

# One Health Approach in the South East Asia Region: Opportunities and Challenges

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**Abstract** The outbreaks of SARS, avian influenza, and Nipah virus in Asian countries clearly demonstrated that new highly infectious agents periodically emerge at the human–animal interface. The experiences of regional countries with prevention and control of avian influenza, SARS have reinforced the need for sustained, well-coordinated, multi-sector, multi-disciplinary, community-based actions to address emerging disease threats. ‘One Health’ is a cost-effective, sustainable, and practical approach to find solutions for problems which need holistic, multidisciplinary approaches, particularly in resource-constrained countries. While there is a growing recognition of One Health, it has to be translated from concept into actions through country level activities that are relevant for specific situations.

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## 1 Introduction

One Health is an international movement to promote a holistic multidisciplinary approach at the animal–human–ecosystem interfaces. One health is not a new idea or principle but it is simply recognition of the need to promote a culture of working together in a sustainable way, particularly in resource-constrained countries, to address health risks at the human–animal interface.

The outbreaks of SARS, avian influenza, and Nipah virus in Asian countries clearly demonstrated that new highly infectious and/or highly pathogenic agents periodically emerge at the human–animal interface, and will continue to emerge in the future. The unprecedented outbreaks of these diseases had serious impacts on travel, trade, and tourism, and it was realized that prevention and control of emerging infectious and high impact diseases required a holistic, multidisciplinary approach. The experiences of regional countries with avian influenza and pandemic (H1N1) 2009 have reinforced the need for sustained, well-coordinated, multi-sector, multi-disciplinary, community-based actions to address emerging disease threats that arise at the human–animal interface.

## 2 Background

The International Ministerial Conference on Avian and Pandemic Influenza (IMCAPI) held in New Delhi in December 2007 recognized that highly pathogenic avian influenza (HPAI) was deeply entrenched in several countries and the current state of veterinary services and preparedness levels in most countries of Asia and Africa posed a serious threat to the prevention and control of HPAI and other infectious diseases. Thus, the New Delhi conference appealed to the global community to begin to address broader issues around the emergence and spread of HPAI and other emerging infectious diseases through international partnerships (Press Information Bureau of the Government of India 2007). Each Government should encourage functional links between human and animal health systems, while investing in sustainable capacity for preventing and controlling high impact diseases in animals.

The New Delhi Road Map offered a valuable benchmark for the preparedness efforts of national authorities and proposed a convergence between animal and human health systems. The conference also requested international partners to

develop a strategic framework for implementation of One Health and present it at the sixth IMCAPI held in Sharm Al Sheikh in October 2008. The Strategic Framework was the joint product of six major international organizations: the Food and Agriculture Organization (FAO), the World Health Organization (WHO), the World Organisation for Animal Health (OIE), the United Nations Children’s Fund (UNICEF), the World Bank, and the United Nations System Influenza Coordination (UNSIC). The strategic framework for reducing risks of infectious diseases at the animal–human–ecosystem interfaces was presented at the ministerial conference. The document sets out six priority objectives for countries to consider, such as developing capacity in surveillance, promoting interagency and cross-sectoral partnerships, and ensuring functioning national emergency response capacity (Contributing to One World 2008). The application of a One Health approach aims not only to minimize the local and global impact of epidemics and pandemics caused by emerging infectious diseases, but also to look at more holistic approaches for solving health-related problems in line with International Health Regulations (2005).

The seventh International Ministerial Conference on Animal and Pandemic Influenza held in Hanoi in April 2010 reiterated the need to move forward the one health approach at country level (<http://www.imcapi-hanoi-2010.org/home/en/>). The scope, priority, and approaches may be different in public health and animal health institutions and therefore it will be necessary to promote integrated and/or coordinated approaches for the implementation of ‘One Health’. It was recognized that animal health sector is weak in terms of surveillance and response for emerging and high impact diseases and therefore more investment will be required for strengthening animal health services in developing countries. Indeed, the veterinary public health service is rudimentary in most developing countries and it is estimated that USD 1.3 billion will be required annually to implement a One Health approach until 2020 ([http://siteresources.worldbank.org/EXTAVIANFLU/Resources/3124440-1172616490974/Fifth\\_Global\\_Progress\\_Report\\_July\\_2010.pdf](http://siteresources.worldbank.org/EXTAVIANFLU/Resources/3124440-1172616490974/Fifth_Global_Progress_Report_July_2010.pdf)). The technical discussions held for operationalizing One Health, from ideas to action in Winnipeg (2009) and Stone Mountain (2010), have encouraged academics, donors, and partners to synthesize concrete action points for pushing ‘One Health’ movement to a higher level. A high level technical meeting, jointly organized by FAO, OIE, and WHO, was held in Cancun in November 2011 to address health risks at human–animal–ecosystem interfaces, and identified key elements, high priority technical actions, and related practical next steps for moving forward on intersectoral collaboration, coordination, and communication (World Bank 2010).

