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Pandemics and Emerging Infectious Diseases Framework 2010–2015

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For further information about the Australian Government's international development program, contact:

Communications Section
AusAID
GPO Box 887
Canberra ACT 2601

Phone (02) 6206 4000
Facsimile (02) 6206 4880
Internet <www.ausaid.gov.au>

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Introduction

This new *Pandemics and Emerging Infectious Diseases Framework 2010-2015* has been developed to guide the Australian government's international development assistance in this area over the next five years. It builds achievements under the previous *Pandemics and Emerging Infectious Diseases Strategy 2006-2010*.

The Australian government has provided almost $160 million since 2003 to address pandemics and emerging infectious diseases, both in the Asia Pacific region and globally. Significant improvements in the ability to detect and respond to infectious diseases threats have occurred, but more remains to be done particularly in the poorest countries where emerging infectious diseases are most likely to originate.

This Framework incorporates lessons learned by Australia and other development partners in responding to SARS and highly pathogenic avian influenza. These experiences points to the need to move from an emergency to longer term systemic approach which strengthens capacity to deal with emerging infectious diseases broadly, rather than just dealing with a single disease.

The Australian Agency for International Development (AusAID) is primarily responsible for this Framework. AusAID will be assisted, through provision of technical advice and direct implementation of activities, by other Australian Government departments including the Department of Agriculture, Forestries and Fisheries, the Department of Health and Ageing, and the Australian Centre for International Agricultural Research.

Development challenge

Importance of emerging infectious diseases

Emerging infectious diseases (EIDs) in animals and humans continue to spread across the world, with significant health, social and economic consequences. Diseases such as Influenza A virus subtype H5N1 (also known as 'bird flu') have led to estimated economic losses of US$8 billion in East Asia alone[1], including the loss of income suffered, particularly by small farmers and producers, from decreasing production levels and more restricted access to markets.[2] Lesser emerging and re-emerging infectious diseases such as rabies and brucellosis are major causes of morbidity and mortality, especially among poor people in the Asia Pacific region.[3]

Some EIDs can lead to pandemics (that is, sustained community level outbreaks of disease in more than one region of the world). In terms of likelihood and severity of impact on human life, assets and the economy, pandemics pose a greater risk than do tropical storms, earthquakes and fiscal crises.[4]

The prevention, detection and control of pandemics and EIDs is a global public good which no one country can provide on its own. Supporting countries in the region to respond to EIDs is both a humanitarian prerogative and in Australia's national interest. A new disease can now emerge and spread with great speed across the world. Helping our neighbours detect and contain infectious disease threats at their source will contribute greatly to protecting Australia's own national bio-security.

Addressing pandemics and EIDs is also part of Australia's overarching commitment to the Millennium Development Goals (MDGs). It primarily addresses MDG 6 (combat HIV/AIDS, malaria and other diseases) but also has positive implications for MDG 4 (reduce child mortality) and MDG 5 (improve maternal health), particularly where children and pregnant women are vulnerable to EIDs. Addressing the causes and consequences of EIDs also supports MDG 1 (eradicate extreme hunger and poverty) and MDG 7 (ensure environmental sustainability).

[1] European Commission Health and Consumer Protection Directorate General, *Preventing the Spread of Avian Influenza*. October 2006.
[2] Miers H 2008, *Poverty, Livelihoods and HPAI—A Review*, Mekong Team Working Paper no. 1.
[3] World Bank 2009, *People, Pathogens and Our Planet Volume 1: Towards a One Health Approach for Controlling Zoonotic Diseases*, World Bank, Washington DC.
[4] World Economic Forum, *Global Risks 2009*, <http://www.weforum.org/pdf/globalrisk/2009.pdf>. accessed 19 February 2010

Box 1: What are emerging infectious diseases and what causes them?

