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**ASIA-PACIFIC STRATEGY FOR EMERGING DISEASES**

In Asia and the Pacific, emerging diseases and other epidemic-prone diseases pose serious public health threats. While outbreaks of diseases such as dengue, meningococcal infection, typhoid fever, cholera and leptospirosis continue to occur, the region also has experienced several significant outbreaks of newly emerging infectious diseases over the past few years including Nipah virus infection, severe acute respiratory syndrome (SARS) and avian influenza A(H5N1). The Regional Committee at its fifty-fifth session in September 2004 requested the Regional Director to develop, in collaboration with the South-East Asia Regional Office, a biregional strategy for strengthening capacity for communicable disease surveillance and response.<sup>1</sup> The two regional offices, in collaboration with Member States, have been working closely to develop the proposed Asia-Pacific Strategy for Emerging Diseases in order to provide a regional strategic approach and build new partnerships for emerging diseases.

The Regional Committee is asked to discuss and endorse: (1) the Asia-Pacific Strategy for Emerging Diseases (Annex 1) to provide a strategic framework to strengthen national and regional capacity for early detection, rapid response and preparedness for emerging diseases; (2) the need for strengthening intercountry, interregional and multisectoral collaboration on the priority action areas under the strategy, through national and regional networking and effective collaborative mechanisms; and (3) the need for developing and implementing activities in the areas of surveillance and response, laboratory, infection control and zoonoses.

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<sup>1</sup> Resolution WPR/RC55.R5.

## 1. CURRENT SITUATION

In Asia and the Pacific, emerging diseases and other epidemic-prone diseases pose serious public health threats to many Member States. While outbreaks of diseases such as dengue, meningococcal infection, typhoid fever, cholera and leptospirosis continue to occur, the region also has experienced several significant outbreaks of newly emerging infectious diseases over the past several years, including Nipah virus infection, severe acute respiratory syndrome (SARS) and avian influenza A(H5N1).

SARS, as the first severe infectious disease to emerge in the 21st century, posed a serious threat to global health security and affected economic growth and social stability in many countries. Although all human chains of SARS transmission had been interrupted and the global outbreak of SARS had been successfully contained by July 2003, several laboratory accidents occurred in the region between August 2003 and April 2004. Given the potential serious public health impact, SARS is now considered a "listed disease", meaning that even a single case of SARS must be reported to WHO under the terms of the revised International Health Regulations. While continuing efforts are under way to prevent a reoccurrence of SARS, the experience and lessons learned from SARS also are contributing to the early detection, rapid response and preparedness for other emerging diseases.

Outbreaks of avian influenza in poultry in Asia caused by A(H5N1) in 2004 were unprecedented in their scale and economic consequences. Since December 2003, nine countries in Asia have been affected, and the virus continues to plague the Western Pacific Region. The outbreaks of avian influenza A(H5N1) in poultry represent a serious threat to human health. As of 27 July 2005, a cumulative total of 109 human cases, including 55 deaths, have been reported in Cambodia, Indonesia, Thailand and Viet Nam. Although most human cases were linked to exposure to dead or sick poultry, evidence at this stage suggests there is no efficient human-to-human transmission. However, there have been human cases reported within family clusters in which human-to-human transmission could not be ruled out. It also appears that epidemiological patterns of the most recently detected human cases are changing, which raises concerns about the potential of a new influenza pandemic.

The Fifty-eighth World Health Assembly, in [resolution WHA58.3 \(Annex 2\)](#), adopted the revised International Health Regulations (IHR). The International Health Regulations (2005) address the new challenges presented by emerging infectious diseases and other public health emergencies. The IHR is a legally binding international instrument designed to prevent, control and provide a

public health response to the global spread of disease while avoiding unnecessary interference with international traffic and trade. Timely and effective implementation and administration of the revised IHR present a challenge in the Western Pacific Region, given that current surveillance, reporting, verification, notification and response capacities of many countries and areas are less than optimal. International collaboration will be needed to marshal funding and human resources to meet the requirements set out in the revised IHR.

## 2. ISSUES

### 2.1 Need for regional strategic directions for emerging diseases

The importance of developing and implementing global and regional strategies for communicable disease surveillance and response has been recognized for a decade. The Forty-eighth World Health Assembly in 1995 requested the Director-General to establish, in consultation with Member States, strategies to improve the recognition and response to emerging and re-emerging infectious diseases in a manner sustainable by all countries. It also asked the Director-General to establish strategies enabling rapid national and international action to investigate and to combat infectious disease outbreaks and epidemics.<sup>2</sup>

The revised IHR provide a legal framework for detecting, notifying and responding to public health emergencies of international concern, including those caused by emerging diseases. Given the diversities in Asia and the Pacific, a regional strategic approach is needed to strengthen national and regional capacity to meet the minimum core capacity requirements for surveillance and response under the revised IHR.

In September 2004, the Regional Committee at its fifty-fifth session, requested the Regional Director to develop, in collaboration with the South-East Asia Regional Office, a biregional strategy for strengthening capacity for communicable disease surveillance and response and to present the strategy to the Regional Committee for its endorsement in 2005.<sup>3</sup> Since then, the two regional offices have been working together closely to develop the proposed Asia-Pacific Strategy for Emerging Diseases. A consultation between the Western Pacific and South-East Asia Regional Offices was held

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<sup>2</sup> Resolution WHA48.13.

<sup>3</sup> Resolution WPR/RC55.R5.

in New Delhi in March 2005 to develop a strategic framework and set a timetable for finalizing a draft document.

An external technical consultation on the Asia-Pacific Strategy for Emerging Diseases was convened in June 2005 in Manila to review the draft and recommend a final document.

## **2.2 Need for intercountry, interregional and multisectoral collaboration for emerging diseases**

The rapid globalization of trade and the movement of people have significantly increased the risk of spread of communicable disease and have altered the traditional distinction between national and international health. Very few urgent public health risks are solely within the purview of national authorities. The prevention of and response to emerging diseases will need more effective intercountry and interregional collaboration.

Cross-border issues of emerging diseases have been recognized at numerous regional and international forums following the outbreaks of SARS and avian influenza. The unprecedented outbreak of SARS in 2003 clearly demonstrated that newly emerging infectious diseases do not respect international borders and can spread very rapidly among countries. SARS has shown how, in a closely interconnected and interdependent world, a new and poorly understood infectious disease can adversely affect economic growth, trade, tourism and social stability. As most countries in the region are currently experiencing rapid social and environmental changes, including globalization, increased mobility and rapid urbanization, the risk of cross-border transmission of emerging diseases is higher than ever before. Countries in the Western Pacific and South-East Asia Regions share significantly large border areas and experience common communicable disease problems such as SARS and avian influenza. There is an urgent need to strengthen biregional collaboration.

Many emerging diseases such as avian influenza, Nipah virus and SARS are zoonoses. This means that there must be close multisectoral cooperation, particularly between the health and agricultural sectors at each level. Sharing surveillance information and specimens, assessing the risk of zoonoses to humans, planning and implementing joint interventions, including improving animal husbandry practices to protect human health, are the priority areas for multisectoral collaboration.

The revised IHR require Member States to collaborate with each other and with other partners in assessing and responding to epidemics and other significant public health events, and also in providing and facilitating technical cooperation, especially core capacity-building.

The experience obtained from SARS, avian influenza and the recent Asian tsunami shows that networks can play a critical role in improving effective collaboration among partners. WHO was able to mobilize resources through the Global Outbreak Alert and Response Network and worked with its partners to help countries fight SARS. The development of collaborative networks at the regional and subregional level for surveillance and response, laboratory, infection control, and zoonoses will be needed. Such networks are an effective mechanism for pooling and sharing knowledge and for maximizing the utilization of existing resources among Member States and other partners.

### **2.3. Need for strengthening local capacity for surveillance and response**

The outbreaks of SARS and avian influenza clearly highlight that infectious diseases, including those caused by novel pathogens, will continue to emerge and reoccur in the region. All countries must be prepared.

Despite the considerable experience gained during the SARS and avian influenza outbreaks, there remain significant challenges and gaps in communicable disease surveillance and outbreak response in the region. Although most countries have surveillance systems for communicable diseases, they are usually unable to function as early warning systems. There are not adequate early response capacities in place to minimize the health, economic and social impacts of the outbreaks. Many countries are still vulnerable to future disease outbreaks and most countries are still not well prepared for early detection and rapid response to emerging diseases. The importance of strengthening capacities at local levels needs to be recognized, as it is essential for early detection and rapid response to outbreaks. The revised IHR requires Member States to assess, develop, strengthen and maintain their capacity at each level to meet the minimum core capacity requirements for surveillance and response.

Therefore, there is an urgent need to develop additional joint activities under the guidance of the strategy in an effort to strengthen national and regional capacities and to reinforce mechanisms to detect, verify, notify and respond rapidly and effectively to emerging diseases and other public health emergencies of national and international concern.

### **3. ACTIONS PROPOSED**

The following actions by Member States are proposed for consideration by the Regional Committee:

- (1) endorse the Asia-Pacific Strategy for Emerging Diseases to provide a strategic framework to strengthen national and regional capacity for early detection of, rapid response to and preparedness for emerging diseases and other significant public health emergencies;
- (2) strengthen intercountry, interregional and multisectoral collaboration on the priority action areas under the strategy, through national and regional networking and effective collaborative mechanisms; and
- (3) develop and implement more activities in the areas of surveillance and response, laboratory, infection control and zoonoses to meet the core capacity requirements under the International Health Regulations.



