



Asia-Pacific
Economic Cooperation

2007/ASCC/1.8

Session: The Threat to Human Health in APEC

1.8.1

Animal Diseases, Human Health and Food Safety

Purpose: Information

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**Annual Conference of APEC Centres
Melbourne, Australia
18-20 April 2007**

Animal Diseases, Human Health and Food Safety

Animal diseases are having increasing adverse socio-economic impacts on human health, production, trade and development. This trend is likely to continue unless firm and coordinated measures are taken to prevent and manage animal diseases at source.

In recent years there has been clear evidence of the emergence of new diseases and the re-emergence of a number of known diseases which have often spread between countries, regions and continents. It is estimated that up to 75% of new infectious diseases of humans are zoonotic, that is they can be transmitted between domestic animals and wildlife to humans. Well known examples include avian influenza H5N1, severe acute respiratory syndrome (SARS), bovine spongiform encephalopathy (BSE), human immunodeficiency virus, Ebola, Hanta, Monkey Pox, Lyssa, Nipah and Hendra viruses.

Production diminishing diseases such as Foot and Mouth Disease (FMD) in cattle, buffalo and pigs and Classical Swine Fever have resulted in severe hardship to many small farmers, inhibited livestock production development, and restricted or closed access to markets. The highly infectious nature of such diseases has resulted in transboundary spread, particularly from countries that have inadequate veterinary services and animal health management systems. Risks to countries free of such diseases both regionally and globally are real. The South East Asian Foot and Mouth Disease Program, largely funded by AusAID with the support of the Thai Government, seeks to coordinate the prevention and management of FMD amongst eight countries. It is recognized as a most useful model for the management of other transboundary diseases such as avian influenza.

Economies will continue to need to address existing, emerging and re-emerging food safety issues such as microbiological, viral, prion, chemical and toxin contaminants as well as zoonotic infections, often of uncertain public health significance. Episodes of foodborne illness in recent years have been widely reported. These include BSE, *Escherichia coli* O:157, *Campylobacter jejuni* and salmonellosis as well as problems associated with antimicrobial resistance and a range of chemical and toxic chemicals. There is evidence that the incidence of foodborne diseases is increasing.

The economic impacts of animal diseases are significant and at times startling. The World Bank for example estimates that avian influenza H5N1 impacts on the rural sectors of a number of Asian economies could be as high as 0.7% of GDP and that the cost of a serious human 'flu pandemic could be as high as US\$2 trillion. Asian Development Bank (ADB) estimates are that SARS could have cost US\$60 billion. Preliminary work by the Food and Agriculture Organisation and the ADB on recent FMD outbreaks in one APEC economy indicate income losses to villagers of 11.7% and 21.4% in cattle/ buffalo and cattle/buffalo/pig farms respectively. BSE costs would be measured in the billions of dollars. The social impacts have been profound including death, unemployment, loss of income, reduction in development opportunities and trade.

Factors contributing to the increase of disease include demographic changes, intensive animal production, trade, tourism, urbanization, mass production and transportation of food as well as climate change and damage to the environment which influence the ecology of microbiological agents. Some recent predictions are that the world population will increase from approximately 6 billion people to an estimated 9 billion by the year 2050, most of this growth occurring in Asia, Latin American and Africa. Some estimate that demand for animal and animal products will increase between 2% and 3% per annum for the next 10 years or so and that much of this demand can be met from developing countries if animal diseases can be properly managed..

A clear picture emerging from the current situation and the future scenario of population growth combined with economic, biological and environmental factors is that the risk of emerging and re-emerging diseases of animals will increase and continue to place at risk human health and development unless action is taken at the farm and wildlife levels to prevent, control, manage and understand disease. The current H5N1 avian influenza clearly demonstrates that investment of cash and people resources in the field has the potential to manage this disease and minimize the risk of a human pandemic.