An EID is a disease that has appeared in a population for the first time, or that may have existed previously but is rapidly increasing in incidence or geographic range[5]. In the last decade, 75 per cent of new infectious diseases in humans have been zoonoses (that is, those that have originated from animals).[6]

EIDs are by their nature unpredictable, and differ greatly in their causes and in the severity of illness they produce. Many factors facilitate the emergence and rapid spread of EIDs, such as:

i. **Climate change:** rising temperatures and climate variability enables infectious diseases to emerge or re-emerge in new geographic locations and populations. These factors are particularly associated with the spread of vectors such as mosquitoes to areas previously unaffected (through, for example, chikungunya fever).[7]

ii. **Changes in land use including deforestation:** these changes can lead to human and domestic animal populations moving into closer contact with disease hosts and vectors. This is an established risk factor for yellow fever, lassa virus and many other infections.

iii. **Food production:** growth in human populations requires intensification of livestock production to meet needs. Associated pressures and need for food processing could facilitate the spread of food and water borne diseases.

iv. **Mobility and urbanisation:** increasing trade and travel enable EIDs to spread rapidly within and across national borders. The human population is also becoming more urban, and in many urban and peri-urban areas, people raise and even share dwellings with livestock and pets. Greater proximity between animals and humans increases the risk of disease transmission from animals to humans.[8]

Gender is also a significant contributor to EID vulnerability. Men and women differ in their exposure to, and risk of, EIDs. For example men are more likely to work with larger animals on commercial farms, while women tend to work with smaller animals on smaller farms and have less access to the services required to keep animals healthy.[9] Women may face greater exposure to EIDs as they are more likely to care for sick family members or be employed in health care settings where such infections are common.

[5] <http://www.who.int/topics/emerging_diseases/en/>, accessed 12 February 2010.
[6] Jones et al. 'Global trends in emerging infectious diseases', *Nature*, 2008, vol. 451, pp. 990–994.
[7] Costello et al. 'Managing the health effects of climate change', *Lancet* 2009; vol. 373, pp. 1693–1733.
[8] World Bank 2009, *People, Pathogens and Our Planet Volume 1: Towards a One Health Approach for Controlling Zoonotic Diseases*, World Bank, Washington DC.
[9] Velasco et al. S*tudy on the gender aspects of the avian influenza crisis in South East Asia: Final Report*, 2008, European Commission.

What Australia has done and the challenges remaining

Since 2003, Australia has played a leading role in the international response to pandemics and EIDs, by providing almost $160 million to assist countries to combat these diseases. This includes the 2006–2010 $100 million Pandemics and Emerging Infectious Diseases Initiative, announced in 2005 in the context of H5N1 avian influenza and Severe Acute Respiratory Syndrome (SARS). Implementation of this $100 million commitment was guided by the first *Pandemics and Emerging Infectious Diseases Strategy 2006–2010*.

A review of the $100 million initiative found Australia, through its support to national governments, non-government organisations and regional and multilateral institutions, significantly improved the response to pandemics and EIDs in the region. Achievements included the development of national pandemic preparedness plans, simulation exercises to test preparedness, strengthening of systems of early detection, surveillance, prevention and control of avian and human influenza, and stockpiling anti viral medication and personal protective equipment.

Australia's contribution over the last few years has been part of a global response to diseases such as H5N1 avian influenza and has resulted in better emergency response systems and solid building blocks for a long-term approach to the prevention and control of EIDs. Yet EIDs are still most likely to originate where there are the fewest resources available to respond to them.[10] Specific challenges include:

- weak and fragmented human and animal disease surveillance and control systems, particularly at the district level
- lack of collaboration between the human and animal health sectors, across various line ministries, and with others such as the private sector
- limited knowledge and capacity for primary prevention of infectious threats in communities
- incomplete implementation of pandemic plans
- failure to incorporate available evidence into the design and implementation of EID interventions.

Under this new *Pandemics and Emerging Infectious Disease Framework 2010-2015*, Australia will assist partner countries in the Asia Pacific region to consolidate achievements over the last four years under the previous strategy and translate gains in prevention, detection and control of diseases such H5N1 avian influenza into stronger systems for and stronger response to EIDs generally.

