and Pandemic Preparedness: Dr Amar Bhat, Director, DHHS, USA. (10 minutes)	* Mr Jafar Ullah Khan, Secretary(Health & Family Welfare), Bangladesh # H.E. Dr Abdul Azeez Yoosuf, Dy. Minister (Health), Maldives
	Country Experience (20 minutes each) China Mr Li Jianguo, Deputy Director General, Office of Health Emergency Preparedness, MoH Bangladesh Mr Iqbal Mahmood, Joint Secretary (Administration And Livestock)	
	Discussion (30 Minutes)	
13:00 – 14:00 hrs	Lunch	

14:00 – 15:10 hrs	Session III: Empowerment of Local Community and Role of Communication: Ms Susan Mackey, UNICEF Regional Office for East Asia and the Pacific (20 minutes) Country Experience (20 minutes) Thailand Dr Supamit Chunsuttiwat Myanmar Prof Mya Oo Discussion (30 Minutes)	* Mr RCM Singh Secretary (Health & Population), Nepal # Mr SJ Pathirana, Secretary (Estate Infrastructure & Livestock) Sri Lanka
15:10 – 15:40 hrs	Tea/coffee	
15:40 – 17:00 hrs	Session IV: Presentation and discussion of Delhi Declaration on Prevention and Control of Avian Influenza in Asia Country Experience (20 minutes) Maldives Abdul Azeez Yoosuf, Deputy Minister of Health	*Mr PK Hota, Secretary (Health & Family Welfare), India # Dr Ne Win, Director (Vet), Myanmar
17:00 hrs	Closing remarks: Mr PMA Hakeem, Secretary, Department of Animal Husbandry Dairying & Fisheries, India	

Annex 3

Pre-conference meeting of secretaries and advisors

Opening remarks

The pre-conference meeting was opened by Mr P K Hota, Secretary, Department of Health and Family Welfare, Government of India. In his opening remarks, Mr Hota emphasised the importance of the international conference in addressing the avian influenza epidemics that is spreading across the globe and urged that SAARC countries should be included with ASEAN countries in combating the epidemic. There is a real need to use public health approaches including surveillance and laboratory diagnosis in order to safeguard human health and protect the poultry industry from economic losses.

Technical sessions

The programme included four technical sessions (see Agenda in Annex II). Each session was chaired and co-chaired by different persons.

The first Session, on "Prevention of Pandemic at Source-Role of Animal Husbandry Sector", was chaired by Mr Jaffar Ullah Khan, secretary of health and family welfare, Bangladesh and Dr Abdul Azeez Yoosuf, deputy minister of health Maldives.

Dr L Gleeson, Regional Coordinator for Avian Influenza of the Food and Agriculture Organization, Regional Office for Asia and the Pacific in Bangkok, delivered a lecture entitled "Preparation for Pandemic Influenza".

There are 16 different influenza virus types (Called H types) infecting avian species and two types have been isolated from water birds. Of these, H5 and H7 have high pathogenicity for poultry and the remaining cause mild diseases in poultry. Usually, human influenza virus does not infect poultry.

The magnitude of AI outbreaks varies in Asian countries, with India having a small outbreak and Indonesia having reported widespread outbreak of the disease. Over 200 million birds have been culled, threatening the livelihood of poor farmers.

Both regional and international trade in poultry are affected, causing market shocks with a potential for collapse. Trade restrictions were experienced, not only in poultry but also other products including vegetable. For instance, vegetable export was severely affected from Indonesia, which exports a large quantity of vegetables grown using chicken manure.

H5N1 is a new disease. It is important to understand its epidemiology because it provides clues for disease control programmes. Bio-security in the poultry industry is important in the control of the disease as migratory birds may have a role in the spread of the disease. Each country has to work out its own politically and socially acceptable strategy, taking into account the public health and animal health into account. Stamping out policy is an effective approach when combined with early detection.

Risk communication is important to policy makers and the public in general has to be well informed. One can only reduce the disease by preventing infection and disease outbreaks in poultry.