Current approaches to the avian influenza problem and a number of other animal diseases are in large part short term expensive fixes. The key to sustainable prevention, control and management of animal diseases is through investment in animal health veterinary systems in economies that in turn should adopt consistent approaches to animal health, share information and coordinate activities. Given the clear need for interactions between veterinarians, medical specialists, wildlife experts and other authorities, the need for interdisciplinary approaches, the 'One Medicine' approach, has never been greater and should be encouraged by economies.

The World Animal Health Organisation (OIE) has initiated a major program, the Performance, Vision and Strategy Scheme, which will seek to evaluate the quality and effectiveness of country veterinary services and identify shortcomings. Evaluations will form the basis for strengthening weaknesses and, where appropriate, support applications to funding bodies to provide resources to help correct deficiencies.

Social, environmental and production factors allied to population growth have and will continue to lead to the emergence of new diseases, the re-emergence of old diseases and a range of food safety problems unless firm and comprehensive action is taken at the farm and field level to prevent and control animal diseases. The adage that prevention is better than cure is more relevant now than it has been in the past. Economic development and poverty alleviation will, in large part, depend on the ability of economies to manage these issues.

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APEC 2007 Conference of APEC Centres
“Driving Growth – APEC’s Destiny”

Animal Health, Human Health & Food Safety

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Oceania

Approach

- Disease, zoonoses and food safety
- Socio economic impacts
- Risk factors
- Population growth and demand
- Risk mitigation
- Investment in animal health

Zoonoses

- US Surgeon General:1967
 - “time to close the book on infectious diseases”
- 75% of new infectious diseases of humans zoonotic
- Examples
 - H5N1
 - BSE
 - SARS
 - HIV
 - Ebola, Nipah, Hendra, Lyssa viruses

Production Diminishing Diseases

- Examples – FMD, CSF, Newcastle Disease, CBPP
- Highly infectious and contagious nature
- Trans boundary nature of diseases; risks to economies if vet services inadequate
- The South East Asian FMD Campaign – case example

SEAFMD



SEAFMD



Food Safety

- Some existing/emerging/re emerging food safety issues
 - E coli
 - Salmonellosis
 - BSE
 - Campylobacter
 - Antibiotics and resistance
- Incidence of foodborne diseases increasing

Socio Economic Impact (Examples)

- Avian influenza – 0.7% GDP in rural sectors of some Asian economies
 - Human pandemic up to \$2 trillion
- SARS - \$60 billion
- FMD -11.7% to 21.4% villager/commune income losses
- BSE - \$billions
- Death, unemployment, trade restrictions, loss of development opportunities, less disposable income

Factors Predisposing to Disease

- Demographic changes and urbanisation
- Animal production
- Trade, tourism
- Mass production of food and transportation
- Consumer habits
- Climate change, environmental damage and impacts on eco biology
- (Bio terrorism)

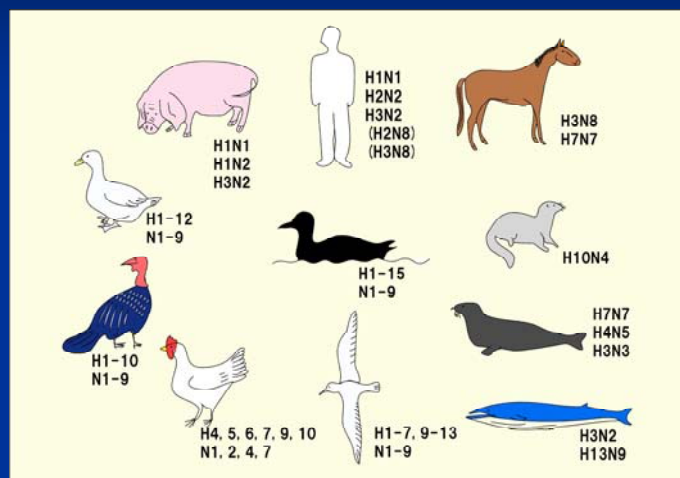
Population Growth and Demand

- World population growth to 2050
- Highest growth in Asia, Africa and South America
- Demand for animal and animal products to increase by 2-3% pa till 2015?
- Can developing economies meet the demand if animal health systems are inadequate?