[10] Keusch G et al. *Sustaining Global Surveillance and Response to Emerging Zoonotic Diseases*, 2009, National Academy of Sciences.

Framework goal and objectives

Goal

To assist partner countries to reduce the risks and impacts of emerging infectious diseases, including possible pandemics, in the Asia Pacific region.

Objectives

1. Promoting adherence to international standards of animal and human health.

2. Strengthening systems for the prevention, detection and control of EIDs, particularly at the community level.

3. Responding to outbreaks of EIDs when they occur.

4. Building an evidence base for the response to EIDs.

Objective 1: Promoting adherence to international standards of animal and human health.

Strong national systems for animal and human health provide significant developmental and economic benefits. Livestock husbandry (commercial and subsistence) provides valuable financial and/or nutritional returns. Humans have longer, healthier and more productive lives.

The International Health Regulations (IHRs)[11] and equivalent standards of the World Organisation for Animal Health (OIE) provide the normative standards for assessing and building the capacity of human and animal health systems.[12] These standards have been agreed by all member states of the World Health Organization (WHO) and OIE, and assist countries to monitor and develop their own capacity to respond to EIDs in a way that is locally relevant and in line with international obligations to prevent and control the spread of human and animal diseases. Meeting the IHRs and equivalent animal health standards indicates an ability to respond to all EIDs, irrespective of their nature or origin.

The OIE has also tools to help countries assess and measure the capacity of their veterinary services against OIE standards over time (Box 2).[13]

Over the last few years countries in the region have made much progress towards achieving the IHRs and equivalent animal health standards, including through the development of pandemic preparedness plans. However longer-term commitment is required to help countries operationalise these plans and address other gaps in existing capacity. Australia will therefore assist partner countries to:

[11] WHO 2008, *International Health Regulations (2005) Second Edition*, WHO, Geneva.
[12] The equivalent OIE standards include the OIE Terrestrial Animal Health Code, the OIE Manual of Diagnostic Tests for and Vaccines for Terrestrial Animals, the Aquatic Animal Health Code, the Manual of Diagnostic Tests for Aquatic Animals and the OIE International Standards.
[13] OIE 2009, *Tool for the Evaluation of Performance of Veterinary Services 4th Edition*, OIE Paris.

- achieve the core capacity requirements specified under the IHR
- become members of the OIE (particularly in the Pacific)
- assess the state of their veterinary service using the gap analysis and performance of veterinary services tools, and address areas identified as needing capacity building.

Box 2: Strengthening animal health systems through the OIE Performance of Veterinary Services Pathway

Australia is continuing to support the OIE in building stronger veterinary services in South East Asia. Upon receiving a request from a country, certified OIE experts evaluate the country's veterinary services according to internationally agreed OIE quality standards (performance of veterinary services evaluation). National veterinary services use their evaluation to identify gaps, and advocate for support, either from within government or with assistance from non-government donors and agencies. More than 100 countries to date have completed a performance of veterinary services evaluation.

In the next phase, the gap analysis tool is used to assist countries in costing strategic plans for veterinary services. Gap analyses are planned for or anticipated in Indonesia, Thailand, Cambodia, Burma and Laos. Vietnam and the Philippines have already costed strategic plans for their veterinary services, and are discussing how to resource and implement them. These plans enable donors and implementing partners to harmonise efforts and strategically target animal health funding in line with costed plans.

Australia also recognises that specific ongoing assistance is required to strengthen surveillance and animal and public health laboratories in the region, both of which are particular areas of Australian expertise. Where resources are available and partner governments express a need, Australia will direct additional funding through existing mechanisms to activities such as:

- facilitating the establishment of regional standards for quality assurance and biosafety, in line with WHO's *Asia Pacific Strategy for Strengthening Health Laboratory Services 2010–2015*
- facilitating and strengthening relationships between laboratories
- continuing support for field epidemiology and related training programs.

Objective 2: Strengthening systems for prevention, detection and control of emerging infectious diseases, particularly at the district and community level.