# Asia Pacific Strategy for Emerging Diseases

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SOUTH-EAST ASIA

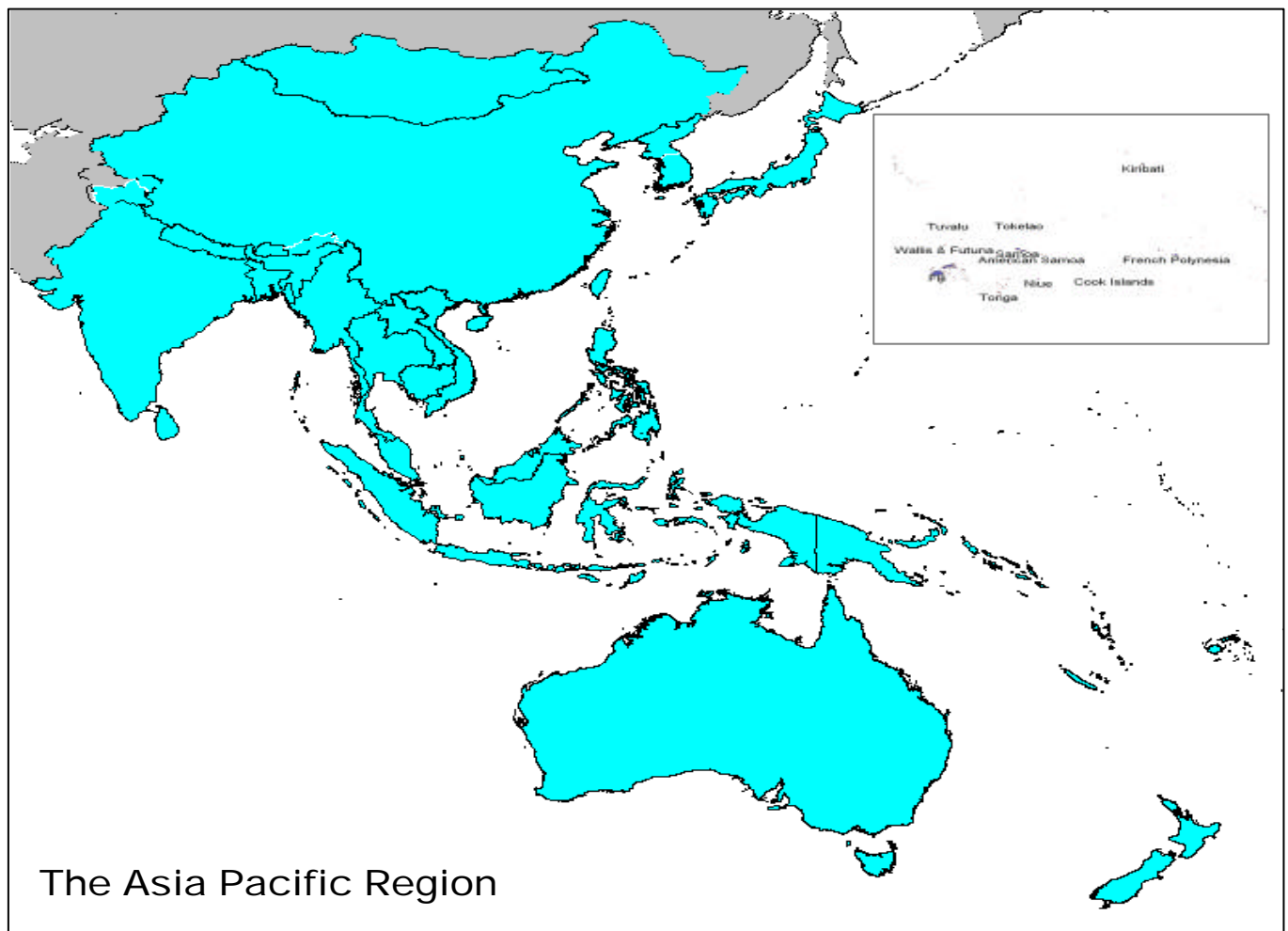
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Asia Pacific Strategy for Emerging Diseases



Countries and Areas of the Asia Pacific Region

Western Pacific		South-East Asia
American Samoa	New Caledonia	Bangladesh
Australia	New Zealand	Bhutan
Brunei Darussalam	Niue	Sri Lanka
Cambodia	Northern Mariana Islands	Democratic People's Republic of Korea
China, People's Republic of	Commonwealth of the	India
Cook Islands	Palau	Indonesia
Fiji	Papua New Guinea	Maldives
French Polynesia	Philippines	Myanmar
Guam	Pitcairn Islands	Nepal
Hong Kong (China)	Republic of Korea	Thailand
Japan	Samoa	Timor-Leste
Kiribati	Singapore	
Lao People's Democratic Republic	Solomon Islands	
Macao (China)	Tokelau	
Malaysia	Tonga	
Marshall Islands	Tuvalu	
Micronesia, Federated States of	Vanuatu	
Mongolia	Viet Nam	
Nauru	Wallis and Futuna	

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## Executive Summary

The *Asia Pacific Strategy for Emerging Diseases* is a road map for countries of the Asia Pacific Region to strengthen core capacities required for effective preparedness planning, prevention, prompt detection, characterization, containment and control of emerging infectious diseases which threaten national, regional and global health security. Implementation of the *Asia Pacific Strategy for Emerging Diseases* is an important stepping stone in fulfilling many of the requirements of the revised International Health Regulations (2005).

The countries of the Asia Pacific Region are interconnected, they face similar threats to health, and their protection from those threats is only as strong as the weakest link. The advent of SARS and avian influenza underscores the importance of emerging diseases and their impact on health and economic development. The Asia Pacific Region is, unfortunately, at the epicentre of such epidemics. Given the vulnerability of the Region to emerging disease threats, the increasing globalization of public health and the requirements of the International Health Regulations (IHR), there is clearly value in developing such a strategy for the Asia Pacific Region.

The scope of the *Asia Pacific Strategy for Emerging Diseases* is broad and includes objectives for the short-medium-and long-term capacity needed to reduce the threat of emerging diseases. The term emerging diseases, used interchangeably with emerging infectious diseases, includes the so-called new diseases, as well as the re-emerging and resurging known diseases, and known epidemic-prone diseases. Important differences between countries in their current level of preparedness for emerging diseases, and therefore their capacity strengthening needs, are addressed by generic recommendations for adaptation to the local situation.

The goal of the Strategy is to improve health protection in the Asia Pacific Region through productive partnerships for preparedness planning, prevention, prompt detection, characterization, and the containment and control of emerging infectious diseases. The Strategy is organized under five Objectives.

- Objective 1 - Reduce the risk of emerging diseases
- Objective 2 - Strengthen early detection of outbreaks of emerging diseases
- Objective 3 - Strengthen early response to emerging diseases
- Objective 4 - Strengthen preparedness for emerging diseases
- Objective 5 - Develop sustainable technical collaboration within the Asia Pacific Region.

It is anticipated that countries in the Asia Pacific Region and their regional partners will use the Strategy in the following ways:

- As a strategic document to guide the development or strengthening of the national capacities required for health protection from emerging diseases.
- As a framework for the development of stronger collaboration with neighbouring countries, subregional, regional and global networks and other technical partners to build a regional safety net from emerging diseases.
- To meet the core capacity requirements for surveillance and response under the IHR.

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- As a document for national and regional advocacy for adequate, equitable and sustainable health financing arrangements (including resource mobilization and donor coordination), human resource development, and sustainable knowledge, skills and technology transfer.

Infectious diseases do not respect international borders. Global partnerships and the rapid sharing of data and other information enhance preparedness and evidence-based control strategies. The World Health Organization has a mandate of providing technical support to all countries for health development and specific responsibilities for global health protection under the IHR. WHO will continue to support regional and global outbreak investigation and disease surveillance programmes. WHO and other international technical agencies can play a critical role in mobilizing international cooperation and support (surge capacity and technical cooperation in key areas such as emerging zoonoses, risk analysis and management, case management, epidemiology, public health, diagnostics and verification of results, laboratory biosafety, infection control, logistics, risk communication, and other specialty areas).

Emerging infectious diseases are real and they pose an overt threat to societies and their economies. With strong political support, a commitment to the global public good and effective public health systems, the challenge can be met.

## Section 1 – Introducing the Strategy

### Preface

The advent of SARS and avian influenza underscore the importance of emerging diseases and their impact on health and economic development. The Asia Pacific Region is, unfortunately, at the epicentre of such epidemics. Over 30 new infectious agents have been detected in the last three decades, 75% of which have originated in animals (zoonoses). New pathogens, particularly viruses, remain unpredictable and continue to emerge and spread across countries. Several have profoundly affected countries and areas in the Asia Pacific Region that are the home of over 3.4 billion people, or 53% of the world's population.

Dengue fever, Japanese encephalitis, leptospirosis, Nipah virus and drug-resistant malaria are some of the diseases that have become entrenched within the Region. Though several socio-economic, demographic, environmental and ecological factors facilitate the emergence and spread of these diseases, their impact could be minimized through a well-prepared and strong public health system. To effectively respond to these diseases a well-developed strategy and programme must be implemented through a coordinated and pragmatic plan of action.

To meet the global challenge that emerging disease outbreaks present, the International Health Regulations<sup>1</sup>, provide a legal framework for an international public health response to the global spread of disease, while avoiding unnecessary interference with international traffic and trade. The purpose and scope of the revised IHR “*are to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.*”

The Millennium Development Goals (MDG)<sup>2</sup>, the expression of global solidarity in improving quality of life, are also concerned with reducing the impact of emerging diseases. The MDG address the issues of HIV/AIDS, TB, malaria, water and sanitation, and other development-related health determinants in the least developed countries that usually act as trigger sites for emerging diseases.

The *Asia Pacific Strategy for Emerging Diseases* has been prepared in consultation with leading experts in various disciplines of public health in the Region. It highlights the impact of emerging diseases and provides an insight into the factors that facilitate their emergence and spread. It also suggests broad approaches and key activities that can strengthen the public health system to respond effectively and efficiently to the challenge, recognizing the International Health Regulations as the policy basis for much of the Strategy.<sup>3</sup>

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<sup>1</sup> World Health Organization. Fifty-eighth World Health Assembly Resolution WHA58.3. Revisions of the International Health Regulations, 23 May 2005 [http://www.who.int/gb/ebwha/pdf\\_files/WHA58/WHA58\\_3-en.pdf](http://www.who.int/gb/ebwha/pdf_files/WHA58/WHA58_3-en.pdf). Accessed 10 June 2005.

<sup>2</sup> World Health Organization Regional Office for the Western Pacific. *Turning Promises into Progress. Attaining the Health MDG in Asia and the Pacific*. Paper prepared High Level Forum on the Health MDG in Asia and the Pacific, held in Tokyo on 21–22 June 2005.

<sup>3</sup> Implementing the Strategy is necessary but insufficient to achieving the core competencies required under the IHR to protect international public health because the IHR has a much wider scope, including infectious diseases, chemical and radionuclear events.

## Terminology

The terms *activity* and *intervention* are used interchangeably to mean “any health action – any promotive, preventive, curative or rehabilitative activity where the primary intent is to improve health”.<sup>4</sup>

The term *Asia Pacific Region* is based on World Health Organization geopolitical zones and includes the countries and territories of the South-East Asia and Western Pacific Regions. However, potential partners to the Strategy include other groupings and organizations such as the Asian of Association of South East Asian Nations (ASEAN), the South Asian Association for Regional Cooperation (SAARC), the Pacific Public Health Surveillance Network (PPHSN) and the Mekong Basin Disease Surveillance Network (MBDS) and some of the countries of intergovernmental groupings such as Asia Pacific Economic Cooperation (APEC). In addition, some countries of the Asia Pacific Region share borders (and potentially risks from emerging infectious diseases) with countries in other WHO Regions highlighting the need for global partnerships to combat emerging disease threats.