UN coordination has been achieved in HPAI control in animals: with the focus of WHO on human health and that of FAO on animal health. This coordination has been observed at the global, regional and national levels.

Country experience: India

Ms Upma Chawdhry, Joint Secretary, Ministry of Agriculture described the outbreak of avian influenza in India by defining the extent of the epidemic and control measures taken by the Government of India.

No case of avian influenza in poultry was reported in India prior to January 2006 and the first case occurred on 18 February 2006. There were two major outbreaks – in the districts of Navapur and Jalgaon from Maharashtra Estate, with the last case reported on 18 April 2006. Considering the country as a whole, this was a localized outbreak since the

affected area represents only 0.025% of the national area. However, control operations were launched in a zone 10 times bigger than the size of the affected area. To delineate the extent of the outbreak more than 60,000 samples were tested in the BSL IV lab at Bhopal.

A three pronged strategy was devised to combat this outbreak and it consists of 1) preparedness, 2) clear containment in case of outbreak and, 3) IEC campaign.

The preparedness element ensures adequate man and materials are available to mount an effective response. Rapid Response Teams (RRTs) were constituted, and supplied with personal protective equipment (PPE). The RRTs that were deployed were given prophylactic Tamiflu and underwent quarantine for 10 days after duties.

The focus of the containment measures consisted of instituting early warning system; quick sampling, and notification and rapid containment. Culling was undertaken and carcasses buried in deep trenches covered with earth and lime. About 1.47 million eggs were also destroyed as well as the disposal of feathers. Post operation clean up was undertaken using jetting and suction techniques for disposing liquid faecal matter. Once a farm was sanitized it was sealed and sanitization certificates were issued. All birds within a zone of 10 km radius were culled. Culling of backyard poultry took longer but cleaning up in backyard poultry took lesser time whereas it was reverse in organized farms. Post operation surveillance protocols were instated to detect the re-entry of the virus. No vaccination measures were used but compensation up to Rs. 300 million was paid, with roughly 40 rupees per culled bird.

With respect to IEC, media briefing were undertaken by officers on both public and animal health. Intensive surveillance of human health was also undertaken. Since it is known that 90% of human diseases in the last 40 years have had their origin in zoonosis, it was considered imperative to integrate animal health and human health in the media campaigns.

Country experience: Indonesia

The country presentation on "Current Status of Avian Influenza and Control Programme in Indonesia" was given by Dr Richard Panjaitan, Director General of Pharmaceutical Services & Medical Devices. He described the

situation of avian influenza outbreaks from four points: a) History of HPAI in Indonesia, b) Current status of HPAI, c) Policy on control and eradication of avian influenza, and d) National strategic work plan for HPAI control.

The disease started in August 2003 when only 2 districts were affected and officially H5N1 outbreak was declared on 25 January 2004. Currently, 27 out of 33 provinces or 199 out of 441 districts/cities are affected. The disease is characterized by high morbidity and mortality rates, (~90%)

Much progress has been made in Avian Influenza Control including the development of national strategic plan with FAO and the setting up of Central Monitoring Unit (CMU) in March 2006. The National strategic plan has been extended to provinces and districts. It consist of a) Published Standard Operating Procedures for avian influenza control, b) Integrated surveillance strategies, c) Established communication forum with poultry industries, d) Characterisation of virus isolated in international reference laboratories, and e) Staff training and capacity building. These plans are being implemented through international support of FAO, USAID; AusAID, Netherlands, and Japan.

In 2005, the central government announced IDR 107 billion (US \$ 10.7 million) emergency funding for training, mass vaccination and intensive avian influenza surveillance in the whole country. Public awareness has been enhanced and improvements in bio-security and bio-safety have been made. In addition, coordination among animal health providers has been enhanced.

National strategic work plan for comprehensive control of highly pathogenic avian influenza in animals has been formulated for 2006-2008. This includes campaign management, enhancement of HPAI control in animals, surveillance and epidemiology, lab services, restructuring of the poultry industry, strengthening capacity for early detection and early response.

