MINISTRY OF HEALTH
MALAYSIA

Malaysia Strategy for Emerging Diseases And Public Health Emergencies (MySED) II Workplan (2017-2021)

MALAYSIA STRATEGY for EMERGING DISEASES and PUBLIC HEALTH EMERGENCIES (MYSED) II WORKPLAN (2017–2021)

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FOREWORD

Director General of Health

The Asia Pacific Region including Malaysia is continously threatened by public health emergencies caused by outbreaks of emerging and re-emerging infectious diseases, catastrophic natural disasters, and bioterrorism. Emerging and re-emerging infectious diseases such as Nipah virus, SARS, Avian Influenza, Influenza A (H1N1), Ebola, MERS-CoV, Zika and recently Rabies has caused significant burden and challenges to the national healthcare systems and to the economic growth and development of nations.

During the last five years, the Malaysian Strategy for Emerging Diseases (MySED) Workplan (2012-2015) has provided a common framework for action in Malaysia for the implementation and strengthening of the IHR (2005), which is the legal framework among Member States for detecting, preparing and responding to public health emergencies. Evaluation of MySED conducted in 2016, confirmed the importance and relevance of MySED for implementing the requirements under IHR (2005). In line with the APSED III, Joint External Evaluation (JEE) and The Global Health Security Agenda (GHSA) documents, the Ministry of Health Malaysia had reviewed the current MySED Workplan and identified the need to further enhance its public health response and preparedness strategies. Therefore, Malaysia Strategic Workplan for Emerging Diseases II (2017-2021) or MySED II Workplan (2017-2021) was introduced.

MySED II Workplan (2017-2021) is developed following extensive consultations with states, technical experts and partners from various levels and organizations by incorporating our previous experience from managing actual events through the all-hazards approach. The MySED II Workplan has an implementation period of five years and enhances the capacity of the country step by step through the core components through harmonization with other existing national and international frameworks and initiatives. We believe that with the implementation of this MySED II Workplan (2017-2021), Malaysia will be prepared to face any public health emergency threats of in future.

DATUK DR. NOOR HISHAM ABDULLAH
Director General of Health, Malaysia

ABBREVIATIONS

AELB	Atomic Energy Licensing Board
AMR	Antimicrobial Resistance
AMS	Antimicrobial Stewardship
AMU	Antimicrobial Use
APHM	Association of Private Hospital of Malaysia
APSED	Asia Pacific Strategy for Emerging Diseases
APSIC	Asia Pacific Society of Infection Control
MVFPD	Malaysia Veterinary Fixed Procedure Directive
ASEAN	Association of Southeast Asian Nations
AST	Antibiotic Sensitivity Test
AVO	Assistant Veterinary Officer
BCP	Business Continuity Plan
Canada's GPP	Canada's Global Partnership Programme
CBEP	Cooperative Biological Engagement Program
CBRNe	Chemical, Biological, Radiological, Nuclear, Explosive
CDC	Communicable Disease Control
CME	Continue Medical Examination
CoE	Centres of Excellence
CPRC	National Crisis Preparedness & Response Centre
DCA	Department of Civil Aviation
DCD	Disease Control Division
DHO	District Health Officer
DID	Department of Irrigation and Drainage
DOE	Department of Environment
DOF	Department of Fisheries
DSW	Department of Social Welfare
DVS	Department of Veterinary Services
EBS	Event Based Surveillance
EIDs	Emerging Infectious Diseases
EIP	Epidemic Intelligence Program
EIS	Event Information Site
EOC	Emergency Operation Centre
EQA	External Quality Assurance
EU	European Union
FEMA	Federal Emergency Management Agency (US)
FET	Field Epidemiology Training
FETP	Field Epidemiology Training Programme
FHDD	Family Health Development Division
FRDM	Fire and Rescue Department of Malaysia
FSQD	Food Safety and Quality Division
GHSA	Global Health Security Agenda
GOARN	Global Outbreak Alert and Response Network
HAI	Hospital Acquired Infection
HA-MDRO	Healthcare Associated Multidrug-Resistant Organism
HAZMAT	Hazardous Material
HCAI	Healthcare Associated Infection
HCW	Health Care Worker
HIACC	Hospital Infection and Antibiotic Control Committee
HKL	Hospital Kuala Lumpur
IBS	Indicator Based Surveillance
ICT	Information and Communication Technology
ICS	Incident Command System
IHR	International Health Regulations
IHS	International Health Sector
IMR	Institute for Medical Research
IMD	Information Management Division
IMS	Incident Management System
IPC	Infection Prevention and Control
IQC	Internal Quality Control

JE	Japanese Encephalities
JEE	Joint External Evaluation
LTAC	National Laboratory Technical Advisory Committee
MAF	Malaysian Armed Force
MCDF	Malaysia Civil Defence Force
MCMM	Ministry of Communications and Multimedia Malaysia
MDD	Medical Development Division
MINDEF	Ministry of Defence
MISP	Malaysia Influenza Surveillance Protocol
MERS-CoV	Middle East Respiratory Syndrome Coronavirus
MET	Department of Meteorological
MKAK/ NPHL	National Public Health Laboratory
MMA	Malaysian Medical Association
MOA	Ministry of Agriculture
MOFA	Ministry of Foreign Affair
MOH	Ministry of Health
MOHE	Ministry of Higher Education
MOSTI	Ministry of Science, Technology and Industries
MOU	Memorandum of Understanding
MPSG	Malaysia Patient Safety Goals
MyOHUN	Malaysian One Health University Network
MySED	Malaysian National Strategic Plan for Emerging Diseases
M&E	Monitoring and Evaluation
NACWC	National Authority Chemical Weapons Convention
NADMA	National Disaster Management Agency
NFP	National Focal Point
NGOs	Non-Government Organization
NRE	Ministry of Natural Resources and Environment
NSAR	National Surveillance of Antimicrobial Resistance
NSC/MKN	National Security Council
NVPHL	National Veterinary Public Health Laboratory
PHEIC	Public Health Emergency of International Concern
PHDD	Public Health Development Division
PHEP	Public Health Emergency Preparedness
POE	Points of Entry
PSD	Public Service Department
PSP	Pharmaceutical Services Programme
RARC	Risk Assessment & Risk Communication
RMP	Royal Malaysia Police
RRT	Rapid Response Team
RTK	Rapid Test Kits
SARS	Severe Acute Respiratory Syndrome
SDGs	Sustainable Development Goals
SEARO	South East Asia Regional Office
SOP	Standard Operating Procedure
STRIDE	Science and Technology Research Institute for Defence
SUK	State Secretary
TAG	Technical Advisory Group
ToR	Terms of Reference
TTX	Table Top Exercise
UHC	Universal Health Coverage
VO	Veterinary Officer
VRI	Veterinary Research Institute
WHO	World Health Organization
WPRO	Western Pacific Regional Office

EXECUTIVE SUMMARY

In the Western Pacific region, outbreaks and public health emergencies caused by emerging infectious diseases, the impacts of natural disasters, and unsafe food and water continually threaten health security. Globally and regionally there have been recent outbreaks of Avian Influenza, Ebola Virus Disease, Middle East Respiratory Syndrome (MERS), Dengue, Zika Virus, and Yellow Fever, as well as disasters caused by natural hazards, including cyclones, floods, droughts, earthquakes, tsunamis, and volcano eruptions. Furthermore, animal and human populations live in ever-closer proximity in the Western Pacific region, giving rise to novel infectious diseases, usually zoonotic, such as Avian Influenza viruses with pandemic potential through a cross-species transmission. The presence of newer threats such as environmental, chemical and radiological emergencies as well as uncommon patterns of antimicrobial resistance (AMR) continue to add to our regional vulnerability. Whereas in Malaysia outbreaks caused by infectious diseases such as SARs, Pandemic Influenza 2009, MERS-CoV, Avian Influenza A (H7N9), Zika virus infection, and public health emergencies such as natural disasters caused by floods, earthquakes, tsunamis, mass casualties (e.g. flight crash, building collapses) and chemical emergencies (e.g. attacked with VX chemical agents). Given the unpredictable nature of such events and the rapidly reducing travel times from one country to another, there is a need to further strengthen core capacities under the International Health Regulations (IHR), 2005 since it is the agreed legal framework for detecting, preparing for and responding to public health emergencies.

Malaysia had valuable lessons from past events through reviewing experiences, simulation exercises, evaluation of IHR 2005 core capacities requirements, Joint External Evaluation (JEE) and developing plans, thus strengthening the preparedness to respond to new and recurring health security threats globally. For the past 5 years, the Malaysia Strategy for Emerging Diseases (MySED) I Workplan (2012-2015) has provided a common framework for action in Malaysia for the implementation and strengthening of the core capacities required under IHR (2005). Outcomes from the evaluation of MySED I implementation conducted in 2016 confirmed that MySED is an important and relevant strategy for implementing IHR (2005).

The Technical Advisory Group (TAG) on the APSED (APSED TAG) meeting in 2015 recommended that WHO develop a new strategy for the Asia Pacific region. This new strategic framework titled the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III), reflects the all-hazards approach adopted by the Asia Pacific region and incorporates the lessons learnt from actual events. Extensive bottom-up consultations with the Member States including Malaysia, technical experts and partners reconfirmed the relevance of APSED as the common framework for action for working towards IHR core capacities and building national capacity to prevent, detect, respond to and mitigate health security threats. APSED III has been presented to Regional Committee Meeting (RCM) in October 2016 and it was endorsed for implementation by member states. The current MySED II Workplan is in line with the APSED III which covers the all-hazards approach.

1. INTRODUCTION TO ASIA PASIFIC STRATEGY FOR EMERGING DISEASE AND PUBLIC HEALTH EMERGENCIES (ASPED) III

The Asia Pacific Strategy for Emerging Diseases (APSED) is a bi-regional tool to help two WHO Regions (SEAR and WPR) meet the IHR core capacity requirements. A common framework highlighting a shared vision and a set of agreed priorities developed in 2005 and updated in 2010.

Technical Advisory Group on the Asia Pacific Strategy for Emerging Diseases met in June 2016 concluded that there has been a considerable progress under APSED. For example, the Member States in both regions reported the ability to deploy multidisciplinary rapid response teams within 48 hours; Field Epidemiology Training Programmes have been established in 16 Member States; 79% of Member States have a system at the national and/or sub-national level for capturing public health events from a variety of sources; and 95% of national reference laboratories have participated in external quality assessments, which have shown increasing diagnostic proficiency.

As solid progress has been achieved, challenges remain, such as a national capacity for systematic risk assessment, infection prevention and control, and engagement of multisectoral stakeholders. Further investments in health security are needed. It was recommended that an updated strategy is needed in order to build upon gains achieved through the previous strategy, address continuing health security threats, adapts to evolving threats and to ensure coordination in a dynamic global health security landscape. The updated strategy, to be called the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies, will retain the acronym APSED and will be called APSED III.

The direction and structure of APSED III build on APSED (2010), and also reflects the findings and recommendations of the 10-year evaluation of APSED implementation. APSED III aims to further enhance the core public health systems and regional collaboration and connectedness, as a priority for effective management of Public Health Emergency Preparedness (PHEP) and response through the adoption of incident management systems for all-hazards.

The vision for APSED III is to ensure that Asia Pacific region able to prevent, detect and respond to public health emergencies through collective responsibility for public health security. The goal of this strategy is to strengthen PHEP and response capacity by improving core public health systems, increasing regional connectivity and coordination, and investing in ongoing performance improvement. The purpose of

APSED III is to provide a strategic approach to guide collective efforts of all Member States, WHO and partners in implementing the obligations of IHR (2005) to attain core capacities and to further enhance gains made, and to ensure financial sustainability through actions that promote and protect the health of the people in the Asia Pacific region.

APSED III contributes to health system strengthening and universal health coverage by focusing on eight essential public health functional areas necessary for PHEP, risk mitigation, and response operations. APSED III is not intended to be implemented in isolation, so flexibility has been built into the strategy to enable harmonization with other national and international frameworks and initiatives, including the Sendai Framework for Disaster Risk Reduction (2015 - 2030), the United Nations Framework Convention on Climate Change, the Sustainable Development Goals (SDGs), Universal Health Coverage (UHC) and the Global Health Security Agenda (GHSA), and to address the importance of further enhancing collaboration on zoonoses using a One Health approach.

Based on bottom-up consultations, the eight focus areas in APSED III that are implementable include:

1. Public Health Emergency Preparedness.
2. Surveillance, Risk Assessment, and Response.
3. Laboratory.
4. Zoonoses.
5. Prevention through Healthcare.
6. Risk Communication.
7. Regional Preparedness, Alert and Response.
8. Monitoring and Evaluation.

Each focus area has projected outcomes and strategic actions. APSED III focus areas remain relevant to all Member States as ongoing priorities for system improvement, especially for Member States that have most IHR (2005) core capacities in place. As before, Focus Areas 1 to 6 is primarily aimed at national and local capacity-building. Focus Area 7 addresses strengthening regional preparedness, surveillance, risk assessment and response systems that are coordinated by WHO on behalf of Member States.

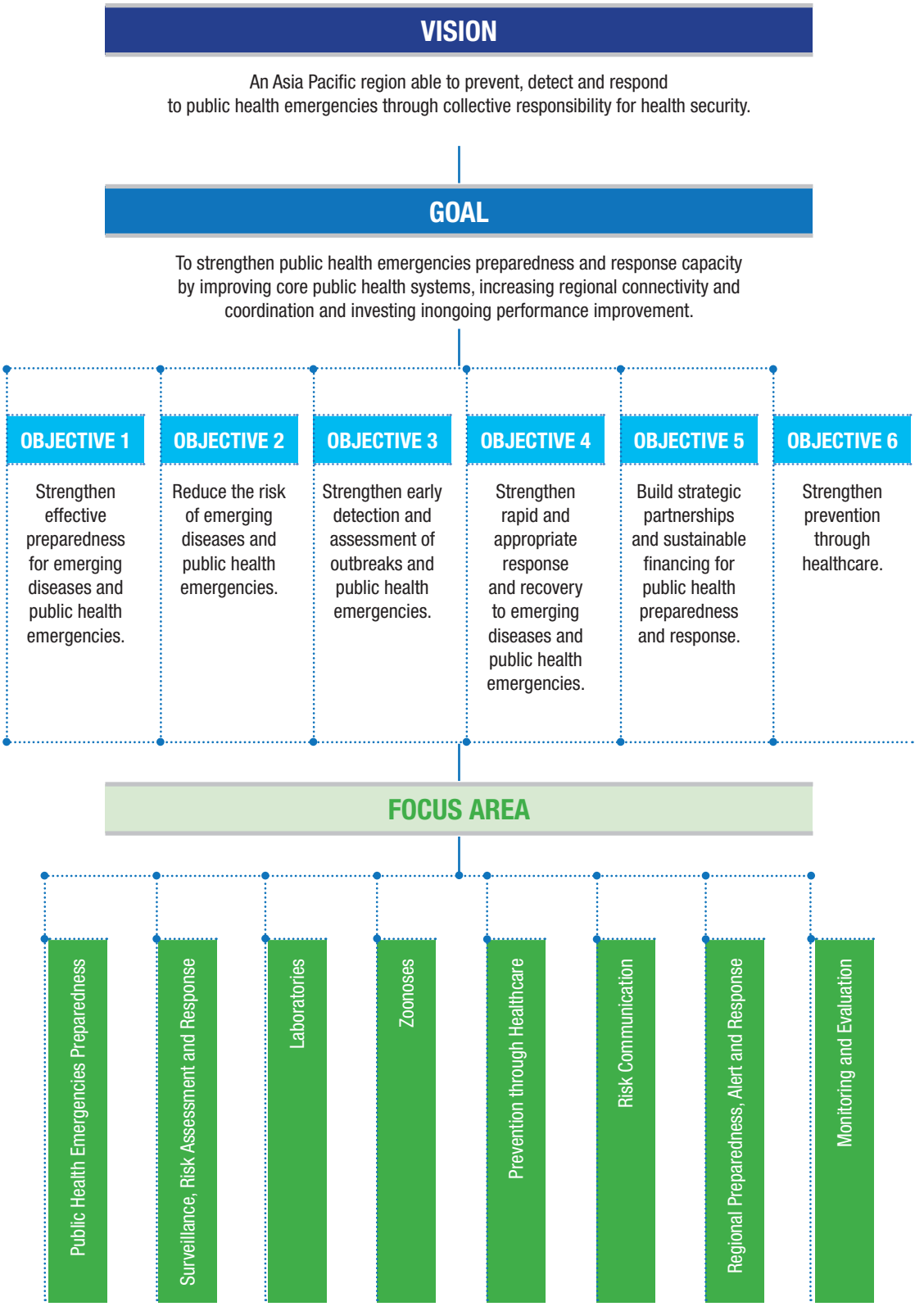
Finally, Focus Area 8 refers to the integrated national, regional, and global monitoring and evaluation systems, including annual progress reporting, simulation exercises, outbreak reviews and joint external evaluations that emphasize learning for continuous improvement. Other components, including the legal basis and financing health security, are vital for PHEP and response. These components will be embedded in the health system.

APSED III retains and builds upon the guiding principles of previous APSED strategies, and places some additional emphasis in certain areas. APSED III:

- places countries, communities and people at the centre (country-focused and people-centred);
- provides a generic platform to strengthen IHR (2005) core capacities and core systems required for managing public health emergencies (an all-hazards approach);
- adopts a step-by-step approach to develop or enhance PHEP (staged approach);
- reviews experiences and lessons from past events and revises plans (continuous learning for improvement);
- advocates the importance of connecting national surveillance, risk assessment and response systems to the regional and international levels (regional and global public goods);
- increases the emphasis on partnerships for collective preparedness and response, and provides a common platform for stakeholder engagement (partnerships for collective action);
- increases the importance of looking to the future, including predicting risks, and being proactive rather than reactive (forward looking); and
- invests in preparedness (financial sustainability).