The term *disease* means “an illness or medical condition, irrespective of origin or source, which presents or could present significant harm to humans.”<sup>1</sup>

The term *emerging diseases*, used interchangeably with *emerging infectious diseases*, means “infections that newly appear in a population, or have existed but are [rapidly] increasing in incidence or geographic range.”<sup>5</sup> Thus the term includes the so-called new diseases, as well as the re-emerging and resurging known diseases, and known epidemic-prone diseases.

The term *expected results* means the tangible results (products and services) of undertaking the activities described in the Strategy.

The term *public goods* means “goods that are non-excludable (i.e. the benefits are available to all) and non-rival in consumption (i.e. consumption/access by one person/nation does not prevent consumption/access by others)”. The IHR work on the principle of global public good – protecting public health through early detection and response to public health emergencies benefits the nation concerned and reduces the risks of spread to other nations.<sup>6</sup>

The term *surveillance* means “the systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response as necessary.”<sup>1</sup>

The term *zoonosis* means any pathogens that can be transmitted from animal to people under natural conditions.

The terms *local, subnational* (state, territory or provincial administrations) and *national level* have been used to describe the various levels of public health services in this document.

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<sup>4</sup> World Health Organization. *World Health Report*, 2002 [http://www.who.int/whr/2002/en/Overview\\_E.pdf](http://www.who.int/whr/2002/en/Overview_E.pdf)

<sup>5</sup> Lederberg, J, Shope RE, Oaks SC. (ed.) *Emerging infections: microbial threats to health in the United States*. Institute of Medicine. Washington: National Academy Press, 1992.

<sup>6</sup> Smith R, Beaglehole R, Woodward D, Drager N. (ed.) *Global Public Goods for Health: health economics and public health perspectives*. Oxford: Oxford University Press, 2003.

## Annex 1

## Policy context

The development of this Strategy follows the adoption of a resolution by the Regional Committee for the Western Pacific in September 2004 to "develop, in collaboration with WHO's South-East Asia Regional Office, a biregional strategy for strengthening capacity for communicable disease surveillance and response" (Resolution WPR/RC55.R5). The draft document was sent to selected experts in the South-East Asia Region for technical inputs in June 2005.

For almost a decade concerns have been expressed worldwide about the challenges posed by emerging diseases. A list and description of the related resolutions of bodies such as the World Health Assembly, ASEAN and APEC can be found in Annex 1.

The IHR is a legally binding international instrument with the purpose of preventing, protecting against, controlling and providing a public health response to the international spread of disease while avoiding unnecessary interference with international traffic and trade. The regulations provide common reference points and an agreed code of conduct that coordinate international responses to global health threats. Implementing the *Asia Pacific Strategy for Emerging Diseases* is a first step towards fulfilling the broader requirements of the IHR that includes all public health events of potential international concern, irrespective of origin or source.

State parties to the IHR have agreed to new requirements and obligations concerning the reporting, verification and assessment of public health events of international concern, the implementation of WHO recommended control measures and the development of core capacities for surveillance and response. The IHR also require intercountry collaboration as well as with WHO and other partners in assessing and responding to significant public health events, providing and facilitating technical cooperation and logistical support, especially core capacity-building, mobilizing financial resources and formulating proposed laws (refer to Annex 2 for the core obligations under the revised IHR).

## Situational analysis

Recent infectious disease outbreaks have revealed weaknesses in the public health infrastructure of many countries and areas in the Asia Pacific Region, and highlighted the urgent need for increased intercountry and international collaboration.

- An infectious disease in one country is a threat to all; infectious diseases do not respect international borders. An outbreak in one country can spread rapidly across national borders and become a regional or global concern.
- Emerging infectious disease outbreaks have substantial negative economic impact on tourism, travel and trade, as well as causing significant political and social disruption.
- Emerging zoonoses in particular have highlighted the need for inter-sectoral and multidisciplinary collaboration with the agricultural, animal health and food safety sectors.
- Emerging infections can be contained with high-level government commitment, international collaboration if required, and strengthening public health infrastructure.
- The compliance for early notification under the International Health Regulations is paramount for regional and global health protection.

- Risk communication with the public, media and other stakeholders is a key element of outbreak response and impact mitigation.
- Global partnerships and the rapid sharing of data and other information enhances preparedness and evidence-based control strategies.
- WHO and other international technical agencies can play a critical role in mobilizing international cooperation and support (surge capacity and technical cooperation in key areas such as risk analysis and management, case management, epidemiology, public health, diagnostics and verification of results, laboratory biosafety, infection control, logistics and other specialty areas).

## Scope

The Strategy seeks to complement existing global and regional communicable disease programmes, including TB, EPI, influenza and HIV/AIDS. The Strategy is comprehensive and identifies a wide range of actions to achieve the expected results, including systems, organization and infrastructure development, and education and training at the local, national and regional levels. All of these activities contribute to strengthening global health protection through preparedness against emerging diseases and their prevention, detection and control.

## Structure

The document includes an overview of the strategic vision, goals, objectives and expected results, as well as a management model to support its implementation. The Strategy is divided into three sections for ease of reference:

- Section One outlines the Strategy's vision, goals, scope, guiding principles and targeted outcomes.
- Section Two provides a more detailed description of the Strategy's goals, objectives and expected results and links them to actions for national, regional and global partners.
- Section Three describes the potential role of WHO and other partners in supporting implementation.

The document does not contain implementation guidelines or work-plans, as these will be developed later, as part of implementation planning.

## Vision, goal and objectives of the strategy

The **vision** of the *Asia Pacific Strategy for Emerging Diseases* is to minimize the health, economic and social impact of emerging diseases in the Asia Pacific Region.

The **goal** is to improve health protection in the Asia Pacific Region through productive partnerships for preparedness planning, prevention, prompt detection, characterization, and the containment and control of emerging infectious diseases.

To achieve the goal, **five objectives** are proposed. For each objective, a number of **expected results** are specified, all of which are supported by action plans. The five objectives are of equal importance, requiring a comprehensive approach to their implementation. However, national differences in

## Annex 1

### Asia Pacific Strategy for Emerging Diseases

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baseline capacity may result in differences in the priority given to specific objectives by countries in the implementation phase, and national priority setting may also differ from the timing of regional-level activities. All countries, however, are encouraged to fill, as a priority, gaps in the core capacities needed for the effective alert and response to emerging threats .

- Objective 1 - Reduce the risk of emerging diseases
- Objective 2 - Strengthen early detection of outbreaks of emerging diseases
- Objective 3 - Strengthen early response to emerging diseases
- Objective 4 - Strengthen preparedness for emerging diseases
- Objective 5 - Develop sustainable technical collaboration within the Asia Pacific Region.

## Guiding principles

- The primary focus of the Strategy is on country activities supported by partnerships between countries and at subregional, regional and global levels.
- The actions taken are sustainable and build on existing structures.
- The actions are based on a combination of knowledge and experience of effective public health policies and practices.
- Networks and partnerships are the mechanisms most likely to optimize the use of limited resources and provide equity of access to regional and global public goods through implementation of the Strategy.
- Consultation, collaboration and the support from regional solidarity are keys to success.
- The achievement of self-reliance for the Asia Pacific Region.

## Cross-cutting issues

There are a number of crosscutting issues that underpin both the emergence of infectious diseases and sustainable development. Although some of these developmental issues are outside the immediate scope of the Strategy, failing to recognize their importance has the potential to reduce the effectiveness of the Strategy when implemented. The need for more effective public health sector management has a direct impact on the Strategy's success.

- The environmental, ecological and climatic factors that facilitate the emergence, maintenance and transmission of infectious diseases (changing patterns of land use, developmental projects, global warming, urban ecology and the rise of megacities<sup>7</sup>, inequities between urban and rural sectors, failure to link urban with rural development etc.)
- Host factors that facilitate the emergence of infections and their spread including an ageing population and immune suppression (HIV/AIDS, malnutrition, other immunosuppressive medical conditions and therapies). The highest rates of new cases of HIV/AIDS globally are in Eastern Europe and central Asia.

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<sup>7</sup> Megacities have a population of over 10 million inhabitants. Eight of the world's largest cities (with populations over 7 million inhabitants) are in the Asia Pacific Region.

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- Inappropriate use of antibiotics and other antimicrobials that result in significant increase of antimicrobial resistant organisms.
- Social inequalities and behavioural factors that influence distribution of emerging diseases, their course and the populations that are most affected, including access to safe water and sanitation, housing, education, employment, gender inequalities, unsafe sex, injecting drug use and health-seeking behaviour.
- The human-animal interactions and other underlying risk factors which facilitate inter-species transmission of infectious diseases, including animal husbandry practices, deforestation, the increasing demand for animals for food, and the consumption of bush meats and other wildlife.
- The dramatic increases in volume and speed of international travel and commerce (movement of people, animals, foodstuffs, and other commodities).
- The breakdown of public health capacity due to conflict, civil unrest and displaced populations.
- The need for more effective public health sector management and policy development for health including:
  - a. A legal framework that supports surveillance and disease control activities.
  - b. Adequate, efficient, equitable and sustainable health financing arrangements (including resource mobilization and allocation and appropriate health care financing arrangements for the poor).
  - c. A health workforce that is appropriately recruited, trained, deployed and retained. Health workforce shortages and migration are particular regional concerns, and are approaching crisis level in some Pacific island countries.
  - d. Measures to reduce the risks of disease transmission to the health workforce and to the community through the receipt of health care.
  - e. Health information systems that are well coordinated and more orientated towards country priorities and needs to enable better monitoring, and evidence-based policy and decision-making.
  - f. New forms of engagement with the private sector (leading, for example, to wider availability of affordable drugs, vaccines and diagnostics).
- The need to promote better coordination and harmonization of international partners.

## Time frame and targeted outcomes

It is envisaged that the initial term of the Strategy will be five years. Following national level reviews and planning, detailed national and regional implementation plans will be developed which will include timelines, milestones and indicators for all activities.

### Opportunities for rapid assessment of existing public health infrastructure

In order to accelerate the timeframe for achieving the targeted outcomes, countries and regional partners should consider novel ways to map existing national and regional resources and gaps in capacity. National, subregional and regional desktop exercises using realistic scenarios and/or

**Annex 1**

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outbreak simulations could be coordinated and funded by regional partners as soon as possible after adoption of the Strategy as a form of rapid assessment of the core capacities described in the Strategy and in the IHR. Such exercises are very useful in revealing weaknesses in outbreak detection and response systems, coordination and communication within and between responsible agencies and risk communication. The lessons learnt from such tests to the system can then be used to plan and prioritize capacity-building activities and for monitoring and evaluation.

As priority setting at the national and regional level may differ, synergies and difference in the various plans will be identified early in order to provide a regional safety net should an emerging disease threat of regional or global concern arise.