Risk & Risk Mitigation

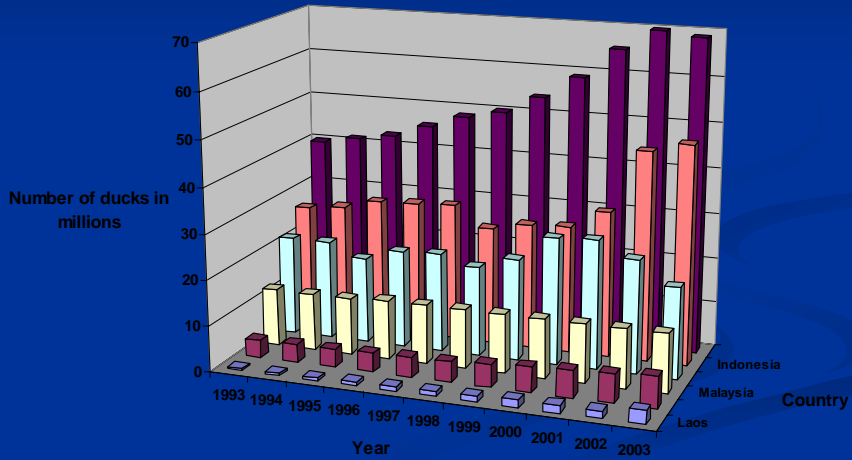
- Risks and costs will increase unless
 - Effective prevention, research and control action's are taken at the farm, field and wildlife levels
- H5N1 as an example

Influenza A Hosts

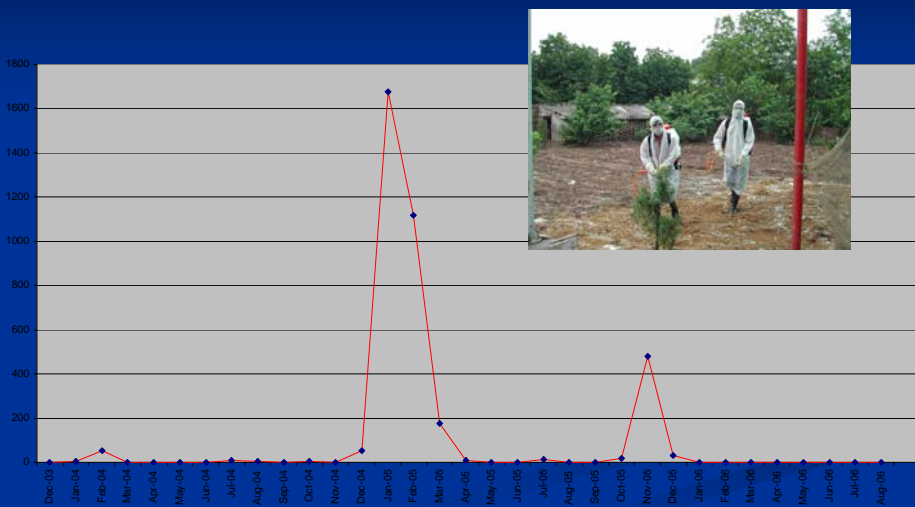


Duck Population Growth

Duck numbers by year and country



AI Outbreaks



Sustainable Animal Disease Prevention, Control and Management

- The importance of veterinary animal health systems
- Shortcomings and risk
- The OIE Performance, Vision and Strategy Tool as a means to investment
- ‘One Medicine’ and interdisciplinary approaches
- National and international collaboration

Investment in Animal health

- Prevention is better than cure
- Advantages
- A role for APEC economies
- Conclusion

Thanks For Your Attention

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