The second Session on Preparation for Pandemic of Influenza was chaired by Mr RCM Singh, Secretary of Health and Population, Nepal and Mr SJ Pathirana Secretary of Estate Infrastructure and Livestock, Sri Lanka.

Dr Michael Perdue, Epidemiologist, WHO HQ outlined the WHO Preparation for Pandemic of Influenza by highlighting the characteristics of

influenza epidemics and the actions taken by WHO to respond to these epidemics.

Three distinct sub-types of virus have been observed; namely A, B and C. Currently 19 different strains of type A virus are circulating. The avian influenza that is causing human infection belong to the A type. While vaccines exist for seasonal influenza, currently no vaccine exists for avian influenza.

Outbreaks of poultry caused by the H5N1 virus have spread to Europe and Africa from Asia. However, human infections have occurred in only certain geographical areas, namely China, Indonesia, Thailand, Turkey and Vietnam. Analysis of the human cases so far show that infections tend to occur in a cyclical fashion varying with the season. H5N1 is the most tenacious virus which got into human population and the virus has the potential to emerge as a human pandemic since it is mutating.

Human influenza virus is characterized by the emergence of a pandemic over the years. Three major pandemics occurred with varying degree of severity. The first documented pandemics occurred was in 1918 (Spanish flu), followed by subsequent ones in 1957 (Asia), 1968 (Hong Kong) and 1977. The 1957 pandemic spread completely around the world in six months.

The main elements of WHO's Pandemic Preparedness and Response plan consists of:

- (1) Surveillance allowing early case detection,
- (2) Formulation of Protocols for consistent case/cluster investigation,
- (3) Diagnostic tools and other laboratory support,
- (4) Prototype pandemic vaccine development (expanding on existing capacity for seasonal vaccine),
- (5) Situation assessment and monitoring and
- (6) Response and containment (including antiviral stockpile deployment).

WHO is managing outbreaks and coordinating response capacity through such networks as ALERT, GOARN and SHOC. WHO is also

recommending mandatory reporting of influenza under the new International Health Regulations (IHR).

Partnership: Role of Partnerships in Avian Influenza Control and Pandemic Preparedness: Dr Amar Bhat, Director, Department of Health and Humanity Service (DHHS), USA

The partnerships are important in responding to avian influenza since the H5N1 has spread over 51 countries, particularly China and Indonesia. The US government has initiated a partnership program. The International Partnership on Avian and Pandemic Influenza (IPAPI) was inaugurated in September 2005 and the first meeting was held in October 2005 in Washington; the second meeting was held in Vienna in June 2006, and the third one is planned in New Delhi in 2007. The partnership has two core principles: 1) Transparency in reporting and sharing of samples with WHO and OIE and 2) Rapid reaction at the first signs of transmission. The objectives of IPAPI are: a) To galvanize donor commitment, b) make resources available, c) build veterinary and public health infrastructure, d) Improve transparency and sample sharing and e) Ensure global coordination.

The US Government has formulated a National Strategy for Pandemic Influenza and released a Pandemic Influenza Strategic Plan in November 2005. The US government has so far pledged US \$ 362 million; it is stockpiling vaccines and drugs, and it is providing support through experts and financial resources.

Country experience: China

Mr Li Jianguo, Deputy Director General, Office of Health Emergency Preparedness, Ministry of Health described the situation of avian influenza in China and the actions taken by the Chinese Government in controlling the epidemic.

Since October 2005, 19 cases of highly pathogenic AI were reported; 11 provinces were affected including Yunan and Shanghai. The case fatality rate was about 63%; the youngest patients were 6 years and the oldest was 41years old. All the cases were sporadic and there were no relation between each other. All deaths were due to multi-organ failure. The

perceived threats of AI are from two sources: (a) domestic birds; and (b) migratory birds.