Action at the district and community level, and around prevention compared to outbreaks, was somewhat neglected in the last few years of the emergency approach to pandemics and EIDs. Yet it is at the district and community level where EIDs emerge, and where timely recognition and response to threats can be most effective in preventing spread of disease.

Rural development, water and sanitation and health systems strengthening are long-standing priorities of the Australian aid program, and are important for the effective prevention, detection and control of EIDs. Table 1 outlines existing aid activities in these thematic areas, and their relevance.

Table 1: Existing aid activities and their relevance to emerging infectious diseases	
Thematic area	**What does it mean for EIDs?**
Rural development	A renewed commitment to food security and rural development is a key theme of the aid program. The focus is on stimulating agricultural production by increasing investments in international agricultural research and development, improving rural livelihoods through strengthened agricultural markets, and building resilience of the poor to withstand natural and economic shocks, including those caused by EIDs and potential pandemics.
Water and sanitation	Clean water and hand washing are two of the most cost effective ways to control the spread of infectious diseases and ensure health.[14] Australia has committed $300 million from 2008-09 to 2010-2011 for water and sanitation, including implementation of community-based models for water and sanitation services and promoting improved hygiene.
Health systems strengthening	Australia provides support in areas that underpin good public health systems such as national health policy development and planning, health workforce development, disease surveillance systems, and pharmaceutical supply and regulation.

Integrating efforts to address EIDs at the district and community level within these three thematic areas is the best way to ensure Australian assistance aligns with national and local priorities, and contributes to systems which can deal with EIDs broadly. Bilateral support for EIDs may be warranted if a geographic area is at high risk and/or if a partner government has identified EIDs as a priority and there is a specific funding request. Indonesia is one example (Box 3). Australia will consider specific EID support in similar situations to assist countries to

- mobilise communities to prevent and contain outbreaks
- implement disease and events-based surveillance systems
- diagnose and manage infectious diseases in animals and humans
- immunise animals and humans on an ongoing basis
- inspect, supervise and educate around farm and food hygiene.

[14] Jamison DT et al (eds). 2006. *Disease Control Priorities in Developing Countries.* 2nd edition Oxford OUP.

Box 3: Australia Indonesia Partnership for Emerging Infectious Diseases

The spread of avian influenza highlighted Indonesia as a country at risk of EIDs and diseases of pandemic potential. Under the new Australia-Indonesia partnership, Australia will provide $21 million for an animal health program. Managed by the Australian Government Department for Agriculture, Fisheries and Forestry, in direct relationship with the Government of Indonesia, the program includes assistance for strengthening decentralised veterinary systems. A priority will be the establishment of disease identification and notification systems from the village to the district level, using existing resources in a financially sustainable way. Reporting of data from district to provincial to national levels will also be included. Current activities relating directly to avian influenza prevention and control will continue in the initial stages but will be progressively integrated into the broader context of prevention and control of national priority diseases and EIDs.

Objective 3: Ensuring a rapid response to outbreaks of emerging infectious diseases when they occur.

Support provided under objectives 1 and 2 will build capacity at national, district and community levels to respond to local outbreaks in animals and/or humans. Further and immediate technical and financial support (or surge capacity) will be required if a disease emerges which threatens to become a serious pandemic.[15] Such support would aim to control or slow the spread of the disease, as was the case with pandemic H1N1 2009 (Box 4).

Box 4: Australia's response to pandemic H1N1 2009

A new strain of H1N1 influenza was first identified in the United States in April 2009, and within a few months had spread to more than 200 countries around the world. WHO declared a Level 6 (pandemic) alert in June 2009.

Australia responded quickly to the pandemic using mechanisms put in place over the previous four years. More than $12 million was disbursed to help countries respond, including through provision of technical assistance, anti-viral medication and personal protective equipment. To ensure the response was coordinated, informed and appropriate to country contexts, most funding was channelled through WHO's *Asia Pacific Strategy for Emerging Diseases*, though other key organisations such as the Secretariat of the Pacific Community (SPC) and the United Nations Office for the Coordination of Humanitarian Affairs.