When implemented, the activities will ensure that countries of the Asia Pacific Region have:

- Core capacities to prevent, detect, characterize and respond to emerging disease threats, irrespective of cause or source, including those of national and international concern.
- Strong, functional mechanisms and networks for collaboration, including surge capacity and knowledge, skills and technology transfer.
- Strengthened infection prevention and control infrastructure in the community, within health care facilities and within laboratories.
- Evidence-based public health policy, risk communication and public health action.

## Section Two - Key Objectives and Action Plans

### Introduction

Expected results have been identified for each of the Strategy's objectives and they are supported by action plans that translate the objectives into key actions. For ease of reference, **Table 1** provides an overview of the five objectives and their expected results.

Table 1. Summary of strategy objectives and expected results

Objectives	Expected results
Objective 1 Reduce the risk of emerging diseases	ER 1 Reduced risk of emerging diseases through strategic communication and community participation ER 2 Reduced risk of emerging diseases acquired from animals ER 3 Reduced risk of health care acquired infections ER 4 Reduced risk of emerging diseases from laboratories ER 5 Strengthened containment of antimicrobial resistance
Objective 2 Strengthen early detection of outbreaks of emerging diseases	ER 1 Strengthened early warning systems ER 2 Coordinated and integrated surveillance systems ER 3 Established and strengthened public health functions of laboratories ER 4 Strengthened local capacity for surveillance and risk assessment ER 5 Strengthened information management for early detection of emerging diseases
Objective 3 Strengthen early response to emerging diseases	ER 1 Established systems to respond to emerging diseases ER 2 Strengthened capacity to respond to emerging diseases ER 3 Strengthened information management to response to emerging diseases ER 4 Strengthened risk communication
Objective 4 Strengthen preparedness for emerging diseases	ER 1 Strengthened human resources development ER 2 Strengthened preparedness to respond to public health emergencies

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Objectives	Expected results
Objective 5 Develop sustainable technical collaboration within the Asia Pacific Region	ER 1 Development and strengthening of technical partnerships in the Asia Pacific Region

## Country implementation planning

The generic nature of the Strategy provides sufficient flexibility for national adaptation. It is critical that country-level planning is conducted as the first stage of implementing the Strategy so that gaps in capacity can be identified and duplication of existing public health infrastructure and capacities avoided. This process will also identify shared problems, capacity development needs and opportunities for resource sharing across the Region.

### Identification of gaps in capacity to fulfil the strategy's objectives

It is envisaged that the preliminary country-level planning will result in:

- Comprehensive mapping and review of national and local capacity for surveillance and response including human resources, training and infrastructure.
- Identification of priority emerging diseases.
- Development of plans to strengthen capacity in identified key areas.

The mapping process in each country will produce a comprehensive inventory of national resources including, where relevant, resources shared with neighbouring countries, which will provide a record of existing capacity. The mapping exercise will entail:

- Identifying existing surveillance and response systems and networks, including a review of their structures and processes
- Identifying laboratories able to support public health activities including clinical, academic, research, animal, food and environmental health laboratories in the public and private sectors and a review of their management and administrative arrangements, biosafety arrangements, quality assurance systems, human resources and training programmes. A review of existing regulatory and accreditation systems for laboratories should be undertaken as required.
- Identifying and reviewing existing infection prevention and control systems and networks, including a review of policies, legislation and resources.
- Identifying ongoing and planned national development projects relevant to emerging diseases (including nationally funded and donor-assisted projects) to avoid duplication and improve efficiency of resource utilization.
- Identifying relevant completed capacity reviews.

## Implementation planning

The mapping exercise will identify the gaps in national capacities and form the basis for the country implementation planning processes supported as required by regional partners (refer Section Three).

Countries should consider novel ways to map existing national resources and gaps in capacity to accelerate the process of Strategy implementation. This may include carrying out a desktop exercise as soon as possible as a form of rapid assessment of public health system strengths and weaknesses and the effectiveness of collaboration with sectoral partners.

## Objective 1 - Reduce the risk of emerging diseases

The aim of this objective is to reduce the risk of emerging diseases through community-based interventions, community participation, strategic communication and interventions targeted at specific risk settings and risk factors.

### ER1 reduced risk of emerging diseases through strategic communication and community participation

#### Action plan

Protection of communities from emerging diseases will be achieved as part of an integrated community development approach that combines health promotion activities (empowering individuals and communities, strategic communication and community participation) with programmes to address the underlying social, cultural, economic and political determinants of ill health and disease emergence.

The key actions to achieve this result are to:

- Develop a health promotion approach to the delivery of health programmes for the prevention of emerging infectious diseases, including the promotion of protective behaviours and modification of risky behaviours.
- Develop and/or strengthen targeted programmes aimed at the control of priority infectious diseases.
- Facilitate implementation of feasible, practical and evidence-based risk reduction measures including improvement of environmental hygiene and sanitation, safe water and food and vector control and measures.
- Actively engage the community and other key stakeholders in risk communication to mobilize the community and promote individual risk reduction measures.

### ER2 Reduced risk of diseases acquired from animals

#### Action plan

Achieving results in this area of work will be challenging and will require a broad, multisectoral approach over the medium to long term. The required actions will entail close collaboration between local and national health, agriculture, wildlife and food safety authorities in parallel with risk reduction activities involving international organizations such as WHO, FAO and OIE.

Key actions to achieve this result must recognize the local cultural and economic factors influencing the patterns of human-animal interactions, and the ecological changes associated with land usage and

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animal husbandry practices that increase the frequency and intensity of human exposure to animal reservoirs of disease. Evidence-based protective measures for individuals occupationally exposed to animals (e.g. vaccination and the use of personal protective equipment) should be applied wherever possible. However, it is recognized that in some situations the groups at highest risk of animal-to-human transmission are poorly defined and may require targeted interventions that are culturally and socially acceptable (e.g. interventions for women and children as risk groups for human infection with avian influenza).

The key actions to achieve this result are to:

- Conduct comprehensive risk assessments to identify the animal-human interfaces where transmission of infectious agents occur and the feasibility of risk reduction interventions.
- Evaluate the performance of existing local and national human and animal disease surveillance systems to detect known and novel zoonoses and to control them, and identify gaps and weaknesses.
- In collaboration with partners in the relevant agriculture, animal health and food safety sectors, develop evidence-based policy and action plans, supported by legislation if required, to assure a fall in the incidence of zoonotic diseases in humans (and animal populations wherever possible).
- Establish a national multisectoral standing committee or other mechanism for the exchange of surveillance and other data on diseases that have potential importance to both human and animal health.
- Ensure high-level political commitment to coordinate collaborative programmes or project-based activities (such as joint training activities) between national health authorities and other key ministries responsible for agriculture, livestock, wildlife and food safety.
- Drive an appropriate research agenda on the determinants of inter-species transmission of disease, for policy development and evidence-based prevention and control activities (refer Annex 3).
- Consider health risk assessments for emerging zoonotic diseases in the context of developmental projects that have ecological impacts.

## ER3 Reduced risk of acquiring infections from health care

### Action plan

The principles and practices of infection prevention and control apply to all healthcare encounters and settings. They underpin all activities to prevent the transmission of infectious diseases to health care providers, patients and others within health care facilities. Activities to achieve this result should recognize the different constraints on public and private health care providers that may reduce compliance with infection control (e.g. incentives to maintain professional standards in infection prevention and control practices, the cost and maintenance of infection control infrastructure, participation in surveillance systems for health care acquired infections etc).

The key actions to achieve this result are to:

- Develop and strengthen national and regional capacity, including accreditation systems, for quality management of health care facilities, to provide care that is safe for patients and health care providers.

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- Develop infection prevention and control programmes in all healthcare facilities that include multidisciplinary training as part of a long-term health care system development programme linked to the public health sector.
- Develop integrated, multidisciplinary training and other professional development programmes to establish and/or reinforce infection control practices during all health care encounters.
- Develop and strengthen national and regional capacity to enable health care facilities to function during epidemics, including surge capacity.
- Identify and form partnerships with agencies and institutions that can provide long-term technical support in infection prevention and control programme strengthening, and emergency assistance during outbreaks.

#### ER4 Reduced risk of emerging diseases from laboratories

##### Action plan

Many countries in the Asia Pacific Region lack national biosafety programmes. Such programmes assist all laboratories (diagnostic, public health and research laboratories in the public or private sectors or in military settings) in minimizing the risk of laboratory-acquired infections among laboratory staff and the wider community.

The key actions to achieve this result are to:

- Identify national and regional technical resources for the development of biosafety programmes and for external quality assessment schemes.
- Develop appropriate legislation and systems for the regulation and accreditation of laboratories, including the formation of bodies empowered to administer and enforce the accreditation and regulation processes.
- Enhance training for laboratory staff and management to strengthen and broaden their knowledge and skills in relevant areas, including safe transport of biological materials and the management of biosafety incidents.
- Upgrade and expand laboratory infrastructure for safe working environments.
- Identify and form partnerships with laboratories that can provide national and regional reference and quality assurance functions, training programmes and expert technical support during emergencies.

#### ER5 Strengthened containment of antimicrobial resistance

##### Action plan

The magnitude of antimicrobial resistance in the Asia Pacific Region is unknown because of the absence of systematic monitoring. Data available from selected institutes and surveys indicate that resistance rates for many microbes are increasing in both developing and developed countries in the Region, although rates and patterns of resistance vary significantly from country to country and within countries. The development of antimicrobial resistance is a complex interaction between the infectious agent, its human or animal hosts and the environment in which they interact. Factors include inadequate regulation in the licensing and dispensing of antimicrobial drugs, antibiotic “dumping” in resource poor countries, dispensing outside the formal health care system, poor patient

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adherence to prescribed treatment regimens and the sharing of antimicrobials, and the use of antimicrobials in agriculture.

The key actions to achieve this result are to:

- Develop and implement evidence-based therapeutic guidelines supported by a legal framework regulating access to antimicrobial agents for human and animal use.
- Implement or strengthen existing national and regional systems to monitor and contain the development of antimicrobial resistance during the provision of health care.
- Promote the rational use of antibiotics among providers and recipients of health care.
- Participate in strategic research on the determinants of antimicrobial resistance in the Asia Pacific Region.
- Work with the relevant animal health sectors to reduce the use of antimicrobials in animal husbandry.