The major actions taken by the Ministry of Health include implementing control measures through surveillance; medical care, and coordination with Ministry of Agriculture. The main elements of the control measures are: planning, capacity building, surveillance, and stock-piling. Thus, influenza Pandemic Preparedness and Response Plan have been implemented by the Ministry of Health who has also established a Committee of Public Health Experts that has produced guidelines on medical care and therapy. Preventive measures are accorded highest priority as are training and capacity: all health workers will be trained in surveillance and response and screenings have been carried out for the cause of unknown pneumonia. So far, 38,000 cases have been investigated and 204 unknown pneumonia cases were noticed.

Country experience: Bangladesh

Mr Iqbal Mahmood from Bangladesh presented the country plan for Bangladesh pointed out that though no cases of avian influenza have been found in either humans or birds, Bangladesh recognizes the threat of outbreaks in view of the following factors: 1) geographic proximity to the endemic zone, 2) importation of poultry and poultry products, 3) wide water bodies and, 4) widespread live bird markets. In view of the perceived threat, the following measures have been implemented: 1) imposing a ban on importation of poultry and poultry products from the affected countries, 2) undertaking surveillance, 3) mounting IEC campaigns, 4) activating local level committees to monitor the situation, 5) updating laboratory capacity, including the development of a bio-safety BSL-3 laboratory facility, 6) developing preparedness plans for prevention and control of highly pathogenic viruses, and 7) constituting a multi-sectoral task force comprising of health, livestock, representatives from UN agencies, civil society etc. In addition, 64 Rapid Response Teams will be constituted to train the health workers and risk communication strategy would be developed.

A strategic plan with a budget of USD 130 million was approved for implementation. Of this, USD 84 million was for health and USD 20 million was for livestock. It is planned to mobilize internal and external resources to meet the shortfalls.

Session III: Empowerment of Local Community and Role of Communication was chaired by Mr RCM Singh, Secretary of Health & Population Nepal and Mr SJ Pathirana, Secretary Estate Infrastructure & Livestock, Sri Lanka.

Ms Susan Mackay, UNICEF Regional Office for East Asia and the Pacific described the importance of empowerment of local communities and the tools for achieving this end. In particular, she stated that one must understand what people are facing. We cannot expect people to make a monumental change in the way of living if we do not understand their culture and belief. To “Unlock Behaviour” – in order to empower communities, we have to interact with them, develop culturally sensitive IEC tools and materials specific to villages. This approach can facilitate change in behaviour of targeted audience. She illustrated her points by some video materials that have been developed to promote hand-washing with soap.

The focus for prevention of influenza should be on prioritizing action – on food safety, hygiene, bio-security as well as harnessing the power of existing networks including market education; regulation; community outreach; harnessing religious leadership, and targeting schools and kindergartens.

Country experience: Thailand

Dr Woraya Luang-On, Office of Influenza Programme, Ministry of Public Health, Thailand, presented the “Thailand’s Experience on Empowerment of Local Community and Role of Communication”

Thailand experienced three waves of AI outbreaks up to now with a fourth one on the lull. A Strategic Plan on AI and Influenza Pandemic Preparedness has been approved by the Cabinet. The main strategies for AI are: 1) Strengthening surveillance, 2) Improving animal husbandry, 3) Empowering the community for disease control, 4) Research & Development, and 5) Coordination and capacity building.

Some of the measures for AI control in poultry to date include; a) Active surveillance, b) case-management, c) Pre-emptive culling, d) Controlled Movement of poultry, e) Scanning and disinfection of infected

farms, f) Control of slaughterhouses, g) Improvement of bio-security, and h) public awareness through risk communication.

A major component of risk communication consists in community empowerment approach, emphasizing the role of Village Health Volunteers (VHVs) in AI control, as there are over 700,000 VHVs in Thailand. During communicating risks, conflicts are identified in particular between disease control recommendations and reforms with people's interests and way of life. In future, it is proposed to establish a task force under national AI Committee to coordinate national risk communication efforts. Thailand's experience in disease control has attested that community involvement is a crucial factor in prevention and control of diseases.