### 3 Ground Reality

One Health activity is a spontaneous movement—there is no consensus on definition of One Health, and even at the One Health Conference held at Melbourne in 2011, no clear definition was apparent. While the general concepts are now well accepted, how to implement the One Health concept is still not clearly understood ([http://www.who.int/influenza/human\\_animal\\_interface/HTML\\_human\\_animal\\_ecosystems\\_nov\\_2011](http://www.who.int/influenza/human_animal_interface/HTML_human_animal_ecosystems_nov_2011)).

Each stakeholder understands it in a different way, and there is a lack of coordination and collaboration among them. A number of international donors and partners are involved in promoting the One Health concept through pilot projects in Asian countries and it has definitely contributed to advocating a One Health approach among intellectuals and professional groups but it has not yet generated a political commitment or the involvement of the government sector.

Currently, the One Health movement has, to some extent, been driven by an attractive hypothesis of ‘microbe hunting’ in wildlife. It does not necessarily mean that it is a priority of the host country to implement the project of this nature, or that it will have a significant role in changing public health or animal health policy. However, discovering novel agents in wildlife does not imply that they will be associated with human or livestock diseases; only when sudden disease outbreaks or epidemics arise and they are shown to be the cause do we acknowledge their role, such as in filoviruses, SARS, Nipah, and pandemic influenza virus. Thus, it is often difficult to prove the significance of newly discovered and previously unrecognized pathogens.

The European Union, World Bank, USAID, Rockefeller Foundation, CDC Atlanta, Public Health Agency of Canada, and other partners are actively engaged in creating regional forums but there is a real need for coordination between all international partners. The major criticism is that they are all working in isolation without any coordination and interaction. Often they are competing with each other. As a result, many workshops, seminars, and meetings are organized in the name of One Health, but they are largely limited to talk fests. A few One Health networks that are operating in Asia are as follows:

- A One Health University Network in Southeast Asia supported by Epidemic Pandemic Threat Programme under USAID.
- *One Health Alliance of South Asia (OHASA)* supported by the EcoHealth Alliance.
- A network of One Health Hubs in the South Asian Region. The World Bank supported Massey University project to fight zoonotic diseases through the development of joint disease investigations and “One Health Hubs” to link with other specialists across South Asia. So far, 67 health professionals from India, Pakistan, Sri Lanka, Bangladesh, Afghanistan, and Nepal have been trained in epidemiology concepts as part of the university’s Master degrees.

Interestingly, these networks have a common agenda but there has been no coordination or collaboration between them.

FAO, OIE, and WHO indicated their intention to work more closely together and with their respective sectors to address health risks at the human–animal–ecosystem interfaces through Tripartite Concept Note released in April 2010 ([http://www.oie.int/fileadmin/Home/eng/Current\\_Scientific\\_Issues/docs/pdf/FINAL\\_CONCEPT\\_NOTE\\_Hanoi.pdf](http://www.oie.int/fileadmin/Home/eng/Current_Scientific_Issues/docs/pdf/FINAL_CONCEPT_NOTE_Hanoi.pdf)). These organizations have established a tripartite coordination mechanism at the regional level in Asia in 2011 and they are working together to develop a functional coordination mechanism between human and animal health sectors at country level through various joint activities.

## **4 Issues to Be Considered**

### ***4.1 Priority***

Each sector has its own mandate, responsibility, priority, and constraints. The animal health sector has a prime responsibility to control economically important trans-boundary animal diseases which affect food animals and livestock production. Avian influenza, brucellosis, anthrax, salmonellosis may be areas of interest for animal health since they have a major impact on quality (Food safety) and quantity (Food security) of livestock products and public health. Similarly, rabies, plague, and leptospirosis are major zoonotic diseases of public health concern which are transmitted by dogs and rodents but they have little impact on livestock production or animal health. It is therefore important to define the priority diseases which generate common interests for collaborative work. Zoonoses, food safety, and antimicrobial resistance are priority areas for mutual cooperation between two sectors depending on technical capacity, level of economic development, and export potential of livestock products.