APSED III takes a pragmatic, adaptive and forward-looking approach as a framework for ongoing collective action for health security. While APSED III focuses on essential public health functions, it provides even greater flexibility for implementation by the Member States based on country context and national priorities.

Fig. 1: APSED III Vision, Goal, Objectives and Focus Areas



2. INTRODUCTION TO MALAYSIA STRATEGY FOR EMERGING DISEASES AND PUBLIC HEALTH EMERGENCIES (MYSED) II (2017-2021)

2.1 Background

Malaysia is one of the countries in the Western Pacific Region, which continues to face health security risks from emerging diseases and public health emergencies. The risk of future events is likely to become more complex due to a changing social, environmental and economic landscape and forecasts of significant climate change that will potentially magnify the devastating health, political and economic impacts of these events. Effective management of emergency events is required to minimize its health, economic, social and political impact. Health security threats, particularly outbreaks of emerging diseases, can rapidly expand to affect multiple countries, highlighting the need for collective preparedness and response, and a common strategic direction nationally, regionally and globally.

In order to prevent, control and respond to the continuous and inevitable health security threats, Malaysia agreed to implement the International Health Regulations (IHR 2005). Malaysia has complied with IHR core capacity requirements since it entered into force on 15 June 2007. It has adequate monitoring and surveillance activities for detection of influenza under Malaysia Influenza Surveillance Protocol (MISP), Event-Based Surveillance (EBS) systems; Emerging Infectious Diseases (EIDs) including human infections with novel influenza virus subtypes, Middle East Respiratory Syndrome Coronavirus (MERS-CoV), cases of Zika virus.

Based on the country monitoring and evaluation (M&E) which was aligned with the IHR Core Capacity Monitoring Framework and the IHR Monitoring Questionnaires, MySED Workplan (2012-2015) or MySED was developed. This MySED Workplan was aligned with the APSED II framework. Following annual review and assessment using IHR Monitoring Questionnaires, MySED progress report, after events review and JEE self-assessment and focus area under Global Health Security Agenda (GHSA) it was highlighted that MySED needs to be enhanced to cover all hazards approach to be aligned with APSED III framework. Hence, to address this need, the MySED II (2017-2021) is developed.

2.2 Scope

The scope of MySED II is to strengthen and further improve public health security systems and its functions required for PHEP and response for all hazards in line with the Directive No. 20 (National Security Council) Policy and Mechanism of National Disaster Management and Relief. MySED II aims to provide a high-level framework that can give a common direction and approach to detail hazard-specific strategies, for example how to prepare for biological and natural hazards. The revised strategy under the framework added "Public Health Emergencies" to the initial title "Emerging Infectious Disease" which reflect the all-hazards scope and purpose of the strategy. In addition, MySED II strengthens the core public health functions as well as many key health systems such as the health workforce, service delivery, information & technology system and leadership & governance to support a more resilient health system.

It is highly recommended that the strategies under MySED II be used in the following ways:

2.2.1 as a common framework to further enhance in building national capacities to manage EIDs and public health emergencies and to further improve health security;

2.2.2 as a national mechanism to collectively monitor progress, facilitate learning for continuous improvement, and improve national preparedness and response; and

2.2.3 as a strategic document for advocacy and to mobilize national and external financial and technical resources.

2.3 Vision, Goal, Objectives and Purpose

2.3.1 Vision

Malaysia is able to prevent, detect and respond to public health emergencies through collective actions and responsibility for health security.

2.3.2 Goal

To strengthen public health emergencies preparedness and response capacity by improving core public health system, increasing national and international connectivity and coordination, and investing in ongoing performance improvement.

2.3.3 Objectives

MySED II has six interlinked objectives that reinforce the goal and purpose, and provide a framework for realizing the vision for Malaysia.

- Objective 1. Strengthen effective preparedness for emerging diseases and public health emergencies

- Objective 2. Reduce the risk of emerging diseases and public health emergencies
- Objective 3. Strengthen early detection and assessment of outbreaks and public health emergencies
- Objective 4. Strengthen rapid and appropriate response and recovery to emerging diseases and public health emergencies
- Objective 5. Build strategic partnerships and sustainable financing for public health preparedness and response
- Objective 6. Strengthen prevention through healthcare

2.4 MySED II Guiding Principles

MySED II retains and builds upon the principles and approach of previous MySED I strategies and places some additional emphasis in certain areas, such as:

2.4.1 Places countries, communities and people at the center (country-focused);

2.4.2 Provides a generic platform to strengthen IHR (2005) core capacities and core systems required for managing all public health emergencies (an all-hazards approach);

2.4.3 Adopts a step-by-step approach to develop or enhance PHEP (staged approach);

2.4.4 Reviews experiences and lessons from past events and revise plans (continuous learning for improvement);

2.4.5 Increases the importance of connecting national surveillance, risk assessment and response systems to the regional and international levels (regional and global public goods);

2.4.6 Increases the emphasis on partnerships for collective preparedness and response, and provide a common platform for stakeholder engagement (partnership for collective action);

2.4.7 Increases the importance of looking to the future, including predicting risks, being proactive rather than reactive (forward looking); and

2.4.8 Invests in preparedness (financial sustainability).

2.5 Implementers and Partners

In response to our shared responsibility to ensure health security, the key implementers of MySED II are the

i. Ministry of Health Malaysia.

ii. National Disaster Management Agency (NADMA).

iii. National Security Council (NSC).

iv. Department of Veterinary Services, Ministry of Agriculture.

v. Ministry of Defence

vi. Ministry of Foreign Affairs

vii. Royal Malaysian Police

viii. Fire and Rescue Department of Malaysia

ix. Atomic Energy Licensing Board (AELB)

x. Department of Wildlife and National Parks Peninsular Malaysia, Ministry of Water, Land and Natural Resources

xi. Ministry of Transport

xii. Hospital Universities

xiii. other partners and as required.

In addition to the above list, academia/Universities, the private sectors, non-governmental organizations, civil society, security agencies, and judicial authorities can play an important role in implementing MySED II, especially PHEP and response. International technical and development partners such as WHO, GHSA, and other relevant partners are explored to support the implementation of the MySED II workplan.

MySED II provides a strategic and multi-sectoral workplan for action and allows flexibility in its implementation. It takes into account the needs and priorities; lessons learnt; the changing economic, environmental, demographic & social landscape; and the development and implementation of initiatives and frameworks such as the SDGs, UHC, the Global Health Security Agenda (GHSA) and ASEAN Health Cluster 2 Work Program.

Implementation would be monitored by the Disease Control Division, Ministry of Health Malaysia with the support of technical coordinators from each focus area.

2.6 The Time Frame for Implementation

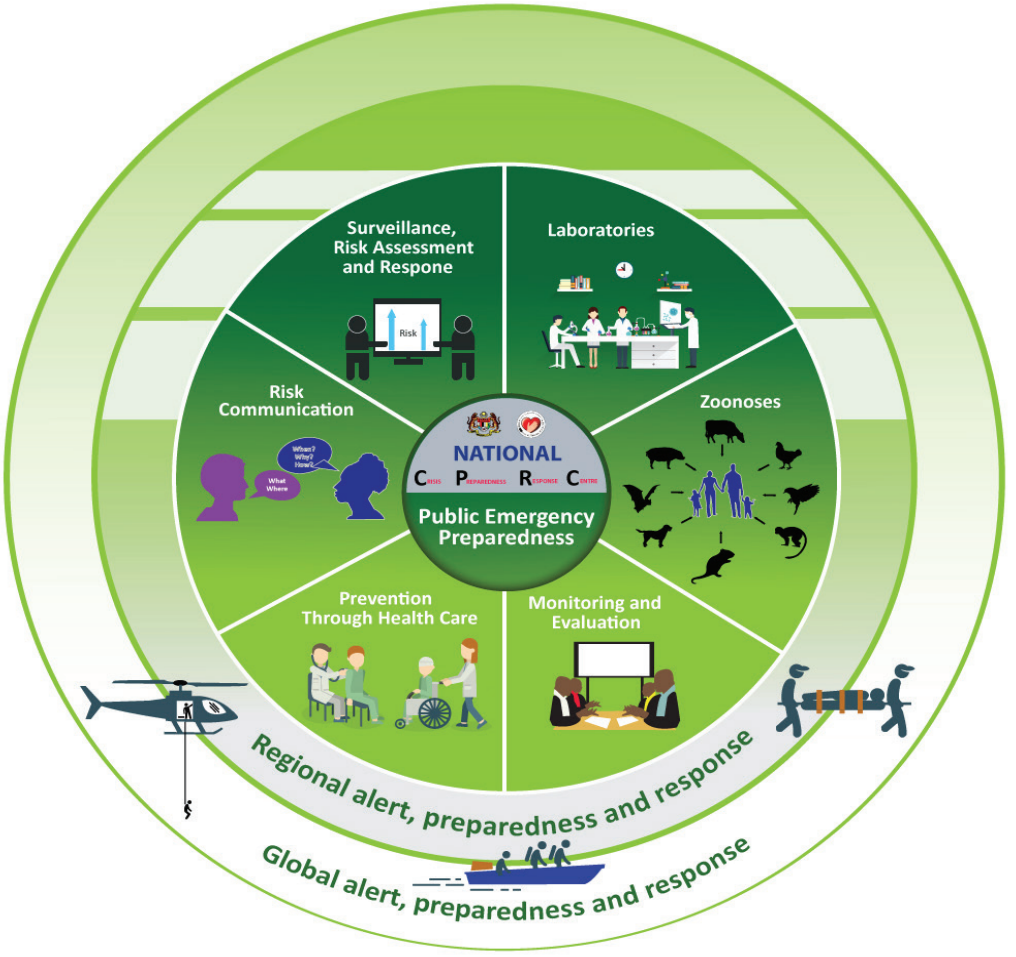
MySED II is designed to have a flexible implementation time frame of five years which is from 2017 to 2021 or can be further extended if required to accommodate differences in national planning cycles and capacities across the country in the IHR implementation agenda.

2.7 Focus Areas

MySED II focus areas have been revised and updated in alignment with APSED III focus areas. Based on consultations and engagements with multi-sectors/agencies, it is intended to ensure that MySED II can be implemented to provide a flexible platform for capacity-building and development. The eight focus areas in APSED III are:

1. Public Health Emergency Preparedness.
2. Surveillance, Risk AssessmentÅ and Response.
3. Laboratories.
4. Zoonoses.
5. Prevention through Healthcare.
6. Risk Communication.
7. Regional Preparedness, Alert and Response.
8. Monitoring and Evaluation.

Figure 2: MySED II focuses on the fundamental core components for public health emergency preparedness and response at all levels.



FOCUS AREA 1: PUBLIC HEALTH EMERGENCY PREPAREDNESS (PHEP)

1.1 Introduction

Public health emergency preparedness (PHEP) is the core of Malaysia Strategies for Emerging Diseases (MySED). It is a key aspect of sustainability and resilience. While much of this focus area concentrates on the development of emergency plans, it also highlights the importance of system readiness. The core is having in place the key functions, people, resources, tools and facilities across the health system as well as other sectors to operationalise those plans effectively and efficiently.

The health sector shall work together with other sectors to plan for and respond to public health emergencies, to ensure effective plans and adequate resources are in place. Experience has shown that putting all the right components in place provides the foundation for delivering a prompt and effective response to an emergency event. Furthermore, having the Incident Management System (IMS) capacity with trained personnel who can be rapidly deployed and activated for an effective response can prevent an emergency from becoming a disaster.

System readiness is about ensuring that all structures and resources in the health and other sectors are available. This includes multi-sectoral coordination mechanisms that facilitate a whole of society approach and allow response plans to be implemented immediately and effectively. The national PHEP systems, structures, and resources that need to be in place as well as to further strengthen include system elements that:

- have a particular emphasis on health security and emergencies including National IHR Focal Points (NFPs), Points of Entry (POE), hospital preparedness (including surge capacity) and emergency response structures.
- have important functions for emergencies but also have a role as "routine" health sector and cross-sector functions.
- play a key role in the wider health sector and addressing the long-term health needs of the population, including national health policies, governance, and funding as well as coverage and access to healthcare services.

There have been significant improvements in public health event communication and verification by the IHR mechanism; however, the functions of IHR NFPs, including having generic 24/7 communication systems, need to be further improved.

In Malaysia, there is evidence that health "central command and control centres (4C)" exist. 4C uses IMS and Emergency Operations Centres (EOCs) to address public health emergencies. It also coordinates risk assessment and management of epidemic-prone diseases. Positive changes in coordination, communication, and information-sharing have been reported. However, EOC functionality and familiarity with IMS, as well as training and exercises, require further attention, and a consideration of how these structures connect at national, regional and global levels.

1.2 Expected Outcome

The expected outcome and actions listed below reflect the fundamental components of PHEP need to be in place regardless of their capability level. Once in place, it should be further strengthened by shifting focus to regular testing and improving functionality.

The key elements for this focus area are:

- Improved management of emergency events through the use of IMS principles.
- An all-hazards national operational response plan for public health emergencies is developed, tested, revised and maintained.
- A public health emergency planning and coordination process are in place, with appropriate authority, and building on existing mechanisms set up under MySED.
- Public health emergency response systems, including EOCs, are prepared and tested. Management capacity is strengthened.
- The IHR NFP system is further strengthened and 24/7 communications capability is ensured.
- Point of Entry (POE) has public health emergency contingency plans that are part of the national public health emergency response plan that is regularly tested, use appropriately and effectively.

1.3 Strategic Actions

Strategic Actions needed for Public Health Emergency Preparedness are listed as below:

Strategy 1: Improved management of emergency events through the use of Incident Management System (IMS) principles.

Strategy 2: Develop and test a national all-hazards response plan for public health emergencies.

Strategy 3: Ensure there is an ongoing and coordinated process for planning, management, and response.

Strategy 4: Prepare and test public health emergency response systems.

Strategy 5: Strengthen IHR national focal points.

Strategy 6: Strengthen points of entry.

Strategy 7: Monitoring & Evaluation.

FOCUS AREA 2: SURVEILLANCE, RISK ASSESSMENT AND RESPONSE

2.1 Introduction

Surveillance, risk assessment, and response are fundamental to minimize the health and social consequences of public health events and emergencies. Malaysia has established an indicator-based surveillance (IBS) system and the event-based surveillance (EBS) system. The IBS is supported by a web-based notification system called e-notification. In addition, we also have a web-based early outbreak reporting system called e-wabak which has the potential to be expanded to include all hazards.

Lessons learnt from recent public health events and emergencies in Malaysia have emphasized the importance of healthcare workers and workers from other non-health agencies in detecting unusual clusters of disease/events, for example, rabies outbreak, respiratory clusters, carbamate poisoning, mercury spillage, etc. These lessons have highlighted the potential benefits that an EBS system could offer to the rapid and timely detection of such situations.

Moving forward, there is a need to combine health surveillance data with other types of health information, and data from other non-health sectors to carry out a timely risk assessment to guide decision-making. This can be achieved through technology innovations and blue ocean strategies.

Risk assessment can be defined as the ongoing systematic process for gathering, assessing and documenting information to assign a level of risk for a potential acute public health event. Risk assessment is crucial to ensure a proportionate response to a public health risk and to prioritize and mobilize resources as well as to guide decision-making. Risk assessments, while an essential link between event detection and response, are not performed systematically and remain a priority area for improvement.

A skilled and competent workforce in surveillance, risk assessment, and a response is crucial to ensure all public health events and emergencies are managed effectively.

2.2 Expected Outcome

Malaysia should have a robust surveillance system, be able to conduct systematic and ongoing risk assessments using multiple sources of information for timely, informed decision-making to guide preparedness and response.

The key elements of this focus area are:

- Surveillance is appropriate to country needs and is flexible, rapidly adapting to changing information and contextual needs before, during and after events.
- The surveillance and risk assessment function use multiple sources of information from within the health sector and other sectors to guide timely and informed decision-making, preparedness, and response.
- An adaptable, skilled workforce, incorporating FETP/FET trainees and alumni and other technical expertise to carry out surveillance, risk assessment and response.

2.3 Strategic Actions

Strategy 1: Ensure the Surveillance Function is Flexible, Adaptable and Appropriate to Country Needs.

1. Review existing surveillance systems and identify the sources of data, for example, data from outbreak investigations, community reporting systems, IBS, EBS including syndromic surveillance, and other non-health sectors.
2. Consider streamlining existing surveillance systems for all hazards to ensure the systems are an appropriate and efficient use of resources.
3. Facilitate involvement of affected communities, healthcare workers, laboratories and non-health sectors in EBS.
4. Ensure clinical and laboratory staff are alerted to cross-border public health threats, and that protocols including case definitions and laboratory testing algorithms are rapidly developed and shared for timely case detection, reporting, and investigation.
5. Develop and implement systems to ensure that data can be safely stored, accessed, analysed and used to produce timely surveillance and/or epidemiological reports that are shared with key stakeholders on a regular basis.

Strategy 2: Use Multiple Sources of Information for Risk Assessment.