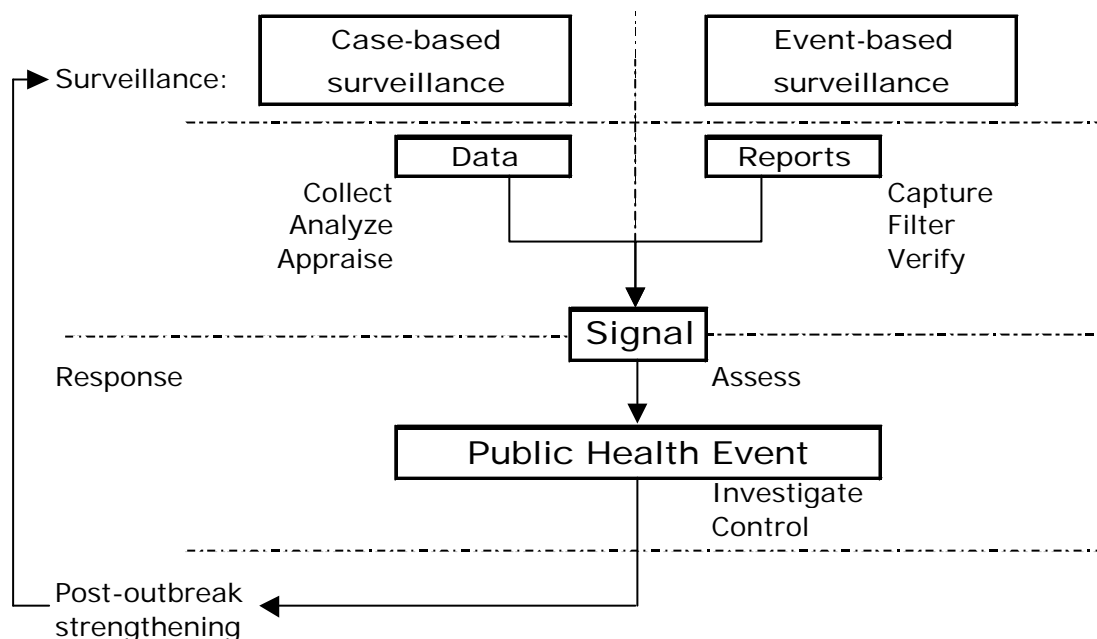
## Objective 2 - Strengthen early detection of outbreaks of emerging diseases

The aim of this objective is reducing the risk of emerging diseases through early detection of significant public health events by means of early warning systems, rapid laboratory diagnosis and effective event management.

Development, strengthening and implementing of early warning and response functions within integrated national disease surveillance systems are critical steps in building the core capacities for surveillance and response under the International Health Regulations (2005).

Implementation of this Objective will depend on the strength of current national surveillance systems that will vary considerably between (and in some situations within) countries in the Region. *Figure 1* is a schematic representation of the parallel process between event-based and case-based surveillance systems.

Figure 1 Schematic representation of an early warning system



## ER1 Strengthened early warning systems

### Action plan

Core capacities for early warning systems under the IHR include the capacity “to assess reported events immediately and, if found urgent, to report all essential information to the national level.” In the context of emerging infectious diseases, the criteria for “urgent events” requiring effective early warning systems include “serious public health impact and/or unusual or unexpected nature with high potential for spread”.

The key actions to achieve this result are to:

- Conduct a situational analysis of emerging infectious disease threats and of the existing surveillance and response systems in order to identify the diseases requiring early warning, for resource allocation and prioritization of capacity-building activities.
- Develop and implement a national action plan that integrates case-based and event-based surveillance. This activity should include identifying the relevant local and national triggers for alert and response.
- Define the core functions and support activities of early warning systems, including data sources, verification of informal reports (e.g. rumour surveillance and media reports), signal assessment, policy and resource requirements, laboratory support, training and supervision, strategic communication and appropriate legislation.

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- Promote community participation in early warning systems through active engagement and training of community leaders, health volunteers and other community members as appropriate to assist primary public health staff in detecting unusual health events (e.g. clusters of illness in humans or animals or deaths).
- Monitor and evaluate the functioning of early warning systems to assess sensitivity and timeliness of reporting for urgent events, including periodic desktop exercises or outbreak simulations to test the system.

## ER2 Coordinated and integrated surveillance systems

## Action plan

In implementing this activity, countries are encouraged to utilize existing national structures and resources to meet their core capacity requirements, and build on good practice, accumulated knowledge and expertise within country and regionally through partnerships.

The key actions to achieve this result are to:

- Map existing integrated and disease-specific national surveillance systems (community-based, within health care facilities and other sentinel surveillance systems) to identify gaps and duplication .
- Integrate and coordinate surveillance systems following the situational analysis.
- Develop, implement and train all surveillance staff in the use of integrated surveillance systems in accordance with national surveillance requirements.

## ER3 Established and strengthened public health functions of laboratories

## Action plan

Laboratory diagnosis is an essential component of disease surveillance, both for the routine confirmation of diseases and for rapid determination of the aetiological agent during outbreaks. Public health laboratory functions also include assessing food safety, water quality and examining environmental specimens. Under the IHR the public health functions of laboratories are “to provide support through specialized staff, laboratory analysis of samples (domestically or through collaborating centres) and logistical assistance (e.g. equipment, supplies and transport)”. In addition, laboratory assistance on-site to supplement local outbreak investigations has proven very useful in emerging disease outbreaks.

The key actions to achieve this result are to:

- Define the public health roles and responsibilities of all laboratories in routine surveillance, early warning, emergency response, quality assurance, training, networking and partnerships.
- Review existing laboratories at different levels, including national reference laboratories, to identify gaps for a medium-to long-term laboratory development plan.
- Allocate sufficient human and financial resources, equipment and supplies, to support public health laboratory functions, including provisions for surge capacity and appropriate levels of biocontainment to support diagnostic activities for known and unknown pathogens.

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- Strengthen links between national reference laboratories with clinical, veterinary, environmental and research laboratories in the public and private sectors and with laboratories in academic institutions. Establish and/or strengthen links with regional and global reference networks for diagnostic, reference and verification support when necessary.
- Support research and development of rapid diagnostic tests, including point-of-care tests, for surveillance purposes.

#### ER4 Strengthened local capacity for surveillance and risk assessment

##### Action plan

The IHR describes the following core surveillance capacities for local community level and/or primary public health response level – “detect events involving disease or death above expected levels for the particular time and place in all areas [within a country], report all available essential information immediately to the appropriate level of healthcare response, and implement preliminary control measures immediately”. Local capacity to undertake a risk assessment of the potential for spread of an infectious disease based on preliminary findings is of paramount importance in containing and controlling an outbreak and for communicating risk.

The key actions to achieve this result are to:

- Develop and strengthen community-based surveillance systems that are supported by community health workers and community members and linked to local area, sub-national and national surveillance and early warning systems.
- Train clinical care providers and public health staff at all levels of the health system, including those in hospitals and in the private sector, in surveillance principles and methods focusing on building awareness, knowledge and skills for the early detection of unusual disease events.
- Train primary public health staff in the core requirements of data analysis and interpretation for timely outbreak detection, risk assessment and implementation of preliminary control measures.
- Develop mechanisms for networking and regular feedback of surveillance data to all sectors contributing to disease surveillance (primary health care providers, hospital-based clinical services, laboratories, environmental, animal health and food safety experts etc.) as well as culturally appropriate feedback to communities about trends in their burden of emerging diseases.

#### ER5 Strengthened information management for early detection of emerging diseases

##### Action plan

Public health surveillance requires the timely exchange of information among public health authorities, clinicians and laboratories, and on occasion other disciplines (environmental health, animal health, etc). Integrated information systems and database tools specifically designed to support surveillance activities can introduce efficiencies and improve timeliness of the system. Timely surveillance data are needed to identify, track and manage threats to public health, and support evidence-based public health decisions. Information management should include systems to support

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the alert and verification process in early warning systems, archive incoming communications and record important decisions and actions taken.

The key actions to achieve this result are to:

- Develop and/or strengthen information systems for epidemic intelligence, verification status, laboratory investigations and field operations.
- Develop and/or strengthen linked clinical, laboratory and epidemiological information for case-based surveillance systems and/or database tools to capture aggregated data as appropriate.
- Develop and/or strengthen laboratory information systems that support sample reception, sample tracking, testing, quality assurance and test verification, reporting, queries and case management, with the ability to rapidly provide public health related data.
- Develop and/or strengthen the storage, archiving and retrieval of information on emerging diseases for business continuity, including e-mail communications and other formal data sources.
- Provide training in all aspects of information management (including data quality assurance) to relevant staff as required.

## Objective 3 - Strengthen early response to emerging diseases

Building national capacity for the timely and effective response to emerging diseases and public health emergencies is the focus of this Objective. In particular, strengthening alert, response and referral mechanisms from the primary public health level upward is essential to reduce delays between detecting an event and implementing control measures.

For effective health protection, surveillance activities must be matched by the ability to respond rapidly and effectively to public health threats. Key elements in the public health response are verifying and characterizing the outbreak or health event of public health concern, identifying the key epidemiological parameters to guide public health prevention and control measures, mobilizing technical, financial and material resources to support field operations and communicating risk. The triggers for a response (i.e. detection through an early warning system or case-based surveillance) will vary between countries depending on their baseline surveillance capacity. Outbreak response capacity for emerging infectious diseases is a core capacity under the IHR.

### ER1 Established systems to respond to emerging diseases

#### Action plan

The key actions to achieve this result are to:

- Strengthen the link between surveillance and response activities at all levels of public health infrastructure and provide the training and resources needed by primary public health response staff to implement preliminary control measures immediately.
- Develop a mechanism, supported by relevant partners, to assemble local level and national rapid response teams to coordinate response activities and conduct field investigations in public health emergencies.

- Create or strengthen systems to support field operations, including the administrative arrangements needed for rapid mobilization of response staff, communications, transport, supplies and other logistics, and field security.
- Strengthen intersectoral coordination,<sup>8</sup> command,<sup>9</sup> and control,<sup>10</sup> structures for multisectoral and multidisciplinary outbreak responses to ensure that roles and responsibilities and lines of reporting are clearly defined and facilitate information sharing and joint problem solving.

## ER2 Strengthened capacity to respond to emerging diseases

### Action plan

The key actions to achieve this result are to:

- Strengthen local and national capacity for response through the implementation of action plans to address system gaps identified through a baseline mapping and situational analysis.
- Develop multidisciplinary national training programmes for outbreak response staff, including laboratory specialists, to support response activities.
- Establish mechanisms for technical cooperation with regional and global partners when local capacity does not meet needs.
- Include evaluation and the debriefing of response staff following outbreak and emergency responses as part of an iterative process to improve response capabilities from lessons learnt.
- Strengthen public health laboratory diagnostic capacity, to support outbreak investigations through the rapid identification of causative pathogens and to guide control efforts.
- Develop and/or strengthen existing infection prevention and control programmes in health care facilities, including targeted vaccination programmes and standard operating procedures for post-exposure prophylaxis when appropriate, to prevent disease transmission from health care.

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<sup>8</sup> The bringing together of organizations and elements to ensure an effective emergency management response. *Coordination* is primarily concerned with the systematic acquisition and application of resources in accordance with the requirements imposed by the threat or impact of an emergency.