In September 2009, the Australian Government announced that Australia would donate up to 10 per cent of its domestic vaccine stockpile to WHO for use in the Pacific, Papua New Guinea (PNG), East Timor and South East Asian countries. The New Zealand Government pledged to donate ancillary products such as syringes to match Australia's donation of vaccines.

The response to pandemic H1N1 2009 is an excellent example of quick, effective collaboration across Australian government portfolios and with other partners.

Australia will, in collaboration with other partners, support countries in the region to:

- adopt a multi-hazard approach and ensure pandemic preparedness is adequately incorporated into local and national emergency plans, in

[15] As currently defined by WHO, this corresponds to pandemic alert level 5 (human-to-human spread of the virus into at least two countries in one WHO region) and level 6 (community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in level 5). Designation of level 6 means a global pandemic is underway.

line with *Investing in a Safer Future: A Disaster Risk Reduction Policy for the Australian Aid Program* (June 2009)

- build rapid response capacity, including by ensuring that supplies of anti-viral and other essential medicines and protective equipment are stockpiled

- ensure systems are in place for continuing assessment, rapid procurement, logistics and supply management

Australia will also:

- support international and regional organisations to provide flexible and timely assistance as needs emerge; including through coordinating, distributing and sharing of information

- conduct gender sensitive post-epidemic evaluations and evaluations of simulation exercises to identify possible system failures or weaknesses.

Objective 4: Building the evidence base for the response to emerging infectious diseases.

The response to EIDs over the last four years has generated a large amount of information on factors influencing the emergence and spread of EIDs, and the interventions being used to address EIDs. Yet limited analysis exists of the validity or effectiveness of many interventions, or of how feasible, affordable and sustainable they are in different contexts. Knowledge of global, regional and local developments and innovations, as well as incorporating lessons learned from past interventions, must also be better incorporated into EID programming.

Australia will:

- commission systematic literature reviews on the effectiveness of existing interventions for EIDs

- use the best available evidence in planning, implementing and evaluating programs, both within the Australian Government and with key external partners

- support, where feasible, research into key factors affecting the emergence, persistence and vulnerability to EIDs, including through the Australian Development Research Awards.

Box 5: Australian Centre for International Agricultural Research (ACIAR) Animal Health Program

Under its animal health program (2007–12), ACIAR provides $3 million annually across Indonesia, Laos, Cambodia, Philippines and Papua New Guinea to enable small holder farmers to refine their livestock management toward production and income generation, in contrast to keeping livestock solely as an asset.

The program focuses on diseases of regional significance, transboundary diseases, zoonotic diseases and diseases affecting production and market access. In Indonesia, for example, one project is assisting the Indonesian Government improve veterinary service delivery in a decentralised system. In PNG, ACIAR is facilitating the collection and reporting of signs of disease in the country's livestock through the introduction of simple checklists and the training of livestock owners and animal health staff in provincial departments, commercial livestock companies and non government organisations.

Expected impacts from projects funded through the animal health program include reduced disease control costs and improvements in animal productivity, product quality and market access.

Guiding principles

In implementing this *Pandemics and Emerging Infectious Diseases Framework 2010–2015*, the Australian Government is guided by its overall commitments to aid effectiveness[16,17]. In particular, Australia will:

(i) ensure activities at both bilateral and regional level are **aligned** with partner government priorities and commitments

(ii) **harmonise** with other donors and development partners, including through joint approaches to funding and monitoring and evaluation wherever possible.

Australia will continue to promote greater harmonisation and reduced duplication of effort through international and regional forums on EIDs, including the annual International Ministerial Conference on Animal and Pandemic Influenza, the International Partnership for Avian and Pandemic Influenza, Asia-Pacific Economic Cooperation, Association of Southeast Asian Nations (ASEAN) and meetings of various United Nations (UN) bodies.