1. Identify different sources of health information that contribute to risk assessment; for example, data from IBS, EBS, risk perception assessments, vaccine coverage, laboratory data, community-based reporting, and media monitoring.
2. Establish reporting and communication channels between public and private healthcare facilities and non-health sectors to facilitate rapid reporting of events.
3. Incorporate data produced by other disciplines and sectors, for example, animal health data, socioeconomic data, gender, food safety data, access to health services, meteorological data and international connectivity data.

4. Initiate a multi-sectoral policy dialogue to strengthen coordination, communication, and information-sharing with other stakeholders.
5. Establish effective, real-time surveillance systems that have the capacity to analyse and link data using interoperable, interconnected electronic reporting systems.

Strategy 3: Strengthen Risk Assessment Function to Inform Timely Decision-Making.

1. Review and agree on operational arrangements for the risk assessment function within a national centre/unit and establish a process for systematic risk assessments.
2. Conduct systematic risk assessments on an ongoing program at all levels of the health system, involving multiple stakeholders to contribute, where appropriate, using the facilities and resources of an EOC or coordination centre.
3. Conduct risk assessments that are forward-looking to anticipate future threats and contribute to better preparedness.
4. Produce and communicate timely risk assessment reports to stakeholders, including relevant divisions and agencies.

Strategy 4: Develop A Skilled Workforce for Surveillance, Risk Assessment and Response.

1. Train public health workers in risk assessment, including at the local level to carry out preliminary control measures.
2. Improve the financial sustainability of FETP/FET.
3. Create opportunities to involve FETP/FET trainees and alumni as human resources for risk assessment and response operations.
4. Maintain capacity for multi-disciplinary RRTs at the national level, and strengthen capacity at the subnational level, including documenting response to outbreak investigations. Members of an RRT may include experts in the following fields: logistic, human/animal epidemiology, clinical management, food safety, infection prevention and control, laboratory, and veterinary/wildlife, and security authorities.
5. Promote operationally and applied research to improve the evidence base for decision-making.

FOCUS AREA 3: LABORATORIES

3.1 Introduction

Laboratories play an important and supportive role in the early detection of an outbreak, response to emerging and re-emerging diseases, patient management, disease surveillance, research, and development. Laboratories also play a key role in achieving health security and informing policy. In Malaysia, there is an effective network of laboratories to provide screening and diagnostic services, which consist of reference laboratories, public health laboratories, pathology laboratories and research laboratories. These laboratories have the capacity and capability to conduct tests for various infectious and non-infectious hazards such as chemicals, toxins, and radiological agents. Biosafety and biosecurity practices are implemented in compliance with IHR (2005) requirements.

Efforts are in progress in ensuring total quality management system is in place in all laboratories. Such efforts include accreditation by local and international standards such as ISO17025, MS ISO15189 and Good Laboratory Practice.

Following implementation of MySED I, a good progress has been made to achieve the optimum capacity and capability for early detection of pathogens that may lead to an event of national or international concern. This has been proven by several track records made by Malaysian laboratories in the recent years such as detection of MERs CoV, Zika Virus infections, Highly Pathogenic Avian Influenza infections (H5N1 and H7N9) and VX agent. In addition, Malaysia in the process of strengthening national antimicrobial resistance surveillance for human pathogens and expanding to include veterinary, fishery and food through One Health approach. However, there is a need to enhance testing capability and capacity for the detection and surveillance of environmental, chemical and radiological threats

Timely sharing of laboratory data among the stakeholders need to be strengthened for effective surveillance and risk assessment. Continuous effort is being done in search of new diagnostic technologies and tools to provide opportunities for improving laboratory detection and characterization of EIDs and other public health threats.

3.2 Expected Outcome

Malaysian National laboratory network system will be able to rapidly, accurately and safely identify infectious and non-infectious hazards in order to contribute to health security.

The key elements (5) of this focus area are:

- Laboratories have the capacity to diagnose and report priority diseases in both laboratory and field settings (i.e. the location of the outbreak), as well as perform antimicrobial susceptibility testing.
- Data from laboratories are used routinely in surveillance and risk assessment.
- New diagnostic technologies are reviewed for their applicability in the local context.
- Ongoing internal and external assessments and exercises assess functionality, identify gaps and inform corrective actions.
- Laboratories are connected nationally, internationally and across sectors in a referral network.

3.3 Strategic Actions

Strategy 1: Ensure Fundamental Laboratory Functions.

1. Strengthen and maintain laboratory functions: specimen collection and transport; laboratory quality-management systems; biosafety and biosecurity programmes; functional networks; and data management for timely reporting of laboratory findings.
2. These fundamentals will provide a foundation for laboratory detection and reporting of infectious and non-infectious hazards such as chemicals, toxins, and radiological agents.
3. Ensure a trained and skilled laboratory workforce.
4. Ensure sustainable financing of public laboratory functions and support to field operations (Cross refer to Group 1: Strategy 1: 3: Stockpile for consumables, reagents, and PPE).
5. Laboratory biosafety and biosecurity systems are in place to ensure that laboratory procedures are carried out in safe and secure environments.

Strategy 2: Link Public Laboratories with Surveillance and Risk Assessment.

Support linkages of laboratories to surveillance and risk assessment functions, both for event-based surveillance (EBS) and indicator-based surveillance (IBS). This includes data sharing related to vaccine-preventable diseases, antimicrobial resistance (AMR), zoonotic pathogens and unusual events.

Strategy 3: Review New Diagnostic Technologies.

1. Establish a process and review of new diagnostic and pathogen characterization technologies for both laboratory and field settings.
2. Sharing of evaluation reports by various laboratories testing new diagnostic and pathogen characterization technologies.

Strategy 4: Assess Functionality of Public Laboratory System.

1. Focus on functionality by testing the laboratory system, including internal and external quality assessment to maintain diagnostic accuracy and simulation exercises to test capacity during public health emergencies (refer to the Monitoring and Evaluation focus area).
2. Work towards accreditation of public laboratories.

Strategy 5: Enhance Public Laboratory Connections and Coordination.

1. Improve coordination and laboratory networking nationally and internationally among sectors of animal health, environmental health, with a public health role such as those that test for chemical and radiological agents. This includes improving linkages with hospital and private clinical diagnostic laboratories and laboratories for chemistry, toxicology and radiological agents.
2. Maintain arrangements with WHO collaborating centres and other international reference laboratories for testing and reference functions.

FOCUS AREA 4: ZOONOSES

4.1 Introduction

Zoonoses are diseases or infections naturally transmissible between animals and humans. Prevalence of zoonotic diseases is increasing globally. In Malaysia, zoonotic disease is emerging and can significantly impact health, social and economic facets of everyday life. As a result, reducing the risk of zoonoses should be prioritized by health systems at all levels. Tackling zoonosis is complex which requires a one health approach involving effective communication, collaboration and coordination among human, animal and environmental health sectors. Linking these partners is essential to improve risk reduction strategies that mitigate the emergence and spread of zoonotic diseases. The one health approach have been initiated by international organizations such as the Food and Agriculture Organization (FAO), World Organization for Animal Health (OIE) and WHO to address health risks at the human–animal interface.

The outbreak of Nipah disease in 1998-1999 in Peninsular Malaysia is a turning point for the establishment of one health collaborative platform among ministries and universities. Since then, emergence of zoonotic disease in Malaysia such as avian influenza H5N1 in Kelantan (2004) which infected poultry population and rabies in dogs (2015) has strengthened this collaboration. The unpredictable nature of zoonoses calls for vigilance and preparedness for unforeseen disease events. Hence, the collaborative efforts need to be continuous and allowed to mature over time. Globalization has added an additional challenge for disease control across the national borders. Responding to these ongoing challenges requires strengthening of the core components of public health systems: surveillance, risk assessment and response; laboratory capacity; risk communication and public health preparedness.

MYSED II is a direct effort by Malaysian government under the Ministry of Health (MOH) to expand the involvement of multiple governmental and non-governmental agencies for tackling zoonoses. In MYSED II the scope of activities are improved and widened under various strategies.

4.2 Expected Outcome

Governmental and non-governmental agencies adopt a multi-sectoral and multi-stakeholder approach to manage zoonotic diseases, mainly through:

1. Effective and efficient sharing of surveillance information with all relevant stakeholders.

2. Coordinated response between the various agencies.
3. Risk reduction educational and awareness activities.
4. Production of standardized guidelines, zoonoses related policy document and research.

4.3 Strategic Actions

Strategic 1: Sharing of Surveillance Information.

Seven activities identified under this strategy include:

1. Regular interagency/technical meeting at national level.
2. Regular update and review of zoonotic diseases and pathogen for surveillance.
3. Timely sharing of zoonotic disease event report between MOH/DVS and related agencies.
4. Regularly share surveillance information of identified priority zoonotic diseases and laboratory based surveillance/diagnostic/outbreak.
5. Establishment of mechanism of sharing specimens of priority zoonotic pathogens.
6. Regular monitoring and evaluation of surveillance system and/or testing protocol for zoonotic pathogen/diseases.
7. Mapping on area with zoonotic diseases risk.

Strategy 2: Coordinated Response.

Under this strategy two main activities identified are:

1. Enhance coordinated response plan among multiple agencies for detecting and responding to zoonotic diseases.
2. Joint investigation and report writing for selected zoonotic disease outbreak.

Strategy 3: Risk Reduction.

To reduce the risk, six activities to be performed include:

1. Conduct training on awareness of zoonotic diseases and One Health concept.
2. Enhance module of zoonotic diseases for FETP.
3. Simulation exercise (MOH/DVS) for zoonotic events/diseases.
4. Reduce AMR emergence and propagation (refer to Group 5: Prevention through healthcare focus area; Strategy 3).
5. Evaluate the impact of health communication campaign on zoonotic diseases.

6. Biosafety & Biosecurity measures at entry point, animal farms and processing plants established.

Strategy 4: Guidelines, Policy Documents and Research.

Under this strategy, two activities will be carried out:

1. Coordinate and conduct collaborative research on zoonotic diseases.
2. Development National Strategic Plan for Zoonoses.

Strategy 5: Monitoring and Evaluation

Five activities will be performed under this strategy:

1. Coordinate and conduct collaborative research on zoonotic diseases.
2. Compile report and analyse joint risk assessment, outbreak investigation and simulation activities.
3. Timely sharing of zoonotic disease event report between MOH/DVS and related agencies.
4. Simulation exercise on joint investigation (MOH/DVS) for zoonotic events/diseases.
5. Biosafety and biosecurity measures at entry point, animal farms and processing plant established.

FOCUS AREA 5: PREVENTION THROUGH HEALTHCARE

5.1 Introduction

A well-functioning health system is a pre-requisite for preventing and responding to infectious diseases outbreaks and public health emergencies. In 2015, the APSED report revealed a number of discrete areas of systemic vulnerability: inadequately trained healthcare workers; fragile hospital surveillance and response systems; weak IPC systems; and healthcare information systems and coordination mechanisms that require strengthening.

Over the past two decades, the emergence and re-emergence of infectious diseases in Malaysia has shown the need for multi-sectorial involvement and collaboration to curb the spread of infectious diseases and manage public health emergencies. The incidences include Nipah outbreak in 1997, anthrax scare 2001, SARS in 2003, HPAI in 2004, pandemic influenza in 2009, MERS-CoV in 2014, Zika in 2016 and increasing multi-drug resistant organism. The lessons learnt from these events also indicate that the existing health systems must be strengthened in order to reduce the possibility of future outbreaks and tackle the growing threat of AMR. This includes IPC, clinical management, appropriate emergency preparedness and response plans and judicious use of antibiotics.

Establishing effective IPC practices in healthcare settings is essential to reduce the risk of transmission of emerging diseases to healthcare workers, patients, their families and the community. Systematic establishment of good IPC practices is a challenge; IPC audit findings in 2016 involving Emergency Department in 50 MOH hospitals show only 84% achieved good compliance to standard precaution component while only 68% achieved good compliance to environmental component. Hence, there is a need for improvement in many hospitals and other healthcare facilities in the country.

Healthcare workers are important asset in delivering quality healthcare. Therefore, to ensure competency, training on good clinical practices should be one of the important pillars in this focus area including strengthening routine clinical management practices for priority infectious diseases. Good IPC practice should be a culture within the healthcare settings.

Functional surveillance system is important to detect events or incidences of emerging infectious disease or any outbreaks. Integrated surveillance between human and animal health, including food safety will improve the timeliness of detection, containment and management of the event or incidences.

In Malaysia, the National Surveillance of Antimicrobial Resistance reported an increase of AMR in hospitals from 2010 to 2015. It correlated well with the increase in antibiotic usage as shown in National Surveillance on Antibiotic Utilisation. The findings are useful to inform therapy decisions, to assess the public health consequences of antimicrobial misuse, and to evaluate the impact of resistance containment interventions. It is also essential in development of strategies for a more judicious use of antimicrobials in both human and animal health sectors. Thus, AMR surveillance especially in the animal health sectors, need to be strengthened.

In order to reduce the economic costs and social implication arising from the interruption of health services, healthcare facilities need to have appropriate emergency preparedness and response plans. The coordination and integration between agencies are necessary to optimise the resources in the most efficient way during a large-scale public health event.

The strategies outlined above focus on "one health" approach which emphasizes actions that will strengthen the effectiveness and safety of healthcare systems during routine practice and improve their operations and resilience during public health emergencies.

5.2 Expected Outcome

Healthcare settings are able to provide critical services for prevention, treatment, containment and response in order to reduce the risk and mitigate the impact of outbreaks and public health emergencies.

Key elements of this focus area include:

a. Relevant evidence-based policies and operational procedures in place to underpin effective IPC practice to reduce the risk of transmission of emerging diseases within the healthcare setting.

b. The ability to rapidly identify, report and manage EIDs in a way that minimizes mortality and morbidity among patients, visitors, healthcare workers and the community.

c. The appropriate policies and procedures to reduce the morbidity and mortality associated with antimicrobial resistance.

d. Comprehensive health facility plans for preparing and responding to outbreaks and public health emergencies.

5.3 Strategic Actions

Strategy 1: Infection Prevention and Control.

i. Strengthen educational programme on hygiene and infection prevention and control measures in healthcare care settings, animal husbandry and food processing.

- Development of Infection Prevention & Control educational tool kits for human health.
- Development of Infection Prevention & Control educational tool kits for animal health.
- Orientation on IPC for newly appointed staff.
- Official accredited IPC training for infection control personnel.
- Strengthening of Biosecurity Program in animal health sector.
- Training on IPC and Biosecurity at various level.

ii. Strengthen national policies and standards of practice regarding infection prevention and control (IPC) activities in health facilities

- To review the current National Policies and Procedures on Infection Control.
- Strengthening of Hand Hygiene Program in all healthcare facilities.
- To strengthen Healthcare Associated Infection (HCAI) surveillance program.
- Implement Infection Prevention and Control Audit.
- To review IPC chapter in "*Arahan Prosedur Tetap Veterinar Malaysia*" (APTVM).

Strategy 2: Clinical Management.

Establish strong links between POE, public and private healthcare facilities and public health systems to facilitate rapid reporting of events by healthcare workers to surveillance section as part of EBS.

- Develop local (healthcare facilities) protocol for EBS.
- Strengthen routine clinical management practices for priority infectious diseases in all healthcare settings as part of health system strengthening prior to outbreaks and public health emergencies through training.

Strategy 3: Antimicrobial Resistance (AMR).

Develop national action plan and strengthen surveillance on AMR in human and animal health sector.

- Development of national action plan on AMR.
- Strengthen National Surveillance of Antimicrobial Resistance in Malaysia (NSAR).

- Strengthen National Surveillance on Healthcare Associated Multidrug Resistant Organism (HA-MDRO).
- Establishment of periodical survey of AMR in the community.
- Establishment of AMR surveillance in livestock production and aquaculture.
- Strengthening of AMR surveillance in food.
- Strengthening of National Antibiotic Utilisation Surveillance.
- Implementation of Antimicrobial Stewardship (AMS) program in healthcare facilities.
- Development of National guideline on antimicrobial drugs use in veterinary sector.
- Development of Malaysia Integrated Antimicrobial Resistance Surveillance System.
- Development of Malaysia Integrated Antimicrobial Resistance webpage.

Strategy 4: Preparedness of Health Facilities.

i. Ensure safety of high risk healthcare workers through vaccination and access to post-exposure prophylaxis where appropriate.

ii. Strengthen continuous quality improvement in all healthcare facilities.

iii. Ensure hospitals have appropriate emergency preparedness and response plans in place to reduce the economic costs and social implication arising from the interruption of hospital services.

iv. Ensure healthcare providers at primary healthcare facilities are trained in emergency preparedness and response.

FOCUS AREA 6:
RISK COMMUNICATION

6.1 Introduction

Risk communication currently has been widely accepted internationally and nationally as a key strategy for the management of risks of public health concerns or security be it natural or man-made disasters, emerging and re-emerging diseases, mass casualties incidents as well as bioterrorism.

Locally, risk communication has played vital roles in disseminating risk-related health messages during the outbreaks such as H1N1, MERS-CoV, malaria and lately rabies. In addition, it is also being applied during crises such as major floods, tsunami, volcano tremors, and public demonstrations.

Effective risk communication confers confidence, builds trust towards the authorities, improves the willingness of populations to comply with recommended measures and also it can hasten the return to normalization after an outbreak peak. A favourable public attitude allows those engaged in the technical response to concentrate on rapid containment of the incident.

The concept and practice of risk communication have been evolving since the 1980s. This is due to the complexity and diversity of risks, the development in the arts of communication and the complex nature of stakeholders, media and the well-informed community. Failure to communicate on the risk may mitigate control measures for the management of disease outbreak and may affect the credibility and image of the health authority.