<sup>9</sup> The direction of members and resources of an organization in the performance of the organization's role and tasks. Authority to command is established in legislation or by agreement with an organization. *Command* relates to organizations, and operates vertically, within an organization.

<sup>10</sup> The overall direction of emergency management activities in a designated emergency. Authority for control is established in legislation or in an emergency management plan, and carries with it the responsibility for tasking and coordinating other organizations in accordance with the needs of the situation. *Control* relates to situations and operates horizontally, across organizations.

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### ER3 Strengthened information management to respond to emerging diseases

#### Action plan

The aim of information management during an outbreak response is to: (1) generate a dynamic picture of alert and response operations for the management of the outbreak; and (2) assist risk communication (refer to objective 3, ER4).

The key actions to achieve this result are to:

- Develop and/or strengthen event management systems and standard operating procedures to track and record the outbreak history, critical decisions and key actions taken, key documents and agencies involved.
- Manage information on logistics support and specialized response equipment, materials and supplies.
- Manage data for the production of standardized information products for national stakeholders (decision-makers, public health professionals, other health professionals, sectoral partners, nongovernmental organizations, affected populations, the media and the general public), as well as regional and international partners and donors.
- Actively participate in regional and global mechanisms for timely information sharing with other countries and WHO as per the IHR, other relevant United Nations agencies and international non-governmental organizations.

### ER4 Strengthened risk communication

#### Action plan

Outbreaks, unexplained deaths and the appearance of new infectious diseases are frequently marked by uncertainty, confusion and a sense of urgency. Rapid communication, generally through the media, is another feature of such events. Effective risk communication builds public trust, empowers the public and other stakeholders to assist outbreak control efforts through the adoption of personal protective measures and compliance with community-based control efforts, reduces the social impact by strengthening community resilience, and reduces the economic and political impact of outbreaks by earlier recovery.<sup>11</sup>

The key actions to achieve this result are to:

- Develop a Risk Communication Plan for national-level implementation.
- Include a risk communicator in all outbreak responses to support decision-makers and technical staff and field teams as required, scan the media and public opinion, assist in the design and conduct of community assemblies, and coordinate risk communications.
- Develop and pilot standard operating procedures for the formulation of media policies, information exchange and risk communications.
- Identify and train national, subnational and local spokespersons with responsibility for all media presentations to the wider community.

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<sup>11</sup> World Health Organization. *WHO Outbreak Communication Guidelines*. WHO/CDS/2005.28. <http://www.who.int/infectious-disease-news/IDdocs/whocds200528/whocds200528en.pdf>

- Collaborate in risk communications with other key sectors involved in the national response as well as regional and global partners as required.

## Objective 4 - Strengthen preparedness for emerging diseases

The objective of preparedness planning is to strengthen national capacity in recognizing and managing public health emergencies such as those posed by emerging infectious diseases. National health authorities have the lead role in public health emergencies involving the natural, accidental or deliberate release of infectious diseases and usually a support role in other emergencies including natural disasters, chemical and radiological incidents, etc. National health emergency plans should be linked to other disaster plans where a health response is likely e.g. natural disasters, other critical incidents involving potential loss of life, etc. Command, control and coordination arrangements for multisectoral emergency responses should be negotiated as part of emergency planning, not during an emergency, and tested if possible.

A generic health emergency management plan linked to disease-specific sub-plans and standard operating procedures provides opportunities for efficiencies in the use of limited public health resources, given that it is often the same staff involved in most public health emergencies. National pandemic influenza planning, which is quite advanced in some countries of the Asia Pacific Region, may be the most relevant model to support national development of a generic preparedness plan for public health emergencies.

Creation of a multidisciplinary public health emergency task force is a necessary first step in the planning process. **Figure 2** presents the core capacities and basic public health infrastructure for an effective response to emerging diseases and other public health emergencies.<sup>12</sup>

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<sup>12</sup> World Health Organization Regional Office for South-East Asia. *Combating Emerging Diseases in the South-East Asia Region*. SEA-CD-139, New Delhi, 2005.

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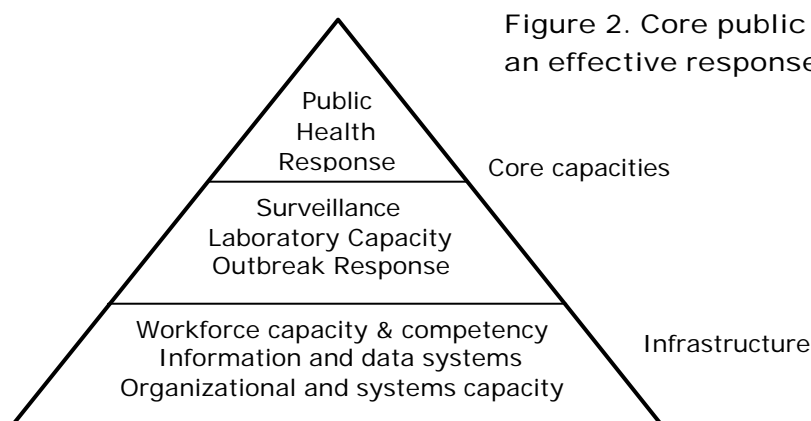


Figure 2. Core public health capacities for an effective response to emerging diseases

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## ER1 Strengthened human resources development

### Action plan

Public health emergencies, such as the SARS epidemic and highly pathogenic avian influenza, reveal weaknesses in public health infrastructure, including a lack of surge capacity and the need to retrain staff in disciplines such as emergency management and infection control. A strategic approach to human resource development, deployment and retention is a critical component of preparedness planning.

The key actions to achieve this result are to:

- Create opportunities for training public health staff in emergency responses, including multi-agency desktop exercises and simulations to assess the effectiveness of emergency plans and to enhance public awareness. Training should include hazard/risk analysis, emergency management planning, standard operating procedures, personal safety and the use of personal protective equipment, and the psychosocial effects of emergencies.
- Develop surge capacity in all emergency management plans.
- Link the national public health emergency preparedness plan with the plans of other countries and intergovernmental agencies in the region.
- Work with regional and global partners for knowledge and skills transfer and create opportunities for public health staff to participate in regional and global outbreak responses, including less experienced professionals.

## ER2 Strengthened preparedness to respond to public health emergencies

### Action plan

The key actions to achieve this result:

- Identify gaps in capacity through emergency preparedness planning processes in collaboration with other sectors to ensure mobilization of appropriate resources.
- Establish an emergency coordination unit and/or a national multidisciplinary taskforce to coordinate the response to public health emergencies.
- Develop and/or strengthen an operational platform for public health emergencies, including human resource deployment, logistics, communications and field security.
- Regularly review and update preparedness plans through exercises or through lessons learnt during disease outbreaks.
- Conduct community-level emergency preparedness exercises, to build community awareness and capacity.
- Create new, or revise existing, legislation to ensure support for implementation of emergency measures when necessary as well as facilitating the routine exchange of public health information for disease control among health professionals.
- Stockpile minimum essential supplies and equipment, including personal protective equipment, drugs, vaccines, diagnostics and other materials and supplies.
- Ensure adequate and efficient health financing arrangements for public health emergencies.
- Develop surge capacity in all emergency management plans.
- Inspect facilities involved in emergency responses and equipment (e.g. communications) and determine their operational and functional capabilities in emergency situations.

## Objective 5 - Develop sustainable technical collaboration within the Asia Pacific Region

### Introductory overview

The aim of this objective is to support sustainable national capacity-building through partnerships.

An infectious disease in one country is a threat to all. Infectious disease outbreaks, such as the 2003 SARS epidemic and highly pathogenic avian influenza, reveal weaknesses in public health infrastructure and serve as reminders that no country has the capacity to respond to a significant public health emergency alone. Partnerships between countries and their institutions, within regions and globally, improve preparedness and response capacity for emerging infectious disease threats. Potential partners include governmental and nongovernmental technical stakeholders, academic and research institutions, public-private sector partnerships, multilateral and bilateral agencies and donors.

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The IHR actively promote collaboration and information sharing and reaffirm the continuing importance of WHO's role in global outbreak alert and response to public health events, in accordance with its mandate. National governments are encouraged to collaborate actively with each other and WHO to ensure implementation of the IHR, and provide support if requested to developing countries and countries with transitional economies in the building, strengthening and maintaining the public health capacities required under the revised regulations. The IHR also identify other United Nations and intergovernmental agencies with responsibilities in the prevention and control of public health emergencies that can provide support to the building of national core capacities. The value added by partnerships and collaborations to national emerging infectious diseases prevention and control activities include:

- Assistance to countries in meeting the IHR requirements relevant to emerging infectious diseases.
- Provision of surge capacity in significant public health emergencies and a safety net for resource-poor countries.
- Maximizing access to limited national, regional and global technical resources and expertise, and reducing duplication.
- Maximizing knowledge and information exchange (e.g. examples of best practices and lessons learnt), skills transfer and technology transfer (e.g. diagnostics, information and communication technologies) and collaborative research.
- Identifying subregional and regional technical reference institutions to be designated repositories of knowledge and expertise for business continuity, and to provide technical cooperation for capacity development and practical emergency management support to countries.
- Strengthening subregional, regional and global alert and response mechanisms.
- Improving the timely exchange of specimens and materials, and removing barriers to the rapid international movement of technical experts during outbreaks.
- Promoting regional self-reliance and confidence.

## ER1 Development and strengthening of technical partnerships in the Asia Pacific Region

### Action plan

Networking and linking individuals and agencies will be a key factor in building and sustaining national capacity against existing and emerging disease threats. It also can provide needed support for countries where core capacities do not currently exist. Technical cooperation will be in the following areas: epidemiology, infection prevention and control in health care settings, zoonoses, laboratory systems, and biosafety.

Applied research also plays an important role during an outbreak by improving clinical case management, identifying the aetiological agent, describing the routes and modes of transmission and risk factors for spread to inform prevention and control strategies, and by developing diagnostic tools.

To achieve the expected result, the following activities are envisaged between countries, inter-governmental organizations, nongovernmental organizations, public-private partnerships, and academic and research institutions:

**1. *Enhancing technical capacities***

- Map existing networks and institutions by geographical location, coverage and specialization to enhance access to technical cooperation and identify gaps.
- Identify regional academic, research and operational institutions with specialized knowledge, skills and technologies that are able to provide practical support in emerging disease preparedness and response (repositories of knowledge, provision of training, provision of human, technical and material resources during outbreaks, provision of reference and verification functions, etc).