Country experience: Myanmar

Prof Mya Oo, deputy minister of health presented the country National Strategic Plan for Prevention and Control for AI and Human Influenza Pandemic Preparedness and Response. The national strategic plan, endorsed by the National Health Committee, include prevention of transmission of AI from avian to humans; capacity building; resource mobilization for pandemic preparedness and response, and ensuring effective management of patients. The plan is being implemented with the assistance received from international agencies like FAO, OIE, JICA, ACIAR, WHO, ADB, ASEAN, AusAID and other agencies.

Many experiences and lessons have been learnt during implementation of the plan in particular; 1) the need to improve early warning and surveillance systems, 2) prompt notification control measures, 3) strengthening diagnostic labs, 4) stockpiling of PPE and antiviral drugs, and 5) conducting further advocacy meetings for potential human pandemic. It was concluded that prompt, adequate and timely information are important, to communicate to the people, who can be empowered to make an informed decision at the time of outbreaks.

Session IV: Presentation and discussion of Delhi Declaration on Prevention and Control of Avian Influenza in Asia chaired by Mr PK Hota, Secretary (Health and Family Welfare) and co-chaired by Dr Ne Win, Director (Vet), Myanmar.

Country experience: Maldives

Dr Abdul Azeez Yoosuf, Deputy Minister of Health, Republic of Maldives, made a country presentation on Pandemic Preparedness in Maldives. Although Maldives has limited chicken farms, it has 195 inhabited islands, many of which have brackish water and are therefore susceptible to the path of Asian migratory birds that may bring the avian flu to Maldives. With this in mind, the government has taken a number of pro-active measures including: 1) banning import of chicken and live birds in 2003, 2) Import of organic fertilizers was regulated. However, the ban on import of eggs was lifted due to tourism and economic reasons.

A pandemic and a national task force committee were established under the ministerial committee chaired by the Minister of Health. Essential preparedness steps include: a) the procurement of PPE and stock of Tamiflu, b) Identification of laboratory through WHO's assistance for testing, and c) mounting awareness campaigns. However, there is still a need for trained manpower; rapid testing procedures for suspected cases, and establishment of regional laboratories. Regional cooperation must be enhanced for procurement for PPE and other disposables as well as undertaking research for drugs and vaccines. Maldives will continue to enhance coordination between agriculture and health ministries and conducting training and mock drills at different levels.

Discussions on the Delhi declaration on avian influenza

Mr Hota informed the House that the Draft of the Delhi Declaration, previously circulated to all the countries, was tabled for discussions. Some valuable suggestions were given to improve its content.

The Draft was reviewed paragraph by paragraph, focusing on suggested changes. Bangladesh, Indonesia and Maldives had made some suggestions about the voluntary reporting of AI and these were incorporated appropriately. A drafting committee comprising Secretaries of Health/Agriculture and representatives from the countries was constituted to review and finalize the Delhi Declaration.

Closing remarks for pre-conference meeting

The Session was closed by Mr P M A Hakeem, Secretary, Department of Animal Husbandry, Dairying and Fisheries, India. In summarizing the sessions, he noted the significant progress made in controlling the avian influenza outbreaks; lessons learnt from the current outbreaks and, the tasks that lie ahead.

There exists a threat of pandemic to the whole world. G8 countries observed the need for ensuring and strengthening closer coordination between animal and human health. In this scenario, Asian continent faces additional problems. Outbreaks had inflicted devastating effects to poultry industry robbing the livelihoods of tens and thousands of people dependent on this industry, including both commercial and backyard types. During controlling the outbreaks in Asia a number of lessons have been learnt, in particular: 1) there has to be effective collaboration between the ministries of agriculture and health at all levels stemming from a multi-sectoral plan of action backed by the highest policy level of the respective countries, 2) Involvement of local communities play a crucial role in the reporting and management of the outbreaks, 3) Misgivings among the industry and people must be dispelled, 4) Methods for faster culling are needed, 5) Outbreaks also present an opportunity to persuade the poultry industry for improving its standards and take bio-safety measures and finally, 5) commitment and allocation of resources are needed to avert the outbreaks.