In addition, it is important that one is aware of the legal and ethical implications inherent to public health in handling risk communication in a health crisis situation. The key personnel trained need to have a good understanding of the various elements discussed so that the rights, dignity, and honour of the target group is not compromised.

6.2 Expected Outcome

A risk communication system is established with the capacity to manage the process of risk communication for all phases of public health emergencies.

The key elements for this focus area are:

a. Make risk communication a core element of prevention, public health preparedness, response and recovery from public health emergencies.

b. Strengthen operational links between risk communication, surveillance and risk assessment across all sectors and incorporate risk communication in all phases of the risk management cycle.

c. Establish a mechanism to engage with all groups within communities and integrate risk perception assessment into risk assessment procedures.

d. The use of new information and communication media, including social media and networks where access is widely available, is an integral component of capacity enhancement for risk communication.

e. There is a system that routinely evaluates the effectiveness of risk communication and community engagement approaches as soon as possible following the intervention.

6.3 Strategic Actions

Make risk communication a core element of prevention, preparedness, response, and recovery. Include risk communication function in preparedness plans and response systems. Conduct stakeholder analyses for targeted risk communication; identify opinion leaders and the most appropriate communication media for public communications.

a. Maintain and strengthen the basic elements of the risk communication system such as developing risk communication plans, procedures and templates for key messages, identifying spokespersons, appointing an officer and/or team to manage activities including media communication training for spokespersons, reaching agreement on the standard operating procedures and providing resources for risk communication.

b. Ensure synchronization of key risk communication messages across response sectors.

c. Develop and maintain a registry of risk communication officers through the implementation of a national risk communication training programme.

FOCUS AREA 7: REGIONAL PREPAREDNESS, ALERT, AND RESPONSE

7.1 Introduction

In this globalisation era, emerging infectious disease and public health emergencies seem borderless. It is important for all countries to work together in preparedness, alert and response to stop international disease (epidemic) to spread. Malaysia as a country which is strategically located at the centre of South East Asia Region plays an important in preventing disease spread and coordinating response measures as Malaysia has the minimal natural disaster. Malaysia also would like to contribute to public health emergencies alert and response in the region and global such as for any deployment during outbreak and disaster.

7.2. Expected Outcome

Malaysia would like to be training and logistic hub for response to public health emergencies. Key elements of this focus area are as follows;

i. Regional risk assessment system.

ii. A regional operational hub for coordinate planning and response.

iii. Regional rapid response.

iv. Information sharing.

v. Develop skilled workforce for regional response.

7.3. Strategic Actions

Strategy 1: Regional Risk Assessment System.

- Participate in regional risk assessment activities

Strategy 2: Regional Operational Hubs for Coordinated Planning and Response.

- Establish ASEAN EOC Network for timeliness information sharing.
- Organise joint exercise.

Strategy 3: The Regional Rapid Response Mechanism.

- Develop a registry of an expert for regional and global deployment response that includes medical and health, CBRNe and veterinary team.
- Implement physical and mental assessment of expert for deployment.
- Harmonising procedures on receiving and sending international assistance during the crisis.
- Organise GOARN training for outbreak and emergencies in partnership with GOARN and WHO.

Strategy 4: Information Sharing Utilising Innovative Technology.

- Establish information sharing using existing tools or technology for regional needs.

Strategy 5: Develop Skilled Workforce for Regional Response.

- Send officers for attachment course at any regional office/training centre.

FOCUS AREA 8:
MONITORING AND EVALUATION

8.1 Introduction

M&E is a management tool that assesses what has taken place to facilitate continuous learning and improve future work. Robust, integrated M&E systems support the overall objectives of MySED II and the achievement of specific improvements. This applies not only to the public health system but also to the overall health system. In the context of MySED II, M&E functions as an ongoing process of planning and review that helps to coordinate key stakeholders, promote clear reflection on progress, and enhance ongoing priority setting, which is important in an environment of scarce resources. Under MySED I version, M&E was aligned with IHR Core Capacity Monitoring Framework and incorporated the IHR Monitoring Questionnaire.

Previously, Malaysia has made progress in implementing public health plans as well as monitoring and evaluating the success of the programs. These programs are reviewed via Annual Assessment with IHR Monitoring Questionnaire, outbreak simulations including "IHR Crystal Exercise" and MySED evaluation report. M&E would place emphasis on public health capacities developed for MySED I, that had contributed to the development of post-2016 IHR monitoring and Evaluation Framework comprising annual reporting, after-action review, simulation exercises, and JEE. IHR capacity building reviews and simulation exercises would continue to identify gaps for preparedness and response purposes. MySED II would include JEE concept that will address challenges in developing a multi-sectoral coordinated response to a public health emergency.

The MySED II monitoring and evaluation framework builds on the IHR monitoring framework and recognizes existing indicators. MySED II, M&E would target at the national level in engaging multi-sectoral agencies for collective learning for continuous improvement.

8.2 Expected Outcome

M&E systems are incorporated in MySED II work plans to measure health system functionality, promote system improvement and ensure mutual accountability for health security.

The key elements for this focus area are:

- Integrated national and regional planning and review processes are strengthened and lead to learning for continuous system improvements at all levels.

- M&E processes measure whether systems are working, not just whether capacities are in place.
- The partnership is promoted through M&E processes that include stakeholders from multiple sectors.
- Transparency and accountability in reporting on country capacities are fostered through annual reporting, after-action reviews, exercises, and JEE.

8.3 Strategic Actions

i. Apply M&E Systematically at all Stages of the Planning and Implementation Cycle.

- Establish and/or maintain a national focal point to ensure all MySED II, IHR, APSED III and M&E activities are aligned and followed up (refer to the PHEP focus area).
- Develop multi-year work plans that take into consideration recommendations from JEE reports and include funding for M&E activities that are in line with MySED II.
- Establish or strengthen an annual review and planning process that incorporates findings from after-action reviews, simulation exercises, and joint external evaluations.
- Ensure that the MySED II M&E framework builds on the IHR monitoring framework and recognizes existing national and regional indicators.

ii. Measure System Functionality.

- Use both quantitative and qualitative M&E methods that measure system functionality, including joint evaluation exercises, after-action reviews, and exercises.
- Incorporate the lessons learnt from M&E processes for corrective actions and provide feedback to stakeholders.

iii. Promote Partnership Through M&E Processes.

- Engage implementing partners and stakeholders from sectors beyond human health in national planning and review processes.
- Maintain and enhance the M&E function of the TAG meeting to become a more robust annual monitoring mechanism.

iv. Improve Transparency and Accountability in Reporting.

- Complement annual self-assessment and reporting with after-action reviews,

exercises, and a JEE by national and international independent experts.

- Contribute to peer-review processes in the other Member States.
- Share results of exercises, outbreak reviews, assessments and evaluations with stakeholders.

8.4 Responsibility at National Level:

Technical Coordinator or Deputy Technical Coordinator must develop a plan for their own focus area to monitor the activities under the workplan. They are responsible to update the status of implementation and should compile the data or the returns from all relevant implementers and partners as per schedule and submit it to Technical Coordinator/Deputy Coordinator of Focus Area M&E.

FOCUS AREA	TECHNICAL COORDINATORS/ DEPUTY TECHNICAL COORDINATORS	
1. Public Health Emergency Preparedness (PHEP)	Technical Coordinator	**Dr. Maria Suleiman** Senior Principal Assistant Director, DCD
	Deputy Technical Coordinator	**Dr. Badrul Hisham bin Abdul Samad** Senior Principal Assistant Director, DCD
2. Surveillance, Risk Assessment and Response	Technical Coordinator	**Dr. Wan Noraini bt. Wan Mohamed Noor** Head of Surveillance Sector, DCD
	Deputy Technical Coordinator	**Dr. Zuhaida bt. A. Jalil** Senior Principal Assistant Director, DCD
3. Laboratory	Technical Coordinator	**Dr. Hani binti Mat Hussin** Director of National Public Helath Laboratory
	Deputy Technical Coordinator	**Dr. Norzahrin bt. Hasran** Senior Principal Assistant Director, DCD
4. Zoonoses	Technical Coordinator	**Dr. Rohani bt. Jahis** Head of Zoonoses Sector, DCD
	Deputy Technical Coordinator	**Dr. Norita bt. Shamsudin** Senior Principal Assistant Director, DCD
5. Prevention Through Healthcare	Technical Coordinator	**Dr. Suraya bt. Amir Husin** Senior Principal Assistant Director, MDD
	Deputy Technical Coordinator	**Dr. Noraini bt. Mohd Yusof** Senior Principal Assistant Director, FHDD
6. Risk Communication	Technical Coordinator	**Dr. Husnina bt. Ibrahim** Senior Health Officer, Putrajaya Health Office
	Deputy Technical Coordinator	**Ms. Yessy Octavia bt. Misdi** Health Education Officer, HED
7. Regional Preparedness, Alert and Response	Technical Coordinator	**Dr. Rosemawati bt. Ariffin** Senior Principal Assistant Director, DCD
	Deputy Technical Coordinator	**Dr. Hasrina bt. Hassan** Senior Principal Assistant Director, DCD
8. Monitoring & Evaluation	Technical Coordinator	**Dr. Norhayati bt. Rusli** Deputy Director of Disease Control (Surveillance)
	Deputy Technical Coordinator	**Dr. Azmi bin Abdul Rahim** Senior Principal Assistant Director, DCD

3. STRATEGIC WORK PLAN BY FOCUS AREA MYSED II (2017-2021)

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.1 PUBLIC HEALTH EMERGENCY PREPAREDNESS (PHEP)						
STRATEGY 1: IMPROVED MANAGEMENT OF EMERGENCY EVENTS THROUGH THE USE OF IMS PRINCIPLES						
1.	Establish and/or maintain public health emergency response protocols based on IMS principles, including clear roles, lines of communication and reporting, common terminology, scalability and flexibility so that size as well as functions can adapt to changing needs. (JEE R1.1)					
	a. Workshop public health emergency response protocols based on IMS principles among all agencies to develop interoperability among agencies. Currently all agencies doing disaster response have their own SOP but with inter-operability issues.	- On-going programs (PHEP will be one of the sub-components that also being tested in the program (workshop/ table top/full-scale exercise) of National Exercise for Directives No. 20 & 18. - On-going program every year mainly in terms of handling CBRNE incidents base in NSC Directives No. 20 and 18.	NADMA &, NSC (lead agency) and all other agencies. (Directive No. 20, 18 & 21, NSC Act 2016)	SOP PHEP developed based on current NSC Directives (18, 20 & 21) and NSC Act 2016.	Current NSC Directives and still being revised time to time.	- Canada GPP (MOH) - GLCs (Petronas, Malaysia Airport, TNB etc. that's running critical infrastructures) - Related agencies

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
1.	b. Finalise three (3) multi-hazards SOP for PHEP which currently at final draft including incident management, Emergency Operation Centre (EOC) operations and response logistics as well as Point of Entry (JEE R2.4)					
	• Biological and Toxin Weapons Convention Bill.	2019 (Bill Law).	MINDEF/STRIDE.	Multi-hazards SOP for PHEP finalized.	June 2019 (Final document).	
	• Chemical security.	On-going process.	NACWC/NSC (SOP on Handling and Managing Terrorism Incidents Related to Chemical Weapons under the platform of Article X CWC).		On-going process.	- GLCs (Petronas, Malaysia Airport, TNB etc. that's running critical infrastructures) - Related agencies
	• Radiological security.	Dec 2017.	AELB/NADMA.			
	c. Training on multi-hazards SOP for PHEP.	- 2018. - Annually or on-going process.	NADMA & NSC (lead agency) and all other agencies (Main secretariat for National Exercises that evaluate the agencies SOPs and adherence to NSC Directives).	Number of training/ participants trained.	Annually (especially in National Full Scale Exercise).	- CBEP - EU CoE CBRNE - GLCs (Petronas, Malaysia Airport, TNB etc. that's running critical infrastructures) - Related agencies
	d. Simulation/Table-top exercise for multi-hazard SOP for PHEP. These activities should include other non-health agencies and departments, security authorities, public and private sector organizations and civil society.	- 2019-2020. - On-going programs.	NADMA & NSC (lead agency) and all other agencies (the scenarios tested are not just specific to PHEP but maybe a part of the components of the exercise. The main objectives of the exercises are whole agencies approaches towards handling their SOPs).	Number of simulation/ table top/participants involve in exercise.	Once yearly (especially in National Full Scale Exercise).	- GLCs (Petronas, Malaysia Airport, TNB etc. that's running critical infrastructures) - Related agencies

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
1.	e. SOP and gap reviewed and updated after simulation/TTX.	- 2019-2021. - On-going process.	NADMA &, NSC (lead agency) and all other agencies.	Number of SOPs reviewed.	After each exercises (especially in National Full Scale Exercise – post mortem meeting based on NSC Directives).	
2.	Ensure response structures have sufficient and appropriate physical resources. This includes equipment to set up physical or virtual EOC, information and communications tools preferably with the ability to work with existing systems, for example surveillance, and other essential response equipment.					
	a. Revise and update contingency plan for PHEP (for all agencies) including Point of Entry (POE). - Directive 20 and 18 and SOP (already developed with timely review). - Business Continuity Plan (BCP) for EOC.	- 2017. - Time to Time basis/ ongoing process.	NADMA &, NSC (lead agency) and all other agencies.	National BCP developed by each related agencies.	Agencies related will be revising time to time.	- Related agencies - GLCs
	b. Incorporating training contingency plan for PHEP for future simulation (all agencies).	- 2019. - Ongoing process.	Same with above with the collaboration of other related agencies.	Number of training/ participants trained.	Annually base on the commitment of related agencies (especially in National Full Scale Exercise).	- Related agencies - GLCs
	c. Simulation/TTX.	- 2019. - Ongoing process.	Same with above with the collaboration of other related agencies.	Number of training/ participants trained.	Once every 3 year (especially in National Full Scale Exercise).	- Related agencies - GLCs
	d. Identify gap, report and review BCP after simulation/TTX.	- 2019-2021. - Ongoing process.	Same with above with the collaboration of other related agencies.	BCP reviewed by each agencies related.	After every exercise (especially in National Full Scale Exercise-post mortem meeting based on NSC Directives).	- Related agencies - GLCs

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	Ensure that multi-sectoral coordination, communication and information-sharing mechanisms are functional at national and subnational levels and can relocate and mobilize resources as required (JEE R1.1).					
	a. Develop the procedures, plans to relocate or mobilize resources from national and intermediate levels to support response at local level.	Ongoing process.	NADMA & NSC (lead agency) and & Related Agencies based on current SOPs and mechanisms.	Plan to relocate/mobilize developed by related agencies.	- December 2017. - Ongoing process.	Related agencies
	b Training plans to relocate or mobilize resources from national and intermediate levels to support response at local level.	Ongoing process.	NADMA &, NSC (lead agency) and all other related Agencies based on current SOPs and mechanisms.	Number of participants trained.	Annually (especially in National Full Scale Exercise).	Related agencies
	c. Simulation/Table-top exercise plans to relocate or mobilize resources from national and intermediate levels to support response at local level.	Ongoing process.	NADMA &, NSC (lead agency) and all other related agencies based on current SOPs and mechanisms.	Number of participants involve in exercise.	Every year (especially in National Full Scale Exercise).	Related agencies
	d. SOP reviewed after simulation/TTX.	Ongoing process.	NADMA & NSC & Related Agencies based on current SOPs and mechanisms.	Number of SOPs reviewed.	SOP review after every exercise (especially after National Full Scale Exercise – Post Mortem Meeting base on NSC Directives).	Related agencies

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STRATEGY 2: DEVELOP AND TEST A NATIONAL ALL-HAZARDS RESPONSE PLAN FOR PUBLIC HEALTH EMERGENCIES						
1.	Develop and maintain an all-hazards national operational response plan for public health emergencies, including deliberate release events. When and where practicable, these plans should include national resource and risk mapping, be adapted to match country risks and consider the management of new and multiple concurrent threats (JEE R2.1).					
	a. Identify and develop risk mapping of threat and hazard for PHEP. Prioritised mapping according to hazards (e.g. Department of Irrigation and Drainage Malaysia for flood risk).	- January 2017. - On-going process based on current system and being developed.	NADMA & NSC (lead agency) and all other related agencies that have specific tools/ indicator/systems e.g. tsunami, hot spot, hydrology etc.).	Risk mapping of threat and hazard developed by related agencies.	- Finalise with risk mapping. - December 2017. - Current system available and on-going development.	Related agencies
	b. Use the risk mapping to determine the immediate first responder agencies, identify human resource and facilities required and identify short-coming.	- 2018. - On-going process based on current system and being developed.	NADMA & NSC (lead agency) and all other related agencies that have specific tools/ indicator/systems e.g. tsunami, hot spot, hydrology etc.).	List of immediate responders, number of human resource and facilities needed.	- End of 2018. - Current system available and ongoing development.	Related agencies
	c. Application for human resources and facilities required base on the risk mapping.	- End of 2017 or early 2018. - On-going process based on current system and being developed.	All agencies support by NADMA, NSC, MOF & PSP NSC & Related agencies that have specific tools/indicator/ systems e.g. tsunami, hot spot, hydrology etc.).	Report/summary for successful application.	- Early 2018. - Current system available and ongoing development.	Related agencies

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2.	Support plans with legislation when required, including any special measures needed for emergency response or recommended under IHR (2005).					
	Review all legislation including any special measures needed for emergency response or recommended under IHR (2005) for example: - NSC Act (Akta MKN) 2016. - Directive 18, 20 and 21. - Communicable Disease Prevention and Control Act 1988 (Act 342). - Biological and Toxin Weapons Convention Bill. - National Security Policy (*Dasar Keselamatan Negara*) 2017. - Chemical Weapon Convention Act 2005.	- 2017-2020. - Ongoing process.	All agencies.	Number of act reviewed.	2017-2020 or every 5 years or as required.	
3.	Ensure sustainable financing and emergency contingency funding necessary to procure and maintain national stockpiles, for example personal protective equipment (PPE), antivirals, vaccines, and other emergency supplies and equipment (JEE R1.1).					
	a. Conduct meeting/workshop/review/ audit to review existing stockpile among agencies and review the funding required for stockpile sustainment.	Ongoing.	All respective agencies and ministries.	All stockpile by different agencies reviewed and funding required.	Every 6 month.	
	b. To carry out auditing stockpile.	Ongoing.	All respective agencies and ministries.	Stockpile audited.	Annually.	
	c. Allocate specific budget for sustainment and additional needs of stockpile.	Ongoing	All agencies.	Budget allocated and stockpile sustained.	Annually or as required.	