**2. *Surveillance and response***

- Create and/or strengthen links between human and animal disease alert and response networks, food safety, the agricultural and livestock sectors, wildlife authorities and other key stakeholders.
- Create and/or strengthen links between national outbreak response systems and regional and global networks to mobilize field investigation teams (clinicians, epidemiologists, laboratory experts, public health professionals, infection control experts, logisticians, veterinarians, entomologists, environmental engineers, ecologists, anthropologists, risk communicators, experts in social mobilization and data managers, among others), equipment and logistical support as required.
- Create opportunities for workforce development through targeted training programmes and participation in regional and global outbreak responses.
- Share information on recognized outbreaks or emerging infectious disease threats with neighbouring countries, the region and globally as required for improved risk assessment and early response.

**3. *Laboratory networks***

- Develop and/or strengthen laboratory referral systems for primary diagnosis, reference and verification functions within countries, across the region and globally. Through this mechanism improve access to microbiological diagnosis for known diseases and dangerous and new pathogens.
- Provide or participate in technical cooperation within the region for skills and technology transfer in laboratory diagnosis, laboratory surveillance systems, laboratory management, quality assurance, biosafety, and occupational health and safety.
- Jointly work towards a system for the rapid international transfer of infectious materials and reagents.

**4. *Collaboration for systems development***

- Transfer knowledge and skills within the region and globally to improve the operational platform for alert and response to emerging diseases, including public health management and administration, logistics, information systems and management, and health financing.

**5. *Collaborative research***

- Enhance national capacity and skills in health research through collaborations with universities and research institutions regionally and globally to guide the development

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of evidence-based policy for emerging disease threats. Refer to Annex 3 for details of priority research.

## Section 3 – Strategy Implementation

### Introductory overview

A multisectoral approach, which enhances collaboration and harnesses the unique skills of many different partners and stakeholders and is supported by adequate and efficient health financing arrangements, is required to implement the *Asia Pacific Strategy for Emerging Diseases* in a sustainable fashion. The Strategy has considerable overlap with the core capacities for global health security required under the International Health Regulations so wherever possible, synergies in implementation should be identified and capitalized upon for efficiencies and to avoid duplication of systems and activities.

Therefore, there is a need to establish effective coordination of the political and technical processes required to develop and implement national plans for IHR and this Strategy, including mobilizing financial and human resources, obtaining technical support if required and monitoring progress towards achieving the core capacities under both plans.

### Coordination and management model

It is proposed that that a two-tiered management structure is adopted to oversee implementation of the Strategy (refer *Figure 3*).

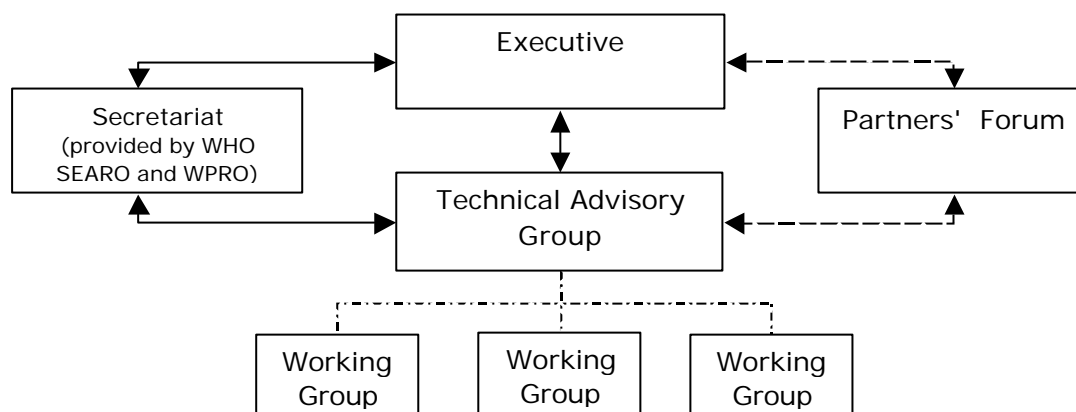
- A Technical Advisory Group (TAG) responsible to an Executive Committee would be convened to:
  - Oversee planning and implementation of the Strategy at the regional level and provide technical support to countries in the development and implementation of their national plans if required.
  - Monitor progress and sustain momentum of implementation.
  - Advise on any relevant policies or plans that bear on the Strategy.
  - Convene time-limited ad hoc Working Groups and/or identify external advisers to progress specific issues, undertake research for policy development, and prepare policies and procedures, etc. as the need arises.
  - Advise the Partners Forum and other stakeholders and keep them informed of resource requirements, issues and progress.
  - Review and revise the Strategy when necessary.
- Membership of the TAG may vary over time as different expertise may be required at different stages of the implementation process. TAG membership may also include key United Nations agencies and intergovernmental technical partners from the region.
- The TAG would report upward to an Executive of senior decision-makers from each national health authority; the Executive function could be subsumed by the existing Regional Committees in the WHO South-East Asia Region and Western Pacific Region and a mechanism established for joint meetings to discuss implementation of the Strategy.
- A Partners' Forum for donor coordination and for collaboration with key stakeholders in the region. The Partners' Forum may include bilateral and multilateral organizations,

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United Nations agencies, intergovernmental and nongovernmental organizations, professional associations and existing subregional networks.

- The WHO Regional Offices for South-East Asia and the Western Pacific will provide the Secretariat for implementation of the Strategy.

Figure 3 A model for coordinating and managing implementation of the strategy



## National level mechanisms

The mechanisms selected for national-level coordination, oversight and implementation management will be identified as part of the national-level review and planning processes undertaken as the first step in planning national implementation. National planning and implementation may require a standing Implementation Committee or similar mechanism with representation from senior public health executives and their counterparts from other sectors (animal health, agriculture, food safety, disaster management, etc.), as well as national focal points with primary responsibility for Strategy implementation. Given the synergies with the implementation of the IHR, those responsible for implementation of the *Asia Pacific Strategy for Emerging Diseases* should collaborate closely with their designated IHR National Focal Point.

## Monitoring and evaluation

Monitoring and evaluation are an integral component of any implementation plan and should be applied systematically.<sup>13</sup> Although it is outside the scope of this Strategy to identify key performance indicators for each of the Objectives and their Expected Results, obtaining broad agreement on monitoring and evaluation tools and indicators, and identifying suitable resources to support these processes, should occur as soon as possible after the Strategy has been adopted. Ideally, linked national and regional monitoring and evaluation tools will be developed as part of the Strategy's implementation planning.

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<sup>13</sup> World Health Organization. Overview of the WHO framework for monitoring and evaluating surveillance and response systems for communicable diseases. *Weekly Epidemiological Record* 2004;79:322-326.

Depending on the resources available to undertake monitoring and evaluation, some or all of the following indicators may be included:

- The resources needed to establish and implement surveillance and response activities (*input indicators*).
- Activities such as training, supervision, developing guidelines and core surveillance functions (*process indicators*).
- The results of the activities conducted (*output indicators*).
- The extent to which the surveillance objectives are being achieved, including the quality of the surveillance systems, the appropriateness of any outbreak response (*outcome indicators*).
- The extent to which the overall goal of the surveillance and response systems is being achieved e.g. reduction in the impact of emerging infectious diseases (*impact indicators*).

## Financial resource mobilization

Countries and partners will be required to develop a strategic approach to mobilizing adequate and sustainable financial resources to implement the Strategy.

States party to the IHR have specific responsibilities to collaborate through the provision or facilitation of technical cooperation and logistical support, and to the extent possible, in the mobilization of financial resources to provide support to developing countries in building, strengthening and maintaining the capacities required under the IHR.

To meet this challenge, a set of information and advocacy packages will be developed after the Strategy's adoption to raise awareness of the Strategy and its proposed activities and to secure support and collaboration from the various stakeholders and potential partners. In particular, securing additional donor funding, initiating dialogue with selected private sector organizations with a view to forming private-public partnerships for health financing and identifying agencies and institutions that can make contributions in kind (e.g. by agreeing to become technical partners and reference institutions for knowledge, skills and technical transfer) will be priority activities in the early implementation phase.

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## Annex 1. Policy context

Resolution/ document	Year	Key action areas
WHA48.7	1995	<i>Revision and updating of the International Health Regulations</i> <ul style="list-style-type: none"><li>• Fully recognizing that the strengthening of epidemiological surveillance and disease control activities at national level is the main defence against the international spread of communicable diseases;</li><li>• Taking steps to revise the current International Health Regulations, which only cover three diseases: plague, cholera and yellow fever.</li></ul>
WHA48.13	1995	<i>Communicable disease prevention and control: new, emerging and re-emerging infectious diseases</i> <ul style="list-style-type: none"><li>• Developing strategies to improve recognition and response to emerging and re-emerging infectious diseases in a manner sustainable by all countries;</li><li>• Strengthening regional, national and local programme [including active surveillance, diagnostic capacities, outbreak investigation, communication, research] for early detection of and rapid response to emerging and re-emerging infectious diseases;</li><li>• Increasing cooperation among Member States, international organizations, bilateral development agencies and other groups in the recognition, prevention, control of new, emerging and re-emerging infectious diseases.</li></ul>
WHA51.17	1998	<i>Emerging and other communicable diseases: antimicrobial resistance</i> <ul style="list-style-type: none"><li>• Strengthening national capacities and improving regional and international cooperation for antimicrobial resistance through the development of sustainable systems to detect antimicrobial resistant pathogens, effective educational programmes, the prevention of infection, and strengthening legislation and research.</li></ul>
WHA54.14	2001	<i>Global health security: epidemic alert and response</i> <ul style="list-style-type: none"><li>• Strengthening national and regional capacities to detect and respond rapidly to communicable disease threats and emergencies, including verification and validation of surveillance data concerning health emergencies of international concern;</li><li>• Developing and strengthening national and regional preparedness and response plans;</li><li>• Containing and preventing resistance to antimicrobials</li></ul>
WHA55.16	2002	<i>Global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radio-nuclear materials that affect health</i> <ul style="list-style-type: none"><li>• Ensuring national disease-surveillance plans in place which are complementary to regional and global disease surveillance mechanisms;</li><li>• Collaborating and providing mutual support in order to enhance national capacity in field epidemiology, laboratory diagnoses, toxicology, case management and risk communication and improve emergency preparedness and response.</li></ul>