He reiterated that the Delhi Declaration is an important step in this regard for paving way for effective coordination in the Region.

Annex 4

Programme

Friday, 28 July 2006

*Chairperson / #Co-chairperson

08:30 – 09:00 hrs **Registration**

09:00 – 10:30 hrs **Opening session**

Welcome address by:

Dr Samlee Plianbangchang, Regional Director,
South East Asian, WHO (10 min.)

Mr He Changchui, Assistant Director
General/Regional Representative, Regional Office for
Asia and the Pacific, FAO (10 min.)

Dr Teruhide Fujita, Regional Representative for Asia
and the Pacific, OIE (10 min.)

Lighting of the lamp (10 min.)

Recap of the previous day meeting by
Dr Poonam Khetrpal Singh, Deputy Regional
Director, WHO-SEARO (10 min.)

Remarks by:

H.E. Mr Sharad Pawar, Hon. Minister of Agriculture,
Consumer Affairs, Food and Public Distribution,
Govt. of India (20 min.)

H.E. Dr Anbumani Ramadoss, Hon. Minister of
Health and Family Welfare, Govt. of India (20 min.)

Group Photograph

10:30 – 11:00 hrs Tea/Coffee break

11:00 – 11:45 hrs **Session I: Human Health Aspects of Avian
Influenza:**
Dr Michael Perdue, World Health Organization
(20 minutes)

Discussion (25 minutes)

***H. E. Mr Amik
Sherchan, Hon. Dy.
Prime Minister/
Minister of Health and
Population, Nepal**

**#H. E. Dr Khandaker
M. Hossain, Hon.
Minister of Health &
Family Welfare,
Bangladesh**

11:45 – 12:30 hrs	Avian Influenza Control in Animals: Dr. L. Gleeson, Food and Agriculture Organization (20 minutes) Discussion (25 minutes)	*H. E. Mr Abdullah Kamaaluddeen, Hon. Minister of Fisheries, Agriculture & Marine Resources, Maldives #H.E. Mr Huang Jiefu, Hon. Minister of Public Health, China
12:30 – 13:15 hrs	Socio-economic Impact of Avian Influenza: Mr Hans Timmer, The World Bank (20 minutes) Discussion (25 minutes)	*H. E. Mr Nimal Siripala de Silva, Hon. Minister of Healthcare and Nutrition, Sri Lanka # H.E. Prof Mya Oo Hon. Deputy Minister of Health, Myanmar
13:15 – 14:15 hrs	Lunch	
14:15 – 16:00 hrs	Delhi Declaration on Avian Influenza Discussion	*H. E. Dr Anbumani Ramadoss, Hon. Minister of Health & Family Welfare, India #H.E. Mr Abdullah Al Noman, Hon. Minister of Fisheries and Livestock, Bangladesh
16:00 hrs	Arrival of H.E. Mr Somnath Chatterjee, Speaker of Lok Sabha, Government of India (GoI)	
16:00 – 16:30 hrs	Adoption of Delhi Declaration on Avian Influenza in the presence of Hon. Speaker of the Lok Sabha, GoI	
16:30 – 17:00 hrs	Closing Session	
17:00 – 17:30 hrs	High-Tea	

Annex 5

Delhi declaration on prevention and control of avian influenza and pandemic preparedness in Asia”

We, the Health and Agriculture/Livestock Ministers of Afghanistan, People's Republic of Bangladesh, Kingdom of Bhutan, People's Republic of China, Republic of India, Republic of Indonesia, Republic of Maldives, Union of Myanmar, Nepal, Democratic Socialist Republic of Sri Lanka and Kingdom of Thailand met on 28 July 2006, in New Delhi, to deliberate on measures to prevent and control avian influenza and pandemic preparedness in Asia.