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STRATEGY 3: ENSURE THERE IS AN ONGOING AND COORDINATED PROCESS FOR PLANNING, MANAGEMENT AND RESPONSE						
1.	Establish and/or maintain a systematic coordination mechanism for emergency preparedness and response with relevant stakeholders, including other non-health ministries and departments, United Nations agencies, security authorities, public and private sector organizations and civil society.					
	a. High Level Committee on Disaster meeting is to address the requirement, respond and all matters pertaining to systematic coordination mechanism for emergency preparedness and response for any emergency response or calamities (event).	Regular.	NADMA.	Number of meeting conducted.	Every 6 months or as required.	
	b. High Level Committee on Security meeting is to address the requirement, respond and all matters pertaining to systematic coordination mechanism to handle threat and security.	Regular.	NSC.	Number of meeting conducted.	Every 3 months or as required.	
	c. Interagency Technical Committee on Disaster meeting (national/ministries/ agencies) for coordination assistance in emergency preparedness and response for any disaster or calamities (event).	Regular.	- NADMA-National. - All Ministries/agencies concern.	Number of meeting conducted.	Every 3 months or as required.	
	d. Interagency Technical Committee on Security Matters meeting (national/ ministries/agencies) to measure the readiness and preparedness level of all agencies involve in handling threat and security.	Regular.	NSC.	Number of meeting conducted.	Monthly.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
	e. Engagement with NGO on coordination assistance for disaster reduction.	Regular.	- NADMA-National. - All Ministries/agencies concern.	Number of meeting conducted.	Annually or as required.	
STRATEGY 4: PREPARE AND TEST PUBLIC HEALTH EMERGENCY RESPONSE SYSTEMS						
4.1A	Strengthen public health emergency management capacities (human resource, financial and information management, logistics, and resource mobilization).					
	a. Developed inventory (human resource, financial and information management, logistics, and resource mobilization) of emergency management of agencies.	2017.	NADMA and all agencies.	Inventory developed.	End of 2017.	
	b. Use the inventory developed (human resource, financial and information management, logistics and resource mobilization) in any of simulation exercise.	2018-2020.	NADMA and all agencies.	Number of exercise using the inventory that had been developed.	- Yearly. - 2018-2020.	
	c. Reviewed inventory after simulation/ TTX.	After every simulation/ TTX.	NADMA and all agencies.	Review inventory that was developed.	After every exercise.	
4.1B	Establish and/or strengthen health EOCs that can coordinate preparedness and response across the health sector and with other sectors not only for major events but also for responses to smaller or medium-sized events.					
1.	Establishment of interagency EOCs networking.					
	a. Workshop among EOC agencies to develop interoperability SOPs among agencies. Currently all agencies doing disaster response have their own SOP but the mechanism has to be strengthened further.	Jan 2017.	NADMA and NSC (lead agency) and all other related agencies.	No. of workshops conducted and no. of participants.	Oct 2017 (Final document).	Canada GPP.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
1.	b. Training on multi-hazards SOP for PHEP including incident management, EOC operations and response logistics.	2018-2020.	NADMA and NSC (lead agency) and all other related agencies.	No. of training/ participants trained.	Once a year.	
	c. Simulations/Table-top exercise for multi-hazard SOP for PHEP. These activities should include other non-health agencies and departments.	2018-2021.	NADMA and NSC (lead agency) and all other related agencies.	No. of simulations/ table top exercises/ participants involve in these exercises.	Once a year.	
	d. SOP reviewed after simulation/TTX.	2019-2021.	NADMA and NSC (lead agency) and all other related agencies.	No. of SOPs reviewed.	Review every exercise.	
2.	Ensure response structures can rapidly access expert technical advice and logistical expertise, have mechanisms for rapid deployment of surge personnel and supplies, have staff trained in emergency response including the use of IMS and EOCs, and can ensure the safety and security of response staff including psychosocial support if needed.					
	a. Develop database of experts from all agencies.	2017.	- NADMA (national level). - Other agencies (agency level).	One database of expert involve all agencies.	Updated expert databases yearly	
	b. List of trained Rapid Assessment Team (RAT) and Rapid Response Team (RRT).	2017.	- All agencies. - Related agencies.	Database of RAT & RRT involve all agencies.	Updated RAT and RRT databases yearly.	
	c. Training of expert, RAT and RRT	2018-2021.	- All agencies. - Related agencies.	Number of RAT and RRT.	Yearly.	
	d. Simulation/Table-top exercise to assess the mechanisms for rapid deployment of surge personnel and supplies.	2018-2021.	All agencies coordinated by NADMA.	Number of simulation/ TTX.	Yearly.	

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STRATEGY 5: STRENGTHEN IHR NATIONAL FOCAL POINTS						
1.	Ensure there are policies and/or legislation in place to facilitate IHR NFP core and expanded functions and to strengthen core capacities.	Ongoing.	MOH.	No of policies and legislation reviewed.	Once every 5 years/as needed.	
2.	Ensure IHR NFPs have a 24/7 system for communicating with WHO and other Member States, and are linked with the health system, border agencies and emergency contact points for International Food Safety Authorities Network (INFOSAN) and other hazard programmes, for example environmental health, animal health, chemical and radiation safety.					
	a. Updated list of person of contact from all agencies and partner i. Malaysia National IHR Focal Point ii. MOH – all level Ministry of Health iii. Other Agencies – NADMA, NSC, MAF, MOA, RMP, Fire & Rescue Department (HAZMAT), MinDef, ATM, MET, JPS, JKM, JKR, DVS, APMM, AELB, DCA, MOFA & KKMM, Information Department, JAS etc. (updated list from NADMA) iv. Partners – MMA, WHO, ASEAN Secretariat, AHA Centre, Canada GPP, etc.	2017.	MOH.	List of local contact person.	Every 6 months.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
	b. Simulation exercise i. With WHO-IHR Crystal Exercise ii. Multiagencies Exercise – TTX, Functional Exercise or Full scale Exercise etc. iii. Regional Exercise – ASEAN EOC Network, Neighbouring country etc.	Ongoing.	MOH (IHS).	Simulation exercises.	- Once a year. - Once a year.	
	Sharing of international event/crisis/ PHEIC with other agencies.	Ongoing.	MOH.	Sharing of information.	Every crisis/PHEIC related to other agencies.	
3.	Strengthen the IHR NFP role in information sharing through the use of the secure IHR Event Information Site and facilitate inter-country communications.	Ongoing.	MOH.	Percentage of IHR event information sharing with WHO.	100% (every IHR event share with WHO).	
4.	Ensure participation of the IHR NFP in an annual regional exercise, for example IHR Exercise Crystal, to test standard operating procedures, roles and responsibilities, communications, and coordination links with national stakeholders and WHO.	Ongoing.	MOH (IHS).	Participate in WHO IHR Exercise Crystal yearly.	All agencies concerned will be invited to participate in IHR Crystal Exercise.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 6: STRENGTHEN POINTS OF ENTRY						
1.	Further strengthened core capacity and capabilities at POE at all time (Annex 1A & 1B IHR 2005).					
	a. Application of human resources, equipment and facilities to fulfil the minimum IHR core capacity for daily activities at POE.	Ongoing.	MOH (IHS).	Application for human resources, equipment and facilities	Yearly	
	b. Meeting or briefing on core capacities requirement under IHR 2005 and PHEIC to staffs working at POE.	Ongoing.	MOH (IHS).	- Yearly meeting or briefing - Percentage of DHO attended	- Once/year - More than 80% PoE staffs attended yearly.	
	c. Evaluation visit to international POE using WHO standard format.	Ongoing.	MOH (IHS).	Percentage of POE	At least 10% of International POE visited yearly	
	d. Post evaluation briefing.	Ongoing.	MOH (IHS)qq	Percentage of post evaluation briefing	100%. Briefing at the end of evaluation visit	
	e. Every designated POE have to do simulation exercise.	2018.	Health Authority at POE	Percentage of simulation exercise - TTX, Functional or Full scale etc	Every two years	
2.	To increase designated POE.					
	a. Increase the number of designated POE (2017 – 24 POE have been designated).	2019	MOH (HIS)	At least 1PoE	Yearly	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	Build IHR core capacity at designated POE, especially through POE contingency planning in the context of the overall national public health emergency response structure, and including access to appropriate medical services and referral health-care facilities.					
	a. Application of human resources, equipment and facilities to fulfill the minimum IHR core capacity for daily activities at POE and to response for PHEIC and other hazard.	Ongoing.	MOH (IHS).	Application for human resources, equipment and facilities.z	Yearly	
	b. Revise contingency plan for PHEP at POE with risk-based approach and in line with the principles and articles of IHR (2005) with involvement all agencies concern at the POE.	2018-2019.	MOH (IHS).	Contingency plan for PHEP at POE revised.	Every 3 years or as required	
	c Training on contingency plan for PHEP at POE.	2019-2020.	MOH (IHS).	No of training.	Every 2 years	
	d. Simulation Exercise - TTX, Functional or Full-scale exercise etc. on PHEP at POE.	2020-2021.	Health Authority at POE.	No of Simulation/TTX conducted.	Every 2 years	
4.	Establish and/or revise intergrated SOP to mitigate the international spread of diseases at POE and other borders. - To revise the contingency plan to mitigate the international spread of diseases at POE.	2019.	All POE especially designated POE.	Revised SOP.	Every 3 years	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
5.	Strengthen regional and international partnership and collaboration on managing public health emergencies at POE.					
	a. Review the current MOU between Malaysia and neighbouring countries.	2019.	MOH (IHS, Global Health Unit and International Policy and Relation Division).	Number of meeting.	Every 2 years.	
	b. List of contact person at POE.	2019.	MOH (IHS).	List of contact person at POE.	Yearly.	
	c. Joint Simulation exercise at POE (it can be done at National or State or POE level). - Between Health or Multiagencies involvement.	2019-2021.	MOH, State Health Department or POE.	Number of simulation exercise.	One POE yearly.	
STRATEGY 7: MONITORING & EVALUATION Apply M&E systematically at all stages of the planning and implementation cycle, measure system functionality promote partnership through M&E processes or improve transparency and accountability in reporting.						
1.	Monitor all the target through evaluation of the PHEP Focus area in MySED II. The achievement will be presented in a multiagencies meeting chaired by MOH.	2019.	MOH and all related agencies.	Annually.	2019-202.	
2.	To evaluate the simulation exercises findings for improvement.	2019-2021.	MOH, NADMA and other related.	Evaluate after each simulation exercise and produce report.	2019-2021.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.2 SURVEILLANCE, RISK ASSESSMENT AND RESPONSE						
STRATEGY 1: ENSURE THE SURVEILLANCE FUNCTION IS FLEXIBLE, ADAPTABLE AND APPROPRIATE TO COUNTRY NEEDS						
1.	Review existing surveillance systems and identify the sources of data, for example, data from outbreak investigations, community reporting systems, IBS (including syndromic surveillance), EBS, and the private health sector, which may be used at different phases of a public health emergency.					
	a. To review the existing surveillance system including IBS (eNotifikasi) and 'Infectious Disease Outbreak Rapid Response Manual, 2003'. In addition, to finalize the National Event-based Surveillance (EBS) Guidelines. Note: Cross reference with specific activities under Strategy 2 of IPC (APSED III), i.e. to develop local (healthcare facilities) protocol for EBS and link with the National EBS Protocol.	2017-2018.	Surveillance Section, Disease Control Division, MOH.	The availability of reviewed/finalized protocols.	2018.	
	b Provision of local expertise to support other countries in developing/ enhancing their surveillance systems.	2017-202.	EIP Malaysia.	No. of experts consultations provided.	At least once a year.	
2.	Consider streamlining existing surveillance systems; for example, the national notifiable diseases list, to ensure the systems are an appropriate and efficient use of resources by prioritizing the diseases that require public health action.					
	a. To use an electronic (web- enabled) interface/application for reporting public health events.	2017-2018.	Surveillance Section, Disease Control Division, MOH.	A functioning system.	2018.	GPP Canada/ MIMOS/Information Management Division, MOH.
	b. To evaluate the Event-Based Surveillance System.	Within 1 year after finalization of the protocol.	- Surveillance Section, Disease Control Division, MOH. - EIP Malaysia.	A systematic evaluation done.	2019-2020.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	c. To create sustainable awareness on implementation of syndromic surveillance to relevant front liners	2017-2021.	- Surveillance Section, Disease Control Division, MOH - Public Health Development Division, MOH - State Health Department.	Training conducted for relevant front liners at all levels.	At least once a year.	Training Management Division, MOH.
3.	Strengthening of Rumour Surveillance System to support EBS, via exploring the use of social media/network to enhance the system.	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - Surveillance Unit at the State Health Department. - Crisis Preparedness & Response Centre (CPRC) at National and State level. - Health Education Division, MOH. - Corporate Communications Unit, MOH.	Availability of a system to detect public health events from all media.	- >95% laboratory test done locally. - System is available by 2020.	GPP Canada/Information Management Division, MOH/MIMOS.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
4.	Ensure clinical and laboratory staff are alerted to cross-border public health threats, and that protocols including case definitions and laboratory testing algorithms, are rapidly developed and shared for timely case detection, reporting and investigation. a. Involvement of clinical and laboratory staff in developing the relevant protocols for cross-border public health threats	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - Medical Development Division, MOH. - Institute for Medical Research (IMR).	No. of protocols established.	As and when required.	
	b. Organization of training, seminar, CME etc. involving clinical and laboratory staff, related to cross-border public health threats.	2017-2021.	National Public Health Laboratory, Sungai Buloh	No. of training, seminar, CME etc. conducted.	At least once a year.	
	c. Strengthen/expand dissemination of important information regarding outbreaks and public health emergencies in a timely manner to clinicians and other individuals within the health-care system. Note: Cross reference with specific activities under Strategy 2 of IPC (APSED III), i.e. to ensure dissemination of important information regarding outbreaks and public health emergencies in a timely manner to clinicians and other individuals within the health-care system.	2017-2021.	- Surveillance Section, Disease Control Division, MOH - Medical Development Division, MOH - Institute for Medical Research (IMR) - National Public Health Laboratory Sungai Buloh - National Crisis Preparedness & Response Centre, MOH.	Daily reports from CPRC-MOH, ad-hoc reports from WHO Event Information Site (WHO-EIS) etc. to be shared with relevant players.	100%.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
5.	Develop and implement systems to ensure that data can be safely stored, accessed, analysed and used to produce timely surveillance and/or epidemiological reports that are shared with key stakeholders on a regular basis e.g. monthly/quarterly/annually). a. To develop an intelligent system to analyse existing data in real time for early warning	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - Public Health Laboratories. - Hospital-Based Laboratories. - Health Informatics centre.	Development of relevant system.	2020.	Information Management Division, MOH/MIMOS/GPP Canada.
STRATEGY 2: USE MULTIPLE SOURCES OF INFORMATION FOR RISK ASSESSMENT						
1.	Identify different sources of health information that contribute to risk assessment; for example, data from IBS, EBS, risk perception assessments, vaccine coverage, laboratory data, community-based reporting and media monitoring. Train healthcare workers to use multiple sources of information for risk assessment. Note: Cross reference with specific activities under Strategy 3 of Risk Communication (APSED III), i.e. to develop or adapt guidance for community engagement and the assessment of risk perception to inform risk assessment and guide interventions.	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - ASEAN Risk Assessment and Risk Communication Resource Centre. - Health Education Division, MOH. - Institute for Health Behavioural Research, MOH. - Corporate Communications Unit, MOH.		At least one training per year.	GPP Canada/ASEAN.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Establish reporting and communication channels between public and private health-care facilities and public health systems to facilitate rapid reporting of events by health-care workers to surveillance departments as part of EBS. a. Organization of training, seminar, CME etc. involving private health-care facilities personnel, related to rapid reporting of events to support EBS	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - Medical Practise Division, MOH.	No. of training, seminar, CME etc. conducted.	At least once a year.	- APHM* - MMA** - Professional Associations
	b. Strengthening of the reporting and communication channels between public and 2017-2021private health-care facilities and public health systems to facilitate rapid reporting of events; i.e. increase private health-care practitioners accessibility to MOH web-based reporting/notification system, e.g. *eNotifikasi* and *eWabak*. Note: * Association of Private Hospitals of Malaysia ** Malaysian Medical Association		- Surveillance. - Section, Disease Control Division, MOH. - Information Management Division, MOH.	Percentage of private health care facilities given access to MOH web based reporting/ notification system.	100% by 2019.	- APHM* - MMA** - Professional Associations