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Resolution/ document	Year	Key action areas
WHA56.19	2003	<p><i>Prevention and control of influenza pandemics and annual epidemics</i></p> <ul style="list-style-type: none"> <li>• Strengthening national and global influenza surveillance and control programme, including assessment of disease burden, influenza vaccine research &amp; development and vaccination policies;</li> <li>• Developing national influenza preparedness plans.</li> </ul>
WHA56.28	2003	<p><i>Revision of the International Health Regulations</i></p> <ul style="list-style-type: none"> <li>• Responding to the need to ensure global health security at a time when the threat of infectious diseases is resurging;</li> <li>• Taking inter account also the existence of new risks and threats to health arising from the potential deliberate use of agents for terrorism purpose.</li> </ul>
WHA56.29	2003	<p><i>Severe acute respiratory syndrome (SARS)</i></p> <ul style="list-style-type: none"> <li>• Committing fully to controlling SARS and other emerging and re-emerging infectious diseases, through political leadership, resource provision, international cooperation, intensifies multisectoral collaboration and public information;</li> <li>• Using the experience with SARS preparedness and response to strengthen epidemiological and laboratory capacity for responding to the next emerging infection, influenza pandemic, and the possible deliberate use of a biological agent to cause harm;</li> <li>• Exchanging information and experience in a timely manner and improve research on epidemics and prevention and control of emerging and re-emerging infectious disease.</li> </ul>
WHA58.3	2005	<p><i>Revision of the International Health Regulations</i></p> <ul style="list-style-type: none"> <li>• Building, strengthening and maintaining the capacities required under the International Health Regulation (2005) and mobilizing the resource necessary for the capacity-building;</li> <li>• Collaborating actively with each other and WHO to ensure the effective implementations of the IHR;</li> <li>• Taking all appropriate measures for the eventual implementation of the IHR, including legal and administrative provisions.</li> </ul>
WHA58.5	2005	<p><i>Strengthening pandemic-influenza preparedness and response</i></p> <ul style="list-style-type: none"> <li>• Developing and implementing national plans for pandemic -influenza preparedness and response that focus on limiting health impact and economic and social disruption;</li> <li>• Developing and strengthening national surveillance and laboratory capacity for human and zoonotic influenza;</li> </ul>
WHA58.27	2005	<p><i>Improving the containment of antimicrobial resistance</i></p> <ul style="list-style-type: none"> <li>• Ensuring the development of a coherent, comprehensive and integrated national approach to implementing the strategy for containment of antimicrobial resistance;</li> <li>• Mobilizing human and financial resource in order to minimize the development and spread of antimicrobial resistance;</li> <li>• Effective monitoring and control of health care acquired infections</li> </ul>

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Resolution/ document	Year	Key action areas
WHA58.29	2005	<p><i>Enhancement of laboratory biosafety</i></p> <ul style="list-style-type: none"> <li>• Reviewing the safety of laboratories and their existing protocols for the safe handling of microbiological agents and toxins, consistent with WHO's biosafety guidance;</li> <li>• Developing national preparedness plans and implementing national programme that enhance compliance of laboratories;</li> <li>• Mobilizing national and international human and financial resources to improve laboratory biosafety.</li> </ul>
SEA/RC53/R11	2000	<p><i>Cross-border collaboration on control of communicable diseases</i></p> <ul style="list-style-type: none"> <li>• Enhancing cross-border collaboration to include priority communicable diseases and developing strong surveillance systems;</li> <li>• Enhancing intercountry and inter-regional collaboration with regional mechanism like SAARC, ASEAN and other international organizations to address cross-border health problems.</li> </ul>
WPR/RC53.R5	2002	<p><i>Antimicrobial resistance</i></p> <ul style="list-style-type: none"> <li>• Developing and implementing multisectoral strategies for containment of antimicrobial resistance, including strengthened national and local surveillance;</li> <li>• Adopting and enforce laws and regulations to ensure that antimicrobials be made available only on prescription.</li> </ul>
WPR/RC54.R7	2003	<p><i>Severe acute respiratory syndrome (SARS) and other outbreak-prone diseases</i></p> <ul style="list-style-type: none"> <li>• Strengthening national and regional epidemiological and laboratory capacity for surveillance of and response to outbreak-prone diseases, including emerging diseases, through close collaboration between WHO and countries.</li> </ul>
WPR/RC55.R5	2004	<p><i>Outbreak response, including severe acute respiratory syndrome (SARS), influenza, and the revision of the International Health Regulations</i></p> <ul style="list-style-type: none"> <li>• Strengthening national capacity for surveillance and response that each country can detect, verify, report and respond to significant public health emergencies;</li> <li>• Enhancing collaboration and coordination between health and agricultural sectors in zoonotic diseases such as avian influenza;</li> <li>• Strengthening national biosafety programme, influenza surveillance and preparedness, timely and appropriate information sharing;</li> <li>• Developing bi-regional strategy for strengthening capacity for communicable disease surveillance and response.</li> </ul>
WPR/RC55.R6	2004	<p><i>Food safety</i></p> <ul style="list-style-type: none"> <li>• Requesting Member States to introduce evidence-based regulatory controls in markets where live birds and animals are sold for food in order to reduce the burden of emerging zoonoses and food-related diseases;</li> <li>• Working with Member States, the Food and Agriculture Organization of the United Nations and the World Organization for Animal Health and other partners throughout the food production, processing and marketing chain in order to reduce the risk of emerging zoonoses.</li> </ul>

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Resolution/ document	Year	Key action areas
ASEAN [Declaration]	April 2003	<p><i>Joint Declaration on SARS (by the Heads of States/Government), Bangkok, Thailand</i></p> <ul style="list-style-type: none"> <li>• Establishing and strengthening early warning system on emerging infectious diseases at both national and regional levels in cooperation with the WHO and other international health programmes;</li> <li>• Strengthening existing collaboration between ASEAN and the WHO on identified potential public health risks, especially new, emerging and re-emerging infectious diseases, with an emphasis on prevention and control programmes.</li> </ul>
ASEAN+3 (Joint Statement)	November 2004	<p><i>Joint Ministerial Statement on Avian Influenza, Bangkok, Thailand</i></p> <ul style="list-style-type: none"> <li>• Developing and strengthening surveillance and response system to facilitate the early recognition and prompt containment of emerging infectious disease including avian influenza;</li> <li>• Mobilizing required resource and strengthening international and regional collaboration on all aspect of the avian influenza response and other outbreak;</li> <li>• Facilitating prompt and open exchange of information on avian influenza and developing effective national influenza pandemic preparedness plans;</li> <li>• Collaborating with relevant agencies and sectors in promoting food safety and safe animal husbandry practice with the aim of minimizing human health risks.</li> </ul>
APEC (Joint Statement)	2003	<p><i>APEC Health Minister's Statement, Bangkok, Thailand, 28 June 2003</i></p> <ul style="list-style-type: none"> <li>• Providing complete, accurate and timely information to WHO and also through APEC Emerging Infectious Network (EiNet);</li> <li>• Collaborating with and provide assistance to the WHO Global Outbreak Alert and Response Network;</li> <li>• Working with the APEC Industrial Science and Technology Working Group (ISTWG) and health officials to enhance the implementation of the APEC Infectious Disease Strategy and its Emerging Infectious Network.</li> </ul>
APEC (Joint Statement)	November 2004	<p><i>Joint Statement of the Sixteenth APEC Ministerial Meeting (Chile)</i></p> <ul style="list-style-type: none"> <li>• Encouraging continued vigilance to and preparedness for outbreaks of infectious diseases so as to detect, respond to and mitigate the impact on the economy of public health threats.</li> </ul>
Health Ministerial Meeting Commitment	2001	<p><i>Madang Commitment towards Healthy Islands</i></p> <ul style="list-style-type: none"> <li>• Further strengthening national capacity for communicable disease surveillance and response by training and supporting responsible health workers, and by ensuring appropriate protocols and resources;</li> <li>• Supporting the PPHSN activities and its Coordinating Body through technical and financial support, including ensuring the functioning of PACNET, LabNet, and EpiNet.</li> </ul>

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Resolution/ document	Year	Key action areas
Health Ministerial Meeting Commitment	2005	<i>Samoa Commitment: Achieving Healthy Islands (Health Ministerial Meeting in the Pacific Island Countries)</i> <ul style="list-style-type: none"><li>• Utilizing the PPHSN mechanisms for the IHR implementation such as notification, verification and capacity-building, whenever possible;</li><li>• Enhancing capacity-building programme for surveillance and response at the peripheral level in the Pacific Islands;</li><li>• Developing and implementing national pandemic preparedness plans.</li></ul>

## Annex 2. The International Health Regulations (2005)

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### Core obligations for Member States

- Designate a national IHR Focal Point as operational link for urgent communications concerning the implementation of the Regulations.
- Develop, strengthen and maintain the surveillance and response capacity to detect, assess, notify, report and respond to public health events, in accordance with the core capacity requirements under the revised IHR.
- Notify WHO of all events that may constitute a public health emergency of international concern (PHEIC) within 24 hours of assessment by using the decision instrument [an algorithm].
- Provide WHO with all relevant public health information, if a State Party has evidence of an unexpected or unusual public health event within its territory, which may constitute a PHEIC.
- Facilitate the transport, entry, exit, processing and disposal of biological substances and diagnostic specimens, reagents and other diagnostic materials for verification and public health response purposes
- Respond to requests for verification of reports from sources other than official notification or consultations and provide related public health information;
- Control urgent national public health risks that threaten to transmit diseases to other Member States.
- Apply WHO recommended temporary and standing measures to prevent the spread of disease and promptly detect its recurrence.
- Collaborate with other States Parties and with WHO in implementing the IHR, particularly in the area of assessment, provision of technical and logistical support, and mobilization of financial resources

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### Core obligations for WHO

- Designate WHO contact points as operational link for urgent communications concerning the implementation of the Regulations.
  - Support Member States to develop, strengthen and maintain the core capacities for surveillance and response in accordance with the revised IHR.
  - Verify reports from sources other than official notifications or consultations.
  - Assess events notified by Member States (including on-site assessment, when necessary) and determine a public health emergency of international concern.
  - Provide all Member States with public health information to enable Member States to respond to a public health risk.
  - Issue temporary and standing recommendations on control measures in accordance with the criteria and the procedures set out under the Regulations.
  - Respond to the needs of Member States regarding the implementation of the Regulations.
  - Collaborate and coordinate its activities with other competent intergovernmental organizations or international bodies in the implementation of the IHR.
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## Annex 3 Research priorities

- Environmental, ecological and climatic factors which facilitate the emergence, maintenance and transmission of these diseases, including deforestation, developmental projects, global warming, urban ecology, the dynamics of inter-species transmission of infectious diseases between wild and domestic animals and between animals and humans.
- Evolution of pathogenic infectious agents resulting in changes in infectivity, virulence and transmissibility.
- Host factors that facilitate the emergence of infections and their spread including an ageing population, antimicrobial resistance immune suppression (HIV/AIDS, malnutrition, other immunosuppressive medical conditions and therapies) and the protective factors in a host.
- Development of new diagnostic tools that can support rapid and accurate diagnosis even in field conditions, biomedical applications of new technology such as remote sensing and GIS to improve ability to predict future infectious disease outbreaks, mathematical models that can facilitate transmission dynamics, new vaccines and other interventional tools.
- Social inequalities and behavioural factors that influence distribution of emerging diseases, their course and the populations that are most affected.

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