Recognizing the significant public health threat posed by the emergence of HPAI with pandemic potential and the severe socio-economic disruption, significant impact of H5N1 on poultry industry and livelihood of millions of small farmers including threat to agriculture they could cause;

Noting the need to be fully prepared in facing the influenza pandemic and for mounting a coordinated and effective multi-sectoral response;

Being aware of the fact that the pandemic could rapidly spread across the globe and there would be very little time to act;

Bearing in mind that the continuing outbreaks of avian influenza in the Regions could be the trigger for an influenza pandemic;

Acknowledging the extraordinary efforts undertaken by affected countries and international organizations to control avian influenza;

Recognizing further the need for effective cooperation between animal health and human health agencies at all levels, within nations and internationally, for combating emerging zoonoses;

Being aware that effective prevention and control of avian influenza in poultry and humans requires specific strategies, sustained efforts, and collaboration at country, regional, and international levels;

Being conscious of the critical role of governments and international organizations in effectively tackling infectious diseases of international public health concern, including avian influenza;

Recognizing that economic and health issues may arise with regard to international travel, trade and tourism with the need to establish effective multi-sectoral mechanisms to address these;

Being fully informed of the need for further research in key areas of animal and human health in response to the constant evolution of the virus and epidemiology of the disease in humans and animals, and

Being aware of the urgency of taking concrete follow-up actions against avian influenza,

We hereby commit to:

Develop and/or further strengthen animal and human disease surveillance and response systems for early detection and prompt containment of avian influenza and other emerging zoonotic diseases;

Mobilize required resources to develop, strengthen and sustain disease surveillance and response systems, including those employed in the prevention and control of avian influenza;

Improve bio-safety, infection control and bio-security measures and implement necessary interventions to prevent the spread of animal diseases such as avian influenza to humans;

Further strengthen regional and international collaboration on all aspects of avian influenza, including investigation of cases and outbreaks and efforts at further research in defining the epidemiological and virological characteristics of the disease.

Improve risk communication in raising public awareness and empowering communities to take positive action on prevention and control of avian influenza, taking into account relevant socio-behavioural, cultural and economic factors;

Promote collaboration between all institutions and sectors involved in response to the disease outbreak at local, national, regional and international levels;

Collaborate and coordinate with all relevant agencies and sectors in promoting safe animal husbandry practices, trade in animal and animal products and food safety with the aim of minimizing human health risks from avian influenza;

Facilitate prompt and open exchange of information on avian influenza between and among countries and with concerned international agencies to ensure transparency in reporting and facilitate consultation on health-related measures of international concern, especially during disease outbreaks;

Further strengthen and harmonize activities related to all important aspects of avian influenza, both in animals and humans, including surveillance, investigation of suspected cases, collection of specimens, laboratory support and characterization of the virus; determining the epidemiological aspects of the disease, and defining appropriate public health responses and other interventions such as appropriate compensation mechanisms;

Develop a mechanism for inter-country and interregional collaboration in outbreak investigation and containment, information dissemination, and strengthening each other's capacity in responding to avian influenza and other emerging infectious diseases;

Take necessary steps to update and implement effective national influenza pandemic preparedness plans involving all the sectors and stakeholders in the planning and implementation process;

Voluntarily adopt the relevant articles of the International Health Regulations and suitable national regulatory framework as a measure of preparedness for influenza pandemic;

Collaborate in efforts to develop and produce drugs, vaccines and diagnostic tests for avian and pandemic influenza and promote other appropriate research activities;

In view of the aforementioned, we the Ministers recognizing the importance of regional initiatives, hereby recommend our governments and the existing regional fora in Asia, such as, ASEAN and SAARC along with the World Health Organization (WHO), the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE) in collaboration with other relevant international organizations to:

- (1) Develop a common framework within which countries could build specific strategies for prevention and control of avian Influenza and to be prepared for pandemic influenza threat.
- (2) Define uniform standards and monitor their implementation for reducing the risk of HPAI infection to humans by appropriate control measures of its outbreaks in poultry and other animals.
- (3) Share available knowledge and expertise and also take leadership in the respective regions in surveillance and outbreak investigation, laboratory support, risk communication and research, and
- (4) Further intensify efforts to make sufficient resources available to address this public health threat.

Annex 6

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