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	Incorporate data produced by other disciplines and sectors, for example animal health data, socioeconomic data, gender, food safety data, access to health services, meteorological data and international connectivity data. a. Incorporate data collected from various sources on AMR surveillance. Note: Cross reference with specific activities under Strategy 3 of IPC (APSED III), i.e. to improve access to, and use of, AMR surveillance data, including alerts on the identification of newly emerging resistance patterns among humans and animals.	2017-2021	- Medical Development Division, MOH. - Disease Control Division, MOH. - Pharmaceutical Services Programme (PSP), MOH. - Food Safety & Quality Division, MOH. - Department of Veterinary Services Malaysia.	No. of AMR surveillance reports shared.	Monthly & ad-hoc.	Ministry of Agriculture.
	b. Incorporate relevant food safety data.	2017-2021.	- Institute for Medical Research (IMR) - FWBD-VPD Sector, Disease Control Division, MOH - Food Safety & Quality Division, MOH	No. of relevant food safety reports shared .	Monthly & ad-hoc.	Ministry of Agriculture.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	c. Incorporate identified surveillance data from animal sector collected by Department of veterinary Services (DVS) Malaysia Note: Cross reference with specific activities under Strategy 1 of Zoonosis (APSED III), i.e. to encourage sharing of multi-sectoral and multi-stakeholder surveillance data and other information to provide early warning of emergent zoonoses for coordinated response	2017-2021.	- Wildlife Services (WILD LIFE DEPARTMENT). - Zoonosis Sector, Disease Control Division, MOH. - Department of Veterinary Services Malaysia.	No. of surveillance reports shared.	Monthly & ad-hoc.	Ministry of Agriculture.
	d. Incorporate relevant meteorological, air quality, rainfall, river water level, seismic data/reports.	2017-2021.	- NADMA. - CPRC MOH.	No. of relevant reports shared.	Monthly & ad-hoc.	Department of Meteorology/Department of Irrigation and Drainage/Department of Environment/ Department of Mineral & Geoscience.
4.	Initiate a multi-sectoral policy dialogue to strengthen coordination, communication and information-sharing with other stakeholders. Strengthen multi-sectoral platform for responding to all-hazard events via the High Level Committee Meeting or Inter-Agency Technical Committee Meeting.	2017-2021.	- NADMA. - NSC. - The Ministries/ agencies concerned.	No. of multi-sectoral policy meeting/dialogue conducted.	Annually or as and when required.	Related agencies, GLCs, NGOs etc.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
5.	Establish effective, real-time surveillance systems that have the capacity to analyse and link data using interoperable, interconnected electronic reporting systems.					
	a. Establish working group to plan the development of the reporting system.	2018.	Zoonosis Sector, Disease Control Division, MOH.	Working Group established.		- Information Management Division, MOH/MIMOS/GPP Canada/Partners.
	b. Development of an inter-operable and interconnected electronic reporting systems between human and animal health surveillance systems – for identified and selected diseases.	2017-2021.	- Department of Veterinary Services Malaysia. - Medical Development Division, MOH. - Food Safety & Quality Division, MOH. - Wild Life Department.	Establishment of a system.	2021.	
STRATEGY 3: STRENGTHEN RISK ASSESSMENT FUNCTION TO INFORM TIMELY DECISION-MAKING						
1.	Review and agree on operational arrangements for the risk assessment function within a national centre/unit, and establish a process for systematic risk assessments. Organization of training on systematic risk assessment at all levels.	2017-2021.	- Surveillance Section, Disease Control Division, MOH - Public Health Development Division, MOH - State Health Departments	- No. of training conducted. - Number of personnel trained.	- At least once a year. - At least 2 personnel per organization.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Conduct systematic risk assessments on an ongoing basis at all levels of the health system, involving multiple stakeholders to contribute, where appropriate, using the facilities and resources of an EOC or coordination centre. Systematic risk assessment conducted at all levels	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - State Health Departments. - District Health Offices.	No. of timely risk assessment reports produced.	As and when required.	
3.	Produce and communicate timely risk assessment products to stakeholders, including affected communities. Dissemination of timely risk assessment products to stakeholders, including relevant divisions and agencies.	2017-2021	- National Crisis Preparedness & Response Centre (CPRC), MOH. - Health Education Division. - Corporate Communications Unit, MOH.	Percentage of risk assessment products disseminated.	100%.	
4.	Conduct risk assessments that are forward-looking to anticipate future threats and contribute to better preparedness. Risk assessment conducted to anticipate future threats.	2017-2021.	Surveillance Section, Disease Control Division, MOH.	No. of risk assessment reports produced.	At least one risk assessment per year.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 4: DEVELOP A SKILLED WORKFORCE FOR SURVEILLANCE, RISK ASSESSMENT AND RESPONSE						
1.	Train public health workers in risk assessment, including at the local level to guide preliminary control measures. Organization of training on systematic risk assessment at all levels.	2017-2021.	- Surveillance Section, Disease Control Division, MOH. - Public Health Development Division, MOH. - State Health Departments.	- No. of training conducted. - Number of personnel trained.	- At least once a year. - At least 2 personnel per organization.	
2.	Improve the financial sustainability of FETP/FET. Establishment of training in FETP through Advanced Diploma in Field Epid for Environmental Health Officers and Assistant Environmental Health Officers – hence, securing annual budget for this purpose a. Basic b. Intermediate c. Advance	2017-2021.	- Public Health Development Division, MOH. - Training Management Division, MOH. - Head of Epid Discipline, MOH.	Establishment of the training programme for AEHO.	Training program available by year 2021.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	Create opportunities to involve FETP/ FET trainees and alumni as human resources for risk assessment and response operations. Develop and enhance mechanisms to rapidly mobilize relevant experts to support response to outbreaks and public health emergencies nationally. Note: Cross reference with specific activities under Strategy 2 of IPC (APSED III), i.e. to develop and enhance mechanisms to rapidly mobilize clinical experts to support response to outbreaks and public health emergencies nationally and internationally.	2017.	National Crisis Preparedness & Response Centre (CPRC), MOH. EIP Malaysia.	Availability of SOP for experts mobilization/ deployment.	SOP for regional and global deployment of experts available by 2017.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
4.	Maintain capacity for multidisciplinary RRTs at the national level, and strengthen capacity at the subnational level, including documenting response to outbreak investigations. Members of an RRT may include experts in the following fields: logistics, human/animal epidemiology, clinical management, food safety, infection prevention and control, laboratory, and veterinary/wildlife, and security authorities. a. To conduct multidisciplinary RRTs training. Note: Cross reference with specific activities under Strategy 1 of Public Health Emergency Preparedness (APSED III), i.e. to engage in multi-stakeholder training and simulation exercises to ensure functionality of emergency management systems.	2017-2021.	National Crisis Preparedness & Response Centre, MOH.	No. of training involving multidisciplinary RRTs.	At least one training per year.	=

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
4.	b. Strengthen/expand dissemination of important information regarding outbreaks and public health emergencies in a timely manner to clinicians and other individuals within the health-care system. Note: Cross reference with specific activities under Strategy 2 of IPC (APSED III), i.e. to ensure dissemination of important information regarding outbreaks and public health emergencies in a timely manner to clinicians and other individuals within the health-care system.	2017-2021.	National Crisis Preparedness & Response Centre, MOH.	- No. Of Daily reports from CPRC-MOH. - No. Of ad-hoc reports from WHO Event Information Site (WHO-EIS) etc. to be shared with relevant players.	- 365/year. - As and when required.	
5.	Promote operational and applied research to improve the evidence base for decision- making. Facilitate organization of operational and applied research for surveillance, risk assessment and response at all levels.	2017-2021.	- EIP Malaysia. - National Institutes of Health Malaysia. - Institute for Medical Research (IMR).	No. of research conducted.	At least one per year.	Universities.
STRATEGY 5: MONITORING & EVALUATION (FOR SURVEILLANCE, RISK ASSESSMENT AND RESPONSE FOCUS AREA)						
1.	To conduct evaluation and review of noteworthy acute public health events occurring nationwide; focusing mainly on surveillance, risk assessment and response elements of these events .	2017-2021.	- Disease Control Division, MOH. - EIP Malaysia. - PH Development Division, MOH.	No. of events evaluated and reviewed.	At least five (5) events per year.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	To ensure timely reporting of outbreaks and public health emergencies nationally.	2017-2021.	- Disease Control Division, MOH. - State Health Departments. - District Health Offices.	Percentage of outbreak and public health emergencies reported within the stipulated timeframe (i.e. 24 hours).	≥ 80% per year.	
3.	To evaluate the effectiveness of Risk Assessment Training program.	2020.	Surveillance Section & EIP.	One Evaluation Report.	Once (2020).	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.3 LABORATORIES						
STRATEGY 1: ENSURE FUNDAMENTAL LABORATORY FUNCTIONS (19 ACTIVITIES, INDICATORS AND TARGETS)						
	Laboratory testing for detection of priority human diseases: a. Polymerase Chain Reaction (PCR) testing for Influenza virus; b. Polymerase Chain Reaction (PCR) testing MERS CoV; c. Serology for HIV; d. Microscopy for mycobacterium tuberculosis; e. Microscopic examination for plasmodium spp; f. Bacterial culture for Corynebacterium diphteriae; g. Bacterial culture for Salmonella enteritidis serotype Typhi; h. Dengue serology; i. Leptospirosis serology; j. Virus culture for poliovirus (designated reference laboratories); k. Serology for Brucella sp. (designated laboratories); l. Serology for Q fever (designated laboratories); m. Bacterial culture for Bacillus anthracis (designated reference laboratories); n. Serology and Polymerase chain reaction (PCR) testing for Nipah virus (designated reference laboratories); o. Microscopy examination for Filariasis; p. Serology and Polymerase Chain Reaction (PCR) testing for Rift Valley Fever virus (designated reference laboratories), q. Serology and Polymerase Chain Reaction (PCR) testing for Japanese B Encephalitis (designated reference laboratories), r. Western Blot/Immunoblot testing for Bovine spongiform encephalopathy (BSE) (designated reference laboratories), AND					

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
	3.1.1. Strenghten current diagnostic testing infrastructure and service delivery in Public Laboratory.	Ongoing.	Laboratories at MOH, MOE, DVS and Defense Ministry.	Number of laboratories able to perform the core tests.	At least 1 laboratory per state.	
	3.1.2 Strengthen and sustain laboratory capacity to detect.					
	a. Emerging and reemerging diseases.	Ongoing.	Reference Laboratories at MOH, MOE and DVS.	Number of testing method developed.	At least one method/ year (subjected to current issue).	
	b. Non-infectious hazards such as chemicals and toxins.	Ongoing.	Laboratories at MOH, MOE, DVS and Defense Ministry, Malaysian Nuclear Agency and Chemistry Department MOSTI.	Laboratory Test Registry.	Yearly updated registry.	
	c. Radiological and nuclear material especially during public health events using technology that meet the international standard.	Ongoing.				
	3.1.3 To update the knowledge of laboratory staff by: - In service training - Increase number of trained laboratory workforce	- Ongoing. - Ongoing.	- Laboratories at MOH, MOE, DVS and Defense Ministry. - Laboratories at MOH, MOE, DVS and Defense Ministry.	- Number of training conducted a year. - Number trained laboratory workforce.	- At least one training/ year. - At least 80% of laboratory workforce are trained for the specified core test.	
	3.1.4 Laboratory biosafety and biosecurity.					

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
	a. Strengthen the Inter agency National Laboratory Biosafety and Biosecurity Committee.	Ongoing.	National Biosafety and Biosecurity Laboratory Committee, STRIDE MOD, Private and Government laboratories/institutions/ ministries.	At least once a year meeting.	100%.	
	b. Biosafety and biosecurity training and practices.	Ongoing.		Number of training conducted.	At least one training conducted/year.	
	3.1.5 Specimen referral and transportation system.					
	a. Strengthen specimen transportation system to national laboratories for advanced or specialised diagnostic.	Ongoing.	NPHL, IMR, VRI, Chemistry Department.	Rejection rate for improper specimen transportation less than 1%.	Rate of rejection.	
	b. Engagement of other reference laboratories for testing capacity if test is not available in country.	Ongoing.	NPHL, IMR, VRI.	Number of international reference laboratories engaged.	Number of tests outsourced to the international reference laboratories.	
	3.1.6 Effective modern point of care and laboratory based diagnostic.					
	a. Have sustainable capability to perform modern molecular and serological techniques.	Ongoing.	Laboratories at MOH, MOE, DVS and Defense Ministry.	Number of molecular and serological tests that can be performed in the lab.	Updated book/list of Services per institution/ department.	
	b. Use of rapid and accurate point of care diagnostics testing strategies.	Ongoing.	MOH, DVS.	List of rapid test kits(RTK) used at point of care.	Registry of POCT devices.	
	3.1.7 Laboratory Quality System.					
	a. Mandatory licensing of private health laboratories.	2020 (as and when the Regulation under Pathology Act is gazetted).	Bhg Amalan Perubatan (National Path Services MOH),Private laboratories DVS.	Number of licenced laboratories.	Registry of licenced laboratories.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
	b. To maintain sustainability of EQA programme.	Ongoing.	Laboratories at MOH, MOE, DVS and Defense Ministry.	Number of Laboratories subscribed EQA programme for the core tests.	100% of laboratories by 2021.	
	c. To apply accreditation of laboratories to conform to international quality standard.	Ongoing.	Laboratories at MOH, MOE, DVS and Defense Ministry.	Number of laboratories registered.	80% of reference and major laboratories.	Department of Standard Malaysia.
STRATEGY 2: LINK PUBLIC HEALTH LABORATORIES WITH SURVEILLANCE AND RISK ASSESSMENT (1 ACTIVITY, INDICATOR AND TARGET)						
	Regular data sharing related to vaccine-preventable disease, AMR, zoonotic pathogens and unusual events between laboratory and relevant disease program. (Cross refenence with Focus Area Zoonotic and surveillance Risk Communication: Strategy 1 STRATEGY 1: Ensure the surveillance function is flexible, adaptable and appropriate to Member States' needs and STRATEGY 2: Use multiple sources of information for risk assessment).	Ongoing.	MOH Laboratory and Disease Control Division, Medical Development Division and DVS.	Timely (schedule, ad-hoc) information sharing.	80% scheduled reports are shared/submitted.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 3: REVIEW NEW DIAGNOSTIC TECHNOLOGIES (2 ACTIVITIES, INDICATORS AND TARGETS)						
	Establish a process for review and evaluation of new diagnostic and pathogen characterisation technologies for use in both laboratory and field settings. Sharing of evaluation reports by various laboratories testing new diagnostic and pathogen characterization technologies.	Ongoing.	National Laboratory Quality Committee.	- SOPs established. - Number of new diagnostic kits evaluated.	- To be established by 2018. - At least one new diagnostic kit evaluated/year (subjected to current issue).	
STRATEGY 4: ASSESS FUNCTIONALITY OF PUBLIC HEALTH LABORATORY SYSTEM (1 ACTIVITY, INDICATOR AND TARGET)						
	Testing of public laboratory system funtionality. a. Simulation exercise to test capacity during public health emergencies. To identify gaps and inform corrective actions.	Ongoing.	- National Laboratory Preparedness Committee. - MOH laboratories, DVS, MOD, MOE, MOSTI.	Simulation exercise conducted.	At least once every two years.	
STRATEGY 5: ENHANCE PUBLIC HEALTH LABORATORY CONNECTIONS AND COORDINATION (3 ACTIVITIES, INDICATORS AND TARGETS)						
	Maintain arrangements with WHO collaborating center and other international reference laboratories. a. Technical performance assessment using WHO collaborating center EQA sample.	Ongoing.	IMR and NPHL.	Number of EQA cycle passed.	100% passed.	
	b. Technical training (measles, malaria, JE etc) by WHO.	Ongoing.	IMR and NPHL.	Number of training.	At least yearly.	
	c. Yearly laboratory audit by WHO collaborating centre.	Ongoing.	IMR and NPHL.	Number of audit visit.	At least yearly.	Subjected to WHO schedule.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 6: MONITORING & EVALUATION (1 ACTIVITY, INDICATOR AND TARGET)						
1.	Compilation of reports for all the above indicators and subsequent dissemination.	2018.	a. National Laboratory Quality Committee. b. National Laboratory Biosafety and Biosecurity Committee. c. STRIDE MOD. d. National Laboratory Preparedness Committee.	Report produced. a. National laboratory system and laboratory workforce. b. Biosafety. c. Biosecurity. d. Laboratory capacity and capability report.	a. Annually. b. Annually. c Annually. d Every 3 years.	
3.4 ZOONOSES						
STRATEGY 1: SHARING OF SURVEILLANCE INFORMATION						
1.	Regular interagency/technical meeting at national level.	Ongoing.	MOH, DVS & Veterinar Sabah & Sarawak, Wild Life Department & NRE, local government & universities/MyOHUN. * MOH – Ministry of Health DVS – Department of Veterinary Service NRE – Ministry of Natural Resources and Environment.	- Number of Interagency/Technical Zoonoses Control Committee Meeting per year. - Information sharing in the meeting's minute.	Twice per year.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Regular update and review of zoonotic diseases and pathogens for surveillance of high implications and impacts.	Ongoing during inter agency meeting.	MOH (CDC & FSQD) & DVS.	Number of review of the list of zoonotic diseases for surveillance.	At least once per year.	
3.	Timely sharing of zoonotic disease event report between MOH/DVS and related agencies.					
	a. Identify focal point/person for MOH CPRC (including FSQD), DVS Crisis Centre & Wild Life Department. i. MOH – Director of Disease Control Division ii. DVS – Director for Biosecurity & SPS Management Division iii. Wild Life Department (Director of Ex-Situ Conversation Division)	Identified.	MOH (CDC & FSQD), DVS & Wild Life Department.	Focal point/person for each agency.	Focal point identified.	
	b. Share event information between MOH CPRC (including FSQD), DVS Crisis Centre & Wild Life Department through email/telephone/video conferencing/meeting/discussion.	Ongoing.	MOH (CDC& FSQD), DVS & Wild Life Department.	- Database of event. - Percentage of zoonotic disease event shared between MOH and related agencies.	- Event database established. - Target ≥80% event reported.	
	c. Identified zoonotic diseases of significant implications and impacts.	Since 2012, 14 prioritized zoonotic diseases have been identified but need to be reviewed accordingly.	MOH (CDC& FSQD) & DVS.	The list of prioritized zoonotic diseases.	Updated list of prioritized zoonotic diseases produced.	
4.	Regularly share a. Surveillance information of identified priority zoonotic diseases.	Ongoing.	MOH (CDC & FSQD) & DVS.	Number of reports shared.	Target: Monthly.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
4.	b. Laboratory based surveillance/ diagnostic/outbreak.	Ongoing.	MOH (CDC& FSQD), DVS & Wild Life Department.	Number of reports shared.	Biannually.	
5.	Establishment of mechanism of sharing specimens of priority zoonotic pathogen or technology transfer between relevant agencies.					
	i. SOP for sharing specimens (ie: isolates) or technology transfer between relevant agencies.	2018-2020.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE.	SOP.	SOP established with approval from all stakeholders.	
6.	Regular monitoring and evaluation of surveillance system and/or testing protocol for zoonotic pathogen/diseases.					
	a. Regularly monitor zoonotic pathogen/ diseases.	Ongoing – MOH & DVS.	MOH (CDC& FSQD) & DVS.	Number of zoonotic pathogen/diseases monitored.	At least once per year.	
	b. To evaluate surveillance or testing protocols for zoonotic pathogen/ diseases.	2017-2021 [Ongoing (DVS) 2018 (MOH)].	MOH (CDC& FSQD) and DVS.	Number of surveillance system/testing protocol evaluated and reported.	At least once within five (5) year.	
7.	Mapping on area with zoonotic diseases risk.	2018-2021.	MOH.	Zoonotic Risk Map develop.	Zoonotic Risk Map developed.	
STRATEGY 2: COORDINATED RESPONSE						
1.	Enhance coordinated response plan among multiple agencies for detecting and responding to zoonotic diseases. - Ministry of Defence has initiated multi-sectoral coordinated response since 2012 and it will be incorporated in this response plan.	2017-2021.	MOH (CDC & FSQD) & DVS.	Response plan module.	Response plan module updated.	
2.	Joint investigation and report writing for selected zoonotic diseases outbreak.					