(iii) work through existing mechanisms and approaches wherever possible

Gender is an overarching priority of the Australian aid program, but to date has been neglected in the approach to pandemics and EIDs. We will ensure that the different vulnerabilities, needs and roles of women and men in EID prevention, detection and control are appropriately addressed in program design (including through gender analysis and the development of a comprehensive gender strategy) and in all stages of implementation.

Australia's assistance to combat pandemics and EID in the region will also be guided by the *One World One Health* framework[18], which has been accepted by the international community as a way of addressing disease risk at the animal-human-ecological interface. In particular our approach will be:

(i) **multidisciplinary** and promote greater collaboration between the animal and human health sectors in particular

(ii) **pro poor** in targeting interventions to communities where the risks and impacts of EIDs are likely to be greatest

(iii) **science based** and continually adjusted to new information and technologies in the changing environment.

Finally, we will ensure policy coherence with the Australian Government's foreign and domestic policies and programs on food security, rural development, water and sanitation, health systems strengthening, climate change, disability and any other factors predisposing to an increased risk and/or impact of EIDs.

[16] OECD 2008, *Accra Agenda for Action* <www.oecd.org>

[17] Guiding the Australian Aid program's engagement in the Pacific is the *Cairns Compact on Strengthening Development Coordination in the Pacific*.

[18] Food and Agriculture Organization, OIE, WHO, United Nations System Influenza Coordination, United Nations Children's Fund and the World Bank, *Contributing to One World, One Health—A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal-Human-Ecosystems Interface*, consultation document, 14 October 2008.

How aid will be provided

Under this Framework, implementation priorities and modalities will be guided by lessons learned from the review of the *2006–2010 Pandemics and Emerging Infectious Diseases Initiative*. These lessons include:

1. While investing in specific diseases such as H5N1 avian influenza was an important first step, we must now broaden the approach to **EIDs generally**. This will ensure that our approach to EIDs is in line with the disease control priorities of partner governments, and so more likely to receive the political support required for initiatives to be effective and sustainable.

2. Funding for EIDs must be aligned with, and contribute to, stronger **animal and human health systems**, rather than diverting resources from these systems or building capacity only around one or a few diseases.

   Critically, EID specific support will not be provided for diseases which are already subject to large amounts of funding from Australia or other donors (for example, HIV, malaria or tuberculosis). In implementing this Framework, Australia will leverage efficiencies from these larger programs, particularly where there are common causes (for example, vectors such as mosquitoes), means of prevention (for example, infection control in health care settings) or systems required (for example, surveillance).

3. We must take a **longer term, programmatic** approach if the benefits of EID funding are to be sustainable. Small, one-off projects will likely be of minimal value, as will activities implemented over a short time frame of three to four years.

4. Reduce duplication, particularly with regional programs. Regional programs should only be supported if they have a clear mandate and visibly support progress at country level. We will:

   - Fund, at the **regional** level, multilateral and regional organisations which play a role in supporting partner country adherence to normative standards and in improving collaboration across countries.

   - Provide additional funding, at **country** level, where there is partner government commitment and where a country is considered to be at high risk of EIDs. Priorities countries include those in the Mekong sub region and Indonesia, which remain EID ‘hotspots’.

5. We will work with organisations based on agreed principles, strategies, and understanding of **comparative advantages and strengths**. These partners include regional and multilateral organisations with relevant political and technical mandates, as well as Australian Government departments, organisations and individuals with relevant technical expertise and operational experience.

Measuring performance

A Performance Assessment Framework will be developed to measure progress against objectives and identify areas for improvement. All data collected during Framework implementation will be sex disaggregated to enable measurement of differences in outcomes between men and women.

We will endeavour to align reporting requirements with other donors, partner government frameworks and international standards such as the IHRs. We will also work with regional and multilateral partners to improve the quality of their monitoring and evaluation systems.

Independent reviews of the Framework and its activities will take place in 2012 and 2015 to assess lessons learned, outcomes achieved and any need for a shift in policy direction or priorities.