### ***4.2 Institutional Capacity***

There are gaps in both animal health and public health systems in most Asian countries which require assistance to bridge through international partnerships and concrete action plans. The comparative advantages of each sector should be taken into consideration such as good laboratory capacity in the veterinary sector and good epidemiological capacity in the public health sector, depending on country, and each sector can complement the other. All countries are trying to establish coordination mechanisms between the human and animal health sectors, and there are success stories within the region which should be highlighted. It may be politic to demand equitable access to funds for both human health and animal health sectors, since human health will get top priority for funding in any country irrespective of economic and development status, whereas the most practical and feasible idea would be to create a pooled fund to support the prevention and control of zoonoses by allocating the necessary resources for institutional development and technical capacity building.

### ***4.3 Ownership***

It is easy to say that we have to work together, but it is difficult to work together if there is no common understanding or mutual interest. Often it is apparent that One health is 'owned' by a particular professional group, and other professional groups may feel uncomfortable working with them. Therefore, there must be advocacy for political commitment at the highest level to support ownership across the professions. The One

health initiative must come from community and must take into account local needs and the prevailing situation.

#### ***4.4 Sustainable Development***

Although a One Health approach is focused on prevention and control of highly pathogenic, emerging, re-emerging, and high impact diseases of humans and animals, this approach may have a far-reaching vision for sustainable and ecologically friendly development activities. One classical example may be ensuring food security and food safety through the development of sustainable agriculture. Anti-microbial and agro-chemical substances are indiscriminately used to boost agricultural and livestock production to feed an ever-increasing human population and fast growing livestock and poultry farming, but they are responsible not only for depleting natural resources but also for microbial and chemical hazards to human, animal, plant life, and to the environment. Global warming and environmental degradation have been created by expansion of agricultural land, intensification of agricultural production system, deforestation, and industrialization. It has been realized that a holistic multidisciplinary approach is needed to mitigate the negative impacts of man-made disasters. Community involvement is a prerequisite for sustainability of the 'One Health' movement in resource poor countries.

The One health movement is gathering momentum in some countries which may serve as a good practice and modality for others. Some examples from countries have been presented as follows.

#### ***4.5 Bangladesh***

There is a coordination mechanism for zoonoses control between human health and animal health sectors which was historically established for avian influenza prevention and control. Recent outbreaks of anthrax and Nipah virus have demanded better intersectoral collaboration and WHO and FAO have been supporting pilot projects and workshops to share information and identify collaborative activities. Both human health and animal health sectors including academic institutions are working together to promote 'One Health' approach for zoonoses prevention and control.

The three Ministries namely Ministry of Health and Family Welfare, Ministry of Fisheries and Livestock, and Ministry of Environment and Forest, with the support of UNICEF, FAO, and WHO have developed a Strategic Framework for operationalization of One Health approaches for prevention and control of emerging, re-emerging, and high impact diseases in Bangladesh. It is important that donors and partners respect the aspirations of local champions of One Health, and support various activities specified in the Strategic Framework. The successful

implementation of the Bangladeshi model will inspire other countries to operationalize similar modality suitable to local needs.

#### **4.6 Bhutan**

There is a well-established coordination mechanism for prevention and control of zoonoses at national level and joint activities have been launched for avian influenza and rabies. The human health and animal health sectors have developed a project proposal for a One Health approach through joint activities, networking, and multidisciplinary research. There are some dedicated local champions for the One Health cause in a small country like Bhutan, which is encouraging. International partnerships will help to develop a unique indigenous model for operationalizing a One Health approach at the human–animal–ecosystem interfaces in Bhutan.

#### **4.7 India**

Presently, there is a Joint Monitoring Group at national level to coordinate avian influenza prevention and control activities. The Ministry of Health and Family Welfare is taking an initiative to establish a coordination mechanism for zoonoses prevention and control at state and district levels and for promoting collaboration among human health, animal health, and municipal bodies through joint training programmes. It has been agreed to expand the coordination mechanism for zoonoses prevention and control at state and district levels in the 12th Five Year Plan (2012–2016) using FAO/OIE/WHO Guidelines for establishing coordination between human and animal health sectors.

Five priority zoonotic diseases have been identified for collaboration between human health and animal health sectors, i.e., anthrax, brucellosis, leptospirosis, plague, and rabies. An inventory of laboratories capable for diagnosis of zoonotic diseases in India has been developed so that a particular medical or veterinary laboratory may serve as a center of excellence for a specific zoonotic disease. The National Center for Disease Control and WHO have developed a curriculum for joint training of medical and veterinary professionals on zoonoses prevention and control including intersectoral collaboration. The Indian Council of Medical Research and Indian Council of Agricultural Research have been working together to promote multidisciplinary research for zoonoses and food safety through the funding of joint research activities. They have decided to designate a nodal institution in human health and animal health sectors to promote joint research activities and to create a network of institutions. The Public Health Foundation in India has been involved in promoting the One Health concept in operational research and training.