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	a. Enhance joint investigation module with reference to these documents; • ASEAN joint investigation module/ document in human health. • Joint investigation among ASEAN countries – human and animal health. • Flow chart for triggering joint investigation has been developed by Malaysia relevant agencies organised by Ministry of Defence (CBRNe).	2018-2019.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN.	Joint investigation module.	Updated Joint investigation module produced.	
	b. Training on joint investigation and report writing for human health and animal health.	2018-2020.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN.	- Number of training. - Database of trainees.	As required. - Database established.	
	c. Joint investigation implemented and report produced.	2018-2021.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN.	Number of joint investigation report.	As required.	
STRATEGY 3: RISK REDUCTION						
1.	Conduct training on awareness of zoonotic diseases and one health concept.	Ongoing through various platform (MOH, DVS, Myohun).	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN.	- Number of training. - Database of trainees.	- At least once per year. - Database established.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Enhance module of zoonotic diseases for FETP.	2018-2020.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN	1 module.	Updated module produced.	
3.	Simulation exercise (MOH/DVS) for zoonotic events/diseases.	Ongoing MOH and DVS.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN.	Number of simulation exercise.	Yearly.	
4.	To reduce AMR emergence and propagation (refer to Group 5: Prevention through healthcare focus area; Strategy 3).					
	a. Establish linkage between Zoonosis Sector, Disease Control Division with AMR secretariat (Medical Development Division).	2017.	MOH.	Mechanism for linkage developed.	Mechanism for linkage established.	
	b. Establish linkage between Zoonosis Sector, Disease Control Division with FSQD.	2017.	MOH.	Mechanism for linkage developed.	Mechanism of linkage established.	
5.	Evaluate the impact of health communication campaign on zoonotic diseases.					
	KABP study among public on selected zoonotic diseases.	2018-2021.	MOH, DVS, universities/ MOE & MyOHUN.	Research & evaluation of KABP.	Evaluation report produced.	
6.	Biosafety & biosecurity measures at entry point, animal farms and processing plants established.	Ongoing.	DVS.	Number of MyGap farms and VHM processing plants.	Yearly review.	
STRATEGY 4: GUIDELINES, POLICY DOCUMENTS AND RESEARCH						
1.	Coordinate and conduct collaborative research on zoonotic diseases.	Ongoing.	MOH, DVS, Wild Life Department & universities/MyOHUN.	Number of collaborative research conducted when necessary.	As required (number of researches).	- MOSTI - MOE - International Body

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Develop National Strategic Plan for Zoonoses.	2018-2020.	MOH (CDC, FSQD & Medical Development Division), DVS, Wild Life Department & universities/MOE/ MyOHUN.	National Strategic Plan.	National Strategic Plan developed.	
STRATEGY 5: MONITORING & EVALUATION Apply M&E systematically at all stages of the planning and implementation cycle, measure system functionality promote partnership through M&E processes or improve transparency and accountability in reporting						
1	Coordinate and conduct collaborative research on zoonotic diseases.	Ongoing.	MOH (CDC& FSQD), DVS, Wild Life Department & universities/MyOHUN.	Number of collaborative research conducted when necessary.	As required (number of researches).	- MOSTI - MOE - International Body
2.	Compile report and analyse joint risk assessment, outbreak investigation & simulation activities.	2018-2021.	MOH (CDC& FSQD), DVS, Wild Life Department & universities.	Number of report produced/published.	At least once per year.	
3	Timely sharing of zoonotic disease event report between MOH/DVS and related agencies.	Ongoing.	MOH(CDC& FSQD), DVS & Wild Life Department.	Percentage of zoonotic disease event shared between MOH and related agencies.	Target ≥80% of all reported event.	
4	Simulation exercise (MOH/DVS) for zoonotic events/diseases.	Ongoing MOH and DVS.	MOH (CDC& FSQD), DVS, Wild Life Department & Universities/MOE & MyOHUN.	Number of simulation exercise.	Yearly.	
5	Biosafety & biosecurity measures in entry point, animal farms and processing plants established.	Ongoing.	DVS.	Number of MyGap farms and VHM processing plants.	Yearly review.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.5 PREVENTION THROUGH HEALTHCARE						
STRATEGY 1: INFECTION PREVENTION AND CONTROL (IPC)						
Strengthen educational programme on hygiene and infection prevention and control measures in healthcare care settings, animal husbandry and food processing.						
1.	Development of Infection Prevention & Control educational tool kits for human health. • Healthcare practitioners • Undergraduate students: - Medicine - Dentistry - Pharmacy - Allied Health Sciences	2018.	- MOH. - MOE.	Number of healthcare facilities adopting the IPC toolkits.	IPC Training Modules developed.	
2.	Development of Infection Prevention & Control (IPC) educational tool kits for animal health. - Veterinary practitioners - Fish health professionals - Undergraduate students: - Veterinary	2021.	- MOE. - MOA. - DVS. - DOF.			

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	Orientation on IPC for newly appointed staff using educational tool kits for human health: - Medical officers - Dental Officer - Pharmacist - Paramedics - Concessional staff (housekeeping)	2018.	- MOH (Hospital Infection Control Unit). - District Health Office.	Number of IPC training session conducted for newly appointed staff.	NA.	
4.	Orientation on IPC for newly appointed staff using educational tool kits for animal health. - Veterinary Officer - Assistant Veterinary Officer - Concessional staff (housekeeping)	2021.	MOA (DVS).	Number of IPC training session conducted for newly appointed staff.		
5.	Increase number of Infection Prevention and Control Personnel. 5.1 Increase number of healthcare personnel with recognised courses: • Asia Pacific Society on Infection Control (APSIC) - Basic Course in Infection Control. 5.2 Increase number of paramedics with IPC postbasic training: • Post Basic Training in Infection Control (MOH).	2017.	MOH.	Number of IPC personnel attended APSIC, post basic course or accredited training.	NA.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
6.	Training on IPC and Biosecurity at various level. (conference/seminar/workshop) - National - State - Institution	2017.	- MOH (MDD & FHDD). - MOA (DOF, DVS).	Number of training conducted at various level.	NA.	
7.	Continuous Medical Education (CME) Program on Infection Prevention & Control and Biosecurity.	2017.		Number of CME conducted.	- HCWs. - Veterinary personnel. - Fisheries personnel.	- MOH. - MOHE. - MOA. - DOF. - DVS.
Strengthen national policies and standards of practice regarding infection prevention and control (IPC) activities in health facilities.						
1.	To review the current National Policies and Procedures on Infection Control.	2017.	MOH (MDD).	National Policies on Infection Control revised.	NA.	
2.	Strengthening of Hand Hygiene Program in all healthcare facilities. - To include MOH primary healthcare in Hand Hygiene Compliance Rate Surveillance in Malaysian Patient Safety Goals (MPSG).	2019.	MOH (MDD & FHDD).	Percentage of primary healthcare facilities participating in hand hygiene compliance in MPSG.	- 30% in 2019. - 60% in 2020. - 100% in 2021.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	To strengthen Healthcare Associated Infection (HCAI) surveillance program. - To revise HCAI surveillance manual.	2018.	MOH (MDD).	Revision of manual.	HCAI Surveillance Manual revised.	
4.	Implement Infection Prevention and Control Audit.	2017.	MOH (MDD, FHDD).	- Number of MOH hospitals participating in IPC audit. - No. of primary healthcare facilities participating in IPC audit.	- 44 hospitals. - Minimum 210 primary healthcare facilities every year.	
5.	To review IPC chapter in *"Arahan Prosedur Tetap Veterinar Malaysia"* (APTVM).	2021.	MOA (DVS).	IPC chapter in APTVM revised.		
STRATEGY 2: CLINICAL MANAGEMENT						
Establish strong links between POE, public and private healthcare facilities and public health systems to facilitate rapid reporting of events by healthcare workers to surveillance section as part of event based surveillance (EBS).						
1.	Develop local (healthcare facilities) protocol for EBS - To develop alert mechanisms of emerging diseases and public health hazards and incorporate the mechanism with local EBS	2018.	MOH (MDD, IMR).	Local EBS Protocol developed and alert mechanisms of emerging diseases and public health hazards established.	Protocol.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Strengthen routine clinical management practices for priority infectious diseases in all healthcare settings as part of health system strengthening prior to outbreaks and public health emergencies through training - Conduct conference/ seminar/ workshop.	2017.	- State Health Department - Hospital	Number of session per year.	Minimum 1.	
STRATEGY 3: ANTIMICROBIAL RESISTANCE (AMR)						
Develop national action plan and strengthen surveillance on AMR in human and animal health sector.						
1.	Development of national action plan on AMR.	2017.	MOH, DVS, DOF, MOE, Professional bodies.	National Action Plan developed.	NA.	
2.	Strengthen National Surveillance of Antimicrobial Resistance (NSAR) in Malaysia - Increase number of participating hospitals in reporting Antibiotic Sensitivity Test (AST) through WHONET. - Standardization of minimum antibiotics to be tested for AST.	2018.	MOH (IMR & Microbiology Lab in Hospitals), MOHE, Private Laboratories, Association of Public Hospitals Malaysia (APHM).	Number of hospitals participating in AMR surveillance (NSAR).	Open Target.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	Strengthen National Surveillance on Healthcare Associated Multidrug Resistant Organism (HA-MDRO) - Revision of Healthcare Associated Multidrug Resistant Organism (HA-MDRO) Surveillance Manual. - Improve collection of data and reporting system in MOH and university hospitals.	2017.	MOH (MDD)).	Revision of the manual.	Manual revised.	
4.	Establishment of community surveillance of AMR - Yearly point prevalence survey on urinary tract infection (UTI) in the community.	2018.	MOH: - NPHL&PHL - IMR - DCD - FHDD	Number of MOH primary healthcare facilities involved in community AMR surveillance.	Open Target.	
5.	Establishment of AMR surveillance in livestock production - Poultry and pigs. - Clinical cases of food producing animals in farms.	2018.	MOA (DVS).	Number and type of samples obtained.	Open Target.	
6.	AMR surveillance in food of animal origin - Poultry (slaughterhouse). - Pigs (farms).	2018.	MOA (DVS, NVPHL), FSQD.	Number and type of samples obtained from surveillance of AMR in food of animal origin.	Open Target.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
7.	Establishment of AMR surveillance in aquaculture - Shellfish. - Fish.	2018.	MOA (DOF).	Number and type of samples obtained from surveillance of AMR in aquaculture.	Open Target.	
8.	Strenghtening of AMR surveillance in food - AMR surveillance in raw poultry, pork, fish and ruminant (beef and mutton) from retail market.	2017.	- MOH (FSQD). - MOA (DVS).	Number and type of samples of food obtained from retail outlets and point of entry (fish, meat, poultry).	Open Target.	
9.	Strengthening of National Point Prevalence Survey on Antibiotic Utilisation - Expanding the program to animal health.	2018.	MOH (PSP), Veterinary hospital UPM, DVS and DOF.	Number of organizations participating in Point Prevalence Survey on Antibiotic Utilisation.	Open Target.	
10.	Survey on antibiotic consumption sales data - Hospitals and Primary Healthcare.	2019.	MOH (PSP).	Report on antibiotic consumption sales data.	Yearly.	
11.	Implementation of Antimicrobial Stewardship (AMS) program in healthcare facilities a. Development of AMS policies in public healthcare facilities. b Establishment of AMS as one of the criteria in the Hospital Accreditation. c. Incorporate AMS program in Malaysian Patient Safety Goals.	2018.	- MOH (MDD, PSP, FHDD) . - MINDEF (Hospital Angkatan Tentera Malaysia). - APHM, MOHE, MMA.	Number of healthcare facilities with AMS team.	Public: - All MOH hopitals, - All Health Clinics with FMS/MO and Pharmacist. - University hospitals, - MINDEF hospitals. Private: - All hospitals with more than 100 beds.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
12.	Development of National guideline on antimicrobial drugs use in veterinary sector e.g. National Veterinary Antibiotic Guideline (NVAG) and list of controlled antibiotics for food producing animal.	2018.	MOA - DVS - DOF	National Veterinary Antibiotic guideline developed.	Feed millers, farmers.	
13.	To reduce by phase certain critically important antibiotic for human health from the veterinarian and aquaculture usage: a. Determine trend of antibiotic usage by AMU Surveillance Programme. b. Establish research and trials for use of alternative antimicrobials by identify equivalence antibiotic for replacement. c. To propose regulation/guidelines on phase-out of critically important antibiotics for human in veterinary/ aquaculture.	2018.	MOH: - PSP MOA: - DVS - DOF	Number of critically important antibiotics phased out in veterinary use.	- Feed millers. - Farmers. - Aquaculture.	
14.	Development of guideline on disposal of unused/expired antibiotics in the public, private and animal sectors to prevent environment contamination.	2019.	MOH - PSP MOA - DVS - DOF - NRE - DOE		Public, private, animal sectors.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
15.	Strengthening of AMU surveillance in animal health sector: - Ongoing AMU surveillance in poultry and swine industry. - Establishment of AMU surveillance in animal feed industry. - Develop evaluation system of AMU. - Establishment of AMU surveillance system in fish and shrimp aquaculture.	 2018. 2018. 2019. 2018.	MOA: - DVS - DOA	- Report of AMU surveillance in poultry. - Report of AMU surveillance in swine. - Report of AMU surveillance in animal feed industry. - Report of AMU surveillance in fish and shrimp aquaculture.	- Poultry farms. - Swine farms. - Animal feed industry. - Fish feed processing company. - Import. - Fish Health Professionals. - Aquaculture farms.	
16	Develop Malaysia Integrated Antimicrobial Resistance webpage.	2018.	MOH: - MDD - IMR - IMD - PSP - FSQD - DCD MOA: - DVS - DOF	Malaysian One Health Antimicrobial Resistance webpage developed.	MOH: - IMR - MDD - PSP - FSQD MOE: - Universities MOA - DVS - DOF - MyOHUN	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
17.	Develop Malaysian Integrated Antimicrobial Resistance Surveillance System (MARSS) a) Human health. b) Animal health. c) Food.	2018.	MOH: - MDD - IMD - Corporate Communication Unit - DCD - IMR - FSQD MOA: - DVS - DOF	17	Develop Malaysian Integrated Antimicrobial Resistance Surveillance System (MARSS) a) Human health. b) Animal health. c) Food.	
STRATEGY 4: PREPAREDNESS OF HEALTH FACILITIES						
1.	Ensure safety of high risk healthcare workers through vaccination and access to post-exposure prophylaxis where appropriate					
	a. Hepatitis B vaccination program for high risk healthcare workers.	2017.	MOH (DCD, FHDD, MDD, PSP).	Percentage of high risk healthcare workers completed Hep B vaccination.	- Group 1: 70%. - Group 2: 80%.	
	b. Influenza vaccination program for high risk healthcare workers .	2017.	MOH (DCD, FHDD, MDD, PSP).	Percentage of high risk healthcare workers received influenza vaccine.	2017: 50%.	
	c. Post exposure prophylaxis (PEP) for high risk healthcare workers with needle stick injury (NSI).	2017.	MOH (DCD, FHDD, MDD, PSP).	Percentage of high risk healthcare workers with NSI received PEP.	100%.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
	d. Training on standard precaution/ biological hazard in healthcare.	2017.	- MOH (DCD, FHDD, MDD, PSP). - State Health Department. - Hospital. - District Health Office.	Training on standard precaution/biological hazard in healthcare by State Health Department	Annual Training: 80% of high risk HCW are trained	
2.	Strengthen continuous quality improvement in all health-care facilities: a. Establishment of Clinical Governance Department/Unit in hospitals. b Strenghthening of clinical governance in health clinics (one of MPSG for health clinics).	2017.	- MOH (MDD, PHDD). - State Health Department. - District Healtrh Office.	- Establishment of Clinical Governance Department in MOH Hospitals by 2020. - Briefing by Health Department in year 2018.	Done in phases: - 2017: 14 States Hospital including HKL. - 2018: 27 Major Specialist Hospital & 27 Minor Specialist Hospital. - 2019: 66 district hospital. - 2020: 10 MOH institutions. - 2018-2019 All Health Clinics with FMS/MO. - 2020-2021 All Health Clinics.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.	3.1 Ensure hospitals have appropriate emergency preparedness and response plans in place to reduce the economic costs and social implication arising from the interruption of hospital services. a. Development of Emergency Preparedness Plan for hospitals at national level. b. Training on Emergency Preparedness plan for hospitals. c. Strengthening of coordination between different programs at ministry level during emergency in hospital.	2017.	MOH (MDD, State Health Department and Emergency, Traumatology Services in Hospitals).	a. National level emergency preparedness plan for hospitals being developed. b. Training for all hospitals being conducted by State Health Department. c. Terms of reference for each program.	- A plan is developed. - All 14 states and HKL are being trained ATOR is developed. - Training coordinated by PHDD.	
STRATEGY 5: MONITORING & EVALUATION Apply M&E systematically at all stages of the planning and implementation cycle, measure system functionality promote partnership through M&E processes orimprove transparency and accountability in reporting.						
1.	Measure achievement of core capacities through JEE tool and agreed indicators as in National Action Plan on AMR.	Annual.	MOH (MDD, PSP, FSQD, IMR). MOA (DVS & DOF).			

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Review implementation and progress of activities through regular meeting of National AMR Committee Technical Working Group.	Twice a year.	MOH (MDD).			
3.	Provide a snapshot of core capacities through annual report on Antimicrobial Resistance and Infection Control.	Annual.	MOH (MDD, PSP, FSQD, IMR). MOA (DVS & DOF)).			
3.6 RISK COMMUNICATION						
STRATEGY 1: MAKE RISK COMMUNICATION A CORE ELEMENT OF PREVENTION, PREPAREDNESS, RESPONSE AND RECOVERY						
1.	Review and update National Risk Communication Strategic Plan .	March 2018.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). (will lead) - Department of Veterinary Services (DVS). - Ministry of Communication and Multimedia Malaysia.	Reviewed document.	March 2018.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Conduct training of the reviewed and updated version of the National Risk Communication Strategic Plan among relevant personnel.	July 2018.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). (will lead) - Department of Veterinary Services (DVS). - Ministry of Communication and Multimedia Malaysia.	Number of training sessions.	Once/year.	
3.	Conduct simulation exercise.	September 2018.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). (will lead) - Department of Veterinary Services (DVS).	3 x per year.	Annually.	
4.	Update registry of risk communication officers trained in Risk Communication.	October 2017.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). - Department of Veterinary Services (DVS).	Updated registry available.	Once/year.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 2: STRENGTHEN OPERATIONAL LINKS BETWEEN RISK COMMUNICATION, SURVEILLANCE AND RISK ASSESSMENT						
1.	Conduct Risk Assessment & Risk Communication (RARC) training to strengthen internal/external stakeholders collaboration and coordination as well as line of communication between risk communication, surveillance and risk assessment.	September 2017.	- Ministry of Health (MoH). - Department of Veterinary Services (DVS).	Number of workshop or training/year.	3 trainings (2017-2021).	
STRATEGY 3: ESTABLISH A MECHANISM TO ENGAGE WITH COMMUNITIES AND INTEGRATE RISK PERCEPTION ASSESSMENT INTO RISK ASSESSMENT AND RISK MANAGEMENT PROCEDURES						
1	Enhance networking/committee comprising of members of the public, internal/external partner agencies, NGOs, media and other relevant authorities to build trust among all stakeholders.	2017.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). - Department of Veterinary Services (DVS). - National Security Counsil (NSC). - *Angkatan Pertahanan Awam Malaysia* (APM). - State Secretary (SUK).	Number of Committee meetings.	At least two meetings/ year.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Establish guidelines to integrate risk perception and risk assessment to the community.	Sept 2018.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). (will lead) - Department of Veterinary Services (DVS). - Ministry of Communication and Multimedia Malaysia.	Guidelines of document reviewed available.	January 2019.	
3.	Conduct training to assess the operationalization of the guidelines.	April 2019.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). (will lead) - Department of Veterinary Services (DVS). - Ministry of Communication and Multimedia Malaysia.	Number of training/year.	Annually.	
STRATEGY 4: ENHANCE USE OF NEW MEDIA, INCLUDING SOCIAL MEDIA AND SOCIAL NETWORKS, FOR RISK COMMUNICATION						
1.	Utilize new media in risk communication within the stipulated guidelines.	Ongoing.	- Ministry of Health (MoH). - Department of Veterinary Services (DVS).	Establish social media platforms.	2021/ongoing.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
2.	Create awareness through new media to relevant stakeholders.	Ongoing.	- Ministry of Health (MoH). - Department of Veterinary Services (DVS).	Relevant personnels.	2021/ongoing.	
STRATEGY 5: FORMALIZE A MECHANISM THAT ROUTINELY ASSESSES THE EFFECTIVENESS OF RISK COMMUNICATION						
1.	Develop tracking survey questionnaire	October 2018.	- Ministry of Health (MOH) - Institute Health Behavioral Research (IPTK). - Department of Veterinary Services (DVS).	Research tool made available.	March 2019.	
2.	Setup facilities to conduct VC/TCs to share lessons learnt and experience in risk communication.	Ongoing.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). - Department of Veterinary Services (DVS).	VC/ TCs made available.	When required.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 6: MONITORING & EVALUATION Apply M&E systematically at all stages of the planning and implementation cycle, measure system functionality promote partnership through M&E processes or improve transparency and accountability in reporting.						
1.	Obtain simulation exercises schedule.	June 2018.	- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). - Department of Veterinary Services (DVS). - Ministry of Communication and Multimedia Malaysia.	Report.	1 report/exercise.	
2.	Obtain training schedule.		- Ministry of Health (MoH). - National Disaster Management Agency (NADMA). - Department of Veterinary Services (DVS). - Ministry of Communication and Multimedia Malaysia.	Pre and post result.	Annually.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.7 REGIONAL PREPAREDNESS, ALERT AND RESPONSE						
STRATEGY 1: REGIONAL RISK ASSESMENT SYSTEM						
1.	To participate in regional risk assessment activities upon request.	Upon request.	MOH/Other relevent agencies.	Number of joint mission.	100%.	MOH. DVS, NADMA, Fire & Rescue.
STRATEGY 2: REGIONAL OPERATIONAL HUB FOR COORDINATED PLANNING AND RESPONSE						
1.	Establish ASEAN EOC Network for timeliness and information sharing.	2017.	MOH.	Number of VC done.	4 times a year.	AMS, Canada GPP.
2.	Organise joint exercise ASEAN EOC Network.	2017-2021.	MOH/ASEAN Member States.	Joint simulation exercise.	Twice/5 years (2021).	ASEAN Sec.
STRATEGY 3: REGIONAL RAPID RESPONSE MECHANISM						
1.	Develop registry/inventory of expert that avaiable for rapid regional and global deployment response.	End 2017.	MOH/NADMA/other agencies.	List of experts.	1 registry list.	MOH/NADMA and other relevant ministries/ agencies.
2.	Meeting of all Malaysian experts.	Started in 2018.	MOH/NADMA.	Minutes of meeting.	Once a year.	MOH/NADMA and other relevant ministries/ agencies.
3.	Annual assessment (physical & mental) and training.	Started in 2018.	MOH.	Number of expert assessed.	50% of total expert by 2021.	MOH.
4.	Harmonising procedures on receiving and sending international assistance during crisis.	2017-2018.	NADMA and other agencies.	SOP.	End 2018.	MOH, NADMA, MOFA.
5.	Organise GOARN Training in Malaysia for outbreak and emergencies.	2020.	MOH, WHO Expert Training.	Number of training.	One in 5 years.	MOH, GOARN, WHO.

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
STRATEGY 4: INFORMATION SHARING UTILIZING INNOVATIVE TECHNOLOGY						
1.	Share research/ outbreak/ surveillance/ evaluation/ guideline results at MOH website (CPRC).	2017-2021.	MOH.	Number of shared information.	Twice/year.	MOH.
STRATEGY 5: DEVELOP SKILLED WORKFORCE FOR REGIONAL RESPONSE						
1.	Send officer(s) for attachment course at any regional office.	2017-2021.	All agencies.	Number of individuals trained.	One per year.	All Agencies.
STRATEGY 6: MONITORING & EVALUATION Apply M&E systematically at all stages of the planning and implementation cycle, measure system functionality promote partnership through M&E processes or improve transparency and accountability in reporting.						
1.	Monitoring: Post attachment VC or presentation.	Once in 6 months (Starting 2017).	EIP, BKP (MOH).	Number of officers sent.	Continuous (2021).	
2.	Monitoring: ASEAN EOC Network.	Timely VC.	MOH.	Within 2 weeks of the event.	80%.	
3.	Monitoring: Expert Deployment Registry.	Upon request.	MOH.	Number of participation in missions.	100%.	
4.	Monitoring: Receiving international assistance guidelines. Status/progress report from designated/responsible personnel.	3 monthly.	Responsibility of the MOH personnel.	Based on progress report.	2018.	
5.	Evaluation: GOARN Training.	Once in 5 year.	MOH.	Post training evaluation.	2021.	
6.	Monitoring: Data on CPRC website.	3 monthly monitoring of number on report uploaded to the website.	MOH.	4 times in a year.	2021.	
8.	Evaluation: Attachment at international facilities.	Post attachment assessment.	MOH.	Once in a year (min).	2021.	

No.	ACTIVITIES	TARGET IMPLEMENTATION DATE	RESPONSIBLE UNIT/ SECTION/DEPARTMENT	INDICATOR	TARGET	OTHER DONOR AND STAKEHOLDERS
3.8	**MONITORING & EVALUATION (2017-2021)**					
1.	Apply M&E systematically at all stages of the planning and implementation cycle.	2017.	International Health Sector, Disease Control Division, MOH Malaysia.	i. Established Technical Working Group Coordinator for monitoring and evaluation of implementation. ii. Identify Coordinator for Each Focus Area. iii. Monitor and evaluate the Implementation status report every 6 months.	i. TWG established. ii. Coordinator for Focus area identified. 2 reports/year.	
2.	Measure system functionality.	2017.	International Health Sector, Disease Control Division, MOH Malaysia. AND Technical Working Group Coordinator for MySED II and IHR 2005 Implementation.	a. Annual Assessment. b. Action Review Reports. c. Simulation Exercises - TTX, Functional, Full scale or etc. d. JEE WHO format i. Self-Assessment. ii. WHO and External Experts.	- Once/year. - Once/year. - Once/year. - Once/4yrs 2018.	- All related Ministries, agencies & Partners. - All related Ministries, agencies & partners.
3.	Promote partnership through M&E processes.					
4.	Improve transparency and accountability in reporting.	2017.	International Health Sector, Disease Control Division, MOH Malaysia. AND Technical Working Group Coordinator for MySED II and IHR 2005 Implementation.	Sharing of report with Ministries, agencies & partners.	Once/year.	All related Ministries, agencies & partners.

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   - Ministry Foreign Affairs
   - Immigration Department of Malaysia
   - Chemistry Department
   - Royal Malaysian Police
   - Royal Malaysian Custom Department

ANNEX 1: GLOSSARY OF SELECTED TERMS

TERM	DEFINITION AND DESCRIPTION
Asia Pacific region	The Asia Pacific region in the document includes the 48 countries and areas of two regions of the World Health Organization—the South-East Asia Region and the Western Pacific Region.
Climate Change	A change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere, in addition to natural climate variability observed over comparable time periods (Adopted by the UN Framework Convention on Climate Change).
Emerging diseases	Infections that newly appear in a population, or have existed but are rapidly increasing in incidence or geographic range, including new diseases as well as re-emerging and resurging known diseases, and known epidemic-prone diseases. The term "emerging diseases" is used interchangeably with emerging infectious diseases.
Mass gathering	Any event at which the number of people attending is sufficient to strain the planning and response resources of the community, state or nation hosting the event.
Monitoring and Evaluation	Monitoring refers to the process of regular oversight of the implementation of activities, seeking to ensure that input deliveries, work schedules, targeted outputs, and other required actions are proceeding as planned. Evaluation refers to a process that attempts to determine as systematically and objectively as possible the relevance, effectiveness, and impact of activities in light of their objectives.
National IHR Focal Point	The national centre, designated by each State Party, which shall be accessible at all times for communication with WHO IHR Contact Points under IHR (2005).
Public health security	The proactive and reactive activities required to minimize vulnerability to acute public health events that endanger the collective health of national populations. Regional public health security widens this definition to include acute public health events that endanger the collective health of populations living across the Asia Pacific region. Lack of regional health security may have an impact on economic or political stability, trade, tourism, access to goods and services in the region.
Point of entry	A passage for international entry or exit of travellers, baggage, cargo, containers, conveyance, goods and postal parcels as well as agencies and areas providing services to them on entry or exit. It includes international airports, ports and ground crossings under IHR (2005).

Public health risk	Under IHR (2005), the public health risk is defined as a likelihood of an event that may affect adversely the health or human populations, with an emphasis on one which may spread internationally or may present a serious and direct danger.
Public health emergency	An occurrence or imminent threat of an illness or health condition, caused by bioterrorism, epidemic or pandemic disease, or novel and highly fatal infectious agent(s) or biological toxin or agents, that poses a substantial risk of a significant number of human fatalities or incidents of permanent or long-term disability. For the purpose of this document, a public health emergency mainly refers to an emergency caused by emerging diseases and/or other acute public health events such as food safety events. If not managed quickly, it may go beyond national borders and cause a public health emergency of international concern like an influenza pandemic.
Risk assessment	Risk assessment is a systematic process for gathering, assessing and documenting information to assign a level of risk for a potential public health event. This enables objective evidence-based decisions while giving consideration to the uncertainties and limitations of the information available at a particular point in time. It involves understanding the identity and character of a hazard and evaluating the risk of an adverse outcome in a population following exposure to that hazard. The process can also assess the risk associated with potential intervention measures. During an event, risk assessment is an ongoing process, not a one-time activity.
Zoonoses	Any disease or infection that is naturally transmissible from vertebrate animals to humans or vice versa.
Incident Command System (ICS)	A multi-discipline and potentially multi-jurisdictional command system in which the responsibilities and duties of those.
Incident Management System (IMS)	Systems that provides a proactive approach guiding government agencies at all levels, the private sector, and non-governmental (WHO).
MIMOS	is a research and development centre in information and communication technology in Kuala Lumpur, Malaysia.
WHONET	Windows-based database software developed for the management and analysis of microbiology laboratory data with a special focus on the analysis of antimicrobial susceptibility test results.

ANNEX 2: REFERENCE DOCUMENTS

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3. *WHO. Securing the Region's Health: Asia Pacific Strategy for Emerging Diseases 2010.*
4. *International Health Regulations (2005). Second Edition. 2008 http://www.who.int/ihr/en/*
5. *IHR Core Capacity Monitoring questionnaires. 2009. http://www.who.int/ihr/en/*
6. *WHO. Asia Pacific Strategy for Strengthen Health Laboratory Services (2010–2015). http://www.wpro.who.int/publications/PUB_9789290614296.htm*
7. *Human health (CDC) – 2016; Surveillance : Avian Influenza, Rabies, Brucellosis, Q fever, Leptospirosis, Nipah encephalitis, Filariasis, JE and Salmonellosis.*
8. *Human health (FSQD) – 2016 & 2017; Surveillance activities on brucellosis and mycobacterium (bovine) have been carried out twice a year.*
9. *Animal health (DVS); Surveillance: Rabies, Nipah, Brucellosis, Avian Influenza, and Salmonellosis. Disease whether economic or zoonotic of national importance will have a national surveillance programme which will be prepared by the Epidemiology & Surveillance Section.*
10. *Diseases gazetted by notification with Animal Act (Revised 2006) can be referred for the zoonotic importance.*
11. *Wildlife (PERHILITAN) 2017; Research/project based surveillance using 22 panels for Virus families (22 viral families/genera and included Adeno-, Alpha-, Arena-, Astro-, Boca-, Bunya, Corona-, Entero-, Filo-, Flavi-, Hanta-, Henipa-, Herpes-, Influenza-, Nipah-, Orthopox-, Paramyxo-, Parapox-, Retrovirus-lentivirus genus, Rhabdo-, Seadorno-, and Simian Foamy virus families/genera.*