## ***4.8 Indonesia***

There was an inter-ministerial coordination committee for avian influenza (KOM-NAS) in Indonesia which is being reorganized as the National Zoonoses Commission to consider the growing threats from emerging infectious diseases and zoonoses. More ground work needs to be done to make the commission functional. There is a mechanism for information sharing during avian influenza surveillance and outbreak investigation at the district level. Intersectoral meetings are organized at the provincial level to discuss avian influenza, rabies, and other diseases of common interest. EU, USAID, and AUSAID are supporting avian influenza control in live bird markets, and rabies control activities, through FAO and WHO who are the catalysts for strengthening intersectoral coordination and collaboration.

WHO sponsored a regional rabies coordination meeting in Maumere in 2011 to discuss and finalize the roadmap for “East Nusa Tenggara Province Free from Rabies 2017”. The meeting was attended by representatives from public health, animal health, security, local government as well as representatives of FAO, WHO, and UN. A multisectoral workplan was agreed at the end of meeting and an agreement was signed for its implementation.

## ***4.9 Myanmar***

A national coordination mechanism between the human health and animal health sectors was established for avian influenza and pandemic influenza preparedness and it was functional during avian influenza outbreaks in the past. WHO and FAO have supported Ministry of Health, Livestock Breeding, and Veterinary Department, respectively, for joint activities such as outbreak investigation, field epidemiology training, and information sharing. Since 2008, field epidemiology training has been jointly organized by Ministry of Health and Livestock Breeding and Veterinary Department for public health and veterinary professionals working at State, Division, and Township levels. Joint animal–human health sector technical meetings were organized to strengthen intersectoral collaboration. A National Zoonoses Workshop was held in March 2011 and identified five priority diseases, i.e., avian influenza (H5N1), anthrax, rabies, leptospirosis, and plague. The workshop recommended that a technical working group be formed to move the One Health agenda forward, and a stakeholder meeting should be organized to develop a roadmap for operationalizing a ‘One Health’ approach, considering the country needs.

## ***4.10 Sri Lanka***

As in other Asian countries, the threat from highly pathogenic avian influenza was major reason behind collaboration between the human health and animal health



sectors for avian and pandemic influenza preparedness in Sri Lanka in 2006, although Sri Lanka has been able to maintain freedom from avian influenza. The government is planning to use intersectoral coordination mechanisms for elimination of rabies and the control of leptospirosis in line with One Health approaches. The World Bank is providing grant assistance to Government of Sri Lanka to support One Health activity for next 5 years.

#### ***4.11 Thailand***

It is fortunate that there are a number of international agencies and partners stationed in Bangkok who are supporting One Health initiatives at national, regional, and international levels. There are local champions of One Health in academic institutions, and in both the government and non-government sectors. One Health Training-of-Trainers workshops have been organized by the Ministry of Public Health in collaboration with national and international partners to strengthen One Health Epidemiological Teams at the provincial and district levels. There are several initiatives at different level to run multidisciplinary training programme including One Health Master's programme at university level. There is a high level of One Health awareness at policy and professional levels, and Thailand is hosting the second One Health conference in 2013.

### **5 Conclusion**

Prevention and control of emerging infectious diseases is an international public good. 'One Health' is a cost-effective, sustainable, and practical approach to find solutions for problems which need holistic, multidisciplinary approaches, particularly in resource-constrained countries. We have to understand that everyone can contribute to promoting One Health by understanding the interaction and interconnectivity of the human-animal interface. While there is a growing recognition of One Health, it has to be translated from concept into actions through country level activities that are relevant for specific situations. Country level activities should be focused toward strengthening the infrastructure, good preparedness, and pre-emptive measures for responding to emerging diseases and other acute public health problems.

Some people have started to believe that the One Health concept is an illusion being limited to talk shows. Universities and certain sectors such as public health, natural resources, wildlife, agriculture, etc., at country level are enthusiastic about participating in the One Health mission, as witnessed by monthly (or more often) programs of workshops and seminars in collaboration with several international organizations. However, they are often designed for 'grant or budget hunting' rather than aiming to raise public awareness and participation. Most medical and

veterinarian students are unaware of these developments, and public education is needed for added community awareness.

Political commitment by national governments is fundamental in promoting a One Health approach for responding to and managing zoonotic diseases, and should be supported through policy decisions. There is a need for institutional development to operationalize and sustain practical applications of One Health at ground level with the support by local champions who may be working with government, non-government organizations, and academic institutions.

**He who does not understand the whole, is condemned to be reborn—*The Upanishad***

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